Sushant University

Key Indicator – 1.3 Curriculum Enrichment (50)

1.3.1 Institution integrates cross-cutting issues relevant to Professional Ethics, Gender, Human Values, Environment & Sustainability and other value framework enshrined in Sustainable Development goals and National Education Policy – 2020 into the Curriculum

(15)

Criterion 1 – Curricular Aspects (150)

Sushant University
soaring high

SCHOOL OF ART AND ARCHITECTURE

Master of Planning 2023-25

Alignment of Courses with cross cutting issues like Gender, Environment, Sustainability, Human Values & Professional Ethics-

S.No.	Course Code	Course Title	Ent/SD/Emp	Cross Cutting Issues	Activity
1	21MUP-1PS11P	Planning Studio- I: Area Planning	Employability	Environment & Sustainability, Human Values	Studio Exercise
2	21MUP-2PT11T	Planning History and Theory		Environment & Sustainability	Group & Individual assignments
3	21MUP-3TP11T	Techniques of Planning	Skill Development	Environment & Sustainability	Assignments & Presentations
4	21MUP-4SE11T	Socio- economic and Environmental Dimensions of Planning	Employability	Environment & Sustainability, Human Values	Assignments & Presentations
5	21MUP-5HC11T	Housing and Community Planning	Entrepreneurship	Environment & Sustainability, Human Values	Assignments & Presentations
6	21MUP-6SP11T	Statistics in Planning	Skill Enhancement	Environment & Sustainability, Human Values	Assignments & Presentations
7	21MUP-7GP11T	Geo-informatics in Planning	Skill Enhancement	Environment & Sustainability	Individual & Group Exercises
8	21MUP-8SL11P	Service Learning and Community Service		Environment & Sustainability, Human Values	Individual & Group Exercises
9	21MUP-1PS12P	Planning Studio- II: Development Plan	Employability	Environment & Sustainability, Human Values	Studio Exercise
10	21MUP-2PL12T	Planning Legislation	Entrepreneurship	Environment & Sustainability, Human Values	Assignments & Presentations
11	21MUP-3CM12T	City and Metropolitan Planning	Employability/Entrepreneurship	Environment & Sustainability, Human Values	Group & Individual assignments
12	21MUP-4TU12T	Urban Transport and Utilities Planning	Employability/Skill Development/Entrepreneurship	Environment & Sustainability, Human Values	Assignments & Presentations
13	21MUP-5PP12T	Project Planning and Financing	Skill Development	Environment & Sustainability	Assignments & Presentations
14	21MEL-6SD12T	Planning for Sustainable Tourism	Employability	Environment & Sustainability	Assignments & Presentations

15	21MEL-6CS12T	Planning for Informal Sector	Employability	Human Values	Assignments & Presentations
16	21MUP-2PS21P	Planning Studio- III: Infrastructure Plan	Employability	Environment & Sustainability, Human Values	Studio Exercise
17	21MUP-3RM21T	Research Methods	Skill Development	Human Values	Indvidual Assignments
18	21MUP-4UG21T	Urban Governance	Entrepreneurship	Environment & Sustainability, Human Values	Assignments & Presentations
19	21MUP-5DM21T	Disaster Management, Energy and Climate Change	Employability	Environment & Sustainability, Human Values	Assignments & Presentations
20	21MUP-6UA21T	Urban Analytics	Skill Development	Environment & Sustainability, Human Values	Individual & Group Exercises
21	21MEL-7PM21T	Public- Private Participation in Planning	Entrepreneurship	Environment & Sustainability, Human Values	Assignments & Presentations
22	21MEL-3IP22T	Inclusive Urban Planning		Gender, Human Values, Environment & Sustainability	Assignments & Presentations
23	21MUP-1PS22P	Thesis	Employability	Gender, Human Values, Environment & Sustainability	Sheets & Report
24	21MUP-2PP22T	Professional Practice	Employability/Entrepreneurship	Professional Ethics, Human Values	Assignments & Presentations
25	21MUP-3UT22T	Urban Transformations		Environment & Sustainability, Human Values	Assignments & Presentations

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP-1PS11P	Planning Studio- I: Area Planning	2	3	6	8

Nature of Course: Core Course

Teaching Mode: Lecture, Tutorial and Studio

Course Objective:

Area planning studio intends to develop an ability in students to apply the concepts learnt in theory subjects to day to day planning practice. Through field visit, the students would understand comprehensive, interrelatedness and long-term nature of planning in a settlement.

Course Outcome

CO1: Knowledge: Understanding - The process of area appreciation and analysis.

CO2: Skills (Apply + Analyse) - To train students in conducting surveys of various types of an urban area. Software based learning on GIS.

CO3: Values, Orientations and Awareness (Evaluate) - To appreciate and demonstrate the value of context specific information and integrate them into area-based developments.

CO4: Design (Create) -To design and develop site-specific plans.

Course Content:

UNIT 1: People, Cities and Planning

Demography; Income; Social Groups; Densities

UNIT 2: Street and Transportation

Hierarchy; Pattern; Right of Way; Traffic movement; Traffic Volume; Level of Service

UNIT 3: Activities and Land use

Land use and its mixes; Deviation of land use from Master Plan; Formal and informal activities

UNIT 4: Buildings and Neighbourhood

Building typology; Building height; Floor Space Index; Building Use; Development Control Regulations

UNIT 5: Infrastructure and Social Amenities

Water supply; Sewerage; Storm water drainage; Solid waste; Education; Health; Recreational; Market; Utilities; Amenities

UNIT 6: Governance and Finance

Municipal administration; Budgeting; Government programmes and schemes; Role of NGOs

UNIT 7: Area Appreciation

Developing an appreciation of components of a settlement and develop an ability to read a city or small settlement.

UNIT 8: Site Planning

Second part of the studio will require the students to prepare a development plan for a neighbourhood or village for rural and urban areas based on a field visit.

As planning endeavour is a team work, it is expected in this studio, the students make a beginning to learn to work in collaborative environments.

Learning Outcomes

Students will be able to understand and conduct area appreciation exercise, surveys, site planning and appreciate its relationship with Master Plan. They will gain an understanding of the urban planning process, the area level urban issues, administrative functioning, and the scope and limitations of urban planning.

Student Experience

Students will work in Studios, have discussions in groups, undertake tutorial, refer library, field and office visits, undertake surveys on site and compile research studies, make presentations, undertake guided individual study exercises to reinforce understanding and to apply it to specific planning aspect.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Programme Outcomes
CO1	Knowledge: Understanding the process of area appreciation and analysis.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Skills (Apply + Analyse) - To train students in conducting surveys of various types of an urban area.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Values, Orientations and Awareness (Evaluate) - To appreciate and demonstrate the value of context specific	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9,

Sushant University

	information and integrate them into area-based developments.	PO 10
CO4	Design (Create) -To design and develop site-specific plans.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

Programme outcome (PSO) and Course Outcome(CO) Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	Medium	Low	High	Medium	High	High	Medium
CO3	High	High	Low	Medium	High	Medium	Medium	High	Medium	Low
CO4	High	High	High	High	High	High	High	High	High	High

Programme Specific Outcome (PSO) and Course Outcome(CO) Mapping

	CO1	CO2	CO3	CO4
PSO1	H	H	M	L
PSO2	H	H	M	M
PSO3	L	M	H	H

H: High **M:** Medium **L**:Low

Reference

Ford, Jonathan. (2009). Smart Growth & Conventional Suburban Development: Which Costs More? Providence, R.I.: Morris Beacon Design.

Muro, Mark, and Robert Puentes. (2004). "Investing in a Better Future: A Review of the Fiscal and Competitive Advantages of Smarter Growth Development Patterns." A discussion paper from The Brookings Institution.

National Association of Local Government Environmental Professionals. (2004). Smart Growth Is Smart Business: Boosting the Bottom Line & Community Prosperity.

Paull, Evans. (2008). "The Environmental and Economic Impacts of Brownfields Redevelopment." Working paper, Northwest-Midwest Institute.

Creswell, J. W. (2014). Research design: qualitative, quantitative, and mixed methods approach. 4th ed. Thousand Oaks, California: SAGE Publication

Ministry of Urban Development. URDPFI Guidelines 2015

Fowler F.J et all. (2009), "Survey Methodology", London, John Wiley & Sons

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP-2PT11T	Planning History and Theory	2	0	0	2

Nature of Course: Core Course

Teaching Mode: Lecture

Course Objective

The course aims to critically understand the significance of histories, theories of planning, development, relating it to the present settlement planning.

Course Outcomes

CO1: Understand: To critically understand economic, political, cultural, social and other forces shaping built environments in history

CO2: Knowledge: To demonstrate appreciation and knowledge of histories of planning

CO3: Values, Orientations and Awareness (Evaluate) - To explain and analyse abstract theoretical formulations.

Course Outline

UNIT 1: Ancient and Medieval Cities in India

Urbanization in the Medieval period including a study of cities like Varanasi, Mohenjo-Daro, Harappa, Dholavira and Lothal; Chola dynasty sponsored famous towns like Thanjavur, Nagapattinam, Kanchipuram and Madurai; Why India could not become urbanized during the medieval period.

UNIT 2: Mughal and Colonial Built Environment

Mughals and Vijayanagara Kingdoms built grand cities like Shahjahanabad in the north and Hampi – the capital of Vijayanagara Kingdom in the south; Mughal towns and cities; City and regional planning during the British Raj involving cantonments, model towns, capital towns like New Delhi; Regional planning efforts involving development of port cities such as Bombay, Madras, Calcutta, etc.; Construction of railways, and road networks; The Portuguese port towns of Cochin, Cannanore, Goa, Daman and Diu. Contributions of scholars like Sir Patrick Geddes to Indian planning; Governance and planning legislation during the British period include a study of improvement trusts, municipalities, etc.

Sushant University

UNIT 3: Urban Theories

Concentric Zone Theory, Sector Theory, and Multiple Nuclei Theory with a focus on the contributions of Robert E. Park, Louis Wirth, etc.; Land Use and Land Value Theory of William Alonso; From the world city to the global city

UNIT 4: Theories of Planning

Rational Planning Model; Advocacy Planning Model; Political Economy Model; Equity Planning Model; Radical Planning model; Collaborative Planning Theory.

Learning Outcomes

Students will be able to use the concepts of planning theories and relate it to the present settlement planning.

Student Experience

Students will attend lectures, have discussions in groups, undertake tutorial, refer library resources,, make presentations, undertake guided individual study exercises to reinforce understanding and to apply it to specific planning aspect.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Programme Outcomes
CO1	Understand: To critically understand economic, political, cultural, social, and other forces shaping built environments in history .	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Knowledge: To demonstrate appreciation and knowledge of histories of planning.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Values, Orientations and Awareness (Evaluate) - To explain and analyse abstract theoretical formulations.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low

Sushant University

CO2	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO3	High	High	Medium	Medium	Low	High	Low	High	High	Low

Programme Specific Outcome (PSO) and Course Outcome(CO) Mapping

	CO1	CO2	CO3
PSO1	H	M	L
PSO2	M	H	M
PSO3	L	M	H

H: High **M:** Medium **L**:Low

References

Mumford, L (1968), City in History: Its Origins. Its Transformations, and Its Prospects, Harcourt Brace International

Hall, P. (1996). Cities of tomorrow: An intellectual history of urban planning and design in the twentieth century. Oxford, UK: Blackwell Publishers.

Faludi, A. (1973). A reader in planning theory. Oxford, New York, Pergamon Press

Healey, P. (1997). Collaborative planning: shaping places in fragmented societies. Basingsoke: Palgrave, cop.

McLoughlin, J. B. (1969) Urban and Regional Planning. A systems approach. Faber and Faber, London.

Sandercock, L. (1998). Making the Invisible Visible: A Multicultural Planning History, University of California Press, London.

Smith, M. E. (2007). Form and Meaning in the Earliest Cities: A New Approach to Ancient Urban Planning. Journal of Planning History, 6(1), 3–47.

Zad, V. V. (2013). Spatial Discrimination in Tehran's Modern Urban Planning 1906–1979. Journal of Planning History, 12(1), 49–62.

Kern, L (2020), Feminist City: Claiming Space in a Man-Made World, Verso

Gehl, J (2010), Cities for People, Island Press

Knox, P (2010), Urban Social Geography: An Introduction, Taylor and Francis Group

Knowles, R and Wareing J. (1976), Economic and Social Geography, W.H. Allen & Co. Ltd

Allmendinger, P. (2017) Planning Theory, Macmillan, London. Third Edition

Buch, M. N. (1987) Planning the Indian City, Vikas Publishing, New Delhi

Fainstein, S.S. and DeFilippis, J. (Eds.) (2016) Readings in Planning Theory, Wiley, London. Fourth Edition

Friedmann, J. (1987) Planning in the Public Domain, Princeton University Press, Princeton. Second Edition.

Gooptu, N. (2001) The Politics of the Urban Poor in Early Twentieth - Century India, Cambridge University Press, Cambridge.

Healey, P. (2010) Making Better Places: The planning project in the twenty-first century, Palgrave Macmillan, London.

King, A. (1976) Colonial Urban Development: Culture, Social Power, and Environment, Routledge and Kegan Paul, New York.

Kumar, A., Sanjeev, V., and Prakash, P. (2020) City Planning in India, 1947-2017, Routledge, New York.

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP-3TP11T	Techniques of Planning	2	0	0	2

Nature of Course: Core Course

Course Objective

This course intends to impart knowledge about preparation of maps and undertake data collection and analysis for plan preparation.

Course Outcomes

On completion of this course, the students will be able to:

CO1- Knowledge (Remember + Understand) - To gain understanding of creating base maps and presenting planning information on maps.

CO2- Skills (Apply + Analyse) - To analyse the types of data required for planning and methods of data collection.

CO3- Values, Orientations and Awareness (Evaluate) - To demonstrate an understanding about data analysis and to be able to examine data for understanding the existing situation in a settlement.

Course Outline

UNIT 1: Scales and Preparation of Maps

Maps as a representation of reality, Elements of Maps; Graphical, linear and areal scales, Notations involving basic discipline of maps; Measurement of areas; Learning to prepare base maps; Contents of base maps at various scales; Choice of appropriate scales for region and settlement level plans, town development plans, zonal development plans, layout plans

UNIT 2: Data for Planning and Socio-Economic Surveys

Data requirements for urban and regional planning; Sources of primary and secondary data; Quantitative and Qualitative methods of data collection, Validity and reliability of data, Questionnaire design, measurement scales and their applications, sampling techniques, types of socioeconomic surveys; Self-surveys, interviews, mailed questionnaires and observer participation, focus groups

UNIT 3: Physical Surveys

Techniques of conducting surveys for land use, building use, density, structural condition of buildings, heights of buildings, land utilization and physical features of land; Data requirements for various types of regional plans; Techniques for conducting regional surveys

Sushant University

UNIT 4: Analysis and Presentation of Data

Land suitability analysis, Land use classification, coding and analysis; residential and non-residential density patterns and their analyses; population and economic analysis; Tabulation of data, graphical presentation of data; Preparing pie diagrams, histograms, bar charts, normal, semi-log and double log graphs and their uses; colour, black and white presentation techniques; Understanding the discipline of illustrations and tables. Colour, black and white presentation techniques; Basic discipline of presenting illustrations; Presentation of spatial data, analysis and proposals

Learning Outcomes

Students will be able to use the techniques to efficiently carry out the analysis, present data effectively and develop urban plans.

Student Experience

Students will attend lectures, have discussions in groups, undertake tutorial, refer library resources, and conduct office visits if required, compile research studies, make presentations, and undertake guided individual study exercises to reinforce understanding and to apply it to specific planning aspect.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge (Remember + Understand): To gain understanding of creating base maps and presenting planning information on maps	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Skills (Apply + Analyse) - To analyse the types of data required for planning and methods of data collection.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Values, Orientations and Awareness (Evaluate) - To demonstrate an understanding about data analysis and to be able to examine data for understanding the existing situation in a settlement.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

Sushant University

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	Medium	Low	High	Medium	High	High	Medium
CO3	High	High	Medium	Medium	Low	High	Low	High	High	Low

Programme Specific Outcome (PSO) and Course Outcome(CO) Mapping

	CO1	CO2	CO3
PSO1	H	H	M
PSO2	H	H	M
PSO3	L	M	H

H: High **M:** Medium **L**:Low

References

- Bracken, I. (1999) Urban Planning Methods: Research and Policy Analysis, Methuen, London.
- Berke, P.R. and Goodschalk, D.R., Kaiser, E.J and Rodriguez, D.A (2006) Urban Land Use Planning, University of Illinois Press, U.S.A. Fifth Edition.
- Wang X., Rainer A. and Hofe, V. (2007) Research Methods in Urban and Regional Planning, Springer, Berlin.
- Monmonier, M. (1996) How to Lie with Maps, University of Chicago Press, Chicago
- Healey, P. (2010) Making Better Places: The planning project in the twenty-first century, Palgrave Macmillan, London.
- Kumar, A., Sanjeev, V., and Prakash, P. (2020) City Planning in India, 1947-2017, Routledge, New York.

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP-4SE11T	Socio- economic and Environmental Dimensions of Planning	2	0	0	2

Nature of Course: Core Course

Course Objectives

The course aims to provide basic understanding of the social, economic and environmental challenges that cause for initiating or subverting the planning process.

Course Outcomes

On completion of this course, the students will be able to:

CO 1- Knowledge (Remember + Understand): Understand the key concepts of sociology, economics and environment and their applicability in the current planning context.

CO 2- Skills (Apply +Analyse): Develop capabilities for integration of knowledge from multiple fields.

CO 3- Values, Orientations and Awareness (Evaluate): To appreciate and demonstrate the importance of inter-disciplinary knowledge in addressing critical issues.

Course Outline

UNIT 1: Sociology and its Relation to Planning

Urban conflict - Migration, Gender Issues, Poverty; Peri-Urban Interface of Indian Cities Growth, Governance and Local Initiatives; Urban Environment Management- Slum development Projects, Community Participation, Concept of Human Development Index, Gender Development Index, inequality assessment, poverty and income distribution, employment and livelihood.

UNIT 2: Economics and Urban Planning

Micro Economics, Macro Economics; Economies of scale, economic and social costs, production and factor market; Different market structures and price determination; market failures, cost-benefit analysis, public sector pricing; Public Finance – Principle of Taxation, Classification of Taxes Budget and Need; National Income Estimates – Procedures and Limitations, Planning in India – Need, Models, Issues, Five Year Plans; Paradigm Shift – Liberalization, Structural Adjustments in Indian Economy. Urbanization, Industrialization and Policies.

UNIT 3: Economic Growth, Planning and Development

Quality of life; Human development index, poverty and income distribution, employment and

livelihood; Economic principles in land use planning; Policies and strategies in economic planning, implications on land; Determinants of national income, consumption, investment, inflation, unemployment, capital budgeting, risk and uncertainty, and long-term investment planning.

UNIT 4: Tools & Techniques for Environmental Planning & Management

Environment Impact Assessment; Environment Status Report; Environment Management Plan; Remote Sensing and GIS in Environment etc.; Innovative Technologies and Alternate Energy Resources; Environmental Justice: Laws, Policies, Protocols and Conventions.

Learning Outcomes

By the end of this course, students will be able to

• Apply the key concepts and theories of economics, social science and environmental science in their areas of engagement.

•Conduct environmental impact assessments using the appropriate tools and techniques.

Student Experience

Students on this course will be given opportunity to:

- Attend studios, undertake tutorials, refer library resources to reinforce understanding and apply it to specific planning aspect.
- Participate in seminars and discussions designed to review and extend the understanding gained in lectures.
- Undertake guided individual study exercises and prepare presentations to demonstrate their understanding on the subject.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge: Understand the key concepts of sociology, economics and environment and their applicability in the current planning context.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Skill: Develop capabilities for integration of knowledge from multiple fields.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

Sushant University

CO3	Values, Orientations and Awareness (Evaluate) - To appreciate and demonstrate the importance of inter-disciplinary knowledge in addressing critical issues.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	Medium	Low	High	Medium	High	High	Medium
CO3	High	High	Low	Medium	High	Medium	Medium	High	Medium	Low

Programme Specific Outcome (PSO) and Course Outcome(CO) Mapping

	CO1	CO2	CO3
PSO1	H	M	M
PSO2	M	H	H
PSO3	L	H	H

H:High **M:**Medium **L:**Low

References

- Bell, S and S Morse (2008) Sustainability Indicators: measuring the immeasurable? Second edition, Earthscan, London.
- Boyce, J.K. (2002). The Political Economy of the Environment. Edward Elgar Publishing.
- Urban SDG Campaign (2015), Second Urban Sustainable Development Goal Campaign Consultation on Targets and Indicators: Bangalore Outcome Document
- Chandna, R.C. (2015), Geography of Population: Concepts, Determinants and Patterns, Kalyani Publishers
- Koutsoyiannis, A (1979), Modern Microeconomics, Palgrave and Macmillan
- Bunce, M (1982), Rural Settlement in an Urban World, Taylor and Francis Group
- Oyeleye, D.A. (2001), Settlement Geography, University of Lagos Press
- Fisher, W.B (1994), Geography of Settlements, Cambridge University Press
- Dreze, J and Sen A (2013), An Uncertain Glory: India and Its Contradictions, Allen Lane
- Banerjee A and Duflo E (2013), Poor Economics: Rethinking Poverty & the Ways to End it, Penguin Books

Sushant University

- Pijawka, K. D., Blair, J., Guhathakurta, S., Lebiednik, S., & Ashur, S. (1998). Environmental Equity in Central Cities: Socioeconomic Dimensions and Planning Strategies. Journal of Planning Education and Research, 18(2), 113–123.
- Yiftachel, O. (1998). Planning and Social Control: Exploring the Dark Side. Journal of Planning Literature, 12(4), 395–406

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP-5HC11T	Housing and Community Planning	2	0	0	2

Nature of Course: Core Course

Teaching Mode: Lectures

Course Objectives

The course aims provide basic understanding on the key issues related to housing and community planning within urban areas. Problems related to housing and the policies and guidelines for the same.

Course Outcomes

CO1: Knowledge and understanding - Understanding on housing as an industry and its role in shaping urban infrastructure.

CO2: Skills (Apply + Analyse) - To review the suitability of residential opportunities in an established community and formulate a detailed plan.

CO3: Values, Orientations and Awareness (Evaluate) - To sensitize and engage in shaping places through planned infrastructure.

Course Outline

UNIT 1: Definitions/ Concepts/Theories /Types of Housing

Housing Statistics, Structural conditions, Slums, houseless population; Housing typologies viz. traditional houses, plotted development, group housing, multi-storied housing, villas, chawls, etc., slums and squatters, night shelters; Public health and housing; Traditional and contemporary societies, neighbourhood structure

UNIT 2: Housing, Accessibility, Community Wellbeing, and City Planning

Housing as an important land use component of city plan / master plan, city level housing studies, projections; Land use transport cycle; suitability of land, housing stress, projecting housing requirements, housing shortages, housing allocation, distribution and mobility; Safety, crime and insecurity, deprivation and social vulnerability, ghettoism, gender issues, housing for the elderly.

UNIT 3: Housing Policy and Finance

Evolution of housing policy in India, Role of the government and private sector in housing; housing programmes for the poor and night shelters; Examples of housing projects, Introduction to housing finance; Affordability and cost of housing; Role of financing organizations; Critical Review of current housing programmes.

Sushant University

Learning Outcomes

At the end of the course, students will have a comprehensive understanding on the issues related to urban infrastructure planning particularly related to housing sector.

Student Experience

Students will attend lectures, have discussions in groups, undertake tutorial, refer library resources, undertake office visits if required, compile research studies, make presentations, undertake guided individual study exercises to reinforce understanding and to apply it to specific planning aspect.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge: Roles and responsibilities of various agencies and development controls	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Skill: Understanding the concept and importance of regional development in planning process.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Values, Orientations and Awareness (Evaluate) - Regional Planning process in India, Regions in India, Demarcation of a region, hierarchy of settlements in a region and case studies of different regions.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	Medium	Low	High	Medium	High	High	Medium
CO3	High	High	Low	Medium	High	Medium	Medium	High	Medium	Low

Programme Specific Outcome (PSO) and Course Outcome(CO) Mapping

	CO1	CO2	CO3
PSO1	H	H	M

Sushant University

PSO2	H	H	H
PSO3	H	H	L

H: High **M:** Medium **L**:Low

References

- Emma R. Power & Kathleen J. Mee (2020) Housing: an infrastructure of care, Housing Studies, 35:3, 484-505
- Kushner, J. A. (2010). Affordable housing as infrastructure in the time of global warming. Urban Lawyer, 43(1), 179-222.
- Crystal Legacy (2017) Infrastructure Planning: in a State of Panic? Urban Policy and Research, 35:1, 61-73
- Jago Dodson (2017) The Global Infrastructure Turn and Urban Practice, Urban Policy and Research, 35:1, 87-92
- Jean-Paul D. Addie, Michael R. Glass & Jen Nelles (2020) Regionalizing the infrastructure turn: a research agenda, Regional Studies, Regional Science, 7:1, 10-26
- Wendy Steele, Karen Hussey & Stephen Dovers (2017) what's Critical about Critical Infrastructure? Urban Policy and Research, 35:1, 74-86
- Martin Mowbray (1994) Wealth, Welfare and the City: Developments in Australian Urban Policy, Urban Policy and Research, 12:2, 91-103.
- Christian Nygaard, Mike Berry & Kenneth Gibb (2008) The Political Economy of Social Housing Reform—A Framework for Considering Decentralised Ownership, Management and Service Delivery in Australia, Urban Policy and Research, 26:1, 5-21
- Rachel Ong, Christopher Phelps, Steven Rowley & Gavin A. Wood (2018) Spatial and Temporal Patterns in Housing Supply: A Descriptive Analysis, Urban Policy and Research, 36:3, 287-303

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP-6SP11T	Statistics in Planning	0	0	2	1

Nature of Course: Skill Enhancement Course

Teaching Mode: Theory and Practical

Course Objective

The course aims to provide understanding in various statistical skills required for undertaking planning exercises and social science research.

Course Outcomes

CO1: Knowledge and understanding: To analyze the planning data collected from various sources to calculate growth rate, project demand and growth of resources in an area.

CO2: Skills (Apply + Analyze) - To train students to interpret data and determine policy implications and planning interventions.

CO3: Values, Orientations and Awareness (Evaluate) - To learn the evaluation method for establishing the relationship between the variables.

Course Outline

UNIT 1: Descriptive Statistics

Sampling techniques; Data coding; Concepts of class interval, frequency distribution, cumulative frequency distribution, dependent variable, independent variable and contagious variable; Measures of central tendency; Measures of absolute dispersion

UNIT 2: Parametric and Non- Parametric Tests

T- test, F- test, Chi- square test, Test of goodness of fit; Kruskal Wallis Test.

UNIT 3: Time Series Analysis, Correlation and Regression

Definitions; Applications and Techniques like Moving Average, Single Moving Average, Centered Moving Average, Smoothing techniques; data forecasting, Stationary and Seasonality; Scatter diagram; Pearson Correlation, Rank correlation; Types of regression analysis like binomial regression, multinomial regression, logistic regression, log likelihood

Learning Outcomes:

Students would have developed skills in statistical analysis required for planning and research

Sushant University

Student Experience

Students will attend lectures, undertake tutorial, and undertake guided individual hands-on study exercises to reinforce understanding of the tools and to apply it to specific planning aspect.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge: To analyze the planning data collected from various sources to calculate growth rate, project demand and growth of resources in an area.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Design: Preparation of a project report by using data from secondary sources like Census of India, Planning commission etc.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Skills (Apply + Analyse) - To train students to interpret data and determine policy implications and planning interventions	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	High	High	High	High	High	High	High
CO3	High	High	Low	Medium	High	Medium	Medium	High	Medium	Low

Programme Specific Outcome (PSO) and Course Outcome(CO) Mapping

	CO1	CO2	CO3
PSO1	H	M	L
PSO2	M	H	M
PSO3	L	M	H

H: High **M:** Medium **L:**Low

References

- Montrone, S. and Perchinunno, P. (2013), Statistical Methods for Spatial Planning and Monitoring, Springer-Verlag Mailand.
- Thomas R. Willemain, T.T., (1980), Statistical Methods for Planners, MIT Press.

Sushant University

- Martin, V and Hurn, S (2012), Econometric Modelling with Time Series: Specification, Estimation and Testing, Cambridge University Press
- Woolridge J.M (2012), Introductory Econometrics: A Modern Approach, South- Western College Publishing

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP-7GP11T	Geo-informatics in Planning	0	0	2	1

Nature of Course: Skill Enhancement Course

Teaching Mode: Practical

Course Objective

The course aims to provide understanding of basic concepts in Geographic Information Systems and remote sensing technology and be able to apply the same in the context of planning.

Course Outcomes

CO1: Knowledge and understanding: Understanding on the basis concepts of Geographic Information Systems and Remote Sensing.

CO2: Skills (Apply + Analyze) - To employ suitable tools and techniques in planning exercise

CO3: Values, Orientations and Awareness (Evaluate) - To sensitize on issues related to spatial data and key regulations associated with them

CO4: Design (Create) – To deploy the skills to generate maps/plans and spatial analysis for planning exercises & formulate proposals.

Course Outline

UNIT 1: Geographical Information System (GIS) and its Utility in Planning

Introduction to GIS; Understanding of projection system (UTM, Projected coordinated system and Geographical coordinated System); Extraction of Raster images and understanding of sensors and type of raster data sets. Geo referencing of data set. Elements of Photo- Interpretation; Satellite Remote sensing, Geo-Stationary and Sun- Synchronous Satellites; Principles of Electro-Magnetic Radiations, Resolutions; Introduction to Digital Image Processing

UNIT 2: Vector data creation and Database creation

Vector Analysis, thematic mapping and Creation of a Base map; Integration of database with vector file and data interpretability

UNIT 3: Raster Data Analysis

Raster Analysis for LULC, Spatial analysis, Densities, Hydrology etc.; Interpretation of raster analysis

Learning Outcomes:

Students who have undertaken this course would have acquired knowledge and skills in GIS and

Sushant University

Remote Sensing.

Student Experience

Students will undertake guided individual hands-on study exercises to reinforce understanding of the tools and to apply it to specific planning aspect.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge and understanding: Understanding on the basis concepts of Geographic Information Systems and Remote Sensing.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Skills (Apply + Analyse) – To employ suitable tools and techniques in planning exercise	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Values, Orientations and Awareness (Evaluate) - To sensitize on issues related to spatial data and key regulations associated with them.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO4	Design (Create) - To deploy the skills to generate maps/plans and spatial analysis for planning exercises & formulate proposals.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	Medium	Low	High	Medium	High	High	Medium
CO3	High	High	Low	Medium	High	Medium	Medium	High	Medium	Low
CO4	High	High	High	High	High	High	High	High	High	High

References

- ESRI, GIS for Urban and Regional Planning, January 2011

- Grant, M. (1993) Urban GIS: The Application of Information Technologies to Urban Management, in J. A. Powell and R. Day (Editors) Informing Technologies for Construction, Civil Engineering and Transport, Brunel SERC, Uxbridge, UK, pp. 195- 199.
- Royal Town Planning Institute (1992) Geographic information systems: a planner's introductory guide prepared by the Institute's GIS Panel. London, The Royal Town Planning Institute
- Thinking About GIS: Geographic Information System Planning for Managers (May 2005); Esri Press
- GIS in Sustainable Urban Planning and Management: A Global Perspective; Edited by Martin van Maarseveen, Javier Martinez, Johannes Flacke (2019; CRC Press
- Strategic GIS Planning and Management in Local Government; by David A. Holdstock (2017); CRC Press
- Ben She, 2011. Principle and Application of GIS -Principles and Applications of GIS, ISBN-13: 978-7564611699, ISBN-10: 7564611693, China: China University of Mining and Technology Press.
- Bernhardsen, T., 1992. Geographic Information Systems, Randburg: Vitak IT.
- Davis, B.E., 1996. Geographic Information Systems: a visual approach, New Delhi: Word Press
- DeMers, M.N., 2000. Fundamenatals of Geographic Information Systems, 2nd Edition, Hoboken, New Jersey: John Wiley & Sons.
- Heywood, I., Cornelius, S. & Carver, S., 1998. An introduction to geographical information systems, Harlow, London: Longman.
- Jones, C., 1997. Geographic Information Systems and Computer Cartography, Harlow, London: Longman
- Masser, I., 2005. GIS Worlds-Creating Spatial Data Infrastructures. URISA Journal, Vol.17, No.2, pp. 51-53.
- Ministry of Science and Technology, 2011. National Spatial Data Infrastructure – India ASPIRATION, New Delhi: Department of Science and Technology, Government of India.
- Paul A Longley and Michael F Goodchild, 2005. Geographical Information Systems: Principles, Techniques, Management and Applications, ISBN-13: 978-0471735458, ISBN-10: 9780471735458, 2nd Edition, Hoboken, New Jersey: John Wiley & Sons.

- Qihao Weng, 2009. Remote Sensing and GIS Integration: Theories, Methods, and Applications: Theory, Methods, and Applications (Electronics), 1 edition, New York: McGraw-Hill Education.

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP- 8SL11P	Service Learning and Community Service	0	2	0	2

Name of the Course: Service Learning/ Community Service (SLCS)

Teaching Mode: Tutorial

Course Objective

To introduce a holistic approach to teaching that combines classroom learning with meaningful community service experience. To ensure that students are well rounded, have a sense of who they are and can contribute to the world around them, among other things.

Course Outcome

CO1: Knowledge and Understanding: Understanding the structured method of creating an efficient community service programme

CO2: Skills (Apply + Analyze) - To train students for conducting stakeholder consultations, focus group discussions and workshops.

CO3: Values, Orientations and Awareness (Evaluate) - To develop a sense of identity and relate to the core value of planning profession

CO4: Design (Create) – To design and develop a workshop to reach out to community and connect with a community at large

Course Outline

Unit 1: Planning

- To develop a project outline, set specific goals, produce a timeline
- Develop strong contact with the relevant local community organizations
- Detailed Action Plan preparation

Unit 2: Activity

- Meeting the stakeholders
- Discussion and mind mapping
- Conducting an workshop/ event with the community
- Documentation

Unit 3: Reflection

- An analysis and inference generation of the activity conducted
- Documenting the Process-oriented approach: Focuses on the process and what is learned via the interaction of course materials and the projects at hand.

Learning Outcomes

The community service course with help the students in their personal growth, skills and dispositional development such as empathy. Broad level outcome expected from this course are:

- **Critical Thinking** – students are able to identify problems in the community and address it in a practical and efficient manner.
- **Communication** – these activities promote communication and teach students to communicate effectively using writing and speaking skills, encourages them to practice listening skills, understand body language, and helps to teach them how to communicate respectfully and effectively.
- **Career and Teamwork**– helps to develop strong leadership skills, allows students to work well in a team.
- **Civic Responsibility** – students are encouraged to get involved in the local community, showcasing them how to have a positive impact on society and encourages awareness.
- **Global Understanding and Citizenship** – the activities provide students fosters respect for those who are different to them. It provides students with opportunities to speak to people with different opinions and views that may be different from their own. This gives them a more inclusive and open view of the world around them.
- **Academic Development and Educational Success** –These hands-on activities help students to learn better and encourage them to be more committed to their own educational goals.

Student Experience

Students will work in studios, have discussions in groups, refer library, meet stakeholders, conduct workshops with community, and reflect on their learnings.

References

- 4H Youth Development (2006), Planning Your Community Service Project Based on a Community Service-Learning Model, Michigan State University Extension, https://extension.purdue.edu/4h/Documents/Volunteer%20Resources/Past%20Congress%20Lesson%20Plans/Planning%20Your%20Community%20Service%20Project.pdf

- Cullins A, (2020), 75+ Community Service Ideas and Projects: The Volunteer's Guide, https://www.transizion.com/community-service-ideas-projects/
- Shir Palmon, Ana Cathcart, Paige Lembeck, & Reece L. Peterson, University of Nebraska-Lincoln, (2015), Service Learning & Community Service, https://k12engagement.unl.edu/strategybriefs/Service%20Learning%20&%20Community%20Service%202-6-15.pdf

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP-1PS12P	Planning Studio- II: Development Plan	2	3	6	8

Nature of Course: Core Course

Teaching Mode: Lecture, Tutorial and Studio

Course Objective

The objective of this course is to train students on the processes of formulating a master plan/ development plan of an area. This will be undertaken through surveys, stakeholder consultations and geospatial analysis so that they are able to prepare detailed plans for the identified city/sub-city area.

Course Outcome

CO1: Knowledge and Understanding - To understand contents, substance and characteristics of various types of development plans for predominantly urban settlements.

CO2: Skill and Analysis - To comprehend processes of plan preparation and analyses techniques for the identification of issues and potentials for an urban settlement.

CO3: Values, Orientations and Awareness (Evaluate) - To evolve development policies, development control rules and regulations, land use plan and devise implementation mechanisms for a selected urban area.

CO4: Design – to develop and CDP/ development plan/ master plan for a selected urban area.

Course Outline

UNIT 1: Land use

Evaluation of existing Master Plan; Deviation of land use from existing Master Plan; Land use land cover analysis

UNIT 2: Demography

Population; Income groups; Social groups; Age- sex pyramid; Fertility and Mortality rate; Working population

UNIT 3: Built Environment

Building typology; Building use; Floor space index; Built- up density

UNIT 4: Transportation

Transport demand; Road hierarchy; Road condition; Public transportation services; Non-motorized transport; ODTT services

UNIT 5: Physical infrastructure

Water supply systems; Sanitation systems; Sewerage systems; Solid waste management;

Sushant University

Electricity services; Storm water drainage systems

UNIT 6: Social infrastructure

Health infrastructure; Education infrastructure; Parks and playgrounds; Social amenities; Utilities

UNIT 7: Environment

Air pollution; Water pollution; Soil pollution; Noise pollution; Light pollution

UNIT 8: Development finance and governance

Government schemes and policies; Source of funds; Institutional mechanism

Learning Outcomes:

At the end of the course, the students will be equipped to formulate Development Plan/ Master Plan for an area.

Student Experience

Students will work in studios, have discussions in groups, undertake tutorial, refer library, field and office visits, undertake surveys on site and compile research studies.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge: Understanding on the basis concepts and its relevance in complex modern urban systems.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Skills (Apply + Analyse) – To identify and use relevant knowledge systems and their importance in shaping new solutions.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Values, Orientations and Awareness (Evaluate) - To sensitise on the need and relevance of the subject in planning	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
C04	Design (Create) -To design and develop site-specific plans.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	Medium	Low	High	Medium	High	High	Medium
CO3	High	High	Low	Medium	High	Medium	Medium	High	Medium	Low

CO4	High	High	High	High	High	High	High	High	High	High

References

- Therese Bjärstig, Camilla Thellbro, Olof Stjernström, Johan Svensson, Camilla Sandström, Per Sandström & Anna Zachrisson (2018) Between protocol and reality – Swedish municipal comprehensive planning, European Planning Studies, 26:1, 35-54
- Eero Valtonen, Heidi Falkenbach & Kauko Viitanen (2017) Development-led planning practices in a plan-led planning system: empirical evidence from Finland, European Planning Studies, 25:6, 1053-1075
- Nikos Karadimitriou & Thanos Pagonis (2019) Planning reform and development rights in Greece: institutional persistence and elite rule in the face of the crisis, European Planning Studies, 27:6, 1217-1234
- Mike Raco, Nicola Livingstone & Daniel Durrant (2019) Seeing like an investor: urban development planning, financialisation, and investors' perceptions of London as an investment space, European Planning Studies, 27:6, 1064-1082
- Lois Iabrianidis & Alex M. Deffner (1999) The development of planning education and its relation to the belated start of geography teaching in Greek Universities, European Planning Studies, 7:2, 243-253
- William M. Brady (2016) Territorial development, planning reform and urban governance: the case of Ireland's second-tier cities, European Planning Studies, 24:12, 2217-2240
- Sander Lenferink, Wim Leendertse, Jos Arts & Taede Tillema (2014) Public–Private Plan Development: Can Early Private Involvement Strengthen Infrastructure Planning? European Planning Studies, 22:2, 323-344
- Erblin Berisha, Giancarlo Cotella, Umberto Janin Rivolin & Alys Solly (2021) Spatial governance and planning systems in the public control of spatial development: a European typology, European Planning Studies, 29:1, 181-200
- Bureau of Indian Standards (2005) *National Building Code of India*, Bureau of Indian Standards, New Delhi
- Delhi Development Authority (2007) *Master Plan for Delhi, 2021*, DDA, New Delhi.
- Singh V., Ahmed A., Sharma Y. (2020) Unified Building Bye-Laws for Delhi 2016, Society for Fundamental Research and Development, New Delhi.
- Ministry of Urban Development (1996) *The Urban Development Plan Formulation and Implementation (UDPFI) Guidelines,* Government of India, New Delhi.
- Ministry of Urban Development (2015) *The Urban and Regional Development Plan Formulation and Implementation (URDPFI) Guidelines,* Government of India, New Delhi.

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP-2PL12T	Planning Legislation	2	0	0	2

Nature of Course: Core Course

Teaching Mode: Lecture

Course Objective

The primary objective of this course is to expose the students to urban and regional planning statutes as planning statutes foundationally impact planning practice.

Course Outcomes

CO1	Knowledge: To demonstrate knowledge about sources of law and basic terminologies in law.
CO2	Skills (Apply + Analyse) - To explain implications of relevant articles of constitution on town planning and show understanding about statutory nature of town and country planning
CO3	Values, Orientations and Awareness (Evaluate) - To express familiarity with environment and heritage laws and their interface with town planning.

Course Outline

UNIT 1: Concept of Law

Sources of law (custom, legislation and precedent); meaning of the term of law, legislation, ordinance, bill, act, regulations and bye-laws; significance of law and its relationship to urban planning; benefits of statutory backing for planning schemes.

UNIT 2: Indian Constitution

Concepts and contents of Indian Constitution; Rights and their implication on planning; Fundamental provisions regarding property rights; evolution of planning legislation and overview of legal tools connected with urban planning and development; model town planning laws.

UNIT 3: Statutory Framework for Planning and Development Law

Evolution of town planning legislation, town planning laws, town planning as a state subject, 73rd and 74th amendment and its implications for planning law, current amendments in planning and development laws.

UNIT 4: Planning Law and its Interface with Other Laws Affecting Development

Current laws related to environment, heritage, housing, real estate, property law and their interaction with planning law; PPP and contract laws; Any other Acts relevant at a particular time, for example, special

Sushant University

investment region acts model community participation law.

Learning Outcomes

At the end of the course, the students would have developed a clear understanding on the legal and professional environment regulating planning in India.

Student Experience

Students will attend lectures, have discussions in groups, undertake tutorial, refer library resources, undertake office visits if required, compile research studies, make presentations, undertake guided individual study exercises to reinforce understanding and to apply it to specific planning aspect.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge: To demonstrate knowledge about sources of law and basic terminologies in law.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Skills (Apply + Analyse) - To explain implications of relevant articles of constitution on town planning and show understanding about statutory nature of town and country planning	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Values, Orientations and Awareness (Evaluate) - To express familiarity with environment and heritage laws and their interface with town planning.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	Medium	Low	High	Medium	High	High	Medium
CO3	High	High	Low	Medium	High	Medium	Medium	High	Medium	Low

Programme Specific Outcome (PSO) and Course Outcome(CO) Mapping

	CO1	CO2	CO3
PSO1	H	H	M
PSO2	M	H	M
PSO3	L	M	H

H: High **M:** Medium **L**:Low

Sushant University

References

- Basu, D.D (2019), Introduction to the Constitution of India, 24th Edition, Lexis
- Mody, Z (2013), 10 Judgements that Changed India, Penguin India
- Cameron, J (2005), Planning Law and Practice, Routledge- Cavendish
- Jourdan, D and Strauss, E.J (2016), Planning for Wicked Problems- A Planner's Guide to Land Use Law, Routledge
- CCS. (2021, July 27). A new public policy for a new India. Retrieved from Centre for Civil Society: https://ccs.in/new-public-policy-new-india
- Lakshimikanth, M. (2007) Indian Polity, Tata McGraw Hill, India.
- Bhattacharya, M. (2001) New Horizons of Public Administration, Jawahar Publishers and Distributors, New Delhi.
- Government of India (2014) URDPFI Guidelines, Ministry of Housing and Urban Affairs, New Delhi.
- Needham, B. (2006) Planning, Law and Economics: An investigation in the rules we make for using land, Routledge, London.
- McAuslan, P. (2019) Bringing the Law Back In: Essays in Land, Law and Development, Routledge, London.

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP-3CM12T	City and Metropolitan Planning	2	0	0	2

Nature of Course: Core Course

Teaching Mode: Lecture

Course Objective

The first objective of this course is to understand various aspects and dimensions of large and growing cities generally. The second objective is to understand the processes of planning and development of metropolitan cities and regions in India along with comprehending relevant development plans. The third objective is to understand the processes leading to the perpherialization of metropolitan cities.

Course Outcomes

CO1: Knowledge: To analyze the nature, form and planning of metropolitan cities and regions in India

CO2: Skill: Understanding the concept and importance of regional development in planning process.

CO3: Values, Orientations and Awareness (Evaluate) - Regional Planning process in India, Regions in India, Demarcation of a region, hierarchy of settlements in a region and case studies of different regions.

Course Outline

UNIT 1: Metropolitan Cities, Agglomerations and Regions

Defining cities, metropolitan cities, mega cities, metropolitan agglomerations, conurbations, and metropolitan regions; Physical, economic and political structures of metropolitan regions; and globalization and extended metropolitan region; desakota model, and territoriality of rural-urban interactions

UNIT 2: Metropolitan and Regional Planning

Theories about the evolution of metropolitan regions; Techniques for the delineation metropolitan regions; Approaches to preparing metropolitan regional plans; Organizations involved in the planning of metropolitan regions; Implementation of regional plans in India

UNIT 3: Peripheralisation of Metropolitan Regions

Nature and causes of development in the peripheral areas of metropolitan regions; Actors involved in the development in the peripheral areas; Role of the private sector in the development of peripheral areas

Unit 4: Peripheral Development and Physical Environment

Environmental assets in peripheral areas of metropolitan regions and their uses; Condition and status forests, water bodies, etc.

Sushant University

Learning Outcomes

The students would have developed a clear understanding on the issues and opportunities of metropolitan level planning.

Student Experience

Students will attend lectures, have discussions in groups, undertake tutorial, refer library resources, and undertake office visits if required, compile research studies, make presentations, and undertake guided individual study exercises to reinforce understanding and to apply it to specific planning aspect.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	Medium	Low	High	Medium	High	High	Medium
CO3	High	High	Low	Medium	High	Medium	Medium	High	Medium	Low

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge: To analyse the nature, form and planning of metropolitan cities and regions in India	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Skill: Understanding the concept and importance of region development in planning process.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Values, Orientations and Awareness (Evaluate) - Regional Planning process in India, Regions in India, Demarcation of a region, hierarchy of settlements in a region and case studies of different regions.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

Programme Specific Outcome (PSO) and Course Outcome(CO) Mapping

	CO1	CO2	CO3
PSO1	H	M	L
PSO2	M	H	M
PSO3	L	M	H

H: High **M:** Medium **L**:Low

References

- Alan, E.W., (1985), Urban Economics – An Introduction, Blackwell Publication, New York.
- Sinha, et.al., 2005, Urban and Regional Development in India: Essays in Honour of Prof. L.N. Ram, Concept, New Delhi.
- Kaur, R (2007), Urban–Rural Relations and Regional Development, Regal Publications, New Delhi.

Sushant University

- Hall, P, Hall, P and Tewdwr- Jones (2011), Urban and Regional Planning, Routledge Publications
- Robinson, C.M (1916), City Planning with Special Reference to the Planning of Streets and Lots, G.P. Putnam's Sons
- Rao, M.P (1990), Planning for Metropolitan Cities: A Suggestive Approach, Concept Publishing Company
- Zimmermann, K, Galland, D and Harrison, J (2020), Metropolitan Regions, Planning and Governance, Springer International Publishing
- Evenson, N. (1989) Indian Metropolis - A View toward the West, Yale University Press, Yale.
- Kennedy, K. (2007) Regional industrial policies driving peri-urban dynamics in Hyderabad, India, Cities, Vol. 24, No. 2, pp. 95–109.
- Kumar, A. (2006) Trends of Planning and Governance in Metropolitan India, ITPI Journal, Vol. 3, No. 2, pp. 10-20.
- Mitra, S. (2017) 'A 'peripheries' view of planning failures in Kolkata and Hyderabad in India', in G. Bhan, S. Srinivas, and V. Watson (eds.) The Routledge Companion to Planning in the Global South, Routledge, London.
- Mitra, S. (2018) Roads to New Urban Futures: Flexible Territorialisation in Peri-urban Kolkata and Hyderabad, Economic and Political Weekly, Vol. 53, No 56, pp. 56-64.

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP-4TU12T	Urban Transport and Utilities Planning	2	0	0	2

Nature of Course: Core Course

Teaching Mode: Lecture

Course Objective

The course aims to provide understanding the different models, policies, and systems in transportation planning.

Course Outcomes

CO1: Knowledge: Understanding the leading urban transport models and their relevance to planning systems

CO2: Skills (Apply + Analyse) - To familiarize students with various transport systems, practices and policies of transportation planning

CO3: Values, Orientations and Awareness (Evaluate) - To plan for the conduct of field survey, examine and analyse data and information collected through various field surveys, perform analysis.

Course Outline

UNIT 1: Transport System

Types and characteristics of transport systems; Determinants of transport demand; Planning norms and standards; Principles of transport infrastructure planning and design of roads and intersections, street infrastructure elements; Pedestrian and cyclist infrastructure; Parking facilities; and Principles of traffic management; Transit Oriented Development: Definition, concepts and key components; Transport programmes and policies.

UNIT 2: Land use- Transport integration

Land use transport integration: definitions and concepts, land use transport cycle, importance of accessibility; Factors affecting land use-transport integration, and tools for land use-transport integration; Key elements of integration; Integrating land use and transport in the planning process; Institutional integration and legal mechanisms for integration; Land development impact on traffic congestion on road segments.

UNIT 3: Water Supply System

Water supply systems and networks, and network mapping; Water sources, quality and quantity requirements, and water requirement for various land uses; Factors affecting water demand; Storage

facilities and distribution systems; Rainwater harvesting systems and locational criteria, implications on land use and density of water harvesting system; Innovative Methods and successful urban water supply system practices; Water programmes and policies.**Unit 4: Sanitation and Sewerage System and Storm Water Drainage**

General considerations and principle of sanitation and sewerage systems; Sewage disposal and treatment methods; Characteristics of wastewater, industrial pollutants and their affects; Open defecation; Manual scavenging; Innovative approaches of sewage disposal in urban areas and low-cost appropriate technologies for sanitation; Strom water drainage networks, and network mapping; Estimations of sewer generation and network requirements.

Unit 5: Solid Waste Management

Elements of Solid Waste Management, Classification and Characteristics of Solid Wastes; Methods for Solid waste Collection, Storage, transportation and disposal; Processing and Treatment of Solid Wastes; Land Filling methods of Solid Waste Management.

Unit 6: Policies, Programmes and Projects

Understanding prevalent policies, projects and missions, for example, JnNURM, AMRUT, HRIDAY, Smart Cities Mission, etc.; Norms and standards for different types of infrastructure; Nature and content of infrastructure in development plans at different geographical levels; Making assessment of infrastructure requirements in plans.

Learning Outcomes

The students would have acquired understanding on the contemporary discourses on urban transport and utilities planning.

Student Experience

Students will attend lectures, have discussions in groups, undertake tutorial, refer library resources, undertake office visits if required, compile research studies, make presentations, undertake guided individual study exercises to reinforce understanding and to apply it to specific planning aspect.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge: Understanding the leading urban transport models and their relevance to planning systems	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Skills (Apply + Analyse) - To familiarize students with various transport systems, practices and policies of	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

Sushant University

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Programme Outcomes
	transportation planning	
CO3	Values, Orientations and Awareness (Evaluate) - To plan for the conduct of field survey, examine and analyse data and information collected through various field surveys, perform analysis.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	Medium	Low	High	Medium	High	High	Medium
CO3	High	High	Low	Medium	High	Medium	Medium	High	Medium	Low

Programme Specific Outcome (PSO) and Course Outcome(CO) Mapping

	CO1	CO2	CO3
PSO1	H	H	M
PSO2	H	H	M
PSO3	L	M	H

H: High **M:** Medium **L**:Low

References

- Luís Carvalho, Giuliano Mingardo & Jeroen Van Haaren (2012) Green Urban Transport Policies and Cleantech Innovations: Evidence from Curitiba, Göteborg and Hamburg, European Planning Studies, 20:3, 375-396
- David O Rafter (1996) Sustainable transport planning and the Dublin transportation initiative, European Planning Studies, 4:2, 225-236
- Mike Raco, Nicola Livingstone & Daniel Durrant (2019) Seeing like an investor: urban development planning, financialisation, and investors' perceptions of London as an investment space, European Planning Studies, 27:6, 1064-1082
- Apostolos Papagiannakis, Athina Vitopoulou & Athena Yiannakou (2021) Transit-oriented development in the southern European city of Thessaloniki introducing urban railway: typology and implementation issues, European Planning Studies, 29:1, 117-141
- William M. Brady (2016) Territorial development, planning reform and urban governance: the case of Ireland's second-tier cities, European Planning Studies, 24:12, 2217-2240
- Marija Maksin, Marina Nenković-Riznić, Saša Milijić & Vladica Ristić (2017) The impacts of spatial planning on the sustainable territorial development of the Rhine-Danube Trans-European Transport Corridor through Serbia, European Planning Studies, 25:2, 278-297

Sushant University

- Abid Mehmood & Muhammad Imran (2021) Digital social innovation and civic participation: toward responsible and inclusive transport planning, European Planning Studies
- Munevver Ozge Balta & Feral Eke (2011) Spatial Reflection of Urban Planning in Metropolitan Areas and Urban Rent; a Case Study of Cayyolu, Ankara, European Planning Studies, 19:10, 1817-1838
- Hudson, W.R., Hass, R.C.G. Uddin, W. (1997) Infrastructure Management, McGraw Hill, London.
- Gifford, J.W. Uzarski, D.R. and McNeil, S. (1993) Infrastructure Planning and Management, American Society of Civil Engineers, Reston, VA.
- Goodman, A. and Hartak, M. (2000) Infrastructure Planning Handbook, ASCE Press, Reston, VA.
- Parkin, J. and Sharma, D. (1999) Infrastructure Planning, Thomas Jelford Publishing, London.

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP-5PP12T	Project Planning and Financing	2	0	0	2

Nature of Course: Skill Enhancement Course

Teaching Mode: Lecture

Course Objective

The course aims to provide training in the key concepts and tools used in project planning and financing.

Course Outcomes

CO1	Knowledge: Define a project, its characteristics and the role of the project manager;
CO2	Values, Orientations and Awareness (Evaluate): Understand the ways projects are conceived, planned, implemented, and evaluated;
CO3	Skills (Apply + Analyse): Identify the scope, benefits, stakeholders, and project team members associated with a live urban project.

Course Outline

UNIT 1: Overview of Development Finance

Understanding development finance: approaches, concepts, credit ratings; Role of municipalities and panchayats, development authorities, infrastructure and industrial development corporations, special economic zones and special purpose vehicles.

UNIT 2: State and Municipal Finance

Central Finance Commission and state finance commissions: constitution, powers and functions; consolidated fund of central and state; Financing municipalities and panchayats and financial categorisation of sources of revenue; Reforms in municipal and panchayat finances, rationalisation of user charges, and streamlining of tax administration.

UNIT 3: Public- Private Partnership

Partnerships and alliances: concepts, need, preconditions for partnerships; Advantages of collaboration; Methods of promoting public private partnerships; Policies, statutes, regulations and administrative procedures for forging partnerships; Role of government as partner, regulator and enforcer of laws;

Sushant University

Principles of PPP: contractual framework, selection of service provider, payment mechanism, monitoring and evaluation, risk and revenue sharing; and Models contract agreement.

Unit 4: Innovative Methods for Financing Urban Development

Monetary Exaction: betterment levy, impact fees, external development charges and vacant land development tax; Land exactions: Transfer of development rights, town planning schemes, monetization of underutilized public assets; Valorization charges; Debt financing, partnership financing, financing through intermediaries, Municipal bonds, and pooled financing; Funding of development plan proposals and projects.

Unit 5: Project Management and Implementation

Project Evaluation and Monitoring: milestones - responsibility charts Project Control: cost and time, quality - ISI standards and its application to Indian context; Introduction to Project Management Software (MS Projects, PRIMAVERA) and its usage. Types and Methods of evaluation.

Learning Outcomes

Students will have gained both theoretical understanding and hand on experience in the project planning process.

Student Experience

Students will attend lectures, have discussions in groups, undertake tutorial, refer library resources, undertake office visits if required, compile research studies, make presentations, undertake guided individual study exercises to reinforce understanding and to apply it to specific planning aspect.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge: Define a project, its characteristics and the role of the project manager;	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Values, Orientations and Awareness (Evaluate): Understand the ways projects are conceived, planned, implemented, and evaluated;	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Skills (Apply + Analyse): Identify the scope, benefits, stakeholders, and project team members	PO 1, PO 2, PO 3, PO 4, PO 5, PO

Sushant University

	associated with a live urban project.	6, PO 7, PO 8, PO 9, PO 10

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	High	High	High	High	Medium	High	High	Medium	High	Medium
CO2	High	High	High	High	Medium	High	High	Medium	High	Medium
CO3	High	High	High	High	Medium	High	High	Medium	High	Medium

Programme Specific Outcome (PSO) and Course Outcome(CO) Mapping

	CO1	CO2	CO3
PSO1	H	M	M
PSO2	M	H	H
PSO3	L	M	H

H: High **M:** Medium **L**:Low

References

- Mehdi Tavakolan & Shayan Nikoukar (2019) Developing an optimization financing cost-scheduling trade-off model in construction project, International Journal of Construction Management
- Ibrahim Mahamid (2015) Factors affecting cost estimate accuracy: Evidence from Palestinian construction projects, International Journal of Management Science and Engineering Management, 10:2, 117-125
- E. Earl Whitlach & Charles S. ReVelle (1990) Regionalization in Water Resource Projects, Water International, 15:2, 70-79
- Kristi S. Lekies, Barbara Baker & JoAnne Baldini (2009) Assessing Participation in Youth Community Action Projects: Opportunities and Barriers, Community Development, 40:4, 346-358
- Matti Siemiatycki (2009) Delivering Transportation Infrastructure Through Public-Private Partnerships: Planning Concerns, Journal of the American Planning Association, 76:1, 43-58
- Jaakko Jussila & Katja Lähtinen (2020) Effects of institutional practices on delays in construction – views of Finnish homebuilder families, Housing Studies, 35:7, 1167-1193
- Dr. Farhad Noorbakhsh (1994) Some fundamental shortcomings of project planning in developing countries, Project Appraisal, 9:1, 47-57
- Chukwuemeka K. Obetta & Catherine I. Oreh (2017) Utilising planning and financing strategies in the management of Community Development Projects in Enugu State, Nigeria, Africa Education Review, 14:3-4, 52-66

Sushant University

- Sang M. Lee & Hyun B. Eom (1989) A Multi-criteria Approach to Formulating International Project-financing Strategies, Journal of the Operational Research Society, 40:6, 519-528
- John M. Kamara (2012) Integration in the project development process of a Private Finance Initiative (PFI) project, Architectural Engineering and Design Management, 8:4, 228-245
- Robert Pellerin & Nathalie Perrier (2019) A review of methods, techniques and tools for project planning and control, International Journal of Production Research, 57:7, 2160-2178
- Urban Public Finance By D. Wildasin (2013); Routledge
- Bell, C. (2003) Development Policy as Public Finance, Oxford University Press, Oxford.
- Fisher, R.C. (2018) State and Local Public Finance, Routledge, New York.
- Kaushik, B. (2003) Analytical Development Economics: The Less Developed Economy Revisited, MIT Press, Cambridge, MA.
- Mohanty, P.K. (2016) Financing Cities in India: Municipal Reforms, Fiscal Accountability and Urban Infrastructure, Sage, New Delhi.

Sushant University

Course Code	Course Title	L	T	P	Credits
21MEL-6SD12T	Planning for Sustainable Tourism	0	2	0	2

Nature of Course: Discipline Specific Elective

Teaching Mode: Tutorial

Course Objective

The elective shall be offered on the basis of thinking, doing, applying and telling. This course aims to provide students with a broad understanding of environmental issues and their impact upon the tourism industry. The natural and cultural environments of communities will be explored to enable students to critically interpret tourism dependency, and the changes and development of various tourism policy. This course introduces the basic principles of tourism planning, enabling students to learn how communities, governments, business, and civil society can take a more inclusive and sustainable approach to planning tourism.

Course Outcomes

CO1	Knowledge: Understanding of the basic concepts and its relevance in Planning perspective.
CO2	Skills (Apply + Analyse) – To identify and use relevant knowledge systems and their importance in shaping new solutions.
CO3	Values, Orientations and Awareness (Evaluate) - To sensitise on the need and relevance of the subject in planning

Course Outline

UNIT 1: Introduction to Tourism

Definitions, scope, nature, classification and dimension, tourism as an industry, tourism in developed and developing world

UNIT 2: Tourism Sector

Impacts Relationship between Tourism and Urban Development, capacity building and carrying capacity planning for tourism projects, tourism and cultural and social change: Socio-cultural problems, environmental degradation

UNIT 3: Planning for Tourism

Nature and scope of a tourism plan- stages, data requirements, surveys, key issues, role of key players / stake holders in tourism policy and planning, sustainable tourism development planning; community planning and tourism; implementation and management, role of travel and tourism promoting agencies, monitoring the tourism development; Tourism marketing - concept, techniques and strategies

Sushant University

UNIT 4: Policies and Programmes

Tourism policies at various levels.

UNIT 5: Sustainable Tourism

Ecotourism, heritage-based Tourism, Responsible Tourism, Soft Tourism, Minimum Impact Tourism and Alternative Tourism, polices, stakeholders, best practices.

Learning Outcomes:

The students would have developed a clear understanding on the issues and opportunities of aspect specific planning.

Student Experience

Students will attend lectures, have discussions in groups, undertake tutorial, refer library resources, undertake office visits if required, compile research studies, make presentations, undertake guided individual study exercises to reinforce understanding and to apply it to specific planning aspect.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge: Knowledge: Understanding of the basic concepts and its relevance in Planning perspective.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Skills (Apply + Analyse) – To identify and use relevant knowledge systems and their importance in shaping new solutions.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Values, Orientations and Awareness (Evaluate) - To sensitise on the need and relevance of the subject in planning	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	Medium	Low	High	Medium	High	High	Medium
CO3	High	High	Low	Medium	High	Medium	Medium	High	Medium	Low

References

- Report on Tourism (2012-2017) Planning Commission Working Group Planning Commission, Government of India 2012
- Strategic Action Plan for Tourism in India Ministry of Tourism, Government of India 2011
- Ecotourism Jagbir Singh I.K. International Publishing House Pvt. Ltd 2010
- Tourism: Principles, Practices, Philosophies Charles R. Goeldner, J. R. Brent Ritchie John Wiley & Sons 2009
- Urban Tourism: The Visitor Economy and the Growth of Large Cities Continuum Christopher M Law 2009

Sushant University

- Cultural Tourism and Sustainable Local Development Luigi Fusco Girard and Peter Nijkamp (editors) Ashgate, Burlington 2009
- Tourism Development in India A. Satish Babu APH Publishing Corporation, New Delhi 2008
- Planning for Tourism K.K. Sharma Sarup & Sons, New Delhi 2003.

Sushant University

Course Code	Course Title	L	T	P	Credits
21MEL-6CS12T	Planning for Informal Sector	0	2	0	2

Nature of Course: Discipline Specific Elective

Teaching Mode: Tutorial

Course Objective

The elective shall be offered on the basis of four baskets of Thinking, Doing, Applying and Telling. It primarily involves tutorial-based teaching and learning in areas of study. The course will generally be conducted to encourage research, exploration and skills developments. The course contents shall be developed and modified as per the available resources within the programmes.

Course Outcomes

CO1	Knowledge: Understanding of the basic concepts and its relevance in complex modern urban systems.
CO2	Skills (Apply + Analyse) – To identify and use relevant knowledge systems and their importance in shaping new solutions.
CO3	Values, Orientations and Awareness (Evaluate) - To sensitise on the need and relevance of the subject in planning

Course Outline

UNIT 1: Urban Poverty and Homelessness

Overview; incidence and dynamics of poverty; causes of poverty; Dimensions of urban poverty, magnitude of problem, urban poverty alleviation programmes, impact of macro-economic structural adjustment policies on poor urban households; multi-dimensional aspects of poverty; poverty matrix; vulnerability and asset ownership; Informal sector and poverty, slum upgradation, access to housing.

UNIT 2: Basic Needs

Concept of basic needs, provision for various target groups; Standards for basic needs, NGO's and voluntary organizations associated with provision of basic needs.

UNIT 3: Migratory Impulses and Impact on Informal Sector

Characteristics of migrants, Socio-economic deprivation; Role of informal sector in housing stock, economy, commercial activities, etc.; Implications in physical planning

UNIT 4: Alternative Approaches for Delivery of Basic Services to the Urban Poor

Community planning approach, low-cost alternatives and institutional reforms approach, role of government, private and voluntary organizations; Case studies from India and other developing countries

Sushant University

Learning Outcomes

The students would have developed a clear understanding on the issues and opportunities of aspect specific planning.**Student Experience**

Students will attend lectures, have discussions in groups, undertake tutorial, refer library resources, undertake office visits if required, compile research studies, make presentations, undertake guided individual study exercises to reinforce understanding and to apply it to specific planning aspect.

CO1	Knowledge: Understanding of the basic concepts and its relevance in complex modern urban systems.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Skills (Apply + Analyse) – To identify and use relevant knowledge systems and their importance in shaping new solutions.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Values, Orientations and Awareness (Evaluate) - To sensitise on the need and relevance of the subject in planning	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	Medium	Low	High	Medium	High	High	Medium
CO3	High	High	Low	Medium	High	Medium	Medium	High	Medium	Low

References

- What Works for The Poorest? David Lawson, David Practical Action Publishing2010
- A General Equilibrium Approach, Informal Sector Concept, Dynamics Linkages and Migration Kishor C. Samal Concept Publishing Company, New Delhi. 2008
- Revisiting the Informal Sector Sarabjit Chauhan, Ujjani Mukhopadhyay Springer2010
- Chapin F.S., (1972), "Urban Land Use Planning", University of Illinois Press, Chicago.
- Goode, W.J. & Hatt P.K., (1982), Methods in Social Research, McGraw–Hill Inc., New York.
- Harvey, David, (1973), Social Justice and the City, London, Edward Arnold.
- Keeble L., (1972), Principles & Practice of Town and Country Planning, the Estates Gazette Ltd., London.
- Morris, R.N (1965), "The Sociology of Housing", Alden press limited, London
- Muth . F (1969), "Cities and Housing", The University of Chicago press, London.
- Urban Development Plans Formulation and Implementation Guidelines, (1996), Ministry 0f Urban Affairs & Employment (G.O.I.), ITPI, New Delhi
- Office, I. L., 2018. Women and Men in the Informal Economy. Vol.3. Geneva: Printing and Distribution Branch (PRODOC) of the ILO.

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP- 2PS21P	Planning Studio- III: Infrastructure Plan	2	3	6	8

Nature of Course: Core Course

Teaching Mode: Lecture, Tutorial and Studio

Course Objective:

The Detailed Project Report (DPR) is an essential building block for the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) in creating infrastructure and enabling sustainable quality service delivery. The core objective of this studio equip students with the knowledge and skills in creating a detailed project report for an urban infrastructure project.

The other objectives are:

- To understand contents, substance and characteristics of infrastructure plans for predominantly urban settlements.
- To comprehend processes of plan preparation and analyses techniques for the identification of issues and potentials for an urban settlement.
- To evolve and devise implementation mechanisms for a selected urban area.

Course Outcome

CO1: Knowledge: Understanding the process of preparation of large-scale plans or policy documents.

CO2: Skills (Apply + Analyse) - To train students for conducting stakeholder consultations, focus group discussions and deliberative processes of planning and policymaking.

CO3: Values, Orientations and Awareness (Evaluate) - To inform and appreciate the process of planning/policy making which is of larger scale or impact.

CO4: Design (Create) - To design and develop aspect-specific plans and proposals (detailed project report).

Course Content

Unit 1: Context for the preparation of the DPR (Literature Study)

Introduction to DPR, Background context & broad project rationale, Understanding of Urban Infrastructure and need for preparing the city infrastructure plan. Water Supply and Sanitation Plan Quantity and quality, source of supply, transmission and distribution, treatment methods, design guidelines. Sanitation – concepts, disposal systems, low-cost sanitation options; engineering

aspects of sewage disposal; Wastewater – generation, disposal system Storm water drainage – systems Solid Waste Disposal and Management Plan Basic principles, generation, characteristics, collection, disposal, management. Fire and Electrification

Unit 2: Social Infrastructure Plan

Social Infrastructure Plan for fire protection, services and space standards, location criteria; planning for Education, health, civic, cultural infrastructure

Unit 3: Traffic and Transportation Plan

Traffic and Transportation Plan for infrastructure and facilities for transport

Unit 4: Urban Management and Governance Plan

Urban Management and Governance Plan which focuses on management and governance aspects (in line with the other core and elective courses offered in the semester). The exercise pertains to metropolitan cities and mega cities and ranges from preparing management plans and projects related to various sectors pertaining to infrastructure, disaster risk, riverfront development etc

Unit 5: Governance and Finance

Students are also required to identify and formulate projects, work out the appraisals and do the feasibility, viability and implementation mechanisms of the projects. Students work on a case study town/city and have to visit the field for collection of data and interaction with city officials and stakeholders. Although planning continues to be an important aspect of the exercise, students are also exposed to project identification, formulation, and appraisal, financing mechanisms and institutional framework. Students draw from the theoretical knowledge provided in the core and elective subjects related to management, finance and governance offered in the semester and translate them in their studio exercise. The culmination of the exercise is in the form of group presentations and studio report

Learning Outcomes

The students would have acquired skills and understanding for planning specific infrastructure at a metropolitan scale.

Student Experience

Students will work in Studios, have discussions in groups, undertake tutorial, refer library, field and office visits, undertake surveys on site and compile research studies.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge: Understanding the process of preparation of large-scale plans or policy documents.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

Project Development Fund, Ministry of Finance, GoI,

- Pablo Elinbaum & Daniel Galland (2016) Analysing Contemporary Metropolitan Spatial Plans in Europe Through Their Institutional Context, Instrumental Content and Planning Process, European Planning Studies, 24:1, 181-206
- Maciej Smętkowski, Niamh Moore-Cherry & Dorota Celińska-Janowicz (2021) Spatial transformation, public policy and metropolitan governance: secondary business districts in Dublin and Warsaw, European Planning Studies, 29:7, 1331-1352
- Carola Fricke (2015) Spatial Governance across Borders Revisited: Organizational Forms and Spatial Planning in Metropolitan Cross-border Regions, European Planning Studies, 23:5, 849-870
- Michael Neuman (1996) Images as institution builders: Metropolitan planning in Madrid, European Planning Studies, 4:3, 293-312
- Julio Alberto Soria & Luis Miguel Valenzuela (2013) A Method for the Evaluation of Metropolitan Planning: Application to the Context in Spain, European Planning Studies, 21:6, 944-966
- Lisa Rayle & Christopher Zegras (2013) The Emergence of Inter-Municipal Collaboration: Evidence from Metropolitan Planning in Portugal, European Planning Studies, 21:6, 867-889
- Elisabete A. Silva (2005) 18th congress of the AESOP, Grenoble, France, 2004 'Metropolitan planning and environmental issues', European Planning Studies, 13:1, 175-181
- Abbas Ziafati Bafarasat & Lee Pugalis (2020) In search of cohesive metropolitan governance: enticements and obligations, European Planning Studies, 28:8, 1474-1492

Sushant University

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Programme Outcomes
CO2	Skills (Apply + Analyse) - To train students for conducting stakeholder consultations, focus group discussions and deliberative processes of planning and policymaking.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Values, Orientations and Awareness (Evaluate) - To inform and appreciate the process of planning/policy making which is of larger scale or impact.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
C04	Design (Create) -To design and develop aspect-specific plans and proposals	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	Medium	Low	High	Medium	High	High	Medium
CO3	High	High	Low	Medium	High	Medium	Medium	High	Medium	Low
CO4	High	High	High	High	High	High	High	High	High	High

Programme Specific Outcomes (PSO) and Course Outcome (CO) Mapping

	CO1	CO2	CO3	CO4
PSO1	H	H	M	L
PSO2	M	H	M	M
PSO3	L	M	M	H

H: High **M:** Medium **L**:Low

References

- JNNRUM (2006), Detailed Project Report: Preparation Toolkit (sub-mission for urban infrastructure and governance), Ministry Of Urban Development, GoI, http://localbodies.up.nic.in/Toolkit/DPR.pdf
- Hideo Nakamura, Kotaro Nagasawa, Kazuaki Hiraishi, Atsushi Hasegawa, KE Seetha Ram, Chul Ju Kim, and Kai Xu,(2019), Principles of Infrastructure Case Studies and Best Practices; Asian Development Bank Institute and Mitsubishi Research Institute, Inc; https://www.adb.org/sites/default/files/publication/502801/adbi-principles-infrastructure-case-studies-best-practices.pdf
- Elmer V, Leigland A, (2013), Infrastructure Planning and Finance: A Smart and Sustainable Guide, Routledge
- Department of Economic Affairs (2007),Scheme and Guidelines for India Infrastructure

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP-3RM21T	Research Methods	2	0	0	2

Nature of Course: Core Course

Teaching Mode: Lecture

Course Objective

The course aims to provide training to students in various research methods and tools relevant for planning and social science research.

Course Outcomes

CO1: Knowledge and Understanding: Understanding research methodology, literature review and writing research papers.

CO2: Skills (Apply + Analyse) - To train students in research writing

CO3: Design (Create) -To develop a paper on the area of interest, able to prepare the report for the studio project.

Course Outline

UNIT 1: Introduction to research

Meaning, objective, motivation, types and approaches of research; Research method and research methodology; Research process; Criteria of a good research; Defining research problem and its illustration

UNIT 2: Research design

Basic concepts, need and features of research design; Types and approaches of research design; Concepts and types of sampling; Sampling procedure; Characteristics of a good sample; Sample size; scaling techniques

UNIT 3: Data collection

Basic concepts and types of data; Methods of data collection; Guidelines for formulating a questionnaire

UNIT 4: Processing and analysis of data

Descriptive statistics; Measures of central tendency; Measures of dispersion; Measures of skewness; Correlation and regression; Hypothesis testing

Unit 5: Interpretation and report writing

Technique of literature review; Stages in report writing; Significance of report writing; Layout of research report; Types of reports; Oral presentation

Sushant University

Learning Outcomes:

The students are expected to understand the process of research and its outreach.

Student Experience

Students will attend lectures, have discussions in groups, undertake tutorial, refer to library resources, and to apply it to specific planning aspect.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge: Understanding research methodology, literature review and writing research papers.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Skills (Apply + Analyse) - To train students in research writing	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Design (Create) -To design and develop model plans or policy documents.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	Medium	Low	High	Medium	High	High	Medium
CO3	High	High	High	High	High	High	High	High	High	High

Programme Specific Outcomes (PSO) and Course Outcome (CO) Mapping

	CO1	CO2	CO3
PSO1	H	H	L
PSO2	M	H	M
PSO3	L	M	H

H: High **M:** Medium **L**:Low

References

- The Routledge Handbook of Planning Research Methods; Edited by Elisabete A. Silva, Patsy Healey, Neil Harris, Pieter Van den Broeck (2016); Routledge
- Research Methods in Urban and Regional Planning by Xinhao Wang, Rainer Hofe (2010), Springer
- Urban Research Methods, Edited by C.S Yadav (1986); Concept Publishing Co

Sushant University

- Basic Quantitative Research Methods for Urban Planners, Edited By Reid Ewing, Keunhyun Park, (2020) by Routledge
- Research Methods in Urban and Regional Planning, Wang, Xinhao, vom Hofe, Rainer (2007), Springer
- Use Mendley desktop, https://www.mendeley.com/DOWNLOAD-DESKTOP/
- https://www.elsevier.com/en-in

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP-4UG21T	Urban Governance	2	0	0	2

Nature of Course: Core Course

Teaching Mode: Lecture

Course Objective

To impart learning on the key concepts and institutions regulating urban governance & their interface in the planning process. This course is to make understand the nuances of institutions and their role in planning and decision making process.

Course Outcomes

CO1	Knowledge: Understanding the key discourses within governance system and related planning process.
CO2	Skills (Apply + Analyse): To equip students with capabilities required to apply the key debates within Economics for studying various developmental issues and policy responses.
CO3	Values, Orientations and Awareness (Evaluate): To appreciate the purpose of planning and its relationship with various institutions in the governance process on the one hand and the access to government by various stakeholders on the other hand.

Course Outline

UNIT 1: Urban Governance, Evolution, Institutions & Organizations

Urban Governance- Definition, concepts and components; hierarchy and structure, form of governance; Comprehending governance; History of governance of urban and regional after 1947; Organizations involved in planning, development and management of urban and rural areas; Institutional and organizational framework, existing institutional and organizational setting for urban management in India; distribution of responsibilities; special purpose vehicles (SPV's) in the urban sector; significance of organizational framework; Present status of urban and regional governance in India.

UNIT 2: Local Governance and Devolution of Local Government

Need for decentralization and devolution of powers from state governments to local government; District Planning Committees and Metropolitan Planning Committees; Current position of implementation of 73rd and 74th amendment acts

UNIT 3: Coproduction: Role of the Third Sector

Shift from government to governance; Context of governance for greater involvement of the

Sushant University

private sector; Ideas of good governance; Public private partnerships; Role of global players such as the World Bank, IMF, Asian Development Bank, the private sector, INGOs, NGOs, CBOs

UNIT 4: Planning regulations

Importance of planning with context to role and rule of law; significance of law in regulating development especially formal and informal settlement; city development authorities and their functions; parastatal agencies; development plan, master plan and development control regulations.

UNIT 5: Land Administration and Management

Models of land assembly in India - Bulk land acquisition, land reconstitution, etc.; Land administration and management; Understanding maps of land records; Methods of keeping land records in urban and rural areas.

UNIT 6: Right to the city

Concept of 'Right to the city'; Judicial responses to issues of the urban poor, slums, street vendors and the homeless; Case studies

Learning Outcomes

The course would enable students to develop a comprehensive understanding of the urban governance systems in India and their strategic roles

Student Experience

Students will attend lectures, have discussions in groups, undertake tutorial, refer to library resources, and to apply it to specific planning aspect.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge: Understanding the key discourses within governance system and related planning process.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Skills (Apply + Analyse): To equip students with capabilities required to apply the key debates within Economics for studying various developmental issues and policy responses.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Values, Orientations and Awareness (Evaluate): To appreciate the purpose of planning and its relationship with various institutions in the governance process on the one hand and the access to government by various stakeholders on the other hand.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	Medium	Low	High	Medium	High	High	Medium
CO3	High	High	Low	Medium	High	Medium	Medium	High	Medium	Low

Programme Specific Outcomes (PSO) and Course Outcome (CO) Mapping

	CO1	CO2	CO3
PSO1	H	M	L
PSO2	M	H	M
PSO3	L	M	H

H: High **M:** Medium **L**:Low

References

- New Forms of Urban Governance in India: Shifts, Models, Networks and Contestations; Edited by: I.S. A. Baud & J. de Wit (2008); SAGE Publications India Pvt. Ltd.
- The Politics of Urban Governance; Jon Pierre (2011); Red Globe Press
- Urban Governance and Local Democracy in South India; Anil Kumar Vaddiraju (2021); Routledge India
- Urban Governance: Britain and Beyond Since 1750; Robert J. Morris, Richard H. Trainor (2000); Routledge
- City Power: Urban Governance in a Global Age; Richard C. Schragger (2016); Oxford University Press
- Urban Infrastructure and Governance; Edited By G Ramesh, Vishnu Prasad Nagadevara, Gopal Naik, Anil Suraj (2016); Routledge India
- Theories of Urban Politics; Edited by: Jonathan S Davies and David L Imbroscio (2008); SAGE Publications Ltd
- Baud, I., and Wit, J. (2008) New Forms of Urban Governance in India: Shifts, Models, Networks and Contestations. New Delhi: Sage.
- Desai, R. (2012) Governing the Urban Poor: Riverfront Development, Slum Resettlement and the Politics of Inclusion in Ahmedabad, Economic and Political Weekly, Vol. 47, No. 2, pp. 49-56.
- Diwakar, D. (2016) Resettlement of Urban Poor in Chennai, Tamilnadu: Concerns in R and R Policy and Urban Housing Programme, Journal of Land and Rural Studies, Vol. 4, No. 1,

pp. 97-110.

- Freire, M. and Stren, R. (2001) The Challenges of Urban Government: Policies and Practices, World Bank, Washington, D.C
- De, P., 2010. Governance, Institutions, and Regional Infrastructure in Asia. ADBI Working Paper No. 183. Tokyo: Asian Development Bank Institute.
- Isa Band, N. S. K. P., 2008. Mapping Urban Poverty for Local Governance in an Indian Mega-City: The Case of Delhi. Sage Journals, Vol. 45, No.7, pp. 1385-1412.
- Asian Development Bank (ADB), 1997. Governance: Promoting Sound Development Management. Manila: ADB.
- Banerjee, A. M. and K. A. Chandrasekaran., 1996. Renewing Governance: Issues and Options. New Delhi: Tata McGraw Hill.
- Currie, B., 1996. "Governance, democracy and Economic Adjustment in India: Conceptual and Empirical Problems", Third World Quarterly.
- Gupta, B., 1996. India: Problems of Governance, Governing South Asia. Vol. 5, New Delhi: Konark Publishers.
- International Monetary Fund (IMF). 1997. Good Governance: The IMF"s Role. Washington: IMF.
- Jain, A.K., 2002. Urban Governance, Planning and Development in Delhi, SDR, Vol. 9, No. 2, pp. 13-20.
- Jayal, N.G., 1997. The Governance Agenda: Making Democratic Development Dispensable, Economic and Political Weekly. Vol. 32, No. 8, pp. 22-27.
- Kundu, A., 2003. Urban and Urban Governance: Scared for neoliberalism, EPW, Vol. 38, No.29, pp. 3079-87.
- Landell-Mills, Pierre and I. Seralgeldin, 1992, _Governance and External Factor, Proceeding of the World Bank Annual Conference on Development Economics 1991, World Bank, Washington D.C.
- Leftwich, A., 1993. Governance, Democracy and Development in the Third World, Third world Quarterly, Vol. 14, No. 3, pp. 605-624.
- Mathur, O. P., 1999. India: The Challenge of Urban Governance, NIPFP & Centre for Urban & Community Studies.
- Merino R. and Pinto, 2000. Metropolitan City Governance in India, New Delhi: Sage Publications.

- Mitra, S. K., 2001. Making Local Government Work: Local Elites, Panchayati raj and Governance in India in AtulKohli Ed The Success of India's Democracy Cambridge, Cambridge University Press, pp. 103-126.
- Graham, J., Anos, B. and Plumptre, T., 2003. Principles for Good Governance in the 21st Century, Policy brief no. 15. Canada: Institute on Governance.
- Mehta, D., 1998. Urban Governance: Lessons from Best Practices in Asia, UMP-Asia Occasional Paper no. 40.
- Mohanty, P.K., 1999. Municipal Decentralisation and Governance: Autonomy, Accountability and Participation in Jha, S.N. and Mathur, P.C (Eds) Decentralisation and Local Politics: Reading in Indian Government and Politics-2. New Delhi: Sage Publications.
- UNDP, 2002. Urban Governance: A sourcebook on indicators, New York: UNDP.
- UNDP, 2003. What is Good Governance, New York: UNDP.
- Urban Management Programme (UMP), 2000. Capacity Enhancement of Civil Societies for Good Governance, UMP Asia News, Vol. 3, No. 2, pp. 32-46.
- Wickramasinghe, N. K., 1997. _Governance: A Critique" in ed. M. Somasundram, The Third Wave. Governance and Public Administration in Sri Lanka, New Delhi: Konark Publications.
- World Bank, 1994. Governance: the World Bank"s experience, The International Bank for Reconstruction and Development, Washington, D.C.: The World Bank.

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP-5DM21T	Disaster Management, Energy and Climate Change	2	0	0	2

Nature of Course: Core Course

Course Objective

The course focuses on providing knowledge on the issues of disaster risk and climate change in built environment. The course also aims to equip planning students with a foundation of Knowledge and skills which are required to understand the importance of disaster management.

Course Outcomes

- **CO1- Knowledge (Remember + Understand) -** To understand the concepts and principles of disaster risk mitigation and planning
- **CO2- Skills (Apply + Analyse)** – To apply traditional /modern technological tools, to critically analyse the magnitude and intensity of vulnerability and its impact, and conceptualize a sustainable resilient solution.
- **CO3- Values, Orientations and Awareness (Evaluate)-** Capacity to draw theoretical insights and research findings from relevant policy and guidelines.

Course Outline

UNIT 1: Basic concepts of disaster management

Disaster: Definitions, concepts, types and perceptions; Recent initiatives at national and state level; Kyoto Framework of disaster mitigation and management; Paris agreements; Disaster management policy at the national and state levels; Disaster management statutes at national and state levels

UNIT 2: Disaster management mechanisms

Disaster management mechanisms at national, state and district levels; Select global practices; Disaster and development; Development plans and disaster management plans; Roles played in disaster management by INGOs, NGOs, CBOs and armed forces; and Community Based Disaster Preparedness.

UNIT 3: Disaster risk mitigation

Natural Disasters: cyclones, floods, earthquakes, landslides etc.; Disaster as a physical phenomenon, causes and consequences of mitigation and management practices; Risks' mitigation

strategies in development plans inclusive of industrial, chemical and biological disasters; Land use planning, building bye laws and disaster safe construction practices.

UNIT 4: Disaster preparedness and post disaster management

Forecasting and early warning systems for various types of disasters; Role of communication and information technologies in disaster management; Disaster education and awareness; Case studies on natural disasters; Climate change and its implications in disaster mitigation; Post-disaster management including rehabilitation and reconstruction of disaster affected areas; Safe hill area development guidelines and coastal zone regulations for safe habitation.

Learning Outcomes

The course would enable students to develop a comprehensive understanding on the disaster management mechanism.

Student Experience

Students will attend lectures, have discussions in groups, undertake tutorial, refer library resources, undertake office visits if required, compile research studies, make presentations, undertake guided individual study exercises to reinforce understanding and to apply it to specific planning aspect.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge: To understanding the concepts and principles of disaster risk mitigation and planning	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Skills (Apply + Analyse) – To apply traditional /modern technological tools, to critically analyse the magnitude and intensity of vulnerability and its impact, and conceptualize a sustainable resilient solution.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Values, Orientations and Awareness (Evaluate): Capacity to draw theoretical insights and research findings from relevant policy and guidelines	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	Medium	Low	High	Medium	High	High	Medium
CO3	High	High	Low	Medium	High	Medium	Medium	High	Medium	Low

Sushant University

Programme Specific Outcomes (PSO) and Course Outcome (CO) Mapping

	CO1	CO2	CO3
PSO1	H	M	L
PSO2	M	H	M
PSO3	L	M	H

H: High **M:** Medium **L:**Low

References

- Frauke Urban, Tom Mitchell & Paula Silva Villanueva (2011) Issues at the interface of disaster risk management and low-carbon development, Climate and Development, 3:3, 259-279
- Michael Howes, Peter Tangney, Kimberley Reis, Deanna Grant-Smith, Michael Heazle, Karyn Bosomworth & Paul Burton (2015) Towards networked governance: improving interagency communication and collaboration for disaster risk management and climate change adaptation in Australia, Journal of Environmental Planning and Management, 58:5, 757-776
- Papreen Nahar, Andrew E. Collins, Abbas Bhuiya, Fariba Alamgir, Nibedita Ray-Bennett & Ross Edgeworth (2013) Indigenous indicators of health security in relation to climatic disasters in Bangladesh, Environmental Hazards, 12:1, 32-46
- Samuel Mackay, Rebecca Brown, Makelesi Gonelevu, Netatua Pelesikoti, Talei Kocovanua, Rebecca Iaken, Florence Iautu, Luisa Tuiafitu-Malolo, Sione Fulivai, Ma'asi Lepa & Brendan Mackey (2019) Overcoming barriers to climate change information management in small island developing states: lessons from pacific SIDS, Climate Policy, 19:1, 125-138
- Phong Tran & Rajib Shaw (2007) Towards an integrated approach of disaster and environment management: A case study of Thua Thien Hue province, central Viet Nam, Environmental Hazards, 7:4, 271-282
- Ben Wallace (2017) A framework for adapting to climate change risk in coastal cities, Environmental Hazards, 16:2, 149-164
- Hsiang-Kuan Chang, Yih-Chi Tan, Jihn-Sung Lai, Tsung-Yi Pan, Tzu-Ming Liu & Ching-Pin Tung (2013) Improvement of a drainage system for flood management with assessment of the potential effects of climate change, Hydrological Sciences Journal, 58:8, 1581-1597
- Capolla, D.P. (2007) Introduction to International Disaster Management, Butterworth

Heinemann, London.

- Joshi, A.D. (2009) Text Book of Disaster Management, Lotus Publication of Pvt. Ltd., Mumbai.
- Sharma, S.C. (2019) Disaster Management, Khanna Book Publishing Co., New Delhi.
- NDMA (2007) Disaster Management Guidelines, NDMA, Government of India, New Delhi.
- Ministry of Home Affairs (2004) Model Amendment in Town and Country Planning Legislations, Regulation for Land Use Zoning and Building Byelaws for Structural Safety, Government of India, New Delhi.

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP-6UA21T	Urban Analytics	0	2	0	2

Nature of Course: Skill Enhancement Course

Course Objective

The course aims to provide training in areas related to capturing and application of big data in urban planning.

Course Outcomes

On completion of this course, the students will be able to:

- **CO 1- Knowledge (Remember + Understand):** Express understanding about the nature of big data and its significance for planning and urban development.
- **CO 2- Skills (Apply +Analyse):** Analyse and evaluate big data for planning projects such as smart city projects in India.
- **CO 3- Design (Create):** Design solutions using a statistical approach for creating better cities.

Course Outline

UNIT 1: Introduction to Big Data

Defining big data and what makes it 'big'; Emergence of data science and big data; Importance and utility of big data in planning; Characteristics of big data; Links between big data, urban and regional planning, development, management and policy making.

UNIT 2: Mapping the City

Different tools for making maps with big data; Understanding basic elements of maps; Map online programs and open spatial data and its uses; Geographic information systems software for mapping; and Identification of winners and losers in the big data system.

UNIT 3: Data Acquisition and Analytics

Understanding open data platforms; Generators of big data; Handling large datasets, cloud database system; Cleaning data, SQL, introduction to R or other software for urban data analysis.

Sushant University

UNIT 4: Big Data and Smart Cities

Explore big data in the context of smart cities; Learning use of real-time and crowdsourced data collection and use; Interactive data visualization in the context of smart cities and regions.

Learning Outcomes

By the end of this course, students will be able to

- Demonstrate an understanding on the key concepts and tools used urban analytics.
- Assess the big data for planning projects and implement the data as per the requirements.

Student Experience

Students on this course will be given opportunity to:

- Attend workshops, undertake tutorials, refer library resources to reinforce understanding and apply it to specific planning aspect.
- Participate in seminars and discussions designed to review and extend the understanding gained in lectures.
- Undertake guided individual study exercises and prepare presentations to demonstrate their understanding on the subject.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge: To express understanding about the nature of big data and its significance for planning and urban development.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Skills (Apply + Analyse) - To analyses and evaluate big data for planning projects such as smart city projects in India	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Design (Create): Design solutions using a statistical approach for creating better cities.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	Medium	Low	High	Medium	High	High	Medium
CO3	High	High	High	Medium	Low	High	Medium	High	High	Medium

Programme Specific Outcomes (PSO) and Course Outcome (CO) Mapping

	CO1	CO2	CO3
PSO1	H	M	L
PSO2	M	H	M
PSO3	L	M	H

H: High **M:** Medium **L:**Low

Sushant University

References

- T. Nochta, L. Wan, J. M. Schooling & A. K. Parlikad (2021) A Socio-Technical Perspective on Urban Analytics: The Case of City-Scale Digital Twins, Journal of Urban Technology, 28:1-2, 263-287
- Yulun Zhou & Ying Long (2016) SinoGrids: a practice for open urban data in China, Cartography and Geographic Information Science, 43:5, 379-392
- Levi John Wolf, Luc Anselin, Daniel Arribas-Bel & Lee Rivers Mobley (2021) On Spatial and Platial Dependence: Examining Shrinkage in Spatially Dependent Multilevel Models, Annals of the American Association of Geographers
- Galen Newman, Matthew Malecha & Kayode Atoba (2021) Integrating ToxPi outputs with ArcGIS Dashboards to identify neighborhood threat levels of contaminant transferal during flood events, Journal of Spatial Science
- Henry Crosby, Theodore Damoulas & Stephen A. Jarvis (2019) Embedding road networks and travel time into distance metrics for urban modelling, International Journal of Geographical Information Science, 33:3, 512-536
- Brian Jordan Jefferson (2018) Policing, data, and power-geometry: intersections of crime analytics and race during urban restructuring, Urban Geography, 39:8, 1247-1264
- Luca Mora, Mark Deakin, Xiaoling Zhang, Michael Batty, Martin de Jong, Paolo Santi & Francesco Paolo Appio (2021) Assembling Sustainable Smart City Transitions: An Interdisciplinary Theoretical Perspective, Journal of Urban Technology, 28:1-2, 1-27
- Jennifer Watling Neal (2020) Community psychology and urban studies: Common connections and missed opportunities, Journal of Urban Affairs, 42:5, 702-714
- Ivo Widjaja, Patrizia Russo, Chris Pettit, Richard Sinnott & Martin Tomko (2015) Modeling coordinated multiple views of heterogeneous data cubes for urban visual analytics, International Journal of Digital Earth, 8:7, 558-578
- Roderic Crooks (2017) Representationalism at work: dashboards and data analytics in urban education, Educational Media International, 54:4, 289-303
- Arindam Biswas, Tetsuo Kidokoro & Fumihiko Seta (2017) Analysis of Indian urban policies to identify their potential of achieving inclusive urban growth, Urban Research & Practice, 10:2, 198-227
- Jain, V.K. (2018) Big Data and Hadoop, Khanna Book Publishing Co., New Delhi.
- Carta, S. (2019) Big Data, Code and the Discrete City, Shaping Public Realms, Routledge, London.
- Desouza, K. and Smith, K. (2016) Big Data and Planning, PAS Report 585, American Planning Association, Washington, D.C.

Sushant University

Course Code	Course Title	L	T	P	Credits
21MEL-7PM21T	Public- Private Participation in Planning	0	2	0	2

Nature of Course: Discipline Specific Elective Course

Teaching Mode: Tutorials

Course Objective

The elective shall be offered to teach student – how to fulfill sustainable funding requirements in the supply of infrastructure through mobilization of private sector funds, improve the quantity, quality, and efficiency of services through healthy competition. And also how to improve the quality of management and maintenance in the supply of infrastructure.

Course Outcomes

CO1	Knowledge: Understanding the emerging trends in public sector innovation and ways of innovation management.
CO2	Skills (Apply + Analyse): To equip students with capabilities to generate evidences and use them for policy innovation.
CO3	Values, Orientations and Awareness (Evaluate): To appreciate the factors that can enable innovation in governance and the process of institutionalising it.

Course Outline

UNIT 1: Urban Environment

The urban environment; existing attributes and changing scenario; Problems associated with urban environmental services

UNIT 2: PPP - Role and Trends

Public-Private Partnerships in delivery of urban environmental services; Recent trends of increasing private participation; Possible partners and their possible roles

UNIT 3: Forms of Partnerships

Contracting out, BOT, joint venture, concessions and community led informal partnership approaches; Strengths and weaknesses of PPPs and their funding structures

UNIT 4: Partnerships

Preconditions Advantages effectiveness, Methods of promoting participation; Using partnerships for improving cities; Meeting the needs of the urban poor through public-private partnerships

Sushant University

UNIT 5: Mechanisms of PPPs

Processes, procedures regulations competitive bidding, due diligence Transaction cost; Use of municipal bonds for raising public investment; Capacity building of municipalities for undertaking partnership efforts.

Learning Outcomes

The students would have developed a clear understanding on the issues and opportunities of aspect specific planning.

Student Experience

Students will attend lectures, have discussions in groups, undertake tutorial, refer library resources, undertake office visits if required, compile research studies, make presentations, undertake guided individual study exercises to reinforce understanding and to apply it to specific planning aspect.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge: Understanding the emerging trends in public sector innovation and ways of innovation management.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Skills (Apply + Analyse): To equip students with capabilities to generate evidences and use them for policy innovation.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Values, Orientations and Awareness (Evaluate): To appreciate the factors that can enable innovation in governance and the process of institutionalising it.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	Medium	Low	High	Medium	High	High	Medium
CO3	High	High	Low	Medium	High	Medium	Medium	High	Medium	Low

Programme Specific Outcomes (PSO) and Course Outcome (CO) Mapping

	CO1	CO2	CO3
PSO1	H	M	L
PSO2	M	H	M
PSO3	L	M	H

H: High **M:** Medium **L:**Low

Sushant University

References

- Public-Private Partnerships for Infrastructure: Principles of Policy and Finance, E. R. Yescombe
- Urban Development Plans Formulation and Implementation Guidelines, (1996), Ministry of Urban Affairs & Employment (G.O.I.), ITPI, New Delhi.
- Pritirekha, Daspattanayak, (2000), Urbanisation and Economic Development in India, Rajat, New Delhi.
- Richardson, H.W., (1969), Urban and Regional Economics, World University Press, U.K
- Bell, C. (2003) Development Policy as Public Finance, Oxford University Press, Oxford. 2. Fisher, R.C. (2018) State and Local Public Finance, Routledge, New York. 3. Kaushik, B. (2003) Analytical Development Economics: The Less Developed Economy Revisited, MIT Press, Cambridge, MA. 4. Mohanty, P.K. (2016) Financing Cities in India: Municipal Reforms, Fiscal Accountability and Urban Infrastructure, Sage, New Delhi.

Sushant University

Course Code	Course Title	L	T	P	Credits
21MEL-3IP22T	Inclusive Urban Planning	0	2	0	2

Nature of Course: Discipline Specific Elective

Course Objective

The course intends to sensitize the students to the importance of participatory processes and integrated institutional arrangements for more effective, efficient and sustainable implementation.

Course Outcomes

On completion of this course, the students will be able to:

- **CO 1- Knowledge (Remember + Understand):** Understand the key concepts of inclusive planning, the current mandates and practices of public participation at planning level.
- **CO 2- Skills (Apply +Analyse):** Apply participatory process in the field of planning.
- **CO 3- Values, Orientations and Awareness (Evaluate):** To appreciate and demonstrate the importance of inclusivity of all the concerned stakeholders in the planning process.

Course Outline

UNIT 1:

Understanding Inclusive Planning - Definitions and components

UNIT 2:

Stakeholders Profile and Needs, Access to Shelter, Services and Livelihoods Urban Poor, Informal Sector, Gender, Children, Elderly, Disabled, Displaced people, etc.; Slums - dimensions, causative factors, determinants, location characteristics of settlements; Informal sector - growth, characteristics, functions, economic contributions, linkages with formal sector, impact on Urban Development

UNIT 3:

Participatory Planning Process and Policies, Programmes and Legislation Methods, role of stakeholders (including civil society organizations), etc.; Related Acts, Five-year plans, policies and programmes at various levels

UNIT 4:

Planning interventions Inclusive zoning, development and building regulations, Slum Improvement

Sushant University

Learning Outcomes

By the end of this course, students will be able to

- Demonstrate an understanding of the necessity of participatory and integrated urban development.
- Apply participatory and integrated development processes in planning practice.

Student Experience

Students on this course will be given opportunity to:

- Attend studios, undertake tutorials, refer library resources to reinforce understanding and apply it to specific planning aspect.
- Participate in seminars and discussions designed to review and extend the understanding gained in lectures.
- Undertake guided individual study exercises and prepare presentations to demonstrate their understanding on the subject.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge (Remember + Understand): Understand the key concepts of inclusive planning, the current mandates and practices of public participation at planning level.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Skills (Apply +Analyse): Apply participatory process in the field of planning.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Values, Orientations and Awareness (Evaluate): To appreciate and demonstrate the importance of inclusivity of all the concerned stakeholders in the planning process.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	Medium	Low	High	Medium	High	High	Medium
CO3	High	High	Low	Medium	High	Medium	Medium	High	Medium	Low

Programme Specific Outcomes (PSO) and Course Outcome (CO) Mapping

	CO1	CO2	CO3
PSO1	H	M	L
PSO2	M	H	L
PSO3	L	M	M

H: High **M:** Medium **L**:Low

Sushant University

References

- Cornwall, A. (ed.) (2011) The Participatory Reader, Zed Books, London.
- Kochi Municipal Corporation and GIZ (2019) Multi-stakeholder Ente Kochi Initiative, Kochi Municipal Corporation and GIZ India, Kochi.
- Kumar, A. and Prakash, P. (eds.) Public Participation in Planning in India, Cambridge Scholars Publishing, Newcastle.
- Pune Smart City Development Corporation Ltd. (2016) Smart City Development Plan, Pune Smart City Development Corporation Ltd., Pune.
- UN Habitat (2018) Leading Change: Delivering the New Urban Agenda through Urban and Territorial Planning, UN Habitat, Nairobi.
- Datta, A. The Illegal City: Space, Law and Gender in a Delhi Squatter Settlement, 2012 Ashgate, Burlington.
- Roy, A. and Ong, A. (Eds.) Worlding Cities: Asian Experiments and the Art of Being Global 2011 Wiley Blackwell, London.
- Eijk, G.V. Unequal Networks: Spatial Segregation, Relationships and Inequality in the City 2010 IOS Press, Amsterdam.
- Harriss, J. Antinomies of Empowerment: Observations on Civil Society, Politics and Urban
- Governance in India, Economic and Political Weekly,Vol.42,No.26, pp.2716-2724.
- Enabling Inclusive Cities: Tool Kit for Inclusive Urban Development (2015) Asian Development Bank DOI: http://dx.doi.org/10.22617/TIM157428

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP- 1PS22P	Thesis	2	7	6	12

Nature of Course: Core Course

Teaching Mode: Lecture, Tutorial and Studio

Course Objective

The thesis gives students in the school the opportunity and develop the skills to conduct postgraduate-level research on a topic of their choice.

Course Outcomes

CO1	Knowledge: Develop deeper understanding on a theme/topic based on the intellectual Interests of the student..
CO2	Skills (Apply + Analyse) - To demonstrate abilities for critical analysis of the existing literature on related research topics.
CO3	Values, Orientations and Awareness (Evaluate) - To develop capabilities for framing research questions, structure of research, research strategy and
CO4	Design (Create) - To design and develop site-specific plans and proposals.

Course Outline

UNIT 1: Conducting Literature Review

Preliminary literature review for identification of research gaps; Selection of topic, thesis statement, developing the thesis; developing research questions; detail literature reviews to understand the current state of knowledge around a particular topic

UNIT 2: Developing an Argument

What is an argument, argument structure and identification, validity and strength of arguments, common fallacies of reasoning, use and abuse of language in reasoning, principles of fair play in argumentation, respecting opposing positions, understanding different modes of persuasion; emotional, moral and ration

UNIT 3: Report Writing

Report writing, Type; characteristics of writing technical reports. Format of Reports: Preface, acknowledgements, contents, indexing, key word indexing, introduction, body terminal section, appendices, references; Writing style - introductory, developmental, transitional and concluding paragraphs, linguistic unity, coherence and cohesion, descriptive, narrative, expository and argumentative writing. Proofreading and editing

Sushant University

UNIT 4: Developing a Research Design

Formulation of objectives, research methods relevant for individual topic, development of research methodology elaborating methods of primary data collection

UNIT 5: Research and Findings

Area Appraisal, Site study: Data Collection, Policy and Programme Study, Data Analysis, Inference Generation

UNIT 4: Proposals

Proposals/ Strategy/ Recommendations/ Designing

Learning Outcomes

Students to gain more in-depth knowledge of the major subject/field of study, including deeper insight into current research and development work. Also, gain deeper knowledge of methods in the major subject/field of study.

Student Experience

Students will attend lectures, have discussions in groups, undertake tutorial, refer to library resources, undertake industrial visit and site visits, compile research studies, make presentations, and undertake guided individual study exercises to reinforce understanding and to apply it to specific planning aspect.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge: To develop general ideas about the selection of their topics for thesis projects.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Skills (Apply + Analyse) - To demonstrate abilities for critical analysis of the existing literature on related research topics.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Values, Orientations and Awareness (Evaluate) - To develop capabilities for framing research questions, structure of research, research strategy.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO4	Design (Create) -To design and develop site-specific plans and proposals.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

Sushant University

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	High	High	Medium	Medium	Low	High	Low	High	High	Low
CO2	High	High	High	Medium	Low	High	Medium	High	High	Medium
CO3	High	High	Low	Medium	High	Medium	Medium	High	Medium	Low
CO4	High	High	High	High	High	High	High	High	High	High

Programme Specific Outcomes (PSO) and Course Outcome (CO) Mapping

	CO1	CO2	CO3	CO4
PSO1	H	M	M	L
PSO2	M	H	H	M
PSO3	L	M	M	H

H: High **M:** Medium **L:**Low

References

- RaviSree P, 2021, Thesis Handbook 2020-22, SPD
- The titles will be referred to the students as per their progress in thesis.

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP#2PP22T	Professional Practice	2	0	0	2

Nature of Course: Core Course

Teaching Mode: Lecture

Course Objective

The main objective of this course is to familiarize the students with the nature of planning practice in the Indian context and develop an understanding of responsibility of planning professionals and inculcate ethical behavior in planners. Students will also get familiar with requirements of setting up a planning practice

Course Outcomes

CO1: Knowledge: To analyse and evaluate technically a planning proposal

CO2: Knowledge: To develop the ability to recognize an ethical dilemma

CO3: Values, Orientations and Awareness (Evaluate) - To show knowledge about processes of ethical decision making

CO4: Values, Orientations and Awareness (Evaluate) - To make documents involving scope of work and fees for a planning project

Course Outline

UNIT 1: Role of Planner

Planner's input as professional at various levels and organizations, his role in decision making processes, relevant issues; Generalists vs. specialists, professionals vs. technocrats, planner as decision maker vs. advisor to decision maker, relationship with client, developers, institutions and contractors; Relationship with other experts such as engineers, architects, sociologists, economist, lawyers, etc; for specialized studies related to planning.

UNIT 2: Organization, Scope and Scale of Charges

Aims and objectives of professional institutes, sister bodies; Professional roles and responsibilities of planning consultants; professional ethics; responsibilities towards clients, fellow professionals and general public; Scope of services for different projects like master plan for urban area, zonal/district plan, sector / neighbourhood; Layout, group housing schemes, commercial centers, industrial estates, etc.; Consultancy agreements and safeguards; Fees and scales of professional charges, competitions and copyrights

UNIT 3: Contract Documents and Project Formulation

Tenders, contracts, arbitration, schedule of rates for construction; Materials, labor and equipment

for land development, unit and mode of measurements, rate analysis; Formulations of project proposals and outline; Preparation of and response to Notice Inviting Tenders, Expression of Interest, Terms of Reference, Penalty clauses, etc.

Learning Outcomes:

By the end of this course, students will be able to understand the role of planner, valuation process and methods; and develop contract documents and project formulation

Student Experience

Students will attend lectures, have discussions in groups, undertake tutorial, refer to library resources, undertake industrial visit is if required, compile research studies, make presentations, and undertake guided individual study exercises to reinforce understanding and to apply it to specific planning aspect.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge: To analyse and evaluate technically a planning proposal	PO 1, PO 2, PO 3, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Knowledge: To develop the ability to recognize an ethical dilemma	PO 1, PO 2, PO 3, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Values, Orientations and Awareness (Evaluate) - To show knowledge about processes of ethical decision making	PO 1, PO 2, PO 3, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO4	Values, Orientations and Awareness (Evaluate) - To make documents involving scope of work and fees for a planning project	PO 1, PO 2, PO 3, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**
CO1	High	Medium	Medium	-	Medium	High	High	High	High	Medium
CO2	High	Medium	Medium	-	Medium	High	High	High	High	Medium
CO3	High	High	Low	Medium	High	Medium	Medium	High	Medium	Low
CO4	High	High	High	High	High	High	High	High	High	High

Programme Specific Outcomes (PSO) and Course Outcome (CO) Mapping

	CO1	CO2	CO3	CO4
PSO1	H	M	M	L
PSO2	M	H	H	M
PSO3	L	M	M	H

H: High **M:** Medium **L:**Low

Sushant University

References

- Kulshrestha, S.K., (2006), Dictionary of Urban and Regional Planning, Kalpaz Publications, Delhi. Ministry of Urban Affairs & Employment (G.O.I.), (1996) Urban Development Plans Formulation and Implementation Guidelines, ITPI, New Delhi.
- Saini & Mahavir, (1985), Urban Development Planning Strategies and Techniques, Central Electric Press, Delhi.
- Thooyavan, K.R., (2005), Human Settlements – A Planning Guide to Beginners, MA Publication, Chennai
- Barrett, C.D. (2001) Everyday Ethics for Practicing Planners, American Institute of Certified Planners, Chicago.
- Kulshreshtha, S.K. (2012) Urban and Regional Planning in India: A Handbook for Professional Practice, Sage, New Delhi.
- Saccoccia, S. (2016) Planning Practice, MIT Press, Massachusetts.
- Thomas, H. and Healey, P. (1991) Dilemmas of Planning Practice: ethics, legitimacy, and the validation of knowledge, Aldershot, Hants

Sushant University

Course Code	Course Title	L	T	P	Credits
21MUP-3UT22T	Urban Transformations	2	0	0	2

Nature of Course: Core Course

Teaching Mode: Lecture

Course Objective

The course aims to provide understanding on issues related to urban heritage and its role in harnessing new economic opportunities.

Course Outcomes

CO1: Knowledge: To recognize and describe concepts of urban renewal identify laws & policies of conservation and renewal in urban context

CO2: Values, Orientations and Awareness (Evaluate) - To appraise aspects like community involvement, financial mechanism for urban renewal

CO3: Skills (Apply + Analyse): To investigate tools of urban conservation namely redevelopment, reconstruction, rehabilitation, revitalization

Course Outline

UNIT 1: Introduction to Urban Heritage

Typology / classification, inventories, mapping; Human habitation in historical context; Heritage as a motivating force in sustainable urban conservation and development

UNIT 2: Heritage Conservation

Typologies, policies for conservation, regulatory measures, community participation; Concept of Historic Urban Landscapes; Built heritage conservation - determinants of built form on heritage; Historic urban infrastructure and traditional water harvesting systems. Integration of historic monuments / areas / cores / urban systems in the developmental process and land use, regulatory measures and community involvement; Intangible cultural heritage and development: issues, conservation strategies. Preparation of conservation and heritage management plans

UNIT 3: Heritage and Tourism

Policies and programmes, Legislation Cultural and heritage based tourism - nature, potential and prospects, marketing aspects; Acts and laws recognizing

Sushant University

UNIT 4: Design in Human Habitation Social / cultural / ecological / energy determinants of design

Imageability of the city; Structure of urban spaces – location criteria of activities and urban uses; Urban Regeneration, renewal, rehabilitation, revitalization, reconstruction and redevelopment - concepts, interventions, processes, approaches and methods, tools

Learning Outcomes

Students would have developed a situational thinking on the relevance of heritage in urban planning

Student Experience

Students will attend lectures, have discussions in groups, undertake tutorial, refer library resources, and undertake office visits if required, compile research studies, make presentations, and undertake guided individual study exercises to reinforce understanding and to apply it to specific planning aspect.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Knowledge: To recognise and describe concepts of urban renewal identify laws & policies of conservation and renewal in urban context	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO2	Values, Orientations and Awareness (Evaluate) - To appraise aspects like community involvement, financial mechanism for urban renewal	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10
CO3	Skills (Apply + Analyse): To appreciate and demonstrate the relevance of econometric models.	PO 1, PO 2, PO 3, PO 4, PO 5, PO 6, PO 7, PO 8, PO 9, PO 10

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**
CO1	High	High	High	High	Medium	High	High	Medium	High	Medium
CO2	High	High	High	High	Medium	High	High	Medium	High	Medium
CO3	High	High	High	High	Medium	High	High	Medium	High	Medium

Programme Specific Outcomes (PSO) and Course Outcome (CO) Mapping

	CO1	CO2	CO3
PSO1	H	M	M
PSO2	M	H	H
PSO3	L	M	M

H: High **M:** Medium **L:**Low

Sushant University

References

- Matthias Loepfe & Angelus Eisinger (2017) Assemblages for Urban Transformation, disP - The Planning Review, 53:1, 20-31
- Ahmet Gün, Burak Pak & Yüksel Demir (2021) Responding to the urban transformation challenges in Turkey: a participatory design model for Istanbul, International Journal of Urban Sustainable Development, 13:1, 32-55
- Archie Davies & Andrew Brooks (2019) Interpellation and Urban transformation: Lisbon's sardine subjects, Social & Cultural Geography
- Eve Chiapello, Lisa Knoll & Mildred E. Warner (2020) Special Issue: Social Impact Bonds and the Urban Transformation, Journal of Urban Affairs, 42:6, 815
- Michael Pacione (2009) The View from the Tower: Geographies of Urban Transformation in Glasgow, Scottish Geographical Journal, 125:2, 127-181
- S. E. Donaldson & I. J. van der Merwe (1999) Urban transformation and social change in Pietersburg during transition, Society in Transition, 30:1, 69-83
- Bernd Scholl & Reto Nebel (2014) Urban Transformation in Airport Regions, disP - The Planning Review, 50:2, 65-75
- Emre Balikci & Dicle Koylan (2020) Perceiving Urban Transformation from the Perspective of Evolutionary Economics: Renewal of Houses in Bağdat Street, Istanbul, Journal of Economic Issues, 54:1, 164-182
- Mahyar Arefi (2011) Urban Transformation: Understanding City Design and Form, Journal of Urban Design, 16:2, 304-306
- Gerry Mooney (2004) Cultural policy as urban transformation? critical reflections on Glasgow, European city of culture 1990, Local Economy, 19:4, 327-340
- Darren Sharp (2018) Sharing Cities for Urban Transformation: Narrative, Policy and Practice, Urban Policy and Research, 36:4, 513-526
- Hitomi Nakanishi (2013) Urban Transformation Transit Oriented Development and the Sustainable City, Australian Planner, 50:2, 175-176

Sushant University
Erstwhile Ansal University Gurugram

PROGRAMME STRUCTURE FOR MASTERS OF ARCHITECTURE, 2 YEAR DEGREE COURSE- Alignment of courses with cross cutting issues

Batch 2023- 2025

YEAR I - SEMESTER I

S.No	Course Code	Course Title	Course bearing with Employability/ Skill development / Entrepreneurship	Cross cutting issues	Activity
1	23MUD-1DS11P	**Urban Design Studio I** – Urban Studies and Design	Employability/ Skill development / Entrepreneurship	Gender, Environment and Sustainability, Human Values and Professional Ethics	Aligned Studio Project on live urban issues of cities
2	23MUD-5TM11P	**Theory and Method I** - Evolution of Urbanity	Employability	Environment and Sustainability, Human Values	Alligned assignments and presentations
3	23MUD-7DS11S	**Strategic Innovation Lab I** - Digital Skills	Skill development	Gender, Environment and Sustainability, Human Values and Professional Ethics	Alligned assignments and presentations
4	23MUD-7CE11S	**Strategic Innovation Lab I** – Service Learning and Community Engagement	Employability	Professional Ethics	Group exercises and discussions
5	23MUD 4FT11S	**Future Trends I** - Material Documentation & Representation	Employability	Professional Ethics	Aligned assignment and implementation in class work
6.1	23MUD-6CS11S	Elective I* Culture and Society	Employability/ Skill development / Entrepreneurship	Gender, Environment and Sustainability, Human Values and Professional Ethics	Aligned assignment and implementation in class work
6.2	23MUD-6PD11S	Elective I* Patterns of Development			
6.3	23MUD-6PM11S	Elective I* Planning & Management			
6.4	23MUD-6TT11S	Elective I* Tools and Techniques			
6.5	23MUD-6DT11S	Elective I* Design Thinking			
6.6	23MUD-6SD11S	Elective I* Sustainable Design			
6.7	23MUD-6GR11S	Elective I* Digital Skills & Graphic Representation			
6.8	23MUD-6MJ11S	Elective I* Media and Journalism			
6.9	23MUD-6FB11S	Elective I* Finance and Business Management			
7.1	23MUD-6CO11S	Computational skills		Gender, Environment and Sustainability,	Aligned assignment and implementation in class work
7.2	23MUD-	Sustainable			

	6SS11S	development	Skill development	Human Values and Professional Ethics	
7.3	23MUD-6NW11S	Narration and Writing			
7.4	23MUD-6HC11S	Heritage Conservation			

YEAR I - SEMESTER II

S.No	Course Code	Course Title	Course bearing with Employability/ Skill development / Entrepreneurship	Cross cutting issues	Activity
1	23MUD-1DS12P	**Urban Design Studio II –** Sustainable Urban Extensions	Employability/ Skill development / Entrepreneurship	Gender, Environment and Sustainability, Human Values and Professional Ethics	Aligned Studio Project on live urban issues of cities
2	23MUD-5TM12P	**Theory and Method II -** Research Methodology and Theory of Urban Design	Employability	Environment and Sustainability, Human Values	Alligned assignments and presentations
3	23MUD-7DS12S	**Strategic Innovation Lab II** - Digital Skills	Skill development	Gender, Environment and Sustainability, Human Values and Professional Ethics	Alligned assignments and presentations
4	23MUD-4FT12S	**Future Trends II -** City Futures I	Employability	Professional Ethics	Group exercises and discussions
5	23MUD-4TS12S	**Techniques of Sustainable Development and Environmental Impact Assessment**	Employability	Professional Ethics	Aligned assignment and implementation in class work
6	23MUD-7HC12S	**Housing and Community**	Employability	Gender, Environment and Sustainability, Human Values and Professional Ethics	Alligned assignments and presentations
7.1	23MUD-6CS12S	Elective II* Culture and Society	Employability/ Skill development / Entrepreneurship	Gender, Environment and Sustainability, Human Values and Professional Ethics	Aligned assignment and implementation in class work
7.2	23MUD-6PD12S	Elective II* Patterns of Development			
7.3	23MUD-6PM12S	Elective II* Planning & Management			
7.4	23MUD-6TT12S	Elective II* Tools and Techniques			
7.5	23MUD-6DT12S	Elective II* Design Thinking			
7.6	23MUD-6SD12S	Elective II* Sustainable Design			
7.7	23MUD-6GR12S	Elective II* Digital Skills & Graphic Representation			
7.8	23MUD-6MJ12S	Elective II* Media and Journalism			
7.9	23MUD-6FB12S	Elective II* Finance and Business			

		Management			

YEAR II - SEMESTER III

S.No	Course Code	Course Title	Course bearing with Employability/ Skill development / Entrepreneurship	Cross cutting issues	Activity
1	23MUD-1DS21P	**Urban Design Studio III** – Local Area Plan	Employability/ Skill development / Entrepreneurship	Gender, Environment and Sustainability, Human Values and Professional Ethics	Aligned Studio Project on live urban issues of cities
2	23MUD-5TM21P	**Theory and Method III** -Academic Writing & Pre-Thesis	Employability	Environment and Sustainability, Human Values	Alligned assignments and presentations
3	23MUD-5EL21S	**Strategic Innovation Lab III** - Entrepreneurship and Leadership	Entrepreneurship	Gender, Environment and Sustainability, Human Values and Professional Ethics	Alligned assignments and presentations
4	23MUD-4CF21S	**City Futures Lab III** – Urban Infrastructure & Real Estate Development	Skill Development	Professional Ethics	Group exercises and discussions
5.1	23MUD-6CS21S	Elective III* Culture and Society	Employability/ Skill development / Entrepreneurship	Gender, Environment and Sustainability, Human Values and Professional Ethics	Aligned assignment and implementation in class work
5.2	23MUD-6PD21S	Elective III* Patterns of Development			
5.3	23MUD-6PM21S	Elective III* Planning & Management			
5.4	23MUD-6TT21S	Elective III* Tools and Techniques			
5.5	23MUD-6DT21S	Elective III* Design Thinking			
5.6	23MUD-6SD21S	Elective III* Sustainable Design			
5.7	23MUD-6GR21S	Elective III* Digital Skills & Graphic Representation			
5.8	23MUD-6MJ21S	Elective III* Media and Journalism			
5.9	23MUD-6FB21S	Elective III* Finance and Business Management			
6	varies	**General Elective II - TDCC**	Skill Development		
7	23MUD-7IN21S	**Internship** (6-8 Weeks)	Employability	Gender, Environment and Sustainability, Human Values and Professional Ethics	Alligned assignments and presentations

YEAR II - SEMESTER IV

S.No	Course Code	Course Title	Course bearing with Employability/ Skill development / Entrepreneurship	Cross cutting issues	Activity
1	23MUD-1DS22P	**Urban Design Studio IV** – Design Thesis	Employability/ Skill development / Entrepreneurship	Gender, Environment and Sustainability, Human Values and Professional Ethics	Aligned Studio Project on live urban issues of cities
2	23MUD-5TM22S	**Theory and Method IV** - Thesis Report Writing	Employability	Environment and Sustainability, Human Values	Alligned assignments and presentations
3.1	23MUD-6CS22S	Elective IV* Culture and Society	Employability/ Skill development / Entrepreneurship	Gender, Environment and Sustainability, Human Values and Professional Ethics	Alligned assignments and presentations
3.2	23MUD-6PD22S	Elective IV* Patterns of Development			
3.3	23MUD-6PM22S	Elective IV* Planning & Management			
3.4	23MUD-6TT22S	Elective IV* Tools and Techniques			
3.5	23MUD-6DT22S	Elective IV* Design Thinking			
2.6	23MUD-6SD22S	Elective IV* Sustainable Design			
3.7	23MUD-6GR22S	Elective IV* Digital Skills & Graphic Representation			
3.8	23MUD-6MJ22S	Elective IV* Media and Journalism			
3.9	23MUD-6FB22S	Elective IV* Finance and Business Management			
4.1	23MUD-6SS22S	Sustainable Development	Skill development		
4.2	23MUD-6MT22S	Management			
4.3	23MUD-6CO22S	Computational Skills			
5	varies	**General Elective IV - TDCC**	Skill Development	Gender, Environment and Sustainability, Human Values and Professional Ethics	Aligned assignment and implementation in class work
6	23SAA-VAC22S	**Value Added Course** - National/International Conference	Skill development	Gender, Environment and Sustainability, Human Values and Professional Ethics	Aligned assignment and implementation in class work

****

Sushant University
soaring high

1. CORE COURSE

Course Title : **Urban Design Studio I - Urban Studies and Design**
Course Code : **23MUD-1DS11P**
Course Credits : **8**
Teaching Mode : **Studio**

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
23MUD-1DS11P	Urban Design Studio I - Urban Studies and Design	-	8	8	8	50	50	

COURSE OBJECTIVES

To understand the basic principles of Urban design data collection, documentation & analysis to reach a design proposal

COURSE OUTCOMES

The student will be able to
CO 1: Organize primary and secondary information in the form of documentation and analysis.
CO 2: Engage with social, environmental and economic factors of places to understand the experiential and phenomenal aspect of cities.
CO 3: Synthesize material and demonstrate an understanding of the place.
CO 4: Assemble and formulate elementary design solutions for the area.

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	M	M
CO 2	H	H	M	M
CO 3	H	H	H	H
CO 4	H	H	H	H

PROGRAM OUTCOMES (PO'S)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme **(Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	H	H	L	L	H	M	H	M
CO2	H	H	H	H	M	M	H	M	H	M
CO3	H	H	H	H	M	M	H	M	H	M
CO4	H	H	H	H	M	M	H	H	H	M

Sushant University
soaring high

Course Content

The Studio focuses on strengthening the skill set of students with regard to the studio project. Acquiring and enhancing the basic skills of drawing, documentation, analysis and presentation (making base maps, rasterizing, cutting appropriate sections and sketches) will be the focus. The subject entails lending graphical and digital support by augmenting software knowledge (like colour palette, materials and textures) to improve the readability of drawings and model making through the semester. The other aspect is building the urban design vocabulary to improve understanding and comprehension of the subject. The studio is an introduction to the realm of urban design and brings forth the complexities of the design process. It creates an understanding of the role of various physical, social, economic and infrastructural components, decision making processes and the contribution of related disciplines associated with the production of the city.

A. Data Collection and Analysis of a Brownfield Urban Development.
   - History and Evolution
   - Ecology
   - Morphology
   - Open Space
   - Movement and Infrastructure
   - Demographics
   - Human Geography
   - Activity Patterns
   - Typology
   - Governance, Policy and Bye Laws

B. Structure Plan and Strategy: Transform issues and objectives into a unified vision for the area with a series of strategies and an urban design framework.

C. Detailed Design Proposal for the selected area.

PEDAGOGY

- The students should be able to coordinate the group work and to learn how to work in teams for an urban level project.
- Groups of two to three should be formed to study the urban design documentation and prepare a structure plan for the same.
- The emphasis should be given on preparing physical models and 3D of the site.
- Tutorial based learning for skill learning as a part of the course in the guidance of the faculty.
- Site visits to document the work at the given studio exercise for built form, ecology, movement patterns, topography, human geography, activities and infrastructure.
- To prepare the students to use their data/knowledge gained in other urban design theory subjects in the studio.
- Learning presentation skills of city level projects

ASSESSMENT SCHEME

Intermediate Reviews by Internal Faculty	: 50 Marks
End Term External Jury	: 50 Marks
Total	: 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	Internal 2 (End-Term)		

20	30	50	100

SUGGESTED READINGS

- Bentley, Alcock & Murrain (1985), *Responsive Environments - A Manual for Designers*, Architectural Press; 1 edition
- Calvino I. (1972), *Invisible Cities*, Giulio Einaudi
- Garvin A. (1996), *The American city*, McGraw-Hill
- Gehl J. (2016), *Life Between Buildings – Using Public Space,* Island Press; Sixth edition
- Hall P. (2014), *Cities of Tomorrow - An Intellectual History of Urban Planning and Design Since 1880*, Wiley-Blackwell; 4 edition
- Hollander J, Niall Kirkwood N. , Gold J. (2010), *Principles of Brownfield Regeneration: Cleanup, Design, and Reuse of Derelict Land*, Island Press; Illustrated edition
- Lerner J. (2003), *Urban Acupuncture*, Island Press
- Lynch K. (1984), *Good City Form*, MIT Press, Cambridge
- Lynch K. (1960), *The Image of the City*, Harvard-MIT Joint Center for Urban Studies Series, MIT Press
- Marshall S. (2009), *Cities Design and Evolution*, Routledge.
- Raco M. (2011), *Sustainable urban planning and the brownfield development process in the United Kingdom: Lessons from the Thames Gateway*, The International Journal of Justice and Sustainability, Volume 11, Issue 5, Pages 499-513

Sushant University
soaring high

2. CORE COURSE

Course Title : **Theory and Method I - Evolution of Urbanity**
Course Code : **23MUD-5TM11P**
Course Credits : **2**
Teaching Mode : **Lecture**

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
23MUD-5TM11S	Theory and Method I Evolution of Urbanity	2	-	2	2	50	50	-

COURSE OBJECTIVES

To understand the basic principles of history and evolution of urbanity & understand and analyse the urban design & landscapes of the cities.

COURSE OUTCOMES

The student will be able to
CO 1: List and discuss different theories on how settlements originated and developed over the years.
CO 2: Illustrate the relationship of urban form and space in historical and theoretical terms.
CO 3: Examine the process of development of urbanity and its form.
CO 4: To be aware of the role of urban designers in redefining the urban landscape of cities.

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	M	M	M
CO 2	H	H	M	M
CO 3	H	H	H	M
CO 4	H	H	H	H

PROGRAM OUTCOMES (PO's)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme **(Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

Sushant University
soaring high

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	H	H	H	H	L	L	H	H	H	H
CO2	H	H	H	H	M	L	H	M	H	H
CO3	H	H	H	H	M	L	H	M	H	M
CO4	M	M	M	H	H	L	H	H	M	H

Course Content

The course aims at introducing the concepts of 'urbanization' and 'urbanism' across space and time. The processes, determinants and resulting morphological patterns from ancient settlements to contemporary city forms are discussed.

UNIT 1

- Evolution of the City
- Ancient human settlements
- The Early Cities
- Evolution of the City
- Ancient human settlements
- The Early Cities

UNIT 2

- Medieval Towns
- Renaissance
- Industrial Revolution and its effect on Urbanism, emergence of Town Planning

UNIT 3

- Early cities of Capitalism
- Building of Suburbia: Garden City and City Beautiful Movement
- CIAM and the Modern Movement, Corbusier's Radiant City

UNIT 4

- Urban Renewal and Post war reconstruction,
- The picturesque City
- City of Automobile
- Suburbia and
- New Town Movement

PEDAGOGY

- The students should be able to co-ordinate the group work and to learn how to work in teams for an urban level project.
- The readings and assignments will be given as individual or Group of two
- Emphasis on reading of urban theory
- Learning skills for presentation of theory data and its analysis.

ASSESSMENT SCHEME

Intermediate Assessment by Internal Faculty : 50 Marks
End Term External Jury : 50 Marks
Total : 100 Marks

Internal Evaluation (Marks)	End Semester External Evaluation	Total Marks

		(Marks)	
Internal 1 (Mid-Term)	**Internal 2 (End-Term)**	50	100
20	30		

SUGGESTED READINGS

- Ascher K. (2005), *The Works: Anatomy of a City,* Penguin Press
- Bacon E. (1976). *Design of Cities. Penguin USA*
- Banga I. (2005), *The City in Indian History: Urban Demography, Society, and Politics,* Manohar Publishers and Distributors
- Brook D. (2014), *A History of Future Cities*, W. W. Norton & Company
- Busbea L. (2017), *Topologies*, MIT Press
- Corbusier l. (1967). *The Radiant City*. Orion Press
- Flint A. (2009), *Wrestling with Moses: How Jane Jacobs Took On New York's Master Builder and Transformed the American City,* Random House
- Forrest G.W. (1999), *Cities of India: Past and Present,* Sangam Books Ltd
- Ghosh A. (1973), *The City in Early Historical India*, Indian Institute of Advanced Study
- Hall P. (2002). *Cities of Tomorrow: An Intellectual History of Urban Planning and Design in the Twentieth Century*. Wiley Blackwell
- Howard E. (1965). *Garden Cities of Tomorrow*. MIT Press
- Kostof S. (2005), *The City Assembled: The Elements of Form through History*, Thames and Hudson.
- Kostof S.(1993), *The City Shaped : Urban Patterns and Meaning through History*, Bulfinch
- Lees A. (2015). The City: A World History. Oxford University Press
- Morris A.E.J.(1994). *History of Urban Form: Before the Industrial Revolution*. Longman Scientific and Technical.
- Mumford L. (1968). *The City in History: Its Origins, its Transformations and its Prospects*. Mariner Books
- Rowe C. (1984). *Collage City*. The MIT Press
- Saran S. (2017), *How India Sees the World - Kautilya to the 21st Century*, Juggernaut Publication
- Sennett R. (1992). *Conscience of the Eye: In design and social life of Cities*. W.W. Norton and Company
- Wright F.L. (1943). *An Autobiography: Broadacre City. Taliesin*

Sushant University
soaring high

3. ABILITY AND SKILL ENHANCEMENT COURSE

Course Title : **Strategic Innovation Lab I - Digital skills**
Course Code : **23MUD-7DS11S**
Course Credits : **2**
Teaching Mode : **Lecture, Studio**

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
23MUD-7DS11S	Strategic Innovation Lab I - Digital Skills	1	1	2	2	100	-	-

COURSE OBJECTIVES

To understand and learn a new digital skill and its application in Urban design

COURSE OUTCOMES

The student will be able to
CO 1: Define the physical, computational, and perceptual basis for remote sensing.
CO 2: Recognize fundamental concepts and practices of Geographic Information Systems (GIS)
CO 3: Demonstrate proficiency in the use of GIS tools to create maps that are fit-for-purpose and effectively convey the information they are intended to.
CO 4: Construct a GIS project from proposal to end product which contains sound reasoning in the use of methods

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

Sushant University
soaring high

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	L	L	L	L
CO 2	L	L	H	M
CO 3	M	M	M	M
CO 4	M	H	H	H

PROGRAM OUTCOMES (PO'S)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme **(Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

Sushant University
soaring high

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	H	H	H	H	H	M	M	M	H	M
CO2	H	H	H	H	H	M	M	M	H	M
CO3	H	H	H	H	H	M	M	M	H	M
CO4	H	H	H	H	H	H	M	M	H	M

Course Description

GIS and Remote Sensing

Introduction to computer software tools, such as Geographical Information Systems and Remote Sensing as tools for documentation, mapping, analysis and presentation for urban design and site planning schemes; explaining their theoretical base, practiced on the studio problem or other assignments.

PEDAGOGY

- The lectures by the experts in the field will be arranged for the students so as to give them exposure to the practical aspects of the digital tools being taught.
- The emphasis should be given to actual live sites done in the studio exercise
- To prepare the students to use their data/knowledge gained in the subject for practical application in analysis of the site in the studio in this semesters and coming semester.
- The software is to be learnt individually and the raster file can be done as group work.

ASSESSMENT SCHEME

Mid Semester Internal Evaluation : 40 Marks
End Semester Internal Evaluation : 60 Marks
Total : 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	Internal 2 (End-Term)	-	100
40	60		

SUGGESTED READINGS

- Reference manuals/ guides to Space Syntax Analysis & other software's
- Handouts and readings supplied by the instructors.

Sushant University
soaring high

4. ABILITY AND SKILL ENHANCEMENT COURSE

Course Title : **Strategic Innovation Lab I - Service Learning and Community Engagement**
Course Code : **23MUD-7CE11S**
Course Credits : **2**
Teaching Mode : **Lecture, Studio**

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
23MUD-7CE11S	Strategic Innovation Lab I - Service Learning and Community Engagement	1	1	2	2	100	-	-

COURSE OBJECTIVES

To understand and develop skills of community service to engage with community at large on an urban scale for public participation

COURSE OUTCOMES

The student will be able to:

CO1 : Identify and define characteristics of the community.
CO2 : Evaluate the efficacy of community engagement strategies/methodologies
CO3 : Synthesize the gathered information
CO4 : Develop effective and innovative techniques for community collaboration over a project.

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

Sushant University
soaring high

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	M	M	M
CO 2	H	H	H	H
CO 3	M	M	M	H
CO 4	H	H	H	H

PROGRAM OUTCOMES (PO's)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme **(Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

Sushant University
soaring high

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	H	H	M	H	H	H	H	H	H	H
CO2	H	H	M	H	H	H	H	H	H	H
CO3	H	H	M	H	H	H	H	H	H	H
CO4	H	H	M	H	H	H	H	H	H	H

Course Content

Community participation is now central to planning and policy reforms around the world. It is considered fundamental to fair and representative decision-making in modern-day urban planning and is also a key element in achieving a sustainable future. In the case of India, the 74th Constitutional Amendment Act, in its section 243 S provides for setting up of ward committees to ensure citizen participation in decision making and to bring the governance and the citizens together.

Keeping in line with the above, the course is outlined in a manner which combines learning through community service in ways that enhance common good. It intends to integrate with a studio project to give students experiential opportunities to learn in real world contexts and develop skills of community engagement. It will focus on examining the policies of public participation, types of methods used along with developing and designing programmes for effective community engagement.

PEDAGOGY

- Hands on exercises for public participation and community engagements
- Presentation of data and proposals of issues
- Model making for site demonstration

ASSESSMENT SCHEME

Mid Semester Internal Evaluation : 40 Marks
End Semester Internal Evaluation : 60 Marks
Total : 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	Internal 2 (End-Term)	-	100
40	60		

Sushant University
soaring high

5. ABILITY AND SKILL ENHANCEMENT COURSE

Course Title : **Future Trends 1 - Material Documentation & Representation**
Course Code : **23MUD4FT11S**
Course Credits : **2**
Teaching Mode : **Lecture, Studio**

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
23MUD-4FT11S	Future Trends 1 - Material Documentation & Representation	1	1	2	2	100	-	-

COURSE OBJECTIVES

To understand the basic principles of Urban design, terminologies, definitions, basic graphics of urban design & concepts.

COURSE OUTCOMES

The student will be able to

CO 1: Define the concepts and organizing principles of urban design and the particular characteristics and qualities of urban space

CO 2: Explore ways of reading, data gathering, noting, interpreting,

CO 3: Observe, represent and employ drawing as a tool of representation for conceiving and guiding in Urban Design.

CO 3: Analyse the methods of practice commonly used in the field of urban design.

CO 4: Communicate effectively and convincingly both orally and graphically in the discipline of Urban Design

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

Sushant University
soaring high

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	M	M	M
CO 2	H	H	M	M
CO 3	M	H	M	M
CO 4	H	H	H	H

PROGRAM OUTCOMES (PO's)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme **(Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	H	H	H	H	H	L	H	H	M	H
CO2	H	H	H	H	H	L	H	H	M	M
CO3	M	H	H	H	M	M	M	M	H	L
CO4	H	H	H	H	H	L	H	H	M	M
CO5	H	H	H	H	H	M	H	H	M	M

Course Content

The course provides explanations of Urban Design terminologies and definitions derived from both theory and empirical evidence. It shall familiarize the student with urban design methods of survey and site analysis.

UNIT 1
- Concepts of place and space
- Urban design terminologies and definitions

UNIT 2
- Methods of urban design survey, documentation and representation
- Cognitive mapping

UNIT 3
- Space analysis
- Determinants of urban form
- Components of urban structure

UNIT 4
- Concepts of layering
- Typological studies
- Architectural expression

PEDAGOGY

- Tutorial based learning for skill learning as a part of the course in the guidance of the faculty.
- To prepare the students to use their urban readings to help in studio exercises
- The students should be able to co-ordinate the group work and to learn how to work in teams for an urban level project.
- The readings and assignments will be given as individual or Group of two
- Emphasis on reading of Basic Urban theory
- Learning skills for presentation of theory data and its analysis.

ASSESSMENT SCHEME

Mid Semester Internal Evaluation	: 40 Marks
End Semester Internal Evaluation	: 60 Marks
Total	: 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	Internal 2 (End-Term)	-	100
40	60		

SUGGESTED READINGS

- Alexander A., Ishikawa S. & Silverstein M. (1977), *A Pattern Language: Towns, Buildings, Construction*. The Oxford University Press
- Allan J. (1995). *Great Streets*. The MIT Press
- Biddulph M. (2006), *Introduction to Residential Layout*, Routledge
- Bosselmann P. (1998), *Representation of Places – Reality & Realism in City Design*, University of California Press
- Campanario G. (2014). The Urban Sketching Handbook: Architecture and Cityscapes. Quarry Books
- Certeau M.D. & Rendall S.F. (2011). *The Practice of Everyday Life*. University of California Press
- Cullen G. (1995). *Concise Townscape*. Routledge
- Cushing D.F., Miller E. (2019), *Creating Great Places: Evidence-based Urban Design for Health and Wellbeing*, Great Northern Books,
- Farrelly L. (2011), *Drawing for Urban Design*, Laurence King Publishing
- Gosling D.& Maitland B. (1984). *Concepts of Urban Design*. St Martin's Press
- Krier R. (1993), *Urban Space*, Rizzoli
- Lynch K. (1960). *The Image of the City*. The MIT Press
- Piga B.E.A., Salerno R. (2017), *Urban Design and Representation: A Multidisciplinary and Multisensory Approach*, Springer; 1st ed.
- Rice I. (2002), *Designs for Urban Layouts*, Great Northern Books
- Rossi A. (2004). *The Architecture of the City*. The MIT Press
- Thomas D. (2016). *Place Making: An Urban Design Methodology*. Routledge
- Urban Design Associates (2013). *The Urban Design Handbook: Techniques and Working Methods* .W.W. Norton and Company

Sushant University
roaring high

6. DISCIPLINE SPECIFIC ELECTIVES I

Course Title : **Elective I**
Course Code : **varies**
Course Credits : **2**
Teaching Mode : **Lecture**

23MUD-6CS11S	Culture and Society
23MUD-6PD11S	Patterns of Development
23MUD-6PM11S	Planning and Management
23MUD-6TT11S	Tools and Techniques
23MUD-6DT11S	Design Thinking
23MUD-6SD11S	Sustainable Design
23MUD-6GR11S	Digital Skills & Graphic Representation
23MUD-6MJ11S	Media and Journalism
23MUD-6FB11S	Finance and Business Management

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
varies	Elective I	2	-	2	2	100	50	-

COURSE OBJECTIVES

To understand and learn a subject of interest area and gain specialization in its skills and theory

COURSE OUTCOMES

The student will be able to
CO 1: Recognize other specializations or advance learning in subjects covering emerging areas of concern.
CO 2: Apply and synthesise new skills that are being formed.
CO 3: Appraise other fields of design and planning and work collectively with a diverse team.
CO 4: Assemble and bring about a new construct in the chosen field of interest.

Sushant University
soaring high

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design .
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	M	M
CO 2	H	H	H	H
CO 3	H	H	M	M
CO 4	H	H	H	H

PROGRAM OUTCOMES (PO's)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme (**Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**

PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	H	L	H	H	H	H	H	H	H
CO2	M	H	M	H	H	H	H	H	H	H
CO3	M	H	L	H	H	H	H	H	H	H
CO4	M	H	L	H	H	M	H	H	H	H

Course Content

The electives shall be offered on the basis of four baskets of Thinking, Doing, Applying and Telling. It primarily involves project-based teaching and learning in areas of study that seek to support and inform the core Design Studios through both horizontal and vertical integration. The courses will generally be conducted in the Tutorial/Seminar mode to encourage research, exploration and skills developments. The course contents shall be developed and modified as per the available resources within the programmes.

Thinking: This basket of electives shall include subject areas which enhance the theoretical understanding of the students and emphasizes on research.

Culture and Society

This would explore the various components of the environment and its impact on the community. Architecture is interlinked with the community, and it is important to understand the various aspects of this connection. The subject areas could include:

- City and society
- Sociology
- Community and Public Participation
- Inclusive Planning and Participatory Approach
- Cultural & Historic landscapes
- Traditional knowledge systems

Patterns of Development

This would explore the determinants of spatial patterns of development of a settlement and its impact. The subject areas could include:

- Morphology of the City
- Heritage Cities
- Settlement Studies
- Real Estate Planning and Valuation
- Metropolitan Planning and Development
- Housing
- Mapping the city

Doing: This basket of electives shall include subject areas which enhance the technical understanding of the students and emphasizes on research.

Planning and Management

This would enhance the understanding of the students about the planning and management framework. The possible subject areas could include:

- Legislation
- Economics
- Management Plan
- Disaster Risk Mitigation and Management
- EIA - Environmental impact assessment
- Building services

Digital Tools and Techniques

This would equip the students with basic understanding of efficient and upcoming tools and techniques to understand building, materials, building conditions and better management systems. The subject areas could include:

- GIS
- BIM
- Advanced Photogrammetry
- Laser scanning
- Total Station Survey

Applying: This basket of electives shall include subject areas which encouraging the students to apply the theoretical and technical concepts learnt in the studio.

Design Thinking

This module would explore an iterative process of solution-focused thinking – starting with a goal instead of solving a specific problem. This is aimed at helping the students develop lateral thinking as every conflict requires a case- specific approach.

- Futuristic and Visionary Planning
- Design Innovation
- From Idea to Design
- Design for Debate

Sustainable Design

This module would explore the philosophy of designing a built environment with the principles of social, economic, and ecological sustainability. This would equip the students with fundamentals to deal with on- ground situations. The possible subject areas could include:

- Environmental Education
- Tools for Sustainable Development
- Green Building Materials
- Climatology

Telling: This basket of elective shall include subject areas which enhance their communication and presentation skills.

Digital Skills & Graphic Representation

This elective shall hone the presentation skill sets of the students which comes of use in showcasing both documentation and design ideas in the right way. The possible subject areas could include:

- Photoshop
- In- Design
- Corel Draw
- Illustrator

Digital Media and Journalism

This module shall expose the student to allied skills which deal with presentation and communication of ideas, both graphic and written. The possible subject areas could include:

- Digital Photography
- Film- Making

- Architectural Journalism
- Media and the city

Finance and Business Management

PEDAGOGY

- The lectures by the experts in the field of interest will be taken up.
- The emphasis should be given to actual issues in that area and live projects /site.
- To prepare the students to use their data/knowledge gained in the subject in other subjects.
- The students should preferably be made to look at the area of interest through the specialisation that they are doing.

ASSESSMENT SCHEME

Mid Semester Internal Evaluation : 40 Marks
End Semester Internal Evaluation : 60 Marks
Total : 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	Internal 2 (End-Term)	-	100
40	60		

Sushant University
soaring high

7. GENERAL ELECTIVE I

Course Title : MooC
Course Code : varies
Course Credits : 2
Teaching Mode : Self Study

23MUD- 6CO11S	Computational skills
23MUD- 6SS11S	Sustainable development
23MUD- 6NW11S	Narration and Writing
23MUD- 6HC11S	Heritage Conservation

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
varies	MooC	-	-	2	2	100	-	-

COURSE OBJECTIVES

To understand and learn a subject of interest and gain specialization in it in an online format. Certification course from external agencies (academic partner of SU)

Course Content

Students may be permitted to credit one online course under Massive Open Online Course (which are provided with certificate) subject to a maximum of six credits. The approved list of online portals like Swayam, NPTEL, edX, Udemy, IGNOU, Harvard Business School (PG level) will be provided by the School every academic year. The credit attained through MOOC course has to be transferred to the marksheet of their respective semester and will be a compulsory course to meet the programme requirements. In a scenario, where the complete assessment is not done by the MOOC platform the School may conduct its own exam/jury for evaluation of the respective course. The details regarding online courses taken up by students should be sent to the Controller of Examinations one month before the commencement of End Semester Examination.

List to be added for MOCC courses every year.

ASSESSMENT SCHEME

End Term Internal Assessment : 100 Marks

End Semester Internal Evaluation	Total
100	100

Sushant University
soaring high

1. CORE COURSE

Course Title : **Urban Design Studio II – Sustainable Urban Extensions**
Course Code : **23MUD-1DS12P**
Course Credits : **8**
Teaching Mode : **Studio**

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
23MUD-1DS12P	Urban Design Studio II - Sustainable Urban Extensions	-	8	8	8	50	50	-

COURSE OBJECTIVES

To understand the basic principles of city level documentation plus analysis and designing interventions for a sustainable green field urban design development.

COURSE OUTCOMES

The student will be able to
CO 1: Collect and collate primary and secondary information in the form of documentation and analysis.
CO 2: Recognize the process of Urban Extensions and Sustainable Development in cities.
CO 3: To be able to identify and recognize the existing natural and built landscape, settlement patterns and communities, and market trends.
CO 4: Analyse and evaluate existing conditions of the site.
CO 5: To design a meaningful, socially and environmentally relevant urban environment

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	M	M
CO 2	H	H	M	M
CO 3	H	H	M	M
CO 4	H	H	H	H
CO 5	H	H	H	H

PROGRAM OUTCOMES (PO's)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme (**Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

Sushant University
soaring high

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	H	H	H	H	M	H	H	H	M	M
CO2	H	H	H	H	M	M	H	H	M	M
CO3	H	H	H	H	M	H	H	H	M	M
CO4	H	H	H	H	M	M	H	H	M	M
CO5	H	H	H	H	H	M	H	H	M	M

Course Content

Indian cities are experiencing a substantial growth rate in the past few decades. The increasing population, which the city has to accommodate, has led to more pressure on already built areas and extensions on the periphery which today stand as highly un-sustainable forms of development. In the era of dwindling oil supplies and rising energy costs, the need for low energy lifestyles has never been greater. The studio focuses on sustainable design principles and practices to ensure better living conditions both environmentally and socially.

A. Documentation and Analysis
- History and Evolution
- Ecology
- Movement and Infrastructure
- Human Geography
- Surrounding Typologies
- Activity Patterns
- Governance, Policy and Bye Laws
- Future proposal and projects

B. Transform issues and objectives into a unified vision for the area with a series of strategies and an urban design framework.

C. Detailed Design Proposal for the selected area.

It also entails strengthening the skill set of students with regard to the studio project. Acquiring and enhancing the basic skills of drawing, documentation, analysis and presentation will be the focus. With the second semester focus on Sustainable urban extensions, more of greenfield projects, the tutorial will also develop skills that enables an urban designer to deal with large sites in a comprehensive manner from ecological considerations to the design of services and related infrastructure
- Introduction to site planning &. Ecology, Site Planning philosophy
- Ecological factors in site evaluation
- Site resource systems
- Physiography
- Geology and soils
- Hydrology
- Micro-climate
- Vegetation
- Wild life, terrestrial and aquatic
- Cultural resources
- Urban vegetation, planning & maintenance

- Ecological planning processes, theories and approaches
- Road layout and parking
- Site grading and drainage
- Sewerage, water supply and electricity
- Surveys and overlays
- Site planning goals and objectives, programme development

PEDAGOGY

- The students should be able to co-ordinate the group work in a new city & gather information on a new city from various authorities.
- Groups of two to three should be formed to study the urban design documentation of a new city and prepare a structure plan for the same.
- Tutorial based learning for skill learning as a part of the course in the guidance of the faculty.
- Site visits on a new city to document the city level aspects.
- To prepare the students to use their data/knowledge gained in other urban design theory/ planning subjects in the studio.

ASSESSMENT SCHEME

Intermediate Reviews by Internal Faculty : 50 Marks
End Term External Jury : 50 Marks
Total : 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	Internal 2 (End-Term)	50	100
20	30		

SUGGESTED READINGS

- Chen K. (1972), *Urban Dynamics: Extensions and Reflections,* San Francisco Press
- Chris R. & Lister N.M. (2014), *Projective Ecologies*, Actar Publishers.
- DeLanda M. (2013), *A Thousand Years of Non-Linear History Shaping the City*, edited by R. El-Khoury and E. Robbins, 2nd edition
- Gehl J. & Birgitte S. (2013), *How to Study Public Life*, Island Press
- Hauck T., Keller R., Volker K. (2011), *Infrastructural Urbanism: Addressing the Inbetween*, DOM Publishers.
- Jacobs P. & Way D. (1968), *Visual Analysis of Landscape Development*, Harvard Press.
- Kate O. (2014), *Towards an Urban Ecology – SCAPE*, The Monacelli Press
- Lynch K. (2001), *Site Planning*, MIT Press, Cambridge. Literary Licensing, LLC
- Mostafavi, Mohsen & Doherty G. (2016), *Ecological Urbanism,* Lars Müller Publishers, Work A.C. 49 Cities
- Ramachandran R. (1992), *Urbanization and Urban Systems in India*, OUP India
- Report on *Planned City Extensions: Analysis of Historical Examples,* UN-Habitat, 2015
- Report on *Sustainable urban extensions: planned through design: a collaborative approach to developing sustainable town extensions through Enquiry by Design*, Development and Regeneration Team Prince's Foundation 2000
- Robinette G.O. & McClennon C. (1983), *Landscape Planning and Energy Conservation*, Van-Nostrand Reinhold.

Sushant University
soaring high

2. CORE COURSE

Course Title : **Theory and Method II – Research Methodology and Theory of Urban Design**
Course Code : **23MUD-5TM12P**
Course Credits : **2**
Teaching Mode : **Lecture**

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
23MUD-5TM12P	Theory and Method II (Research Methodology and Theory of Urban Design)	2	-	2	2	50	50	-

COURSE OBJECTIVES

To understand and learn theory of urban design and learn the various aspects of research methodology

COURSE OUTCOMES

The student will be able to
CO 1: Discuss the evolution and principles of Urban Design.
CO 2: Analyse different theories of urban design.
CO 3: Critique advancements in the field of urban design, changing attitudes towards urbanism and urban spaces.
CO 4: Understand different research methodology

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

Sushant University
soaring high

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	M	M
CO 2	H	H	M	M
CO 3	H	H	M	M
CO 4	H	H	M	M

PROGRAM OUTCOMES (PO's)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme **(Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	H	H	H	H	M	L	H	M	M	H
CO2	H	H	H	H	M	L	H	M	M	H
CO3	H	H	H	H	M	L	H	M	M	H
CO4	H	H	H	H	H	L	M	M	H	H

Course Content

UNIT 1

The course explores the evolution of ideas and principles of Urban Design by centring on the relationship of societal change and formal organization of the urban environment. Theoretical and critical lines of arguments are pursued by examining the design attitudes of various Architects, Urban Designers and Planners.

UNIT 2

Research Methodology

- Demonstrate the knowledge of different research methods, data collection skills, analysis tools, referencing styles and other academic writing apparatus
- Articulate a clear research question or problem and formulate an appropriate research methodology
- By selecting a suitable topic for research, define a research question/ hypothesis based on identification gap in the existing body of knowledge
- Through the process of research design with respect to various techniques of data collection, sampling techniques and the key approaches to research and determining appropriate methodology to gather information (data collection methods) and analyse it
- Analyse and synthesise the literature and collected data through the outlined methodology
- By comprehending the importance of literature review by reviewing existing research and theory relevant to the research question or hypothesis.
- Through analysis and interpretation of the data and synthesis of complex information
- Present all the aforementioned learnings clearly and effectively to an audience through the medium of writing, visual and verbal presentation

PEDAGOGY

- The readings and assignments will be given as individual or group of two
- Emphasis on reading of contemporary urban theory
- Learn skills for presentation of theory data and its analysis.
- Compose learnings in a written or presentation form

Sushant University
soaring high

ASSESSMENT SCHEME

Intermediate Assessment by Internal Faculty : 50 Marks
End Term External Jury : 50 Marks
Total : 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	Internal 2 (End-Term)	50	100
20	30		

SUGGESTED READINGS

- Alexander C. (1987). *A new Theory of Urban Design.* Oxford University Press
- Broadbent G. (1995), *Emerging Concepts of Urban Design.* Taylor and Francis
- Edensor T., Jayne M. (2012), *Urban Theory Beyond the West: A World of Cities,* Routledge
- Gehl J. (2011). *Life Between Buildings.* Island Press
- Harding A., Blokland T. (2014), *Urban Theory: A Critical Introduction to Power, Cities and Urbanism in the 21st Century,* SAGE
- Hillier B., Hanson J. (1984), *The Social Logic of Space,* Cambridge University Press
- Jacobs J. (2011). *The Death and Life of Great American Cities.* Modern Library
- Katz P. (1993). *The New Urbanism: Towards an Architecture of Community.* McGraw Hill Education
- Koolhaas R. (1997). *Delirious New York.* The Monacelli Press
- Koolhaas R. (1998). *S M l XL.*The Monacelli Press
- Lawhon M. (2020), *Making Urban Theory: Learning and Unlearning Through Southern Cities,* Routledge
- Lynch K. (1984). *Good City Form.* MIT Press
- Newman O. (1973). *Defensible Space: Crime prevention through Urban Design.* Macmilan Publishing
- Parker S. (2004), *Urban theory & the urban experience.* Routledge
- Rapoport A. (1977). *Human aspect of Urban Form: towards a man – environment approach to urban form and design.* Pergamon
- Richards G., Hannigan J.A. (2017), *New Urban Studies,* SAGE
- Schulz C.N. (1991). *Genius Loci.* Rizzoli
- Short J.R. (2006), *Urban Theory: A Critical Assessment,* Palgrave Macmillan
- Tschumi B. (2001). *Event Cities.* The MIT Press
- Venturi R., Izenour S. & Brown D.S. (1977). *Learning from Las Vegas: The Forgotten Symbolism of Architectural Form.* The MIT Press

Sushant University
soaring high

3. ABILITY AND SKILL ENHANCEMENT COURSE

Course Title : **Strategic Innovation Lab II - Digital Skills**
Course Code : **23MUD-7DS12S**
Course Credits : **2**
Teaching Mode : **Lecture, Studio**

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
23MUD-7DS12S	Strategic Innovation Lab II-Digital Skills	1	1	2	2	100	-	-

COURSE OBJECTIVES

To understand and learn a new digital skill and its application in Urban design.

COURSE OUTCOMES

The student will be able to
CO 1: Observe and memorize the tools and techniques of the software.
CO 2: Apply software in a larger context and perform basic analysis using it.
CO 3: Construct a project using the software to better understand real world applications

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	M	M
CO 2	H	H	M	M
CO 3	H	H	M	M

PROGRAM OUTCOMES (PO's)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme **(Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to to work closely with the development authoritics, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	H	H	H	H	H	L	M	M	M	M
CO2	H	H	H	H	H	L	H	M	H	M
CO3	H	H	H	H	H	L	M	M	H	M

Course Content

Softwares for Mapping, Area Analysis and other Graphical learning:

As the urban design projects become complicated and multifaceted, softwares such as space syntax and others can provide the configurational approach for analysis. The subject lays the theoretical foundation, analytical methods and modelling techniques. The application of the methods, their role in the urban design process and their

contribution to urban design projects are all discussed through the review of a selected number of real-life projects.

PEDAGOGY

- The lectures by the experts in the field will be arranged for the students so as to give them exposure to the practical aspects of the digital tools being taught
- The emphasis should be given to actual live sites done in the studio exercise
- To prepare the students to use their data/knowledge gained in the subject for practical application in analysis of the site in the studio in this semesters and coming semester
- The software is to be learnt individually and the raster file can be done as group work

ASSESSMENT SCHEME

Mid Semester Internal Evaluation : 40 Marks
End Semester Internal Evaluation : 60 Marks
Total : 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	Internal 2 (End-Term)	-	100
40	60		

SUGGESTED READINGS

- Allen D.W., Seamens K.K., Gorr W.L. (2013), *GIS Tutorial 1: Basic Workbook,* ESRI Press
- Brewer C. (2005), *Designing Better Maps: A Guide for GIS Users,* ESRI Press
- Chan Y., Easa A. (2000), *Urban Planning and Development Applications of GIS,* American Society of Civil Engineers
- Green K., Tukman M., Congalton R. (2017), *Imagery and GIS: Best Practices for Extracting Information from Imagery,* Esri Press
- Haining R. (2003), *Spatial Data Analysis: Theory and Practice*, Cambridge University Press; 1 edition
- Moughtin J.C., Cuesta R., Sarris C. & Signoretta P. (2003), *Urban Design: Method and Techniques*, Architectural Press; 2 edition
- Paliou E., Lieberwirth U. & Polla S. (2014), *Spatial analysis and social spaces: Interdisciplinary approaches to the interpretation of prehistoric and historic built environments*, De Gruyter; 1 edition
- Reference manuals/ guides to Space Syntax Analysis & other software's
- Handouts and readings supplied by the instructors.

Sushant University
soaring high

4. ABILITY AND SKILL ENHANCEMENT COURSE

Course Title : **Future Trends Lab II - City Futures I**
Course Code : **23MUD-4FT12S**
Course Credits : **2**
Teaching Mode : **Lecture, Studio**

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
23MUD-4FT12S	Future Trends Lab II -City Futures I	1	1	2	2	100	-	-

COURSE OBJECTIVES

To understand urban design of future cities, analyse todays need and suggest future course of the cities.

COURSE OUTCOMES

The student will be able to
CO 1: Discuss city futures as an outcome of actions and interventions today.
CO 2: Examine international deliberations and considerations of present day cities.
CO 3: Demonstrate learnings from global trends and analyse the scenario of urban India.
CO 4: Argue and debate meaningful discussions on relevant and pressing subjects
CO 5: Formulate an effective direction for the future of our cities.

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	M	M
CO 2	H	H	M	M
CO 3	H	H	M	M
CO 4	H	H	M	M
CO 5	H	H	H	H

PROGRAM OUTCOMES (PO'S)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme **(Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	H	H	M	H	M	M	H	M	H	M
CO2	H	H	M	H	M	M	H	M	H	M
CO3	H	H	M	H	H	M	H	M	H	H
CO4	H	H	M	H	H	M	H	M	H	H
CO5	H	H	H	H	H	M	H	M	H	H

Course Content

The course examines contemporary concerns, emerging theories, recent urban initiatives and propositions in the construct of the future city. The course will critically review philosophies and projections made in contemporary literature, film, through urban design, architecture and planning projects and the views of social and political scientists, economists etc. for the future of urbanism and city dynamics.

UNIT 1

- Examine Contemporary Urban design theories for future cities

UNIT 2

- Analyse the discourse of cities in various fields and disciplines like Art, Media, literature, current projects

UNIT 3

- Analyse the current situation and issues in cities

UNIT 4

- Frame directions for the future city

PEDAGOGY

- The students should be able to co-ordinate the work and research on a future city/ continent.
- The readings and assignments will be given as individual or Groups of two.
- Emphasis on reading of theory.
- Learning new skills for presentation through new media like video or VR.

ASSESSMENT SCHEME

Mid Semester Internal Evaluation : 40 Marks
End Semester Internal Evaluation : 60 Marks
Total : 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	Internal 2 (End-Term)	-	100
40	60		

SUGGESTED READINGS

- Beasley L. (2019), *Vancouverism,* On Point Press
- Bell S. (2016). *Imagining the Future City*: London 2062. Ubiquity Press
- Brook D. (2014). *A history of future cities*. W.W. Norton and Company
- Bulivant L. (2012), *Masterplanning Futures*, Routledge; 1 edition
- Ermacora T. & Bulivant L. (2016), *Recoded City: Co-Creating Urban Futures*, Routledge; 1 edition
- Farr D. (2018), *Sustainable Nation: Urban Design Patterns for the Future*, John Wiley & Sons
- Fry T. (2014). *City Futures in an age of changing climate*. Routledge
- Gardiner B. (2019), *Choked: Life and Breath in the Age of Air Pollution,* University of Chicago Press.
- Green B. & Hodge J.F. (2019), *The Smart Enough City: Putting Technology in Its Place to Reclaim Our Urban Future*, Strong Ideas, The MIT Press
- Hall T. & Miles M. (2002). *Urban Futures: Critical Commentaries in shaping Cities*. Routledge
- Hou J., Way T., Spencer B. (2014), *Now Urbanism: The Future City is Here,* Routledge
- Jenks M. & Dempsey N. (2005), *Future Forms and Design For Sustainable Cities*, Taylor & Francis; 1 edition
- Kodmany K.A. (2013), *The Future of the City: Tall Buildings and Urban Design,* University of Illinois at Chicago
- Madanipur A. (2017), *Cities in Time: Temporary Urbanism and the Future of the City*, Bloomsbury Academic
- Monchaux N.D., Easterling K. (2016), *Local Code: 3659 Proposals About Data, Design, and the Nature of Cities,* Princeton Architectural Press
- Montgomery C. (2014), *Happy City: Transforming Our Lives Through Urban Design,* Farrar, Straus and Giroux
- Nilsson K., Bell S., Pauleit S, Alabers C. & Nielsen S. (2013). *Peri Urban Futures: Scenarios and models for land use change in Europe.*
- Pieterse E. (2008). City Futures: *Confronting the crises of Urban Development*, Zed Books

Sushant University
soaring high

5. THEORY COURSE

Course Title : Techniques of Sustainable Development and EIA
Course Code : 23MUD-4TS12S
Course Credits : 2
Teaching Mode : Lecture, Studio

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
23MUD-4TS12S	Techniques of Sustainable Development and EIA	1	1	2	2	100	-	-

COURSE OBJECTIVES

To understand environmental issues at city level & learn techniques of sustainable development used for environmental impact assessment.

COURSE OUTCOMES

The student will be able to
CO 1: Discuss the theories and techniques available in sustainable design.
CO 2: Examine legislative mechanisms for Environmental protection and Impact Assessment.
CO 3: To appraise principles of Sustainable Development and EIA.
CO 4: Develop tools for sustainable design and growth.

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

Sushant University
soaring high

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	M	M
CO 2	H	H	H	M
CO 3	H	H	H	H
CO 4	H	H	H	H

PROGRAM OUTCOMES (PO'S)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme **(Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

Sushant University
soaring high

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	H	H	M	H	M	M	H	M	H	M
CO2	H	H	H	H	M	H	H	M	H	M
CO3	H	H	H	H	M	H	H	M	H	H
CO4	H	H	H	H	M	H	H	M	H	H

Course Content

A concern for the protection of the natural environment and the techniques for sustainable development applied to urban design, planning and architecture is of critical importance today and indispensable in the future.

- Strategies and concepts of sustainable development as relevant to settlement planning & design
- Definitions of environmental planning terms and techniques - analysis of carrying capacity, ecological footprint and land suitability, vulnerability assessment, pollution modelling, eco city development etc. Case studies of application of the concepts at various scales – regional, settlement and buildings (emphasis on urban ecosystems, green buildings, pollution control, energy use, water harvesting, waste treatment, solid waste management etc.)
- Statutory Acts, regulations and Notifications with regard to sustainability.
- Definition of Environmental Impact Assessment, methods and procedures.
- Case studies of EIA as relevant to urban design projects

PEDAGOGY

- The lectures by the experts in the field of Sustainable Development and EIA
- To prepare the students to use their data/knowledge gained in this subject in the urban design studio for sustainable urban extension
- Planning report preparation as a result of the study of the site and its analysis

ASSESSMENT SCHEME

Mid Semester Internal Evaluation : 40 Marks
End Semester Internal Evaluation : 60 Marks
Total : 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	Internal 2 (End-Term)	-	100
40	60		

SUGGESTED READINGS

- Ameen R.F.N., Mourshed M, Li H. (2015), *A critical review of environmental assessment tools for sustainable urban design,* [Online] Available at:https://www.researchgate.net/publication/280933995_A_critical_review_of_environmental_assessment_tools_for_sustainable_urban_design, (Accessed on 13.04.2020).
- Asit B., Agarwal S.B.C. (1987), *Environmental Impact Assessment for Developing Countries,* Elsevier
- Eccleston C.H. (2013), *Environmental Impact Assessment: A Guide to Best Professional Practices,* Taylor and Francis.
- Leelakrishnan P. (2018), *Environmental Law in India,* Lexis Nexis
- Marriot B. (1997). *Environmental Impact Assessment: A Practical Guide.* Mc-Graw Hill Education
- Mathur R. (2013). *India's Sustainable Development Challenges.* Teri University
- Maughan J.T. (2013). *Environmental Impact Analysis: Process and Methods.* CRC Press
- Petts J. (1999), *Handbook of Environmental Impact Assessment,* Wiley
- Rogers P., Jalal K.F. & Boyd J.A. (2007). *An Introduction to Sustainable Development.* Routledge.
- Robertson M. (2014). *Sustainability Principles and Practice.* Routledge
- Sachs J.D. (2015). *The Age of Sustainable Development.* Columbia University Press.
- Saunders A.M., Elgar E. (2018), *Advanced Introduction to Environmental Impact Assessment,* Edward Elgar
- Shah A., Mareddy A.R., Davergave N. (2017), *Environmental Impact Assessment: Theory and Practice*, Butterworth-Heinemann
- Therivel R., Wood G. (2017), *Methods of Environmental and Social Impact Assessment*, Taylor & Francis
- Wheeler S. & Beatley T. (2014). *Sustainable Development Reader.* Routledge

Sushant University
soaring high

6. THEORY COURSE

Course Title : **Housing and Community**
Course Code : **23MUD7HC12S**
Course Credits : **2**
Teaching Mode : **Lecture**

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
23MUD-7HC12S	Housing and Community	2	-	2	2	100	-	-

COURSE OBJECTIVES

To understand the basic theory and planning of housing and its various parameters

COURSE OUTCOMES

The student will be able to
CO 1: Discuss processes that constitute our living environment.
CO 2: Interpret the shift in perception of the housing problem in India and changing attitudes towards its solutions.
CO 3: Examine the relationship between housing typologies and other parameters such as density, live work and play relationship.
CO 4: Synthesize and appraise the existing housing models.

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

Sushant University
soaring high

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	M	M
CO 2	H	H	M	M
CO 3	H	H	M	M
CO 4	H	H	M	M

PROGRAM OUTCOMES (PO's)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme (Knowledge of Urban design)
PO2	Illustrate research and critical thinking to formulate solutions for communities. (Research and critical thinking)
PO3	Exhibit digital competence for urban development to design Master Plans (Digital tools & implementation)
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. (Innovation & Presentation Skills)
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. (Teamwork and Leadership)
PO6	Be able to work closely with the development authorities, government bodies and communities to address larger concerns. (collaboration)
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. (Social and & responsibility)
PO8	Exhibit professional ethics and standards in all circumstances (professional ethics and code of conduct)
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development (Employability & Entrepreneurship skills)
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources (Lifelong Learning)

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	H	H	H	M	H	M	M	M	L	L
CO2	H	H	H	M	H	M	M	M	L	L
CO3	H	H	H	M	H	M	M	M	L	L
CO4	H	H	H	M	H	M	H	M	L	L

Course Content

Housing constitutes almost one half of our cities, is produced in a variety of ways and is a reflection of the settlements ethnic, social and economic status. The course gives an overview of the housing scenario in India to develop an understanding of the dynamics of traditional and contemporary housing.

A. Design Aspects
   - Types of housing: Concepts, Layouts, Density, Open Space relationship
   - Traditional Housing Stock, its contemporary condition and transformations
   - Technological advancements in Housing Design

B. Social Aspects
   - Housing as a Social Reality: Community/User aspirations
   - Social housing scenario
   - Social impact of housing

C. Economic Aspects
   - Demand and supply
   - Law and Legislation: Rent control, Land subdivision etc.
   - Production, Control and Management of housing
   - Role of Central and State Government, Housing Board, Real Estate developers and Private Builders in the housing sector
   - Private public partnership, Foreign direct investment and its impact on the housing market

PEDAGOGY

- The lectures by the experts in the field of housing and planning housing at city level
- The emphasis should be given to study Actual master plan and their analysis of various cities in India
- To prepare the students to use their data/knowledge gained in the subject in the urban design studio
- Planning report preparation as a result of the study of masters plans and theory of planning

ASSESSMENT SCHEME

Mid Semester Internal Evaluation : 40 Marks
End Semester Internal Evaluation : 60 Marks
Total : 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	Internal 2 (End-Term)	-	100
40	60		

SUGGESTED READINGS

- Austen B. (2018), High-Risers: Cabrini-Green and the Fate of American Public Housing, HarperCollins
- Barton H., Grant M. & Guide R. (2010). Shaping Neighbourhoods: For Local Health and Global Sustainability. Routledge
- Baviskar A. (2003). Between Violence and Desire: Space, Power and Identity in the making of metropolitan Delhi. Blackwell Publishing Ltd.
- Bercegol R. (2016), Small Towns and Decentralisation in India: Urban Local Bodies in the Making, Springer
- David J. & Marcuse P.M. (2016), In Defense of Housing: The Politics of Crisis, Verso Books
- Dwivedi R.M. (2007), Urban Development and Housing in India - 1947 to 2007, New Century
- Eisenstadt, Shacher S.N. (1987). Society, Culture and Urbanization, New York. Sage Publication
- Evenson N. (1989). The Indian Metropolis: A view towards the west. Yale University Press
- Gebb K., William A.V., Clapham D. (2012), The SAGE Handbook of Housing Studies, SAGE
- Goetz E.G. (2013), New Deal Ruins: Race, Economic Justice & Public Housing Policy, Cornell Uni Press
- Mateo J.L. (2008), Global Housing Projects, ACTAR, ETH Zürich
- Ministry of Housing and Urban Poverty Alleviation (2007). National Urban Housing & Habitat Policy
- Mukherjee A. (2019), The Legal Right to Housing in India, Cambridge University Press
- Patel S. & Goyal O. (2018), India's Contemporary Urban Conundrum, Taylor & Francis
- Ram P. & Harper M. (2020), The Affordable Housing Market in India: Institutional Constraints, Informal Sector and Privatisation, Taylor & Francis
- Saunders P. (2004), Social Theory and the Urban Question, Routledge
- Shetty P. (2007), Housing Typologies in Mumbai, Collective Research Initiatives Trust
- Tighe R., Mueller E. (2013), The Affordable Housing Reader, Routledge
- Turner J.F.C. (1976), Housing by People: Towards Autonomy in Building Environments, Marion Boyars

7. DISCIPLINE SPECIFIC ELECTIVES II

Course Title : **Elective II**
Course Code : **varies**
Course Credits : **2**
Teaching Mode : **Lecture**

23MUD-6CS11S	Culture and Society
23MUD-6PD12S	Patterns of Development
23MUD-6PM12S	Planning and Management
23MUD-6TT12S	Tools and Techniques
23MUD-6DT12S	Design Thinking
23MUD-6SD12S	Sustainable Design
23MUD-6GR12S	Digital Skills & Graphic Representation
23MUD-6MJ12S	Media and Journalism
23MUD-6FB12S	Finance and Business Management

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
varies	Elective II	2	-	2	2	100	50	-

COURSE OBJECTIVES

To understand and learn a subject of interest area and gain specialization in its skills and theory

COURSE OUTCOMES

The student will be able to
CO 1: Recognize other specializations or advance learning in subjects covering emerging areas of concern.
CO 2: Apply and synthesise new skills that are being formed.
CO 3: Appraise other fields of design and planning and work collectively with a diverse team.
CO 4: Assemble and bring about a new construct in the chosen field of interest.

Sushant University
soaring high

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	M	M
CO 2	H	H	H	H
CO 3	H	H	M	M
CO 4	H	H	H	H

PROGRAM OUTCOMES (PO's)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme **(Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**

PO6	Be able to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	H	L	H	H	H	H	H	H	H
CO2	M	H	M	H	H	H	H	H	H	H
CO3	M	H	L	H	H	H	H	H	H	H
CO4	M	H	L	H	H	M	H	H	H	H

Course Content

The electives shall be offered on the basis of four baskets of Thinking, Doing, Applying and Telling. It primarily involves project-based teaching and learning in areas of study that seek to support and inform the core Design Studios through both horizontal and vertical integration. The courses will generally be conducted in the Tutorial/Seminar mode to encourage research, exploration and skills developments. The course contents shall be developed and modified as per the available resources within the programmes.

Thinking: This basket of electives shall include subject areas which enhance the theoretical understanding of the students and emphasizes on research.

Culture and Society

This would explore the various components of the environment and its impact on the community. Architecture is interlinked with the community, and it is important to understand the various aspects of this connection. The subject areas could include:

- City and society
- Sociology
- Community and Public Participation
- Inclusive Planning and Participatory Approach
- Cultural & Historic landscapes
- Traditional knowledge systems

Patterns of Development

This would explore the determinants of spatial patterns of development of a settlement and its impact. The subject areas could include:

- Morphology of the City

- Heritage Cities
- Settlement Studies
- Real Estate Planning and Valuation
- Metropolitan Planning and Development
- Housing
- Mapping the city

Doing: This basket of electives shall include subject areas which enhance the technical understanding of the students and emphasizes on research.

Planning and Management

This would enhance the understanding of the students about the planning and management framework. The possible subject areas could include:

- Legislation
- Economics
- Management Plan
- Disaster Risk Mitigation and Management
- EIA - Environmental impact assessment
- Building services

Digital Tools and Techniques

This would equip the students with basic understanding of efficient and upcoming tools and techniques to understand building, materials, building conditions and better management systems. The subject areas could include:

- GIS
- BIM
- Advanced Photogrammetry
- Laser scanning
- Total Station Survey

Applying: This basket of electives shall include subject areas which encouraging the students to apply the theoretical and technical concepts learnt in the studio.

Design Thinking

This module would explore an iterative process of solution-focused thinking – starting with a goal instead of solving a specific problem. This is aimed at helping the students develop lateral thinking as every conflict requires a case- specific approach.

- Futuristic and Visionary Planning
- Design Innovation
- From Idea to Design
- Design for Debate

Sustainable Design

This module would explore the philosophy of designing a built environment with the principles of social, economic, and ecological sustainability. This would equip the students with fundamentals to deal with on- ground situations. The possible subject areas could include:

- Environmental Education
- Tools for Sustainable Development
- Green Building Materials
- Climatology

Telling: This basket of elective shall include subject areas which enhance their communication and presentation skills.

Digital Skills & Graphic Representation

This elective shall hone the presentation skill sets of the students which comes of use in showcasing both documentation and design ideas in the right way. The possible subject areas could include:

- Photoshop
- In- Design
- Corel Draw

- Illustrator

Digital Media and Journalism

This module shall expose the student to allied skills which deal with presentation and communication of ideas, both graphic and written. The possible subject areas could include:

- Digital Photography
- Film- Making
- Architectural Journalism
- Media and the city

Finance and Business Management

PEDAGOGY

- The lectures by the experts in the field of interest will be taken up.
- The emphasis should be given to actual issues in that area and live projects /site.
- To prepare the students to use their data/knowledge gained in the subject in other subjects.
- The students should preferably be made to look at the area of interest through the specialisation that they are doing.

ASSESSMENT SCHEME

Mid Semester Internal Evaluation : 40 Marks
End Semester Internal Evaluation : 60 Marks
Total : 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	Internal 2 (End-Term)	-	100
40	60		

Sushant University
soaring high

1. CORE COURSE

Course Title : Urban Design Studio III – Local Area Plan
Course Code : 23MUD-1DS21P
Course Credits : 8
Teaching Mode : Studio

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
23MUD-1DS21P	Urban Design Studio III– Local Area Plan	-	8	8	8	50	50	-

COURSE OBJECTIVES

To understand a brown field project through public participation and prepare a local area plan.

COURSE OUTCOMES

The student will be able to

CO 1: Discuss the site conditions and surroundings at various scales such as region, city, zone, ward etc. by means of drawing, models, documentation & analysis.
CO 2: Evaluate the forces and impact of urban transformation on the chosen site
CO 3: Formulate context sensitive strategies and designs
CO 4: Present, argue and critique collaborative and individual urban design solutions to a larger public audience.

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	M	M
CO 2	H	H	M	M
CO 3	H	H	H	H
CO 4	H	H	H	H

PROGRAM OUTCOMES (PO's)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme (**Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	H	H	H	H	H	H	H	M	M	M
CO2	H	H	H	H	H	H	H	M	M	M
CO3	H	H	H	H	H	H	H	H	M	M
CO4	H	H	H	H	H	H	H	H	H	H

Course Content

The term 'Local Area Plan' (LAP) is introduced in the MPD 2021 as the plan of a Ward/Subzone to be prepared and approved by the concerned local body. The function of a Local Area Plan is to take a detailed look at a specific area, identifying and analysing the various issues of relevance, before establishing and setting out principles for the future development of the area. It involves community members in the form of participatory and capacity strengthening workshops, to identify specific issues affecting their community and produce a plan that provides solutions to meet the specific needs of their local area that supports its unique character.

The MCD has already initiated efforts for the preparation of the Local Area Plans as a pilot stage for thirty-three wards as a pilot project. This provides us an opportunity to explore the concept of local area plan and examine implications of a higher order plan at the local level as an academic exercise. The purpose of the LAP studio is to take a deeper look at a smaller area of the city, identifying the range of issues that affect it, in consultation with the local community and establish a vision and objectives for the area.

1. Documentation and Analysis
   - History and Growth Networks
   - Movement Networks
   - Social Networks
2. Structure Plan and Strategy
3. Detailed Design Proposal

PEDAGOGY

- The students should be able to co-ordinate the group work & gather information on a form various authorities.
- Groups of two to three should be formed to study the urban design documentation of the city and prepare a structure plan and detail design for the same.
- Tutorial based learning for skill learning as a part of the course in the guidance of the faculty.
- Site visits to the area of study & to document city level aspects.
- To prepare the students to use their data/knowledge gained in other urban design theory/ planning subjects in the studio.

ASSESSMENT SCHEME

Intermediate Reviews by Internal Faculty : 50 Marks
End Term External Jury : 50 Marks
Total : 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	Internal 2 (End-Term)	50	100
20	30		

SUGGESTED READINGS

- Abbott J. (1996). *Sharing the City: Community participation in urban development*. Routledge
- Barnett J. (1982). *Introduction to Urban Design*. Icon (Harpe)
- Devisch O., Huybrechts L. and Ridder R.D. (2018), *Participatory Design Theory: Using Technology and Social Media to Foster Civic Engagement*, Routledge Research in Planning and Urban Design, Routledge; 1 edition
- Henry S. (1999), *Community Participation Methods in Design and Planning*, Wiley; 1 edition
- Frug G.E. (1999). *City Making: Building Communities without Building Walls*. Princeton University Press
- Katan R. & Shiffman R. (2014), *Building Together: Case Studies in Participatory Planning and Community Building*, New Village Press
- Nilekeni N. (2009). *Imagining India*. Penguin Press
- Norton P. & Hughes M. (2017), *Public Consultation and Community Involvement in Planning*, Routledge; 1 edition
- Thomas D. (2016), *Placemaking – An Urban Design Methodology*, Routledge Research in Planning and Urban Design, Routledge; 1 edition
- Wates N. (2008), The Community Planning Event Manual: How to use Collaborative Planning and Urban Design Events to Improve your Environment, Earthscan Tools for Community Planning, Routledge
- Wates N. (2014), *The Community Planning Handbook: How People Can Shape Their Cities, Towns and Villages in Any Part of the World*, Earthscan Tools for Community Planning, Routledge; 2 edition

Sushant University
soaring high

2. CORE COURSE

Course Title : **Theory and Method III -Academic Writing & Pre-Thesis**
Course Code : **23MUD5TM21P**
Course Credits : **4**
Teaching Mode : **Lecture**

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
23MUD-5TM21P	Theory and Method III - Academic Writing & Pre-Thesis	1	3	4	4	50	50	-

COURSE OBJECTIVES

To enable the student to articulate academic research proposal writing; Abstract/Synopsis/Conference /Journal Paper, using adequate research methods and maintaining ethical practices.

COURSE OUTCOMES

The students would be expected to:

CO1: Define a research area and formulate research questions and appropriate methodology
CO2: Analyze and synthesize the literature and collected data
CO3: Converting the research idea into an Urban Design Project, identifying a suitable context and site for the same.
CO4: Communicate effectively to an audience through the medium of academic writing, visual and verbal presentation.

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	M	M
CO 2	H	H	M	M
CO 3	H	H	M	M
CO 4	H	H	H	H

PROGRAM OUTCOMES (PO's)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme **(Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	H	H	M	H	M	M	M	H	H	M
CO2	H	H	H	H	H	H	H	H	H	M
CO3	H	H	M	H	M	M	M	H	M	M
CO4	H	H	M	H	M	H	M	H	H	M

COURSE CONTENT

UNIT 1: Introduction to Research Methodology.

- What is Research, its meaning and Objectives.
- Defining research Problem
- Research Design and Hypothesis
- Methods in Research, Quantitative & Qualitative.
- Sampling and Data Collection
- Data Analysis

- Drawing Conclusions.

UNIT 2: Introduction to different types of Academic writing and its tools and Publication Ethics
- Literature review: Introduction, Source of literature; Process of literature review
- Publication ethics: definition, introduction and importance
- Violation of publication ethics, authorship and contributor-ship

UNIT 3: Pre Thesis Synopsis
- Converting the Research Problem to a viable Urban Design Thesis Project
- Setting up the Premise of the Thesis
- Situating the research problem in a context
- Identifying a suitable site for the research demonstration
- Data Collection and Presentation

PEDAGOGY

- The lectures by the experts in the field will be arranged for the students so as to give them exposure to the practical aspects construction materials and how they combine to cover space.
- Students will be encouraged to read and analyse exist literature and become proficient in the field of academic discourse.
- Intermittent reviews of the academic paper of the student by senior academicians and practitioners will be organised.
- Peer learning will have encouraged through group discussions on similar topics of research by the students in workshop mode.
- The student will be encouraged to publish the output of the Academic Writing course work as research paper in a journal of repute and/or present in a national/international conference.

ASSESSMENT SCHEME

Intermediate Assessment by Internal Faculty : 50 Marks
End Term External Jury : 50 Marks
Total : 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	Internal 2 (End-Term)	50	100
20	30		

SUGGESTED READINGS

- Borden, I., & Ray, K. R. (2009). The Dissertation: An architectural student's handbook. Amsterdam: Elsevier.
- Groat, L. N., & Wang, D. (2013). Architectural research methods. Hoboken: J. Wiley.
- Neuman, W. (2013). Social Research Methods: Qualitative and Quantitative Methods. 7th Ed. Pearson New International Edition.
- Machi, L. A. (2008). The Literature Review: Six Steps to Success. Corwin Press.
- Creswell, J. W. (2014). Research design: Qualitative, quantitative and mixed methods approaches. 4th Ed. Thousand Oaks, CA: Sage.
- Harvard Referencing Style Document Book References, [Online] Available at: https://apastyle.apa.org/style-grammar-guidelines/references/examples/book-references, (Accessed on 21.18.2019).

- Creswell J.W., Clark P.V.L. (2006), Designing and Conducting Mixed Methods Research, SAGE
- Farthing S. (2016), Research Design in Urban Planning: A Student's Guide, SAGE Publications Ltd.
- FitzGerald W.T., Colomb G.G, Bizup J., Williams J.M., Booth W.C. (2016), The Craft of Research, Fourth Edition, University of Chicago Press
- Kothari C.R. (2004), Research Methodology: Methods and Techniques, New Age International
- Judith Clare Helen Hamilton, Writing Research: Transforming Data into Text, 2003, ISBN 9780443071829, Churchill Livingstone, https://www.elsevier.com/books/writing-research/clare/978-0-443-07182-9
- Mathukutty M Monippally, Academic Writing: A Guide for Management Students and Researchers, ISBN 9788132104414, Sage Publications, New Delhi, India.
- Free lectures on Academic writing on YouTube Channel: https://cutt.ly/OKliv

Sushant University
soaring high

3. ABILITY AND SKILL ENHANCEMENT COURSE

Course Title : **Strategic Innovation Lab III – Entrepreneurship and Leadership**
Course Code : **23MUD5EL21S**
Course Credits : **2**
Teaching Mode : **Lecture, Studio**

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
23MUD-5EL21S	Strategic Innovation Lab III – Entrepreneurship and Leadership	1	1	2	2	100	-	-

COURSE OBJECTIVES

To develop entrepreneurship and leadership skills enhancing career advancement and professional growth.

COURSE OUTCOMES

The student will be able to:

CO1 : Recognise leadership attributes.
CO2 : Identify business opportunities
C03 : Formulate a Business Plan.es.

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	M	M
CO 2	H	H	M	M
CO 3	H	H	H	H

PROGRAM OUTCOMES (PO's)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme **(Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	H	H	M	H	H	M	H	H	H	H
CO2	H	H	M	H	H	M	H	H	H	H
CO3	H	H	M	H	H	M	H	H	H	H

Course Content

The course aims to nurture future leaders, who are familiar with leadership attributes and understand the process of setting up an entrepreneurial establishment. This will develop entrepreneurship as an alternate career option and strengthen the developing economy in line with the National Education Policy 2020. The course will help the learners establish plans and programmes to formulate an enterprise by creative ideas, along with translating opportunities and motivate others in the organisation. The course will include introduction to key concepts and skills of leadership in terms of styles and adaptations, and philosophy and concepts of entrepreneurship.

PEDAGOGY

- Students will be asked to read and express the learnings from various business models prevelant in architecture and related professions
- Students will be taken to various types of architectural practice setups in the city
- Guest lectures by professionals in the field of architecture and allied areas will be arranged on campus

ASSESSMENT SCHEME

Mid Semester Internal Evaluation : 40 Marks
End Semester Internal Evaluation : 60 Marks
Total : 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	Internal 2 (End-Term)	-	100
40	60		

SUGGESTED READINGS

- Thomas J. R. (2002) Crucibles of leadership
- Dubrin J. A. (2012) Principles of Leadership, 7th ed
- Kotter P. J. : What Leaders Really Do, Harvard Business Review Press; 1st edition, (22 March 1999)
- Fried J. & Hansoon D. (2010) Rework , Currency

4. ABILITY AND SKILL ENHANCEMENT COURSE

Course Title : **City Futures Lab III – Urban Infrastructure and Real Estate Development**
Course Code : **23MUD4FT21S**
Course Credits : **2**
Teaching Mode : **Lecture**

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
23MUD-4FT21S	City Futures Lab III – Urban Infrastructure and Real Estate Development	2	-	2	2	100	-	-

COURSE OBJECTIVES

To understand the basic theories of urban Infrastructure, Traffic and Transportation & their implementation on a city level. Further it aims to give the students a detailed appreciation of the dynamics of real estate development process in India and the contemporary issues involved.

COURSE OUTCOMES

The student will be able to
CO 1: Identify transport planning processes in India.
CO 2: Examine traffic and transportation systems within cities along with the kind of real estate development.
CO 3: To critically evaluate present-day approaches of urban infrastructure, policies, laws and processes involved in the development and management of real estate sector.
CO 4: To develop the skills needed to craft and implement new age infrastructural constructs and strategic real estate plans for our cities.

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	M	M	M
CO 2	H	H	M	M
CO 3	H	H	H	H
CO 4	H	H	H	H

PROGRAM OUTCOMES (PO's)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme (**Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. (**Teamwork and Leadership)**
PO6	Be able to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances (**professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development (**Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources (**Lifelong Learning)**

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	H	H	M	H	H	H	H	H	H	H
CO2	H	H	M	H	H	M	H	H	H	H
CO3	H	H	M	H	H	M	H	H	H	H
CO4	H	H	H	H	H	H	H	H	H	H

COURSE CONTENT

The course is an overview of the infrastructure and transportation needs of an urban environment. It explains the movement structure of a city and the planning concepts, standards, methods, procedures and management systems involved. It further delves into the types of real estate development seen in cities.

UNIT 01

- Concepts of urban infrastructure (Physical and Social)
- Implication of urban form and size on services: Siting of service networks like Water supply, sewerage/drainage and waste management.
- Urban Social infrastructure; qualitative and quantitative techniques of assessing requirements for amenities and institutions.
- Financing of infrastructure needs of the city and agencies involved.

UNIT 02

- Accessibility vs. Mobility
- Hierarchy of roads and their capacities
- Transport network and its components
- Surveys: Traffic Volume, Origin-Destination, Speed and Delay, Parking survey etc.
- Parking: Demand estimation, planning and design standards
- Traffic circulation and management principles
- Intersection Design

UNIT 03

Real Estate Development

- Definition of real estate – physical, financial and social perspectives
- Real, local, national and global factors affecting real estate

UNIT 04

History of development of real estate in Indian metros

- The 90's boom and what followed
- Key drivers of the metropolitan real estate market
- Demand factors affecting real estate development

UNIT 05

- Real estate development and planning
- Overview of laws and regulations affecting real estate Urban Land Ceiling, Rent Acts, DCR's etc. FDI policy in Townships and SEZ's
- Short review of residential/office/retail markets in Delhi and NCR
- Real estate consulting services and their relevance

PEDAGOGY

- The course will be delivered through a mix of classroom lectures and case studies discussions
- The lectures by the experts in the field of urban of Infrastructure, Traffic and Transportation
- Visits to real estate offices and planning firms to understand the real-world land market pressures
- Analyse and present the findings and proposals in conjunction with the offices

ASSESSMENT SCHEME

Mid Semester Internal Evaluation : 40 Marks
End Semester Internal Evaluation : 60 Marks
Total : 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	Internal 2 (End-Term)	-	100
40	60		

SUGGESTED READINGS

- Bruton M.J. (1970). An Introduction to Transportation Planning. Hutchinson, London.
- Dimitriou H.T. (2012). Urban Transport Planning and Developmental Approach. Routledge
- Einsiedel N.V., Steinberg F., Singh K. (1996), Integrated Urban Infrastructure Development in Asia, Oxford & IBH Publishing Company
- Graham S. (2009), Disrupted Cities: When Infrastructure Fails, Routledge
- Government of India (2013). Real Estate Regulatory Bill, Ministry of Housing and Urban Poverty Alleviation.
- Government of India (2007). National Urban Housing & Habitat Policy, Ministry of Housing and Urban Poverty Alleviation
- Heeri C.P. Manual on Water Supply and Sewerage. New Delhi.
- John B. Urban Transport Planning and Design. Crown Helm Ltd, London.
- Kadiyali L.R. Traffic Engineering and Transportation Planning. Khanna Publications.
- Naik G., Nagadevara V.P. (2010), Urban Infrastructure and Governance, Taylor & Francis Group
- Papacostas & Prevendours. Transportation Engineering and Planning. PHI Publication.
- Ratcliff, John, et.al. Urban Planning and Real Estate Development, 3rd Edn. Routledge, Lond.
- Rao, P.S.N. (1998) Rent Law in Delhi - How the changes affect the Real Estate Market in Delhi, ITPI Journal, Vol. 17, No.2(176), Dec.
- Rao, P.S.N. (2003) FDI for Real Estate Development in India, Nagarlok, Vol. XXXV, No. 3, July - Sept.. 2003. Pp. 21- 29.
- Rao, P.S.N. (2004) Municipal Real Estate Portfolios - Releasing the Latent Potential, AIHDA Journal, Vol. 2004/1, February, 2004. pp. 44-46.
- Rutherford J. (2019), Redeploying Urban Infrastructure: The Politics of Urban Socio-Technical Futures, Springer
- Salvats T.P. Environmental Engineering and Sanitation. Wiley and Sons, New York
- Weimer, Arthur M and HOYT, Homer. Principles of Real Estate, 6th Edn. The Ronald Press Co., NY. 3.

5. DISCIPLINE SPECIFIC ELECTIVES III

Course Title : **Elective III**
Course Code : **varies**
Course Credits : **2**
Teaching Mode : **Lecture**

23MUD-6CS11S	Culture and Society
23MUD-6PD21S	Patterns of Development
23MUD-6PM21S	Planning and Management
23MUD-6TT21S	Tools and Techniques
23MUD-6DT21S	Design Thinking
23MUD-6SD21S	Sustainable Design
23MUD-6GR21S	Digital Skills & Graphic Representation
23MUD-6MJ21S	Media and Journalism
23MUD-6FB21S	Finance and Business Management

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
varies	Elective III	2	-	2	2	100	50	-

COURSE OBJECTIVES

To understand and learn a subject of interest area and gain specialization in its skills and theory

COURSE OUTCOMES

The student will be able to

CO 1: Recognize other specializations or advance learning in subjects covering emerging areas of concern.
CO 2: Apply and synthesise new skills that are being formed.
CO 3: Appraise other fields of design and planning and work collectively with a diverse team.
CO 4: Assemble and bring about a new construct in the chosen field of interest.

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	M	M
CO 2	H	H	H	H
CO 3	H	H	M	M
CO 4	H	H	H	H

PROGRAM OUTCOMES (PO's)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme **(Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**

PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	H	L	H	H	H	H	H	H	H
CO2	M	H	M	H	H	H	H	H	H	H
CO3	M	H	L	H	H	H	H	H	H	H
CO4	M	H	L	H	H	M	H	H	H	H

Course Content

The electives shall be offered on the basis of four baskets of Thinking, Doing, Applying and Telling. It primarily involves project-based teaching and learning in areas of study that seek to support and inform the core Design Studios through both horizontal and vertical integration. The courses will generally be conducted in the Tutorial/Seminar mode to encourage research, exploration and skills developments. The course contents shall be developed and modified as per the available resources within the programmes.

Thinking: This basket of electives shall include subject areas which enhance the theoretical understanding of the students and emphasizes on research.

Culture and Society

This would explore the various components of the environment and its impact on the community. Architecture is interlinked with the community, and it is important to understand the various aspects of this connection. The subject areas could include:

- City and society
- Sociology
- Community and Public Participation
- Inclusive Planning and Participatory Approach
- Cultural & Historic landscapes
- Traditional knowledge systems

Patterns of Development

This would explore the determinants of spatial patterns of development of a settlement and its impact. The subject areas could include:

- Morphology of the City
- Heritage Cities
- Settlement Studies
- Real Estate Planning and Valuation

- Metropolitan Planning and Development
- Housing
- Mapping the city

Doing: This basket of electives shall include subject areas which enhance the technical understanding of the students and emphasizes on research.

Planning and Management

This would enhance the understanding of the students about the planning and management framework. The possible subject areas could include:

- Legislation
- Economics
- Management Plan
- Disaster Risk Mitigation and Management
- EIA - Environmental impact assessment
- Building services

Digital Tools and Techniques

This would equip the students with basic understanding of efficient and upcoming tools and techniques to understand building, materials, building conditions and better management systems. The subject areas could include:

- GIS
- BIM
- Advanced Photogrammetry
- Laser scanning
- Total Station Survey

Applying: This basket of electives shall include subject areas which encouraging the students to apply the theoretical and technical concepts learnt in the studio.

Design Thinking

This module would explore an iterative process of solution-focused thinking – starting with a goal instead of solving a specific problem. This is aimed at helping the students develop lateral thinking as every conflict requires a case- specific approach.

- Futuristic and Visionary Planning
- Design Innovation
- From Idea to Design
- Design for Debate

Sustainable Design

This module would explore the philosophy of designing a built environment with the principles of social, economic, and ecological sustainability. This would equip the students with fundamentals to deal with on- ground situations. The possible subject areas could include:

- Environmental Education
- Tools for Sustainable Development
- Green Building Materials
- Climatology

Telling: This basket of elective shall include subject areas which enhance their communication and presentation skills.

Digital Skills & Graphic Representation

This elective shall hone the presentation skill sets of the students which comes of use in showcasing both documentation and design ideas in the right way. The possible subject areas could include:

- Photoshop
- In- Design
- Corel Draw
- Illustrator

Digital Media and Journalism

This module shall expose the student to allied skills which deal with presentation and communication of ideas, both graphic and written. The possible subject areas could include:

- Digital Photography
- Film- Making
- Architectural Journalism
- Media and the city

PEDAGOGY

- The lectures by the experts in the field of interest will be taken up.
- The emphasis should be given to actual issues in that area and live projects /site.
- To prepare the students to use their data/knowledge gained in the subject in other subjects.
- The students should preferably be made to look at the area of interest through the specialisation that they are doing.

ASSESSMENT SCHEME

Mid Semester Internal Evaluation : 40 Marks
End Semester Internal Evaluation : 60 Marks
Total : 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	Internal 2 (End-Term)	-	100
40	60		

6. General Elective II - MDC

Course Title : MDC 1
Course Code :Varies
Course Credits : 02
Teaching Mode : Tutorial

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
Varies	MDC 1	2	-	2	2	100	-	-

COURSE DESCRIPTION AND AIM

MDC is an open elective platform for learning across the various schools of the University. The offerings are beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course.

COURSE OUTCOMES (COs)
CO's as per individual MDC offered

PROGRAMME OUTCOMES (POs)

PO1: Annotate and associate with the architectural theory, history and principles in the creation of space. Develop and reflect on the factors associated with the natural and built environment. **(Knowledge & Expertise of Interior Architecture)**
PO2: Evaluate, invent & determine the perception of investigation & critical analysis around social, physical and natural environments. **(Research)**
PO3: Design more efficiently through understanding of material technology, human factors, process of construction. **(Spatial Planning)**
PO4: Investigate and critically anticipate aspects of Interior architecture in conjunction with key influences both tangible & intangible on social and physical built environment. **(Critical Thinking)**
PO5: Observe, represent and illustrate spatial ideas through various modes : digital, analog **(Communication & Presentation skills)**
PO6: Exhibit peer respect and coordination, demonstrate rigor of architectural thinking together with sensory understanding of design. **(Behavioral skills, teamwork, leadership)**
PO7: Develop & demonstrate a profound knowledge which enables them to create sustainable strategies with regards to the biophysical world. **(Sustainability & heritage values)**
PO8: Experiment with material, techniques and planning for interior site, structure, surfaces, services, skin and stuff in coordination with human behavior to create a 'Total space'. **(Material, Technique, Planning)**
PO9: Optimize the operational and commercial performance of built assets with critically analysing and exploring the spatial potential linked to materiality and poetics of the existing. **(Appropriate use of built & unbuilt)**

PO10: Demonstrate non-linear and iterative approach towards design thinking and process **(Process & Methods)**
PO11: Assess the relationship between design, material, prototyping, manufacture, environment, context and the urban interiority **(Interdisciplinary learning)**

MAPPING OF COs & POs
As per individual MDC offered

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	M	H	L	H	H	H	H	H	H	H	M
CO2	M	H	M	H	H	H	H	H	H	H	M
CO3	M	H	L	H	H	H	H	H	H	H	M
CO4	M	H	L	H	H	M	H	H	H	H	M

H- High, M- Medium, L-Low

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	M	M
CO 2	H	H	H	H
CO 3	H	H	M	M
CO 4	H	H	H	H

SCHEME OF EVALUATION

Intermediate Reviews by Internal Faculty: 100 marks
End Term Evaluation: NA

Sushant University
soaring high

7. INTERNSHIP

Course Title : **Internship (6-8 weeks)**
Course Code : **23MUD7IN21S**
Course Credits : **4**
Teaching Mode : **Self Work**

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
23MUD-7IN21S	Internship	-	-	4	4	100	-	-

COURSE OBJECTIVES

To understand the basics of professional practice and ethics by being and working in an organisation which deals with Urban design or interdisciplinary professionals.

COURSE OUTCOMES

The student will be able to
CO 1: Observe and extract various aspects of professional practice and ethics (through internship) or applied research
CO 2: Recognize the entire process involved in the realization of an Urban Design project.
CO 3: Practice the learnings with interdisciplinary professionals.
CO 4: Construct improved urban design solutions.

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

Sushant University
soaring high

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	M	M
CO 2	H	H	H	H
CO 3	H	H	H	H
CO 4	H	H	H	H

PROGRAM OUTCOMES (PO's)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme **(Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	H	H	H	H	H	H	H	H	H	M
CO2	H	H	H	H	H	H	H	H	H	M
CO3	H	H	H	H	H	H	H	H	H	M
CO4	H	H	H	H	H	H	H	H	H	M

Course Content

This exercise aims at understanding the various interpretations of 'Urban Design' as employed in different circumstances or by authorities and designers. Students work as an intern with a firm that undertakes urban design projects such as urban extension, master planning, redevelopment and revitalization. They are required to present their internship by documenting and analysing it.

The work needs to show clearly

- Context and Opportunity
- Design Strategy
- Design Features
- Implementing strategy
- Tools and Mechanisms
- Process and Implementation
- Participants and State-Holders
- Actual Realization

PEDAGOGY

Hands on work at a professional organisation

ASSESSMENT SCHEME

Report submitted and Viva by Internal Faculty Panel : 100 Marks

Sushant University
soaring high

1. CORE COURSE

Course Title : **Urban Design Studio IV – Design Thesis**
Course Code : **23MUD1DS22P**
Course Credits : **12**
Teaching Mode : **Studio**

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
23MUD1DS22P	Urban Design Studio IV – Design Thesis	-	12	12	2	50	50	-

COURSE OBJECTIVES

To create a design-based project after an in depth study of urban design

COURSE OUTCOMES

The student will be able to
CO 1: Explore a theoretical premise and it's potential through a design project of their choice.
CO 2: Analyze the given context and synthesize the complex requirements
CO 3: Sensitively develop a framework of strategies followed by an urban design proposal.
CO 4: Present, argue and critique collaborative and individual urban design proposals visually, verbally and textually, to peers, academics, professional and public audiences.

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

Sushant University
soaring high

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	M	M
CO 2	H	H	M	M
CO 3	H	H	H	H
CO 4	H	H	H	H

PROGRAM OUTCOMES (PO's)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme (**Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

Sushant University
soaring high

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	H	H	H	H	M	M	H	H	H	L
CO2	H	H	H	H	M	M	H	H	H	L
CO3	H	H	H	H	M	H	H	H	H	L
CO4	H	H	H	H	H	H	H	H	H	H

Course Content

The thesis is a research-based project that enables the student to carry out an in-depth investigation into a subject area of personal interest, which is related to or developed from a theme studied during the course. Work on this research begins in the previous semester under the title of Pre Thesis Research Seminar. The research exploration leads to a design proposition that demonstrates how it is transformed in the creation of urban places. It must demonstrate its impact through a design that engages the spatial and environmental analysis of a particular site and context.

UNIT 01

Topic and Premise

- Clear statement of the thesis topic and justification of the same
- Methodology and approach that will be adopted in the project
- Summary of relevant literature studies, precedents and case studies on the subject
- Timeline for completion of the thesis.

Study and analysis

- Documentation, Study and analysis,
- Base Drawings, Regional level, City Level, Area Level and Unit Level.
- Surveys, Photographic documentation etc.

UNIT 02

Design Framework & Strategy

- Master plan/ Site plan/ Urban linkages and Urban structure
- Land use/ Built Vs Open/ Density/ Street network/ Sites and Services
- Urban Form and Urban Space & Broad Guidelines
- Socio-economic analysis, Financial strategies, implementation techniques, control mechanisms, phasing diagrams.

UNIT 03

Demonstration Area

- Part Demonstration of the project: Urban Form/ Urban Space/ Unit typology/ Scale/ Character/Aesthetics
- Architectural resolution/ Building guidelines/ Street character
- Pedestrian space/ Road Geometry/ Signage/ Landscape/Lighting
- Models at appropriate scales.

PEDAGOGY

- The students should be able to co-ordinate individually on a city of their choice & gather information on their own.
- To prepare the students to use their data/knowledge gained in last 3 semesters to prepare all the drawings needed for the thesis project
- Model preparation for city and design demonstration of the area taken for study

Sushant University
soaring high

ASSESSMENT SCHEME

Intermediate Reviews by Internal Faculty : 50 Marks
End Term External Jury : 50 Marks
Total : 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	**Internal 2 (End-Term)**	50	100
20	30		

Sushant University
soaring high

2. ABILITY AND SKILL ENHANCEMENT COURSE

Course Title : **Theory and Method IV – Thesis Report Writing**
Course Code : **23MUD5TM22S**
Course Credits : **2**
Teaching Mode : **Lecture, Studio**

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
23MUD-5TM22S	Theory and Method IV – Thesis Report Writing	1	1	2	2	100	-	-

COURSE OBJECTIVES

The Design Thesis needs to be accompanied by a written report in the form of a manuscript. It is the first substantive scholarly conversation in the discipline. It develops critical thinking, scholarly writing skills and research abilities while developing individual thesis proposals. The course is writing intensive with a focus on compiling information in the form of a report to assist the final oral and graphical presentation of data and research.

COURSE OUTCOMES

The student will be able to

CO 1: To identify various genres in report writing and the purpose of different sections in a report.
CO2: To understand the importance of report writing
CO3: To articulate a logical yet unique structure for the report
CO4: To analyse and organize data and graphics meaningfully
CO5: To develop an effective and style of the thesis report that communicates ideas clearly and succinctly using appropriate level of language and grammar

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	M	M
CO 2	H	H	M	M
CO 3	H	H	M	M
CO 4	H	H	H	H
CO 5	H	H	H	H

PROGRAM OUTCOMES (PO's)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme **(Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	H	H	M	H	M	M	H	M	M	M
CO2	H	H	M	H	M	M	H	M	M	M
CO3	H	H	M	H	M	M	H	M	M	M
CO4	H	H	M	H	M	M	H	M	M	M
CO5	H	H	M	H	M	M	H	M	M	M

PEDAGOGY

- Lecture based platform & Tutorial based learning
- Research based learning & writing after the research
- Periodic assignments as per schedule
- Online lectures for some topics

Sushant University
soaring high

ASSESSMENT SCHEME

Mid Semester Internal Evaluation : 40 Marks
End Semester Internal Evaluation : 60 Marks
Total : 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	**Internal 2 (End-Term)**	-	100
40	60		

SUGGESTED READINGS

- Milago Elia Shabani (2016) the Introduction to Research Methods and Report Writing
- Netzley (2010) Guide to report writing Pearson Education India

Sushant University
soaring high

3. DISCIPLINE SPECIFIC ELECTIVES IV

Course Title : **Elective IV**
Course Code : **varies**
Course Credits : **2**
Teaching Mode : **Lecture**

23MUD-6CS11S	Culture and Society
23MUD-6PD22S	Patterns of Development
23MUD-6PM22S	Planning and Management
23MUD-6TT22S	Tools and Techniques
23MUD-6DT22S	Design Thinking
23MUD-6SD22S	Sustainable Design
23MUD-6GR22S	Digital Skills & Graphic Representation
23MUD-6MJ22S	Media and Journalism
23MUD-6FB22S	Finance and Business Management

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
varies	Elective IV	2	-	2	2	100	50	-

COURSE OBJECTIVES

To understand and learn a subject of interest area and gain specialization in its skills and theory

COURSE OUTCOMES

The student will be able to
CO 1: Recognize other specializations or advance learning in subjects covering emerging areas of concern.
CO 2: Apply and synthesise new skills that are being formed.
CO 3: Appraise other fields of design and planning and work collectively with a diverse team.
CO 4: Assemble and bring about a new construct in the chosen field of interest.

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	M	M
CO 2	H	H	H	H
CO 3	H	H	M	M
CO 4	H	H	H	H

PROGRAM OUTCOMES (PO's)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme **(Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**

PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	H	L	H	H	H	H	H	H	H
CO2	M	H	M	H	H	H	H	H	H	H
CO3	M	H	L	H	H	H	H	H	H	H
CO4	M	H	L	H	H	M	H	H	H	H

Course Content

The electives shall be offered on the basis of four baskets of Thinking, Doing, Applying and Telling. It primarily involves project-based teaching and learning in areas of study that seek to support and inform the core Design Studios through both horizontal and vertical integration. The courses will generally be conducted in the Tutorial/Seminar mode to encourage research, exploration and skills developments. The course contents shall be developed and modified as per the available resources within the programmes.

Thinking: This basket of electives shall include subject areas which enhance the theoretical understanding of the students and emphasizes on research.

Culture and Society

This would explore the various components of the environment and its impact on the community. Architecture is interlinked with the community, and it is important to understand the various aspects of this connection. The subject areas could include:

- City and society
- Sociology
- Community and Public Participation
- Inclusive Planning and Participatory Approach
- Cultural & Historic landscapes
- Traditional knowledge systems

Patterns of Development

This would explore the determinants of spatial patterns of development of a settlement and its impact. The subject areas could include:

- Morphology of the City
- Heritage Cities
- Settlement Studies
- Real Estate Planning and Valuation

- Metropolitan Planning and Development
- Housing
- Mapping the city

Doing: This basket of electives shall include subject areas which enhance the technical understanding of the students and emphasizes on research.

Planning and Management

This would enhance the understanding of the students about the planning and management framework. The possible subject areas could include:

- Legislation
- Economics
- Management Plan
- Disaster Risk Mitigation and Management
- EIA - Environmental impact assessment
- Building services

Digital Tools and Techniques

This would equip the students with basic understanding of efficient and upcoming tools and techniques to understand building, materials, building conditions and better management systems. The subject areas could include:

- GIS
- BIM
- Advanced Photogrammetry
- Laser scanning
- Total Station Survey

Applying: This basket of electives shall include subject areas which encouraging the students to apply the theoretical and technical concepts learnt in the studio.

Design Thinking

This module would explore an iterative process of solution-focused thinking – starting with a goal instead of solving a specific problem. This is aimed at helping the students develop lateral thinking as every conflict requires a case- specific approach.

- Futuristic and Visionary Planning
- Design Innovation
- From Idea to Design
- Design for Debate

Sustainable Design

This module would explore the philosophy of designing a built environment with the principles of social, economic, and ecological sustainability. This would equip the students with fundamentals to deal with on- ground situations. The possible subject areas could include:

- Environmental Education
- Tools for Sustainable Development
- Green Building Materials
- Climatology

Telling: This basket of elective shall include subject areas which enhance their communication and presentation skills.

Digital Skills & Graphic Representation

This elective shall hone the presentation skill sets of the students which comes of use in showcasing both documentation and design ideas in the right way. The possible subject areas could include:

- Photoshop
- In- Design
- Corel Draw
- Illustrator

Digital Media and Journalism

This module shall expose the student to allied skills which deal with presentation and communication of ideas, both graphic and written. The possible subject areas could include:

- Digital Photography
- Film- Making
- Architectural Journalism
- Media and the city

PEDAGOGY

- The lectures by the experts in the field of interest will be taken up.
- The emphasis should be given to actual issues in that area and live projects /site.
- To prepare the students to use their data/knowledge gained in the subject in other subjects.
- The students should preferably be made to look at the area of interest through the specialisation that they are doing.

ASSESSMENT SCHEME

Mid Semester Internal Evaluation : 40 Marks
End Semester Internal Evaluation : 60 Marks
Total : 100 Marks

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	Internal 2 (End-Term)	-	100
40	60		

Sushant University
soaring high

4. GENERAL ELECTIVE III

Course Title : **MooC**
Course Code : **varies**
Course Credits : **2**
Teaching Mode : **Self Study**

23MUD- 6SS22S	Sustainable development
23MUD- 6MT22S	Management
23MUD- 6CO22S	Computational Skills

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
varies	MooC	-	-	2	2	100	-	-

COURSE OBJECTIVES

To understand and learn a subject of interest and gain specialization in it in an online format. Certification course from external agencies (academic partner of SU)

Course Content

Students may be permitted to credit one online course under Massive Open Online Course (which are provided with certificate) subject to a maximum of six credits. The approved list of online portals like Swayam, NPTEL, edX, Udemy, IGNOU, Harvard Business School (PG level) will be provided by the School every academic year. The credit attained through MOOC course has to be transferred to the marksheet of their respective semester and will be a compulsory course to meet the programme requirements. In a scenario, where the complete assessment is not done by the MOOC platform the School may conduct its own exam/jury for evaluation of the respective course. The details regarding online courses taken up by students should be sent to the Controller of Examinations one month before the commencement of End Semester Examination.

List to be added for MOCC courses every year.

ASSESSMENT SCHEME

End Term Internal Assessment : 100 Marks

End Semester Internal Evaluation	Total
100	100

Sushant University
soaring high

5. GENERAL ELECTIVE IV

Course Title : MDC 2
Course Code :Varies
Course Credits : 02
Teaching Mode : Tutorial

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
Varies	MDC 2	2	-	2	2	100	-	-

COURSE DESCRIPTION AND AIM

MDC is an open elective platform for learning across the various schools of the University. The offerings are beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course.

COURSE OUTCOMES (COs)

CO's as per individual MDC offered

PROGRAMME OUTCOMES (POs)

PO1: Annotate and associate with the architectural theory, history and principles in the creation of space. Develop and reflect on the factors associated with the natural and built environment. **(Knowledge & Expertise of Interior Architecture)**
PO2: Evaluate, invent & determine the perception of investigation & critical analysis around social, physical and natural environments. **(Research)**
PO3: Design more efficiently through understanding of material technology, human factors, process of construction. **(Spatial Planning)**
PO4: Investigate and critically anticipate aspects of Interior architecture in conjunction with key influences both tangible & intangible on social and physical built environment. **(Critical Thinking)**
PO5: Observe, represent and illustrate spatial ideas through various modes : digital, analog **(Communication & Presentation skills)**
PO6: Exhibit peer respect and coordination, demonstrate rigor of architectural thinking together with sensory understanding of design. **(Behavioral skills, teamwork, leadership)**
PO7: Develop & demonstrate a profound knowledge which enables them to create sustainable strategies with regards to the biophysical world. **(Sustainability & heritage values)**
PO8: Experiment with material, techniques and planning for interior site, structure, surfaces, services, skin and stuff in coordination with human behavior to create a 'Total space'. **(Material, Technique, Planning)**

PO9: Optimize the operational and commercial performance of built assets with critically analysing and exploring the spatial potential linked to materiality and poetics of the existing. **(Appropriate use of built & unbuilt)**
PO10: Demonstrate non-linear and iterative approach towards design thinking and process **(Process & Methods)**
PO11: Assess the relationship between design, material, prototyping, manufacture, environment, context and the urban interiority **(Interdisciplinary learning)**

MAPPING OF COs & POs
As per individual MDC offered

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	M	H	L	H	H	H	H	H	H	H	M
CO2	M	H	M	H	H	H	H	H	H	H	M
CO3	M	H	L	H	H	H	H	H	H	H	M
CO4	M	H	L	H	H	M	H	H	H	H	M

H- High, M- Medium, L-Low

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	M	M
CO 2	H	H	H	H
CO 3	H	H	M	M
CO 4	H	H	H	H

SCHEME OF EVALUATION

Intermediate Reviews by Internal Faculty: 100 marks
End Term Evaluation: NA

Sushant University
soaring high

6. VALUE ADDED COURSE

Course Title : **National/International Conference**
Course Code : **23SAAVAC22S**
Course Credits : **-**
Teaching Mode : **Self Work**

COURSE CODE	COURSE TITLE	TEACHING HOURS/WEEK			Credits	EXAMINATION SCHEME		
		L	S	Total		Internal Assessment	External Jury	External Exam
23SAA-VAC22S	National/International Conference	-	-	-	-	-	-	-

COURSE OBJECTIVES

To understand and strengthen organizing skills and benefit from different perspectives and latest visions.

COURSE OUTCOMES

The students will be able to

CO 1: To implement leadership and Management Skills.
CO 2: To associate with opportunities of Networking and exposure to diverse perspectives.
CO 3: To develop critical thinking and contribute to the knowledge field and service to Community.

PROGRAM SPECIFIC OUTCOME (PSO's)

PSO1	Demonstrate core learnings of sustainability, heritage and critical thinking in the field of urban design
PSO2	Apply the knowledge and skills gained through the studios, theories, industry connect and global collaborations in urban design and allied fields
PSO3	Implement solutions and accomplish targets in collaborative environment that address the current as well as future developments
PSO4	Demonstrate acquired skills in the industry of concepts and theories attained for good urban design to explore the complexities and responsibilities of the field for creating best practice response.

Sushant University
soaring high

MAPPING OF PSO AND CO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4
CO 1	H	H	H	H
CO 2	H	H	H	H
CO 3	H	H	H	H

PROGRAM OUTCOMES (PO's)

Upon successful completion of this program of study, the graduates shall:

PO1	Effectively demonstrate tangible outcomes to the development of brown fields, green fields & other future developments, reflecting the learnings from Urban Design programme **(Knowledge of Urban design)**
PO2	Illustrate research and critical thinking to formulate solutions for communities. **(Research and critical thinking)**
PO3	Exhibit digital competence for urban development to design Master Plans **(Digital tools & implementation)**
PO4	Communicate effectively by representing and communicating design solutions for urban design & other interdisciplinary fields. **(Innovation & Presentation Skills)**
PO5	Exhibit compassionate leadership role in urban growth & development synergy with interdisciplinary professionals. **(Teamwork and Leadership)**
PO6	Be able to to work closely with the development authorities, government bodies and communities to address larger concerns. **(collaboration)**
PO7	Be sensitive to the heritage, environmental parameters and provide sustainable solutions. **(Social and & responsibility)**
PO8	Exhibit professional ethics and standards in all circumstances **(professional ethics and code of conduct)**
PO9	Demonstrate self-motivation and enhance entrepreneurship skills for career advancement and development **(Employability & Entrepreneurship skills)**
PO10	Engage in lifelong learning through continuous professional development through conferences, online learning & other resources **(Lifelong Learning)**

MAPPING OF PO AND CO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	M	M	M	H	H	H	M	H	H	H
CO2	H	H	M	M	M	H	H	H	H	H
CO3	H	H	M	H	M	H	H	H	H	H

Sushant University
soaring high

PEDAGOGY

- The students should be able to collaboratively construct the conference plan from planning till execution.
- The students will be able to assemble peer networking and problem solving abilities.
- The students should be able to develop and run enquiry-based sessions through debate, critique and hold constructive group discussion.

ASSESSMENT SCHEME

Mid Semester Internal Evaluation : NA
End Semester Internal Evaluation : NA

Internal Evaluation (Marks)		End Semester External Evaluation (Marks)	Total Marks
Internal 1 (Mid-Term)	Internal 2 (End-Term)	-	-
-	-		

*****

Sushant University
Erstwhile Ansal University, Gurugram

PROGRAMME STRUCTURE FOR BACHELORS OF ARCHITECTURE, 5 YEAR DEGREE COURSE- Alignment of courses with cross cutting issues

Batch 2023- 2028 (Total Credits- 260)

FIRST YEAR B ARCH OF FIVE-YEAR DEGREE COURSE

SEMESTER 01

S.no.	Course Code	Subject	Employability/ Skill Development/ Entrepreneurship	Alignment with cross cutting issues	Activities undertaken
1	23BAR-1DS11P	Spatial Studio	Employability, Entrepreneurship, Skill Development	Gender, Professional ethics, Environment and sustainability	Aligned Studio exercises
2	23BAR-2CS11P	Construction Systems Studio 1	Employability, Entrepreneurship, Skill Development	Professional ethics	Aligned Studio exercises
3	23BAR-3AT11T	Architectural Theories 1	Skill Development	Environment and sustainability	Aligned Studio exercises
4	23BAR-4AR11S	Architectural Representation 1	Employability	Environment and sustainability	Aligned Studio exercises
5	23BAR-1AA11S	Art & Architecture Appreciation 1	Skill Development	Human values	Aligned Studio exercises
6	21ENG12	Communication in English	Skill Development	Human values	Group Discussion

SEMESTER 02

S.no.	Course Code	Subject	Employability/ Skill Development/ Entrepreneurship	Alignment with cross cutting issues	Activities undertaken
1	23BAR-1DS12P	Environment Studio	Employability, Entrepreneurship, Skill Development	Gender, Professional ethics, Environment and sustainability	Aligned Studio exercises
2	23BAR-2CS12P	Construction Systems Studio 2	Employability, Entrepreneurship, Skill Development	Professional ethics	Aligned Studio exercises
3	23BAR-3AT12T	Architectural Theories 2	Skill Development	Environment and sustainability	Aligned Studio exercises
4	23BAR-4AR12S	Architectural Representation 2	Employability	Environment and sustainability	Aligned Studio exercises
5	23BAR-1AA12S	Art & Architecture Appreciation 2	Skill Development	Human values	Aligned Studio exercises
6	23BAR-3ES12T	Environmental Studies	Skill Development	Human values	Group Discussion

Sushant University
Erstwhile Ansal University Gurugram

SECOND YEAR B ARCH OF FIVE-YEAR DEGREE COURSE

SEMESTER 03

S.No.	Course Code	Course Title	Employability/ Skill Development/ Entrepreneurship	Alignment with cross cutting issues	Activities undertaken
1.	23BAR-1DS21P	Design Studio 1	Employability, Entrepreneurship, Skill Development	Gender, Professional ethics, Environment and sustainability	Aligned Studio exercises
2.	23BAR-2CS21P	Construction Systems Studio 3 – *Materials, Techniques, Structural Systems,Surveying and Services*	Employability, Entrepreneurship, Skill Development	Professional ethics	Aligned Studio exercises
3.	23BAR-1AR21S	Architectural Representation 3 – *Digital Skills*	Skill Development	Human values	Aligned Studio exercises
4.	23BAR-1SA21S	Sustainable Approaches -*Settlement Studies*	Employability	Human values	Aligned Studio exercises
5.	23BAR-4EX21S	Discipline Specific Elective - Elective 1(Foundational)	Skill Development	Professional ethics	Aligned Studio exercises
6.		General Elective1-TDCC	Skill Development	Professional ethics	Aligned Studio exercises
7.	23BAR-4MX21S	General Elective 2-MOOC	Skill Development	Human values	Aligned Studio exercises

SEMESTER 04

S.No.	Course Code	Course Title	Employability/ Skill Development/ Entrepreneurship	Alignment with cross cutting issues	Activities undertaken
1.	23BAR-1DS22P	Design Studio 2	Employability, Entrepreneurship, Skill Development	Gender, Professional ethics, Environment and sustainability	Aligned Studio exercises
2.	23BAR-2CS22P	Construction Systems Studio 4 – *Materials, Techniques, Structural Systems, Surveying and Services*	Employability, Entrepreneurship, Skill Development	Professional ethics	Aligned Studio exercises
3.	23BAR-1AR22S	Architectural Representation 4 – *Digital Skills*	Skill Development	Human values	Aligned Studio exercises
4.	23BAR-1SA22S	Sustainable Approaches -*Community Engagement*	Employability	Human values	Aligned Studio exercises
5.	23BAR-4EX22S	Discipline Specific Elective – Elective 2(Foundational)	Skill Development	Professional ethics	Aligned Studio exercises
6.		General Elective1-TDCC	Skill Development	Environment and sustainability	Aligned Studio exercises
	23BAR-	General Elective 2-	Skill Development	Human values	Aligned Studio exercises

	4MX22S	MOOC			

THIRD YEAR B ARCH OF FIVE-YEAR DEGREE COURSE

SEMESTER 05

S.No.	Course Code	Course Title	Employability/ Skill Development/ Entrepreneurship	Alignment with cross cutting issues	Activities undertaken
1.	23BAR-1DS31P	Design Studio 3	Employability, Entrepreneurship, Skill Development	Gender, Professional ethics, Environment and sustainability	Aligned Studio exercises
2.	23BAR-2CS31P	Construction Systems Studio 5 – *Materials, Techniques, Structural Systems and Services*	Employability, Entrepreneurship, Skill Development	Professional ethics	Aligned Studio exercises
3.	23BAR-1AR31S	Architectural Representation 5 – *Digital Skills*	Skill Development	Professional ethics	Aligned Studio exercises
4.	23BAR-1SA31S	Sustainable Approaches -*Circular Economy, Real Estate etc., Policy and Governance*	Employability	Human values	Aligned Studio exercises
5.	23BAR-4EX31S	Discipline Specific Elective - Elective 3(Intermediate)	Skill Development	Professional ethics	Aligned Studio exercises
6.		General Elective1-TDCC	Skill Development	Environment and sustainability	Aligned Studio exercises
7.	23BAR-4MX31S	General Elective 2-MOOC	Skill Development	Environment and sustainability	Aligned Studio exercises

SEMESTER 06

S.No.	Course Code	Course Title	Employability/ Skill Development/ Entrepreneurship	Alignment with cross cutting issues	Activities undertaken
1.	23BAR-1DS32P	Design Studio 4	Employability, Entrepreneurship, Skill Development	Gender, Professional ethics, Environment and sustainability	Aligned Studio exercises
2.	23BAR-2CS32P	Construction Systems Studio 6 – *Materials, Techniques, Structural Systems and Services*	Employability, Entrepreneurship, Skill Development	Professional ethics	Aligned Studio exercises
3.	23BAR-1AR32S	Architectural Representation 6 – *Digital Skills*	Skill Development	Environment and sustainability	Aligned Studio exercises
4.	23BAR-3AW32P	Academic Writing	Skill Development	Gender, Professional ethics, Environment and sustainability	Aligned Studio exercises
5.	23BAR-4EX32S	Discipline Specific Elective - Elective 4(Intermediate)	Skill Development	Professional ethics	Aligned Studio exercises
6.		General Elective1-TDCC	Skill Development	Environment and sustainability	Aligned Studio exercises
7.	23BAR-4MX32S	General Elective 2-MOOC	Skill Development	Gender, Professional ethics, Environment and sustainability	Aligned Studio exercises

FOURTH YEAR B ARCH OF FIVE-YEAR DEGREE COURSE

SEMESTER 07

S.No.	Course Code	Course Title	Employability/ Skill Development/ Entrepreneurship	Alignment with cross cutting issues	Activities undertaken
1.	23BAR-1DS41P	Design Studio 5 – *Complex Architecture Project*	Employability, Entrepreneurship, Skill Development	Gender, Professional ethics, Environment and sustainability	Aligned Studio exercises
2.	23BAR-3RM41P	Research Methodology	Skill Development	Professional ethics	Aligned Studio exercises
3.	23BAR-2PD41S	Project Documentation and Processes	Skill Development	Gender, Professional ethics, Environment and sustainability	Aligned Studio exercises
4.	23BAR-2EP41S	Entrepreneurship and Professional Practice	Employability	Professional ethics	Aligned Studio exercises
5.	23BAR-4EX41S	Discipline Specific - Elective Elective 5(Advanced)	Skill Development	Gender, Professional ethics, Environment and sustainability	Aligned Studio exercises
6.		General Elective-	Skill Development	Gender, Professional	Aligned Studio

		TDCC		ethics, Environment and sustainability	exercises

SEMESTER 08

S.No.	Course Code	Course Title	Employability/ Skill Development/ Entrepreneurship	Alignment with cross cutting issues	Activities undertaken
1.	23BAR-4PT42P	Practical Training	Employability, Entrepreneurship, Skill Development	Gender, Professional ethics, Environment and sustainability	Projects at office
2.	23BAR-4MX42S	General Elective-MOOC	Skill Development	Professional ethics	Aligned Studio exercises

FIFTH YEAR B ARCH OF FIVE-YEAR DEGREE COURSE
SEMESTER 09

S.No.	Course Code	Course Title	Employability/ Skill Development/ Entrepreneurship	Alignment with cross cutting issues	Activities undertaken
1.	23BAR-1DS51P	Design Studio 6 –*Complex Architecture Project*	Employability, Entrepreneurship, Skill Development	Professional ethics	Projects at office
2.	23BAR-3DI51P	Dissertation	Skill Development	Gender, Professional ethics, Environment and sustainability	Aligned Studio exercises
	23BAR-1PT51S	Pre Thesis Seminar	Skill Development	Gender, Professional ethics, Environment and sustainability	Aligned Studio exercises
		General Elective 1-TDCC	Skill Development	Gender, Professional ethics, Environment and sustainability	Aligned Studio exercises
	23BAR-4MX51S	General Elective 2-MOOC	Skill Development	Gender, Professional ethics, Environment and sustainability	Aligned Studio exercises

SEMESTER 10

S.No.	Course Code	Course Title	Employability/ Skill Development/ Entrepreneurship	Alignment with cross cutting issues	Activities undertaken
1.	20BAR-	Architectural Thesis	Employability,	Gender, Professional	Thesis project aligned

		1AT52P		Entrepreneurship, Skill Development	ethics, Environment and sustainability	
		23BAR-3SM52P	Seminar	Employability, Entrepreneurship, Skill Development	Gender, Professional ethics, Environment and sustainability	Thesis project aligned

Course Title : **Spatial Studio**
Course Code : **23BAR-1DS11P**
Course Credits : **8**
Teaching Mode : **Studio Based Teaching**

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-1DS11P	Spatial Studio	Employability, Entrepreneurship, Skill Development	0	8	0	8	50	50	NA

Course Objectives

The main objective of the first year is to explore **'ways of seeing'** – understanding and interpreting objects/ events/ places and learning to look beyond the visible into the unseen qualities of things and places.

Course Outcomes (COs)

The students would be expected to:

CO1. Architectural space is for the living Self – *Students will be able to investigate* interpretations of self, explorations into self-awareness and comfort, personal space, anthropometrics, understanding the body, its needs and manners of representation.

CO2. Structural, constructional and material thinking: *Students would be exposed to* various physical constituents of space and elements of architecture

CO3. Design as a process: *Students will explore* First Principles - why a thing is made the way it is - reducing the object/ form to its core or fundamentals - factors underlying forms rather than the forms themselves

CO4. Complexity and Scale: *Students will be able to compose* spaces of personal complexity and individual scale where human actions will take place and which will be made up of various physical components of architecture based on a keen understanding of first principles.

Course Content

The design studio introduces students to both abstract and finite ideas of relationships between themselves and space, critical discussions and expression of scale and proportions through 'knowing yourself' and 'knowing your surroundings'. A basic enquiry that revolves around the following questions will be instilled in students: Why is something the way it is? What are the principles that make it so? Students explore, describe, represent and communicate their ideas through a range of two and three-dimensional techniques. Projects will be of individual scale and will range from being hand held to the self driven, reported and mapped with workshops providing students with the skills to develop their individual projects. Students will use photography, drawing, painting, model making, casting, mapping, form, structure, sewing,

weaving, carpentry, performance, lighting, filmmaking, etc.. After developing skills in observational, visual and verbal representation, students will use their initial work as research to develop a final project that will culminate in a portfolio outlining their personal reflection on a creative journey over the semester.

Pedagogy

The course will be taught by discussing the relevant topics and research in the studio. In addition to the discussions appropriate guest lectures and site visits will be coordinated to augment the learning experience. The overall approach for the first semester design will be through hands-on learning, process oriented explorations, amalgamation of practical and theoretical outlook, systems approach employed in teaching components of architecture design and creating a resultant whole. A great amount of emphasis shall be on original creativity and environmental sustainability.

Resources

- Buttiker (URS); Louis I Kahn: Light and Spaces, New York, Whitney library of design10. Carver, F.A; Elements of landscape, Barcelona, Carver F.A
- Ching F.D.K, 1996, Architecture Form, Space and Order, Van Nostrand Reinhold Staff, New York.
- Constantine S (1984) "An Actor Prepares "New York: Theatre Books
- De Bono E. (1984), "Lateral Thinking". L A: Penguin Publication.
- Ruiz M. (2011); Walls and Frames: Fine Art from the Streets; Gestalten
- John W.M. (1966), The technique of Sculpture, B.T. Batsford Limited, New York, Reinhold Publishing Corporation, London
- Harvard School of Design, Truby S, Westcott J (2018), Rem Koolhaas. Elements of Architecture, Taschen

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 50 Marks
End Term External Jury : 50 Marks
Total : : 100 Marks

Internal Assessment		End-Semester Examination (External)	Total
Mid-Semester Examination	Internal End-Term Examination		
Cumulative Internal Assessment Presentation/ viva/ jury			
20	30	50	100

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture **(tools and technology)**

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of the communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implements the understanding gained through experiential learning, industry connecting national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

Course Outcomes	Programme Outcomes									Programme Specific Outcome			
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PSO 1	PSO 2	PSO 3	PSO 4
CO1	H	L	L	L	L	L	M	L	L	M	M	L	H
CO2	H	L	L	M	L	M	L	H	L	H	L	L	M
CO3	H	M	H	L	M	L	L	L	H	H	M	L	L
CO4	H	L	L	L	M	M	H	L	L	H	M	M	L

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Field Trip
It is devised with an objective to expose the students to the practical understanding of architecture and the philosophies connected. Trips will be organised for the students with respect to other courses such as Design Studio, Construction Studio, Sustainability Approaches and Electives by instructors and mentors, whenever required.

Course Title :Construction Systems Studio 1
Course Code :23BAR-2CS11P
Course Credits :8
Teaching Mode : Studio Based Teaching

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-2CS11P	Construction Systems Studio 1	Employability, Entrepreneurship, Skill Development	0	8	0	8	50	50	NA

Course Objectives

The course is designed to expose students to traditional and contemporary materials and processes of building construction. The course shall include concepts of sustainability in terms of eco-friendly materials and sustainable construction practices. Exposure to actual building processes on sites and materials in the markets shall be complemented with experimental hands-on work on campus to enable students to develop a respect for the craft of building as the only way in which their dream designs can be executed. Beginning from simple constructions of brick and bamboo, students shall progress to increasingly sophisticated methods culminating in latest technology of highly accurate, ultra-fast, computer-aided manufacturing and assembly of building components.

The course has three components i.e.

1. Lectures in materials and methods of construction,
2. Studio wherein the principles and practice shall be applied to the production of meaningful construction details and working drawings
3. Site visits and hands-on workshops for exposure to real world situations.

The Studio will be integrated with the Spatial Studio to the extent possible.

Course Outcomes

The student will be able to

CO1. Construction systems: *Students would be exposed to* various parameters of construction systems and establish the need to understand structural, material, technology, knowledge domain, exposure, finances in the building construction industry.

CO2. Structural, constructional and material thinking: *Students would be exposed to* various physical constituents of space and elements of architecture
CO3. Construction processes: *Students would be exposed to* the process of building, stages of construction and all the fundamental aspects related to construction processes.
CO4. Complexity and Scale: *Students will be able to* develop an understanding of the relevance of complexity and scale in the processes of how buildings stand on ground.

Course Content

Module 1. Foundation of building Construction –

1a. Materials in construction industry, Members of a built form.
1b. Load Distribution in buildings, materials in response to load and behaviour of structures.
1c. Load dissipation through foundation, construction of foundation.

Module 2: Horizontal and vertical load distribution –

2a. Modules - Clay burnt Bricks, AAC, mud blocks, Fly Ash Bricks, Stone,Rubble.
2b. Walls - types of masonry, block work. Basics of masonry. Masonry bonds and their application (Brick bonds and Rubble masonry).

Module 3: Different types of building construction materials like Sand, Cement, Bricks, Stone, Timber etc.

3a. Properties, uses, and applications.

Pedagogy:

Building and Construction focuses on integrating theoretical knowledge of materials and methods with hands-on practice, enabling students to understand both the technical and creative aspects of construction. It emphasises experiential learning, critical thinking, and problem-solving to prepare students for real-world challenges in the field.

Text Book:

- Building construction by Barry and W B McKay
- Francis D.K. Ching, Building construction.
- Building Construction –Materials by M.V. NAIK.
- S.C.Rangwala, Engineering Materials, CharotarPub.House, Anand, 1997

Resources:

Suggested Readings

- National Building Code 2016
- IS Codes for Brick works, Masonry, Carpentry

Course Assessment Scheme

Intermediate Reviews by Internal Faculty: 50 Marks
End Term External Jury: 50 Marks
Total: 100 Marks

Internal Assessment		End-Semester Examination (External)	Total
Mid-Semester Examination	Internal End-Term Examination		
Cumulative Internal Assessment Presentation/ viva/ jury			
20	30	50	100

Program outcome (PO)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**
PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Upon successful completion of this program of study, the graduates shall:

Program specific outcome (PSO)

· **PSO1** Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

· **PSO2** Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

· **PSO3** Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

· **PSO4** Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

Course Outcomes	Programme Outcomes									Programme Specific Outcome			
	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PSO 1	PSO 2	PSO 3	PSO 4
CO1	L	M	H	H	L	M	H	L	L	M	M	L	H
CO2	H	L	L	M	L	M	L	H	L	H	L	L	M
CO3	H	M	H	L	M	L	L	L	H	H	M	L	L
CO4	H	L	L	L	M	M	H	L	L	H	M	M	L

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the,desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Course Title : Architectural Theories 1
Course Code : 23BAR-3AT11T
Course Credits : 2
Teaching Mode : Lecture

COURSE CODE	COURSE TITLE	SKILLSET	COURSE STRUCTURE			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-3AT11T	Architectural Theories 1	Skill Development	0	2	0	2	50	NA	50

Course Objectives

The course aims to familiarise architecture beginners with the sense of theory in architecture while addressing certain questions which inculcate within them the role and relevance of history, theory and criticism. The course will introduce the need to study architectural history. The students will understand the associated architectural vocabulary, spatial and stylistic arrangements of the spaces and the factors influencing the architectural form, along with theoretical readings based on research by Indian Scholars that would familiarize students to the Indian societies and culture.

Course Outcomes (COs)

CO1.History, Theory and Criticism- Basic understanding of architectural history and architectural writings construct. Major philosophers, thinkers (Indian and international) who made contributions in architectural framework

CO2. Making of Architectural History - Be able to use and demonstrate critical questioning ability of the historical processes, relevance of time, place and people in the making of the history. Establishing relationship of architectural expression with its context defined by natural, socio- cultural, political, economic, technological or any other aspects

CO3. Creating positions: Be able to construct and develop theoretical arguments while compiling information related to inter disciplinary connections of the field of architecture.

Course Content

Module 1: Theory and its relevance in development of architectural history

This Module provides the opportunity for an enquiry based learning method. The classes can be conducted in the discussion mode through critically analysing the following enquiries;

- What is "Theory"?
- What is the relevance of Theory?
- What is the relevance of Theory in Architectural History?
- Difference philosophies by Indian and International researchers and their contributions to architecture.
- The relevance of age old architectural theories in present context.

Module 2: Making of Architectural History

This Module covers basics of what goes behind understanding the formation of architectural historical construct. Namely;

- Idea of dwelling as place to live, establishing the need of shelters for mankind.
- Traditional knowledge systems, Indian setting – Time, Place and People
- Organization of societies and maintaining orders – constructing buildings as a tool to create the order
- Development of architectural styles and its impacts leading to symbolisms, influences, aspirations through various case studies.

Module 3: Buildings – Creating a position/ stand

This Module can be taught through class discussions on random selection of buildings as case studies that are products of individual or a groups stand / position reflecting their perspective. Making investigations to critically analyse built spaces, and the decision making processes resulting into biases or justice to different people and fragments of communities. Analysing architecture as a tool to express emotions, mental position of an individual or a group of individuals as schools of thought and its larger relevance and penetration into masses

Pedagogy

Faculty will deliver lectures, show presentations followed by discussion.. The assignments will be preferred in the handwork format. The student will be encouraged to make sketches, physical models etc. Predominantly, discussions and in studio documentation of architectural styles.. Hands on approach wil lbe followed – Sketches, measured drawing and on-site visits. Assignments based student research through readings of papers and book chapter based on various sub-topics. To bring expert though invited guests to give a lecture.

Text Books:

- Ching, F. D. K., Jarzombek, M. M. and Prakash, V. (2011). *A Global History of Architecture*: John Wiley & Sons.
- Corbusier, L. (2011). *Towards a New Architecture*. reprint: CreateSpace Independent Publishing Platform.

Resources:

Suggested Readings

- Fletcher, B. and Cruickshank, D. (1996). *Sir Banister Fletcher's: A History of Architecture*: Elsevier/Architectural Press.
- Lang, Jon T., Desai, Madhavi and Desai, Miki. (2010). *Architecture and Independence: The Search for Identity - India,* 1880-1980. reprint: Oxford University Press.
- Lewis, P. (2007). *The Cambridge Introduction to Modernism*. reprint: Cambridge University Press. Cambridge
- London, C. W. (ed.) (1994). *Architecture in Victorian and Edwardian India*. Mumbai: Marg.

- Marshall, P. J. (2001). *The Cambridge Illustrated History of the British Empire*. Cambridge University Press.

Assessment Scheme

Intermediate Reviews by Internal Faculty	: 20 Marks
End Term Internal Assessment Including Time Problem	: 30 Marks
End Sem Exam	: 50 Marks
Total	: 100 Marks

INTERNAL ASSESSMENT		END SEM EXAMINATION (EXAM)	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
20	30	50	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context**)

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping Of COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	H	L	H	H	M	L	H	L	L	M	M	L	L
CO2	H	H	H	H	H	L	H	M	L	H	L	L	L
CO3	H	H	H	H	M	L	H	M	H	H	L	L	L

H- High, M- Medium, L-Low

Note :

H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Sushant University
soaring high

Course Title : Architecture Representation 1
Course Code : 23BAR-4AR11S
Course Credits : 6
Teaching Mode : Studio Based Teaching

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
23BAR-4AR11S	Architecture Representation 1	Employability	L	S	P	6	Internal Assessment	External Jury	External Exam
			1	5	0		100	NA	NA

Course Objective

In architectural practice the precise and communicative representations of designed objects follow certain conventions of representation and employ graphic techniques to express "soft" aspects of design. The primary objective of this course is to address these aspects through the development of basic skills required for evolving and communicating design.

Course Outcomes (COs)

The students shall be able to:

CO1. Demonstrate real-time entities (objects or spaces) in terms of different techniques, procedures and representation.
CO2. Implement the knowledge and the skills developed in other forms and courses of the Architectural Program and beyond.
CO3. Understand various drafting techniques, drafting procedure and architectural lettering and demonstrate understanding of different intensity, grades of lines and transparency
CO4. Illustrate knowledge of orthographic projects and visualise the object using isometric and axonometric views

Course Content

The aim of the course is to make the students familiarise with the vocabulary and representation techniques of technical drawing. These will help students to translate their imagination into clear, two dimensional and three dimensional forms, expressed through drawing. These skills also provide techniques of sensitising and catalysing the designer's imagination and subjective expression in the use of form and image. In this respect the course overlaps with the Design & Construction Studio course and may be seen as a complementary and symbiotic set of exercises for development of designing abilities and design presentation skills.

- Introduction to drawing instruments and drawing materials and their use.
- Types of architectural drawing – Presentation drawings, construction drawings, structural drawings, architectural and construction details
- Drafting techniques: Basics for Architectural Drawing. Application of all types of lines in architectural drawing.
- Sheet composition: Formatting, components in an architectural drawing.

- Scales – Calculations, scaling of real time entities into drawings, ratio scales, graphical scales.
- Lettering: Introduction to architectural lettering, its proportion to scale drawing simplicity of lettering.
- Introduction to solid geometric forms, projection methods of representing on drawings such as orthographic on vertical and horizontal planes. Isometric views –Plan, elevations and sections of solids.
- Orthographic Three Dimensional Views such as Axonometric, Oblique and Isometric: Study the principles and techniques of axonometric, oblique and isometric views and construct three dimensional views of basic and complex geometrical shapes.
- Drafting architectural drawings – orthographic and axonometric projections of a single architectural space.

Pedagogy

The studio includes exercises which shall enable them to understand scales, 2D and 3D representation methods and other components of Architectural Drawing such as quality and meaning of lines, rendering skills and drawing techniques which will enhance their vocabulary for the language of Design. The exercises may vary from visual observations to visualised representations. There will be mandatory sketches every week and students need to prepare their work as per the assignments given every week. The emphasis should be given on preparing physical models. The classes shall be tutorial based learning for skill development as a part of the course in the guidance of the faculty. At the end of the semester, students' performance shall be assessed by the portfolio of all the works done during the semester. The course is based mainly on a Studio format where students are required to complete coursework through practical assignments in class. The course is dependent on a process of continuous evaluation by the faculty and the iterative development of a body of work throughout the semester. In addition, at least one class test will be conducted by the teacher during the course of the semester, as an evaluation of students' progress thus far and as the final examination.

Resources

- Ching, F. D., & Juroszek, S. P. 2011. "Design drawing". John Wiley & Sons.
- Gill & Robert W., 1974, "Basic Perspective", Thames and Hudson.
- Malik S., 1994, "Perspective and Sciography", Allied Publishers.
- Leslie M C., 1970, "Architectural Graphics", Macmillan Pub Co.
- Frank C., Architectural Graphics.
- Kelsey W.E., Geometrical & Building Drawing.
- Leslie M..C., Architectural Graphics.
- J. Metric Hand Book.
- Architectural Graphic Standards.
- Architectural Drawing ISI Publication.
- James B., Essentials of Drafting.
- Robert G., Rendering with pen and ink.
- Holmes J.M., Applied perspective.
- Perspective for the Architect,Thames and Hadson.
- Friendrich W.C., Professional perspective Drawing for Architects and Engineers.
- Perspective Drawings of Modern Architecture, Japan Publishing Co.

Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
End Term Internal Assessment
Including Time Problem : 60 Marks
Total : 100 Marks

INTERNAL ASSESSMENT		ONE TIME TEST/ TIME PROBLEM	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
40	40	20	100

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context**)
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**
PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical Skills of architecture for enriching the lives of communities
PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.
PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.
PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	M	H	L	H	M	M	L	H	M	L	M	H	L
CO2	L	H	M	H	M	L	M	H	M	L	L	H	L
CO3	L	H	L	H	M	L	L	H	L	L	M	H	M

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Course Title : Art & Architectural Appreciation 1
Course Code : 23BAR-1AA11S
Course Credits : 4
Teaching Mode : Studio

COURSE CODE	COURSE TITLE	SKILLSET	COURSE STRUCTURE			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-1AA11S	Art & Architectural Appreciation 1	Skill Development	0	4	0	4	100	NA	NA

Course Objectives

Underlying the built environment are important principles of design which have developed over many thousands of years. The goal is to develop a form of visual representation based on re-discovering new ways of looking involving selection, rejection and rearrangement of the sensory data. Introduces students to the elements and principles of visual design. Includes line, shape, space, value, texture, volume and color. Also includes skill development in organizing these elements and applying the visual principles of harmony, variety, balance, tension, rhythm, proportion, repetition, and contrast. Architecture appreciation skills include, Design Principles, Major Personalities in Architecture Human Perception in Architectural Design. How human beings perceive the world in which we live and imagine what can be has influenced the shape and function of the structures in the built environment which impact on our daily lives. The students will be made familiar with new methodologies of articulating their observations into unique kind of expressions by exploring the principles of Art and Design without committing to any singular notion of style.

Course Outcomes (COs)

The students would be expected to:

CO1. Introducing free-hand drawing and Two-Dimensional graphic design as a way of understanding the place of art in architecture.

CO2: Introducing design elements in three-dimensional forms and space leading to classical methods of architectural form development, theory and application of colours,

CO3. Application of consciously integrating visual art and design theory and practice

Course Contents

Module 1-Indoor and outdoor sketching: An immersive experience of live drawing in various contexts to develop a professional level ability to draw existing objects, in pencil and pen/ink. Free-hand perspective drawing and rendering of imagined objects, in pencil and pen/ink.

Module 2-Visual Composition:
Understanding principles of visual composition in historic architecture, art and design. An introduction to the basic formal concepts in the two-dimensional arts and the principles of aesthetic organization: line, shape, value, texture, harmony, balance, symmetry, etc., from observation of contemporary examples of design and their application by drawing in varied media. Using Line, plane and volume as a means to express objective and spatial concepts in various media to construct aesthetically pleasing compositions.

Module 3-Colorimetry:
Understand colour vocabulary and terminology. Observing the basic historical and contemporary aspects of color. Understanding the psychology of colour perception. Exercises in informed application of basic color properties and harmonies, critical thinking and problem solving skills as applies to the use of colour through visual and physical control of varied media. Rendering architectural drawings in colour with the use of light and shade, material textures and tonal values.

Module 4- Three dimensional forms:
Basic components of 3-dimensional art, including subject, form, and content. Sculpture by casting, modeling, additive/subtractive techniques and fabrication. Materials used will include plaster, wire, clay, wood, paint, board, paper, etc. Discussions centered on 3-dimensional design and concepts.

Pedagogy

Faculty will deliver lectures, show presentations followed by discussion.. The assignments will be preferred in the handwork format. The student will be encouraged to make sketches, physical models etc. Predominantly, discussions and in studio documentation of architectural styles.. Hands on approach wil lbe followed – Sketches, measured drawing and on-site visits. Assignments based student research through readings of papers and book chapter based on various sub-topics. To bring expert though invited guests to give a lecture.

Text Books

- Visual Studies: A Skeptical Introduction [Paperback] by James Elkins
- Drawing on the Right Side of the Brain by Betty Edwards

Resources

Suggested Readings

- Visual Imagination: An Introduction to Art Paperback – Import, 1 Jan 1986 by Bruce D. Kurtz
- The Thinking eye. The note books of Paul klee, volume 1
- Architecture: The Appreciation by Sinclair Gauldie, Oxford University Press, London

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 50 Marks
End Term External Jury : 50 Marks
Total : 100 Marks

INTERNAL ASSESSMENT		ONE TIME TEST/ TIME PROBLEM	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
40	40	20	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

PROGRAMME SPECIFIC OUTCOME (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping Of COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	M	H	L	H	M	M	L	H	M	L	M	H	L
CO2	L	H	M	H	M	L	M	H	M	L	L	H	L
CO3	L	H	L	H	M	L	L	H	L	L	M	H	M

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Course Course Title : **English Communication**
Course Code : **21ENG12**
Course Credits : **2**
Teaching Mode : **Tutorial Based Teaching**

COURSE CODE	COURSE TITLE	SKILL SET	COURSE STRUCTURE			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
21ENG12	English Communication	Skill Development	1	1	0	2	50	NA	50

Course Objectives- The purpose of this course is to:

1. Develop the ability to communicate effectively in English through regular practice in four language skills i.e. Reading, Listening, Speaking and Writing
2. Enhance knowledge of grammatical system of English language and explication of literary texts.

Course Outcomes- On completion of this course, the students will be able to:

CO1 Strengthen the correct usage of English grammar and their speaking ability in terms of both fluency and comprehensibility
CO2 Develop their vocabulary skills and its contextual function.
CO3 Develop proficiency in the basics of Professional Writing
CO4 Appreciate and understand Literature through reading and analysis of literary and cultural texts in multiple genres.
CO5 Communicate confidently and appropriately by extensive practice of communication skills for any intended audience.

Pedagogy

The course will be taught in an interactive manner. The concepts will be shared through slides, video clips, and further reinforced through individual or group activities such as role-plays, exercises, games, case discussions, presentations, textbook reading and review.

Course content

Total Lecture hours - 15

Module I: Building vocabulary — **4 Lecture hours**

- Vocabulary Extension Methods
- Antonym, Synonym, Homophones, Homonyms
- One-word substitution
- Idioms and phrases
- Words often confused
- British vs American Vocabulary

Module II: Essentials of grammar — **4 Lecture hours**

- Common Errors
- Subject-verb Agreement
- Parallel Structure
- Conditional Sentences
- Question Tags

Module III: Writing Skills — **4 Lecture hours**

- Effective Sentence Structures
- Sentence Coherence, Use of Connectives
- Paragraph Writing and Precise Writing
- Five C's of Effective Business Writing
- Structure, layout and format of business letter
- Structure and nuances of e-mail writing

Module IV: Reading — **3 Lecture hours**

- Stopping by the Woods on a Snowy Evening-Robert Frost
- Wings of Fire by APJ Abdul Kalam- Book Review
- Of Studies- Francis Bacon

LAB- 25 Hours

Lab session No.	Details
1.	Listening to short talks lectures, speeches (scientific, commercial and general in nature)
2.	Phonetics and Phonology – vowels and consonant, Word Stress, Intonation Patterns, Developing Voice quality, Developing Correct Tone
3.	Identifying the difference between British vs American vs Neutral Accent, MTI
4.	Role plays, Declamation
5.	Theatre, Poetry recitation and reading sessions
6.	Group discussions, Debates
7.	Movie Review
8.	Creative writing- poem, short story, articles for newspaper, fantasy
9.	Tell-a-tale, rendezvous, trail blazers

Text books

Acevedo and Gower M (1999) Reading and Writing Skills. London, Longman
Swan, Michael. (1980). Practical English Usage. Oxford, OUP
Kumar, Sanjay and Pushp Lata. English for Effective Communication, Oxford University Press, 2015.
Konar, Nira. English Language Laboratories – A Comprehensive Manual, PHI Learning Pvt. Ltd., 2011.
Stopping by the Woods on a Snowy Evening-Robert Frost

Wings of Fire, APJ Abdul Kalam

Of Studies- Francis Bacon

Reference books

Jolly, David (1984). Writing Tasks: Students' Book. Cambridge, CUP
Klippel and Swan (1984). Keep Talking. Oxford, OUP
Walter and Swan (1997). How English Works. Oxford, OUP
Eastwood, John (2008). Oxford Practice Grammar.
High School English Grammar & Composition by Wren & Martin

Modes of Evaluation

MID SEMESTER EVALUATION (40) – Theory (25 Marks) + Lab (15 Marks)		
THEORY (25)		
Mid Semester Examination	Quiz(s)/ Presentation (s)/Assignment/	**Total**
10	15	**25**
LAB (15)		
Mid Semester Examination	Lab/ practical performed & Lab report	**Total**
10	5	**15**
END SEMESTER EXAMINATION (60)		
Theory **(35)**	Lab **(25)**	

Course Course Title : **Environment Studio**
Course Code : **23BAR-1DS12P**
Course Credits : **8**
Teaching Mode : **Studio Based Teaching**

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-1DS12P	Environment Studio	Employability, Entrepreneurship, Skill Development	0	8	0	8	50	50	NA

Course Objective

Environment is a critical component for human survival and flourishment. Overgrowing concern and dialogue on climate change has led the architecture fraternity to rethink the position of 'The Man in the Natural Environment'. The environment studio thus lays a basis for the continuum of this dialogue and its manifestation to contemporary architecture.

Course Outcomes (COs)

The students would be expected to:

CO1. **The Manifestation of Nature**: *Students will explore different* cultural relationships with nature, understanding the various ways in which nature is a part of our lives based on location, culture and traditions.

CO2. **The presence of weather** – *Students will be able to extrapolate* how light and sunlight can be used as tools of creation and help us sculpt spaces for human comfort. *They will be able to design* systems that consider these components of weather and not just respond to it.

CO3. **Design as a process:** *Students will be able to understand* design as a process and will be exposed to various processes/ methods that have been developed in design and critical thinking.

CO4. **Complexity and Scale:** *Students will be able to create* a small number of interrelated spaces of Micro-system complexity (impact at the level of family, peers, associates) that are a response to or are derived out of intermittent personal actions in space.

Course Content

This studio brief shall revolve around the modules as discussed below;

Module **1: Understanding nature** for human existence, basics of climatology, various climatic

zones and factors affecting the design for humans.

Module 2: Built v/s Nature, Analysing built as a part of large environment, relationship of built with nature, influences and associations, establishing the approaches to macro and micro climates, natural ecosystems and designed ecosystems. Active and Passive systems for curating ecosystems.

Module 3: Living with nature perspectives, Vernacular wisdoms, Barefoot Architecture conceptualizations, Traditional building systems,

Module 4: Climate responsive designs' development – Material, Techniques, & Methods, Design demonstrations and applications

Students explore, describe, represent and communicate their ideas through a range of two and three-dimensional techniques. Projects will be of individual scale and will range from being hand held to the self-driven, reported and mapped with workshops providing students with the skills to develop their individual projects. Students will use photography, drawing, painting, model making, casting, mapping, form, structure, sewing, weaving, carpentry, performance, lighting, filmmaking, etc.. After developing skills in observational, visual and verbal representation, students will use their initial work as research to develop a final project that will culminate in a portfolio outlining their personal reflection on a creative journey over the semester.

Pedagogy

The course will be taught by discussing the relevant topics and research in the studio. In addition to the discussions appropriate guest lectures and site visits will be coordinated to augment the learning experience. The overall approach for the first semester design will be through hands-on learning, process oriented explorations, amalgamation of practical and theoretical outlook, systems approach employed in teaching components of architecture design and creating a resultant whole. A great amount of emphasis shall be on original creativity and environmental sustainability. The students shall be working in groups and teams to document the work; this collaborative work approach shall ease and emphasise on preparing physical 3D models.

Resources

- Lengen J.V., 2007, The Barefoot Architect: A Handbook for Green Building, Shelter, Hong Kong
- Krishnan A. Climate responsive architecture: A design handbook for energy, Tata McGraw Hill
- Olygyay V., Design with Climate, VNR Publications
- Givoni(B), Man, Climate & Archtecture, VNR CO., New York
- Konya A., Design Prime for Hot ClimatesThe Arch. Press, London
- Ching F.D.K, 1996, Architecture Form, Space and Order, Van Nostrand Reinhold Staff, New York.
- Buttiker (URS); Louis I Kahn: Light and Spaces, New York, Whitney library of design10. Carver, F.A; Elements of landscape, Barcelona, Carver F.A
- Constantine S (1984) "An Actor Prepares "New York: Theatre Books
- De Bono E. (1984), "Lateral Thinking". L A: Penguin Publication.
- Ruiz M. (2011); Walls and Frames: Fine Art from the Streets; Gestalten

Assessment Scheme

Intermediate Reviews by Internal Faculty : 50 Marks
End Term External Jury : 50 Marks
Total : : 100 Marks

Internal Assessment		End-Semester Examination (External)	Total
Mid-Semester Examination	Internal End-Term Examination		
Cumulative Internal Assessment Presentation/ viva/ jury			
20	30	50	100

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**
PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities
PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.
PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.
PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

Course Outcomes	Programme Outcomes									Programme Specific Outcome			
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PSO 1	PSO 2	PSO 3	PSO 4
CO1	H	L	L	L	L	L	M	L	L	M	M	L	H
CO2	H	L	L	M	L	M	L	H	L	H	L	L	M
CO3	H	M	H	L	M	L	L	L	H	H	M	L	L
CO4	H	L	L	L	M	M	H	L	L	H	M	M	L

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Course Title : **Construction Systems Studio 2**
Course Code : **23BAR-2CS12P**
Course Credits : **8**
Teaching Mode : **Studio Based Teaching**

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-2CS12P	Construction Systems Studio 2	Employability, Entrepreneurship, Skill Development	0	8	0	8	50	50	NA

Course Objectives

The course is designed to expose students to elementary, conventional load bearing processes of building construction. Exposure to actual building processes on sites and materials in the markets shall be complemented with experimental hands-on work on campus to enable students to develop a respect for the craft of building as the only way in which their dream designs can be executed.

The course has three components i.e.

1. Lectures in materials, structural mechanics & methods of construction,
2. Studio wherein the principles and practice shall be applied to the production of meaningful construction details and working drawings
3. Site visits and hands-on workshops for exposure to real world situations.

Studio Theme- Elementary construction systems – Materials, mechanics and methods

The course also, emphasizes on bringing a relationship between structural mechanics, building material sciences, building construction systems and building services, primarily at elementary level and scale of building types.

Course Outcomes

The student will be able to

CO1. Construction systems: *Students would be exposed to* various parameters of construction systems and establish the need to understand structural, material, technology, knowledge domain, exposure, finances in the building construction industry.
CO2. Structural, constructional and material thinking: *Students will examine* components of a building in terms of material applications, limitations and roles within a built environment (mostly through observation and case studies).

CO3. Construction processes: *Students would be exposed to* the process of building, stages of construction and all the fundamental aspects related to construction processes.

CO4. Complexity and Scale: *Students will be able to* develop an understanding the relevance of complexity and scale in the processes of how buildings stand on ground.

Course Content

Module 1 – Introduction to Load Bearing systems of building

- Different types of construction systems
- Relevance of load bearing versus other forms of construction
- Inter-comparison with load bearing and vernacular aspects
- Intra-comparison with different types of load bearing construction systems
- Structural mechanics of load bearing systems

Module 2 – Materiality in Load bearing systems

- Different types of materials used for load bearing construction, their pros and cons
- Understanding and establishing the relevance of different construction materials with geographical, locational and cultural context.
- Material properties and their behavior patterns, limitations and strengths of the material

Module 3 – Building technology – Masonry systems

- Different types of masonry systems
- Interrelationship between material and masonry technology of construction
- Modular versus cast in situ systems of construction
- Wall sections, foundations systems and other related aspects of masonry systems
- Applications, reasoning for applications on the basis of geography, knowledge and context

Module 4 – Building technology – Spanning systems

- Different types of spanning systems for fenestrations and roofing
- Interrelationship between material and construction technology for spanning systems
- Applications, reasoning for applications on the basis of geography, knowledge and context

Pedagogy:

Building and Construction focuses on integrating theoretical knowledge of materials and methods with hands-on practice, enabling students to understand both the technical and creative aspects of construction. It emphasises experiential learning, critical thinking, and problem-solving to prepare students for real-world challenges in the field.

Text Book:

- Building construction by Barry and W B McKay
- Francis D.K. Ching, Building construction.
- Building Construction –Materials by M.V. NAIK.
- Building Construction Handbook by R. Chudley & R. Greeno
- Building Construction – Principles, Materials, Systems by Madan Mehta, Walter Scarborough, Diane Armpriest.
- Best of Architects, Working Details – Vol.2 Internal by Colin Boyne & Lance Wright
- Best of Architects, Working Details – Vol.1 Internal by Colin Boyne & Lance Wright
- House Framing by John.D.Wagner.
- Building Construction Illustrated by D.K.Ching

- S.C.Rangwala, Engineering Materials, CharotarPub.House, Anand, 1997

Resources:

Suggested Readings

- National Building Code 2016
- IS Codes for Brick works, Masonry, Carpentry

Course Assessment Scheme

Intermediate Reviews by Internal Faculty: **50 Marks**
End Term External Jury: **50 Marks**
Total: **100 Marks**

Internal Assessment		End-Semester Examination (External)	Total
Mid-Semester Examination	Internal End-Term Examination		
Cumulative Internal Assessment Presentation/ viva/ jury			
20	30	50	100

Program Outcome - (PO)

Upon successful completion of this program of study, the graduates shall:

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context**)
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Program Specific Outcome (PSO)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

Course Outcomes	Programme Outcomes									Programme Specific Outcome			
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PSO 1	PSO 2	PSO 3	PSO 4
CO1	L	M	H	H	L	M	H	L	L	M	M	L	H
CO2	H	L	L	M	L	M	L	H	L	H	L	L	M
CO3	H	M	H	L	M	L	L	L	H	H	M	L	L
CO4	H	L	L	L	M	M	H	L	L	H	M	M	L

H- High, M- Medium, L-Low

Note :

H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Course Title : Architectural Theories 2
Course Code : 23BAR-3AT12T
Course Credits : 2
Teaching Mode : Lecture

COURSE CODE	COURSE TITLE	SKILLSET	COURSE STRUCTURE			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-3AT12T	Architectural Theories 2	Skill Development	0	2	0	2	50	NA	50

Course Objectives

The course aims at understanding architectural terms and concepts to identify historically significant structures and the theories associated with them. Analyse and describe architecture in its cultural, social, economic, and political context. Demonstrate an understanding of architectural history and theory written and orally Synthesize a visual response based on a detailed written and oral request Demonstrate collaboration, organization, and adaptability skills comparable to a professional level.
It is also to develop writing skills, critical thinking skills, research skills and human behaviour.

Course Outcomes (COs)

CO1. Knowledge (Remember + Understand) - To equip students with analytical, conceptual, interpretive, and research skills in the field of architectural history, theory, and criticism by using tools like debate, questioning, and analyzing the writings of theorists.
CO2. Skills (Apply +Analyse) - Be able to use and demonstrate the critical questioning ability of the historical processes, and relevance of time, place, and people in the making of history. Establishing a relationship of architectural expression with its context defined by natural, socio-cultural, political, economic, technological or any other aspects
CO3. Values, Orientations and Awareness (Evaluate) – To be able to formulate a clear question to investigate within the field of architecture. Search for information and evidence in literature within the field of architecture and other sources and be able to attempt constructive criticism on the work of the theorists to apply it into their design abilities.

Course Content

Module 1: Anthropology of Architecture:
Vernacular, cultural, indigenous and tribal Architectural typologies in India and their historic, cultural, and climatic influence

- How vernacular systems shaped the foundations of regional Architecture in India
- How the History of Architecture has the power to influence cultures and communities
- Different philosophies by Indian and International researchers and their contributions to Indian vernacular architecture.
- The relevance of age-old architectural theories in the present context.

Module 2: Space making in Architecture through History
This module ventures into understanding the typology of spaces and their evolution through time and their crucial role in understanding the spaces today. It draws a conjecture between the past and the present. History as a foundation to explore the typologies

- Cultural values associated with space
- Experience of the inhabited environments through various regions, traditions and overarching stylistic trends associated with the same.
- Traditional knowledge systems, Indian setting – Time, Place and People
- Evolution of pertinent styles and its relation with modernity with focus upon India.
- Development of architectural styles and its impacts leading to symbolisms, influences, aspirations through various case studies.

Module 3: Buildings – Creating a position/ stand
This Module can be taught through class discussions on random selection of buildings as case studies that are products of individual or a groups stand / position reflecting their perspective. Making investigations to critically analyse built spaces, and the decision making processes resulting into biases or justice to different people and fragments of communities. Analysing architecture as a tool to express emotions, mental position of an individual or a group of individuals as schools of thought and its larger relevance and penetration into masses

Pedagogy

- Lecture and discussion for theory
- The assignments should be preferred in the handwork format. The student should be encouraged to make sketches, physical models etc
- Predominantly, discussions and in studio documentation of trational architectural
- styles.
- Hands on approach – Sketches, measured drawing and on-site visits
- Research on History and theory through valid readings
- Guest Lecture

Text Books:

- Ching, F. D. K., Jarzombek, M. M. and Prakash, V. (2011). *A Global History of Architecture*. John Wiley & Sons.
- Corbusier, L. (2011). *Towards a New Architecture*. reprint: CreateSpace Independent Publishing Platform.

Resources:

Suggested Readings

- Fletcher, B. and Cruickshank, D. (1996). *Sir Banister Fletcher's: A History of Architecture*: Elsevier/Architectural Press.
- Lang, Jon T., Desai, Madhavi and Desai, Miki. (2010). *Architecture and Independence: The Search for Identity - India,* 1880-1980. reprint: Oxford University Press.
- Lewis, P. (2007). *The Cambridge Introduction to Modernism*. reprint: Cambridge University Press. Cambridge
- London, C. W. (ed.) (1994). *Architecture in Victorian and Edwardian India*. Mumbai: Marg.
- Marshall, P. J. (2001). *The Cambridge Illustrated History of the British Empire*: Cambridge University Press.

Course Assessment Scheme

Intermediate Reviews by Internal Faculty	: 20 Marks
End Term Internal Assessment Including Time Problem	: 30 Marks
End Sem Exam	: 50 Marks
Total	: 100 Marks

INTERNAL ASSESSMENT		END SEM EXAMINATION (EXAM)	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
20	30	50	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)

PO3 Illustrate an understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on the environment for a

sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/ foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

MAPPING OF COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CO1	H	L	H	H	M	L	H	L	L	M	M	L	L
CO2	H	H	H	H	H	L	H	M	L	H	L	L	L
CO3	H	H	H	H	M	L	H	M	H	H	M	L	L

H- High, M- Medium, L-Low

Note :

H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Course Course Title : **Architecture Representation 2**
Course Code : **23BAR-4AR12S**
Course Credits : **6**
Teaching Mode : **Studio Based Teaching**

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
			Lecture	Studio	Practical		Internal Assessment	External Jury	External Exam
23BAR-4AR12S	Architecture Representation 2	Employability	1	5	0	6	100	NA	NA

Course Objective

In architectural practice the precise and communicative representations of designed objects follow certain conventions of representation and employ graphic techniques to express "soft" aspects of design. The primary objective of this course is to address these aspects through the development of basic skills required for evolving and communicating design.

Course Outcomes (COs)

The students shall be able to:

CO1 Compare and classify the various representation skills in order to thoroughly express and communicate Building Designs.
CO2 Differentiate various plans, sections, elevations and understanding of drawing conventions and symbols used in them and strategise planning.
CO3 Illustrate site measurements and sketches into accurately drafted Measured Drawings, highlight sciography, perspective views.
CO4 Use skills gathered to organise, plan and compose, expressive presentation material.

Course Content

Manual Representation

- Introduction to architectural drawing – Presentation drawings, construction drawings, structural drawings, architectural and construction details
- Drafting architectural drawings – plans, elevation and sections of an architectural space.
- Different rendering techniques, styles and information mapping on architectural drawings
- Real time measured drawings exercises – Taking measurements and making architectural drawings of existing building spaces.
- Representing various architectural elements and details like columns, arches, niches, etc in architectural drawings

Digital Representation

- Introduction to 3D software used in the architecture profession.
- Training and learning on any 3D software, making digital 3D models and representing materials on the 3D model and further rendering software.
- Introduction to presentation software used in the architecture profession.

- Training and learning on any presentation software, composing sheets, importing images, different image formatting techniques etc.

Pedagogy

The studio includes exercises which shall enable them to understand scales, 2D and 3D representation methods and other components of Architecture Drawing such as quality and meaning of lines, rendering skills and drawing techniques which will enhance their vocabulary for the language of Design. There will be mandatory sketches every week and students need to prepare their work as per the assignments given every week. The emphasis should be given on preparing physical models. The classes shall be tutorial based learning for skill development as a part of the course in the guidance of the faculty. At the end of the semester, students' performance shall be assessed by the portfolio of all the works done during the semester. The course is based mainly on a Studio format where students are required to complete coursework through practical assignments in class. The course is dependent on a process of continuous evaluation by the faculty and the iterative development of a body of work throughout the semester. In addition, at least one class test will be conducted by the teacher during the course of the semester, as an evaluation of students' progress thus far and as the final examination.

Textbooks and Resources

- Ching, F. D., & Juroszek, S. P. 2011. "Design drawing". John Wiley & Sons.
- Gill & Robert W., 1974, "Basic Perspective", Thames and Hudson.
- Malik S., 1994, "Perspective and Sciography", Allied Publishers.
- Leslie M C., 1970, "Architectural Graphics", Macmillan Pub Co.
- Frank C., Architectural Graphics.
- Kelsey W.E., Geometrical & Building Drawing.
- Leslie M..C., Architectural Graphics.
- J. Metric Hand Book.
- Architectural Graphic Standards.
- Architectural Drawing ISI Publication.
- James B., Essentials of Drafting.
- Robert G., Rendering with pen and ink.
- Holmes J.M., Applied perspective.
- Perspective for the Architect,Thames and Hadson.
- Friendrich W.C., Professional perspective Drawing for Architects and Engineers.
- Perspective Drawings of Modern Architecture, Japan Publishing Co.

Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks

End Term Including Time Problem : 60 Marks
Total : 100 Marks

INTERNAL ASSESSMENT		ONE TIME TEST/ TIME PROBLEM	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
40	40	20	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture **(tools and technology)**
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment **(context)**
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**
PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical Skills of architecture for enriching the lives of communities
PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.
PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.
PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	M	H	L	L	H	L	L	L	L	L	M	L	L
CO2	L	H	L	L	M	L	M	L	L	L	L	L	L
CO3	L	M	L	L	H	H	L	L	L	L	M	L	M

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Course Title : Art & Architectural Appreciation 2
Course Code : 23BAR-1AA12S
Course Credits : 4
Teaching Mode : Studio

COURSE CODE	COURSE TITLE	SKILLSET	COURSE STRUCTURE			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-1AA12S	Art & Architectural Appreciation 2	Skill Development	0	4	0	4	100	NA	NA

Course Objectives

Architecture is a complex mix of culture and technology. The relevance of exemplary buildings, and the influences they carry on day to day architecture is what one needs to understand. From classical to local effect is what needs to be addressed in this course. Dissecting various components of architecture to reiterate innovative technology can enable and promote new aesthetic experiences, or disrupt age-old traditions. With hands-on exercises in drawing and modeling, will bring student closer to the work of architects and historians. This course will help in understanding architecture as both cultural expression and technical achievement.

Course Outcomes (COs)

The students would be expected to:
CO1. Ability to read, understand and interpret the various components of architecture.
CO2: Ability to establish relationship, interdependencies of cultural expression and technical achievement.
CO3. Comprehend, articulate the critical analysis of works of art & architecture - a built space, building or object.

Course Contents

Module 1 – Idea of architectural Imagination/ components of architecture
This module deals in understanding different components of architecture, also as influenced products of cultural understandings;

1. Form – Building form, shape and profile of fenestrations, built v/s open
2. Material- Construction, building materials, building finishes
3. Technology -Technique of using the material
4. Ornamentation – Various methods and means of ornating a built space.

Module 2 – Built form – Imagination, Ideation, Iteration, Realization
Through the works of different architects and designers, establishing an understanding the processes involved in making a built form. The relevance of climate, local influences, culture and personnel biases into the built form, through various cases studies of eminent works of architectural expression and built spaces.

Module 3 – Material and Technology
This module addresses the relationship between different materials and technique of using the material, with respect to cultural influences, transfer of knowledge, establish uniqueness etc. Through different cases studies, whether historic or modern buildings, dissect the complementing nature of different materials used in specific or different techniques.

Module 4 – Ornamentation
This module looks at giving an introduction to the case of reflecting different cultural linguistic, regional, religion, community belief systems in India, on the built spaces. Invariably, leading to the symbolism phenomenon in architecture practice.

Pedagogy

- Lecture about the given topic
- Predominantly, discussions

Practical Skills Development: Hands-on drawing and painting exercises to develop artistic techniques.

- Hands on approach-Art tutorial Focus on art movements
- Enhance Theoretical Knowledge by self initiated research on topics
- Guest Lectures and Museum Visits

Art Tutorials: Dedicated sessions for practicing specific art techniques.

Text Books

- Architectural Expressions: A Photographic Reassessment of Fun in Architecture, Tony & Peter Mackertich (2001), John Willey & Sons
- How to read buildings; A crash course in architectural style, Carol Davidson Cragoe (2008)
- What painting is ~ James Elkins [Book]

Resources

Suggested Readings

- Visual Imagination: An Introduction to Art Paperback – Import, 1 Jan 1986 by Bruce D. Kurtz
- The Thinking eye. The note books of Paul klee, volume 1
- Architecture: The Appreciation by Sinclair Gauldie, Oxford University Press, London
- Jhaveri, A. (2005). A Guide to 101 Modern & Contemporary Indian Artists. India Book House.

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
End Term Including Time Problem : 60 Marks
Total : 100 Marks

INTERNAL ASSESSMENT		ONE TIME TEST/ TIME PROBLEM	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
40	40	20	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**) .

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping Of COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CO1	H	M	H	L	H	L	M	L	L	L	M	L	L
CO2	H	M	H	M	H	L	M	L	L	L	L	L	M
CO3	H	M	H	H	H	L	M	L	L	M	M	L	H

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Course Course Title : **Environmental Studies**
Course Code : **23BAR-3ES12T**
Course Credits :**2**
Teaching Mode : **Lecture**

Course Code	Course Title	Course Structure			Credits	Examination Scheme		
		L	S	P		Internal Assessment	External Jury	External Exam
23BAR-3ES12T	Environmental Studies	2	0	0	2	50	NA	50

Aim

Environmental Studies is a student- centred syllabus drawing to study the fundamentals of Environment, Sustainable development, global warming, pollution, ecosystems in detail. The objective of this course is to establish the fact that need for sustainable development is the key to future of mankind.

Course Outcomes (COs)

The students would be expected to:
CO1. Understand the environment and the causes of its changes.
CO2. Understand importance of natural resources, ecosystems and biodiversity.
CO3. Understand the problems such as environmental pollution, global warming and other environment related social issues.
CO4. Apply understanding of these concepts and suggest solutions for them.

Course Contents

During the semester following topics are covered:

Module 1: Multidisciplinary nature of environmental studies and Natural Resources
Definition, scope and importance, Need for public awareness.
Renewable and non-renewable resources : Natural resources and associated problems.
a) Forest resources : Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people.
b) Water resources : Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
c) Mineral resources : Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
d) Food resources : World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertiliser-pesticide problems, water logging, salinity, case studies.
e) Energy resources : Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies.
f) Land resources : Land as a resource, land degradation, man induced landslides, soil erosion and desertification. • Role of an individual in conservation of natural resources. • Equitable use of resources for sustainable lifestyles.

Module 2 : Ecosystems, Biodiversity and its conservation

- Concept of an ecosystem.
- Structure and function of an ecosystem.
- Producers, consumers and decomposers.
- Energy flow in the ecosystem.
- Ecological succession.
- Food chains, food webs and ecological pyramids.
- Introduction, types, characteristic features, structure and function of the following ecosystem :- a. Forest ecosystem b. Grassland ecosystem c. Desert ecosystem d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)
- Introduction to biodiversity – Definition : genetic, species and ecosystem diversity.
- Biogeographical classification of India.
- Value of biodiversity : consumptive use, productive use, social, ethical, aesthetic and option values.
- Biodiversity at global, National and local levels.
- India as a mega-diversity nation.
- Hot-sports of biodiversity.
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts.
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

Module 3: Environmental Pollution and Human Population

- Definition
- Cause, effects and control measures of: - a. Air pollution b. Water pollution c. Soil pollution d. Marine pollution e. Noise pollution f. Thermal pollution g. nuclear hazards
- Solid waste Management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution.
- Pollution case studies.
- Disaster management: floods, earthquake, cyclone and landslides.
- Population growth, variation among nations.
- Population explosion – Family Welfare Programme.
- Environment and human health.
- Human Rights.
- Value Education.
- HIV/AIDS.
- Women and Child Welfare.
- Role of Information Technology in Environment and human health.
- Case Studies

Module 4: Social Issues and the Environment

- From Unsustainable to Sustainable development
- Urban problems related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns. Case Studies
- Environmental ethics: Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case Studies.
- Wasteland reclamation.
- Consumerism and waste products.
- Environment Protection Act.
- Air (Prevention and Control of Pollution) Act.

- Water (Prevention and control of Pollution) Act
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation.
- Public awareness.
- Solid Waste Management

Assessment Scheme

INTERNAL 1	INTERNAL 2		MSE	ESE
Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)		
40	30	30	40	60

Exam Pattern : In case of awarding the marks, the question paper should carry 100 marks. The structure of the question paper being :
Part-A, Short answer pattern - 16 marks .
Part-B, Essay type with inbuilt choice - 24 marks
Part-C, Field Work - 10 marks

Suggested Readings

A. Agarwal KC, 2001. Environmental Biology, Nidi Publishers Ltd. Bikaner.
B. Bharucha Erach, 2003. The Biodiversity of India, Mapin Publishing Pvt. Ltd, Ahmedabad – 380013, India. Email: mapin@icenet.net
C. Brunner RC, 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480pgs.
D. Clark RS, Marine Pollution, Clanderson Press, Oxofrd (TB).
E. Cunningham WP, Cooper TH, Gorhani E & Hepworth MT, 2001. Environmental Encyclopaedia, Jaico Publishing House, Mumbai, 1196pgs.
F. De AK, Environmental Chemistry, Wiley Eastern Ltd.
G. Down to Earth, Center for Science and Environment (R)
H. Gleick HP, 1993. Water in Crisis, Pacific Institute for Studies in Development, Environment and Security. Stockholm Environmental Institute, Oxford University Press, 473pgs.
I. Hawkins RE, Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)
J. Heywood VH, and Watson RT, 1995. global Biodiversity Assessment. Cambridge University Press 1140pgs.
K. Jadhav H and Bhosale VM, 1995. Environmental Protection and Laws. Himalaya Publishing House, Delhi 284pgs.
L. Mckinney ML and Schoch RM, 1996. Environmental Science Systems and Solutions. Web enhanced edition, 639pgs.
M. Mhaskar AK, Matter Hazardous, Techno-Science Publications (TB)
N. Miller TG, Jr. Environmental Science, Wadsworth Publishing CO. (TB)
O. Odum EP, 1971. Fundamentals of Ecology. WB Saunders Co. USA, 574pgs.
Rao MN and Datta AK, 1987. Waste Water Treatment. Oxford and IBH Publishing Co. Pvt. Ltd. 345pgs.

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping Of COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	L	L	M	L	L	L	L	H	L	L	L	L	L
CO2	M	L	M	M	L	L	L	H	L	L	M	L	M
CO3	H	L	H	L	L	L	M	H	L	L	M	L	M
CO4	M	M	H	M	M	M	M	H	L	M	H	L	H

H- High, M- Medium, L-Low

Course Course Title : Design Studio 1
Course Code : 23BAR-1DS21P
Course Credits : 8
Teaching Mode : Studio Based Teaching

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-1DS21P	Design Studio 1	Employability, Entrepreneur-ship, Skill Development	0	8	0	8	50	50	NA

Course Objective

The studio is meant to engage students with the process involved in design focussing on signification and design conceptualization, but in an implicit and inherent way. The studio looks at how meaning is represented or conveyed in architecture, through ideas of narrative. The students will be prompted to look at designing through experience to add another layer to the process of creation. The aim of the studio is to address the gap between how spaces are designed and how spaces are lived. The central inquiry in the studio is: How do we design a space based on how people will inhabit it? Small to medium scale design exercises are formulated through a series of crossover conversations and negotiations that result in the definition of architectural scenarios within which life operates. In discussion will be the relation between the embodied essence, the tangible and the intangible, meaning and nature. These exercises give the students an opportunity to place their own design ideas within the architectural tradition. The students will identify arguments and catalogue attitudes and intentions to develop a rigorous set of guidelines by which to define and give meaning to the architectonics of their interventions.

Course Outcomes (COs)

Value Based Design Thinking Process: Architecture Design thinking starts with the understanding of space by an individual, expanding to understanding of space for individuals and groups in public space and synchronising that with the understanding of space for large sections of the society. Based on the above ideology the process is divided into four important value sets;
1. The Integral Values
2. The Ecological Values
3. The Operational Values
4. The Disciplinary Values

The above value sets also lead to Course Outcomes. The students are expected to display;

CO1: The Integral Values:
Architectural space is for the living Self – Students will be able to investigate interpretations of self. This will lead to understanding comfort, personal space, anthropometrics, the need and requirement of a body. This exploration in self-awareness shall make a student portray the ways and means of inhabitation that are linked with age, diurnal cycles, time and human actions. Thus changing the meaning of everyday context. This will assist in understanding modules that a self

inhabits.

CO2: The Ecological Values:
Manifestation of Nature - The students will be able to engage themselves in nature studies that include forms, expressions, patterns and overall systems. However, nature primarily is governed by the presence of weather; students will be able to extrapolate the various weather conditions that can be used as tools of creation to sculpt spaces and develop design systems. This will enable students to critique their own ideologies and expressions and shall systematise architecture production or representations; and develop an architectural vocabulary associated with it.

CO3: The Operational Values:
Structural, constructional and material thinking: students would be exposed to various physical constituents of space and elements of architecture. These constituents will be created, modulated and communicated in order to understand the execution process by graphical representation via digital media in the studio. Students will be exposed to understand architecture design as a cohesive process to explore First Principles - why a thing is made the way it is - reducing the object/ form to its core or fundamentals - factors underlying forms rather than the forms themselves. Students will be able to do a thorough research and extract information that demonstrates various execution styles and form analysis with various materials and interpret it in relevant situations.

CO4: The Disciplinary Values:
Students will be able to gauge unseen qualities of things and places by learning to look beyond what is easily visible. Students will be exposed to the creative process used in various fields which revolve around a representation and expression of the self, thus students will be able to choose, critique and weigh the level of merger for a specific project situation and further demonstrate awareness of design principles.

Course Content

The Studio can be divided into 4 modules of four weeks each that showcases elements of Spatial Analysis and Environment

Module 1: Architecture space is for living - Spirit of Time:
To develop the student's contextual responsibilities with tasks of individual brief writing. Introduce spirit of a place (phenomenology), past (socio-cultural) and the story (spatial narrative conducive to an idea) in addition to physical context to be addressed while designing the programmatic outline. Space is meant to evoke and incubate emotions – demonstrate translation of this to architectonic entities / Person – environment relationship

Module 2: Architecture itself is the matter of spatial engagement
Exploration of spatial compositions, discussion around meaning Case/ Mappings/ Readings/ Spatiality. The passing of time within it by the user / inhabiting time and recognition of dynamism of time, demonstrated through adaptability or flexibility of space for continued use and its relevance. Develop aesthetics and how it correlates to a society's perceptions of beauty and artistic taste; exploring the temporal nature of architecture for it to be a playground for spatial experiences and interactive spaces.

Module 3: Experiential Framework
Learning through reflection on doing - concrete, reflective, abstract, active. Expanding aesthetic perception and exploring design approach through ONE (among available options). Study of

architectural theory- Structuralism (Aldo van Eyke, Louis Kahn, Kenzo Tange), Post Structuralism (Peter Eisenmann, John Hajduk), Constructivism (Tatlin), Post Critical (Rem Koolhaas). Understanding context as a physical, social, temporal, cultural, climatic, immediate, global dimension. Extension of context: culture, metaphysical, mythical narrative or socio-cultural outlook

Module 4: Understanding the role of structure
This is to create architectural spaces with respect to - human, space and structure. Exploring form and nature of materials: responding to essence and opportunities on site, experimenting beyond conventions, recognised cultural/ social context. Situate self and space with respect to immediate surroundings including boulders, trees, people, community, tradition, habits (all related to weather) What is Empirical Research/ How to choose a Case Study and how to draw inferences via Analysis. Looking beyond the built case for inspiration? Drawing literary or other creative expression as conceptual idea origin. Understanding Subject specificity for case selection, exploring medium of representation for case analysis (why and how). Effective representation of ideas, literal and implied.

Pedagogy

Lectures will be delivered on above mentioned topics and predominantly, discussions on Site planning & design development shall take place. A great amount of emphasis will be on hands-on approach 3D site/design model making. Research on topics such as anthropology, place making & other book readings shall be supported by Guest Lecture and Site Visits.

With the above aims, "Learning-by-doing" in the design studio, and an online delivery system, the methodology includes:
1. (Partially) Flipped classroom:
   - Questions and extensive group and individual studio discussions/ feedback with the Faculty
   - Comprehensive Peer learning strategies with students presenting and critiquing each other's' works at every stage

2. Documentation and Analysis:
   - Group study/ analysis and/ or self-study assignments of the prescribed topic where in students would be delving into varied projects across the world through prescribed lenses

3. Experiential and technical learning

4. Flexible design programming (individual/ group)
   - (Guided) Development of individual design projects based on the previous exercises

This will be done through individual module exercises and overall case and context capsule workshops for the whole batch. The course delivery will include, but not limited to, hands-on exercises using two-dimensional and three-dimensional techniques, group- discussions, exercises focusing on observation, critical thinking and representation, workshops, lectures. The studio sessions will have extensive discussions and feedback from faculty as well as peers to enable a constructive learning environment.

Textbook and Resources

Text Books

1. Time saver Standards – Architecture
2. Time saver Standards – Interior Design
3. Time saver Standards for Landscape Architecture [second edition] – Charles W. Harris, Nicholas T. Dines - https://dn790002.ca.archive.org/0/items/TimeSaverStandardsForLandscapeArchitecture/Time-Saver%20Standards%20for%20Landscape%20Architecture.pdf
4. Nuefert standards https://byarchlens.com/wp-content/uploads/2020/11/Neufert-4th-edition.pdf

Reference Books

1. Aspelund K. (2010); The Design Process; Fairchild Pubns; Second edition
2. Eisenman P. (2004); Eisenman Inside Out: Selected Writings, 1963-1988; Yale University Press; First Edition edition
3. Eisenman P., Kipnis J. (2007); Written into the Void: Selected Writings, 1990-2004; Yale University Press
4. Karlen M. (2009); Space Planning Basics; Wiley; 3 edition
5. Smithies, K.W., "Principles of Design in Architecture", Van Nostrand Reinhold Co, 1981
6. Sullivan L (1934), "The Autobiography of an Idea", New York: Norton
7. Hejduk, J. et al (eds) Education of an Architect. New York: Rizzoli InternationalPublications
8. Pallasmaa, J. (2005) The Eyes of the Skin, Architecture and the Senses. West Sussex: Wiley-Academy.
9. Zumthor, P. (2006) Thinking Architecture. Basel: Birkhäuser Architecture.

Assessment Scheme

Intermediate Reviews by Internal Faculty	: 50 Marks
End Term External Jury	: 50 Marks
Total	: 100 Marks

INTERNAL ASSESSMENT		END SEM EXAMINATION (JURY)	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
20	30	50	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical Skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implements the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

Course Outcomes	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	H	H	H	H	H	M	M	H	H	H	H	M	H
CO2	H	M	M	H	H	H	H	H	M	H	H	H	M
CO3	H	H	M	H	H	M	H	H	M	H	H	H	M
CO4	H	M	H	H	H	M	H	H	L	H	H	H	L

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Field Trip

It is devised with an objective to expose the students to the practical understanding of architecture and the philosophies connected. Trips will be organised for the students with respect to other courses such as Design Studio, Construction Studio, Sustainability Approaches and Electives by instructors and mentors, whenever required.

Course Title : **Construction Systems Studio 3–Materials, Techniques, Structural Systems,Surveying and Services**
Course Code : **23BAR-2CS21P**
Course Credits : **8**
Teaching Mode : **Studio Based Teaching**

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-2CS21P	**Construction Systems Studio 3**	Employability, Entrepreneurship, Skill Development	0	8	0	8	50	50	NA

Course Objectives

The course is designed to expose students to different construction systems adopted for low rise construction and development. An elementary understanding of different construction techniques available, basis of structures and the decision-making process for feasible adoption of technique for building processes. Exposure to actual building processes on sites and materials in the markets shall be complemented with experimental hands-on work on campus to enable students to develop a respect for the craft of building as the only way in which their dream designs can be executed.

The course has three components i.e.

7. Lectures in materials, structural mechanics, methods of construction and related services
8. Studio wherein the principles and practice shall be applied to the production of meaningful construction details and working drawings
9. Site visits and hands-on workshops for exposure to real world situations.

Studio Theme-Pragmatic construction – Low Rise building with load bearing construction systems – Materials, techniques structural systems and Services.

The course also, emphasizes on bringing a relationship between structural mechanics, building material sciences, building construction systems and building services, primarily at low rise building development.

Course Outcomes

The student will be able to

CO1. Construction Techniques and material thinking: *Students will examine* components of a building in terms of material applications, limitations and roles within a built environment for low rise building systems.

CO2. Building Services: *Students will analyse* MEP requirements of a low rise building and provide possible solutions for the same.

CO3. Structural Mechanics: *Students would be able to analyse* structural aspects related to different

loading systems, bending moment systems and other applicable structural mechanics in low rise buildings.

CO4. Complexity and Scale: *Students will be able to* develop an understanding the relevance of complexity and scale in the processes of finding feasibility for different materials, construction techniques and services with respect to low rise building construction.

Course Content

Module 1 – Introduction to Surveying, Complexity and Scale

- Different types of construction scales & complexities in construction methods and techniques.
- Relevance of load bearing versus other forms of construction for low rise construction up to G+2.
- Feasibility understanding of load bearing and framed structures with respect to low rise built- up.
- Introduction to need of understanding structural systems, building materials, handling methods, building techniques, and MEP services pertaining to low rise-built systems.
- Understanding surveying methods and techniques with architectural needs, understanding of drawings in understanding Site, Site measurements, Contours.

Module 2 – Construction Techniques and material thinking

- Material thinking with respect to structural needs and construction knowledge (Brick, Stone, Timber, Mud)
- Conventional and alterative building systems, material exploration for low rise-built systems
- Wall sections, foundations systems and other related aspects of framed and load bearing systems
- Drawing and detail for construction techniques and methods for 2-3 storied structures.

Module 3 – Structural systems

- Different forces acting on a built space, and their behavior with respect to framed and load bearing construction systems especially in G+3/S+4 storied structures.
- Foundational requirements, soil bearing capacity of soil and the need for different type of footings for load bearing and framed structural, relation of SBC with choice of building structure type and footing type.
- Validation and understanding of different loads that contribute in a low-rise building type for different functions – residential.
- Material properties and their behavior patterns, limitations and strengths of the material. Performance of a material for a building type with respect to the technique it has been used for various architectural and structural members in tension and compression.

Module 4 – Building Services – Basic MEP services

- Plumbing & sanitation systems for low rise built-up, and IS code requirements for residential building uses.
- Electrical services, site and building level for 3-4 storied built structures and specifications as per IS codes for residential building uses.
- Mechanical systems for low rise built-up, lifts, dumb waiters, escalators travellators
- Drawing and detail mapping for MEP systems in building plans, elevations & sections

Pedagogy:

Building and Construction focuses on integrating theoretical knowledge of materials and methods with hands-on practice, enabling students to understand both the technical and creative aspects of construction. It emphasises experiential learning, critical thinking, and problem-solving to prepare students for real-world challenges in the field.

Text Book:

1. Building construction by Barry and W B McKay
2. Francis D.K. Ching, Building construction.
3. Building construction, B.C. Punmia, Laxmi Publications
4. Building Construction –Materials by M.V. NAIK.
5. S.C.Rangwala, Engineering Materials, CharotarPub.House, Anand, 1997
6. Building Construction –Materials by M.V. NAIK.
7. Building Construction Handbook by R. Chudley & R. Greeno
8. Building Construction – Principles, Materials, Systems by Madan Mehta, Walter Scarborough, Diane Armpriest.
9. Best of Architects, Working Details – Vol.2 Internal by Colin Boyne & Lance Wright
10. Best of Architects, Working Details – Vol.1 Internal by Colin Boyne & Lance Wright
11. House Framing by John.D.Wagner.
12. Building Construction Illustrated by D.K.Ching

Resources:

Suggested Readings

- National Building Code 2016
- IS Codes for Brick works, Masonry, Carpentry

Course Assessment Scheme

Intermediate Reviews by Internal Faculty:	**50 Marks**
End Term External Jury:	**50 Marks**
Total:	**100 Marks**

Internal Assessment		End-Semester Examination (External)	Total
Mid-Semester Examination	Internal End-Term Examination		
Cumulative Internal Assessment Presentation/ viva/ jury			
20	30	50	100

Program Outcome - (PO)
Upon successful completion of this program of study, the graduates shall:

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context**)
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**
PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities
PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.
PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.
PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

Course Outcomes	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	L	M	H	H	L	M	H	L	L	M	M	L	H
CO2	H	L	L	M	L	M	L	H	L	H	L	L	M
CO3	H	M	H	L	M	L	L	L	H	H	M	L	L
CO4	H	L	L	L	M	M	H	L	L	H	M	M	L

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Course Course Title : **Architecture Representation 3 - Digital Skills**
Course Code : **23BAR-1AR21S**
Course Credits : **4**
Teaching Mode : **Studio Based Teaching**

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-1AR21S	Architecture Representation 3 - Digital Skills	Skill Development	1	3	0	4	100	NA	NA

Course Objective

The aim of the course is to enable students in understanding the move from hand-drafting to digital platforms maintaining the skills-sets; and analysing the application of the visualisations in digital format so that digital drafting and renders are appropriately made. This studio will include modules on Sketch-up to be run in conjunction with the Design Studio during this semester. The primary objective of this course is to prepare the students in acquiring advanced skill sets of representation, strategizing design schemes and understanding and communication of Building Design.

Course Outcomes (COs)

The students shall be able to:

CO1. Implement ways of representation and nomenclature of the basic layer system in Sketchup
CO2. Demonstrate the awareness of typology of lines and polygons and its translation in 3D
CO3. Orient and be aware of how to represent their work and attention to the ideas of composition
CO4. Demonstrate Advanced knowledge of Sketchup with respect to V-Ray and Lumion

Course Content

In architectural practice the precise and communicative representations of designed objects follow certain conventions of representation and employ graphic techniques to express "soft" aspects of design. This being the primary objective it is important that students develop basic skills required for evolving and communicating design through drawings. Students will be made familiar with the vocabulary and representation techniques of technical drawing. These will help students to translate their imagination into clear, two dimensional and three dimensional forms, expressed through drawing. These skills also provide techniques of sensitising and catalysing the designer's imagination and subjective expression in the use of form and image. This will be further enhanced using digital skill sets and parametric thinking through drawing, modelling, and prototyping. The exercises progress from two-dimensional drawings and graphic compositions, to three-dimensional spatial studies, to physical and material investigations. In this respect

the course overlaps with the Design Studio course and may be seen as a complementary and symbiotic set of exercises for development of designing abilities and design presentation skills.

Pedagogy

The studio shall use various teaching methods such as lectures, physical model making, sketches, photography, site visits, etc. The exercises may vary from visual observations (measured drawings, physical observations) to visualised representations (manual-drafted drawings). Tutorials on topics shall be followed by discussion and working sessions within the studio. The process of learning shall be achieved through hand-drafting, Sketch-up, Photoshop and other parallel vector programs. This studio is a student centric studio, where the assignments are scheduled as per the capacity to hold and process the knowledge by the students. Students shall be taught from the key question - purpose of the lines? to 2D-3D drawings, which shall enhance their visualisation and presentation skills. The students will be taught by making them understand the relationship between the objective of drawing and real world execution. In order to do that a lot of emphasis will be on the Scales. The Studio can be divided into 4 modules of four weeks each that showcases elements of Sketchup, V-Ray and Lumion in tandem with real world Environment. The modules' bifurcation is dependent on the theme of the studio as discussed and decided by the studio directors. However, running the studio in modules shall make the faculty team alert on the delivery and performance of the students at various stages.

Textbooks and Resources

1. Ching, F. D., & Juroszek, S. P. 2011. "Design drawing". John Wiley & Sons.
2. Gill & Robert W., 1974, "Basic Perspective", Thames and Hudson.
3. Leslie M C., 1970, "Architectural Graphics", Macmillan Pub Co.
4. Frank C., Architectural Graphics.
5. Kelsey W.E., Geometrical & Building Drawing.
6. Leslie M..C., Architectural Graphics.
7. Architectural Graphic Standards.
8. Architectural Drawing ISI Publication.
9. James B., Essentials of Drafting.
10. Holmes J.M., Applied perspective.
11. Perspective for the Architect,Thames and Hadson.
12. Friendrich W.C., Professional perspective Drawing for Architects and Engineers.
13. Perspective Drawings of Modern Architecture, Japan Publishing Co.
14. Marvin Trachtenberg and Isabelle Hyman. Architecture from Prehistory to Postmodernity. New York: H.N. Abrams, 2002.
15. Architectural Graphics(Sixth Edition)
16. Introduction to Architecture - with James F. Eckler
17. Architecture-Form, Space, & Order (Fourth Edition)
18. Building Construction Illustrated (Fifth Edition)
19. Design Drawing (Third Edition) - With Steven P. Juroszekt
20. A Global History of Architecture (Third Edition)- With Mark Jarzombek and Vikramditya Prakash

YouTube:

1. Show It Better -https://www.youtube.com/channel/UC_eRv_Rzr671BaKFtpYSi4A
2. Alex Hogrefe - https://www.youtube.com/user/hogrefal
3. Upstairs - https://www.youtube.com/channel/UC1ptLbehYDNqwdnIGwLpysw
4. Nick Senske - https://www.youtube.com/user/nsenske
5. Surviving Architecture https://www.youtube.com/channel/UC8kmK7NIn7MY5xZFxDA5oGw
6. Arqui9 Visualisation - https://www.youtube.com/channel/UCBzPV2uSji-Z5-x_svnZV1w

7. 30 X 40 Design Workshop - https://www.youtube.com/user/30by40

Instagram:

1. **Architecture Competitions** - instagram.com/competitions.archi
2. **bartlettunit10** - https://www.instagram.com/bartlettunit10/
3. **Show It Better** - https://www.instagram.com/letsshowitbetter/
4. **KooZA/rch** - https://www.instagram.com/koozarch/
5. **Act of Mapping**

Various other platform

a. Exploring Cartography, Landscape.urbanism, Architecture, Design, Arts in contemporary Map[ping] https://www.instagram.com/act.of.mapping/
b. **BARTLETT KIOSK** is an archive of work by students at the Bartlett School of Architecture Drawings/Models/ Crits/Installations collected by @storpweber, storpweber.com https://www.instagram.com/bartlettkiosk/
c. **Axonometric Madness** - https://www.instagram.com/axo_madness/
d. **Archisource** - https://www.instagram.com/archisource/
e. **illustrArch** - https://www.instagram.com/illustrarch/

Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
End Term with Time Problem : 50 Marks
Total : 100 Marks

INTERNAL ASSESSMENT		ONE TIME TEST/ TIME PROBLEM	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
40	40	20	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context**)
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**
PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical Skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

Course Outcomes	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	M	H	L	L	H	L	L	L	L	L	M	L	L
CO2	L	H	L	L	M	L	M	L	L	L	L	L	L
CO3	L	M	L	L	H	H	L	L	L	L	M	L	M

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Course Course Title : **Sustainable Approaches - Settlement Studies**
Course Code : **23BAR-1SA21S**
Course Credits : **2**
Teaching Mode : **Lecture Based Teaching**

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-1SA21S	Sustainable Approaches - Settlement Studies	Employability	2	0	0	2	100	NA	NA

Course Objective

Settlement Studies is designed for undergraduate architecture students of the 3rd Semester. The main objective of the course is to acquaint participants with the basics of town planning, widely accepted theory, and practice mechanisms in place. It is divided into four key modules, fundamentals, method, and adherence, followed by important cases and examples for a comprehensive understanding of the subject.

Course Outcomes (COs)

The students shall be able to:

CO1 Understand the fundamentals of town planning. Define principles and stages of settlement planning and growth.

CO2 Identify and comprehend the processes involved in planning approaches, techniques of data collection, data analysis and critique the outputs.

CO3 Recognise and remember the adhering legal regulations, policies etc. on settlement planning and related discourses in India.

CO4 Express and demonstrate awareness on allied subjects governing the correlation between architecture and town planning.

Course Content

Module 1: Fundamentals

1a - HISTORY AND EVOLUTION: Global and Indian Town Planning in Pre-historic, Early Historic, Medieval, Industrial and Modern Era;

1b - INTRODUCTION: Concepts of 'Town' and 'Planning'; Contemporary Planning Practice in India, and its recognition; Urban Demographic Trends; New Paradigms in Indian Planning

1c - THEORY: Spatial Concepts: Garden City by Ebenezer Howard (1898), Neighbourhood Concept by Clarence Perry (1920), Radiant City by Le Corbusier (1924), Radburn Layout by Clarence S. Stein and Henry Wright (1929), and Broadacre City: Frank L. Wright (1932); Urban and Regional Growth Models: Concentric Zone Model by Ernest W. Burgess (1925), Central Place Theory by Walter Christaller (1933), Sector Model by Homer Hoyt (1939), Multiple Nuclei Model by Chauncy D. Harris and Edward L. Ullman (1945), and Growth Pole Theory by François Perroux (1949); Social and Economic

Theories: Geddesian Triad by Patrick Geddes (1915), Hierarchy of Needs by Abraham Maslow (1943), Bid Rent Theory by William Alonso (1964), and Push-Pull Theory of Migration by Everett S. Lee (1966); Modern Concepts and Emerging Ideas

1d - TYPOLOGY: Based on Location: Hill Town, Coastal Town, Satellite Town etc.; Based on Size: Small Town, Medium Town, Mega City etc.; Based on Character: Administrative, Industrial, Religious, Tourism, Port City etc.

1e - RESOURCES: Land: Value, Mobilization and Development Mechanisms; Finance: Funding and Revenue Sources; Manpower: Governance and Capacity Building; Technology: Role in Planning for 21st Century and e-Governance

Module 2: Method

2a - PROCESS: Planning Approaches: Global, Regional, Urban and Rural; Types of Plans: Perspective, Development or Master, Short Term, and Projects or Schemes; Planning Process and Institutional Hierarchy in India

2b - TECHNIQUES: Primary and Secondary Data; Collection; Analysis; Mapping and GIS; Forecasting; Validation

2c - OUTPUT: Regulatory: Zoning and Land Use, FAR and Ground Coverage; Developmental: Housing, Mobility, Public Infrastructure and Social Amenities

Module 3: Adherence

3a - POLICY: Global (UN New Urban Agenda, 2016); National (National Urban Policy Framework, 2018); State (Urban Policy and Action Plan for Kerala, 2002);

3b - ACTS AND RULES: Land Acquisition Act (1894) and Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act (2013); Urban Land (Ceiling and Regulation) Act (1976) and ULCR Repeal Act (1999); Environment Protection Act (1986), Rules and Notifications; 74th Constitutional Amendment Act (1993); Special Economic Zones Act (2005); Real Estate (Regulation and Development) Act (2016)

3c - GUIDELINES: Urban and Regional Development Plans Formulation and Implementation (2014);

3d - BYELAWS: Model Building Byelaws (2016), and Development Control Regulations (Case of Ahmedabad)

3e - ALLIED SUBJECTS AND RELEVANT DISCOURSES: Category I: Architecture, Civil Engineering, Heritage and Conservation, and Urban Design; Category II: Geography, Ecology, Sociology, Psychology, Economics, and Statistics

Module 4: Cases and Examples

4a - CITIES: Historic City: Madurai and Paris; Contemporary Planned City: Chandigarh and Barcelona; City Region: Delhi NCR and Metro Manila; Global City: Mumbai and Chicago; Emerging City: Gurgaon and Kigali

4b - SCHEMES AND PROGRAMMES: Housing: Pradhan Mantri Awas Yojana (PMAY); Renewal: Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and Atal Mission for Rejuvenation and Urban Transformation (AMRUT); Other: Heritage City Development and Augmentation Yojana (HRIDAY), Shyama Prasad Mukherji Rurban Mission (NRuM), Smart City and Deendayal Antyodaya Yojana National Urban Livelihoods Mission (DAY-NULM)

Pedagogy

The course shall be taught via lecture and discussions in the class on topics given.The students will be critiquing and analysing the various documents as per the modules mentioned above. They will be presenting their understanding of best practices by citing the examples from the world; this will enable them to understand the settlements across the world and what governs these settlements.

Textbooks and Resources

- Bairoch, P. (1988). Cities and Economic Development: From the Dawn of History to the Present. Chicago: University of Chicago Press.
- Government of India, Ministry of Urban Development, Town and Country Planning Organisation (2015). Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines.
- Koresawa, A. and Konvitz, J. (2001). Towards a New Role for Spatial Planning. Paris: OECD Publishing.
- Madan, N.V. (2018). An Introduction to Techniques in Urban Planning. Pune: Vishwakarma Publications.
- Mumford, L. (1961). The City in History: Its Origins, Its Transformations, and Its Prospects. New York: Harcourt.
- Ramachandran, R. (1989). Urbanization and Urban Systems in India. New Delhi: Oxford University Press.
- Rao, M.P. (2001). Urban Planning: Theory and Practice. Delhi: CBS Publishers.
- UN, Department of Economic and Social Affairs, Population Division (2018). World Urbanization Prospects.

Assessment Scheme

Intermediate Reviews by Internal Faculty	: 40 Marks
End Term with Time Problem	: 50 Marks
Total	: 100 Marks

INTERNAL ASSESSMENT		ONE TIME TEST/ TIME PROBLEM	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
40	40	20	100

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context**)

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets.

(communication)

PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical Skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

Course Outcomes	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	L	L	M	M	L	L	M	M	M	L	M	M	M
CO2	L	M	M	H	M	M	H	M	M	L	H	H	M
CO3	L	M	M	H	M	M	H	M	M	L	H	H	M
CO4	M	M	M	H	M	M	H	M	M	L	H	H	M

H- High, M- Medium, L-Low

Note :

H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

DISCIPLINE SPECIFIC ELECTIVE

Course Title : Discipline Specific Elective Elective 1 (Foundational)
Course Code : 23BAR-4__21S
Course Credits : 3
Teaching Mode

COURSE CODE	COURSE TITLE	SKILLSET	TEACHING HOURS/WEEK			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-4__21S	Discipline Specific Elective Elective 1 (Foundational)	Skill Development				3			
23BAR-4EF 21S	Allied Facets of Architecture 1		1	2	0		100	NA	NA
23BAR-4ET 21S	Architecture Technologies 1								
23BAR-4EB 21S	Building Interiors 1								
23BAR-4EC 21S	Communication and Representation 1								
23BAR-4ES 21S	Sustainability in Architecture 1								
23BAR-4EH 21S	Heritage & Philosophy 1								
23BAR-4EI2 1S	Infrastructure 1								
23BAR-4EE 21S	Site Setting and Systems 1								
23BAR-4EA 21S	Art and Architecture 1								

Course Objectives

Elective courses are offered to students from the 3rd Semester onward, till the 9th semester of the 5 Year B.Arch Programme.The course contents to be followed will be developed by course teachers based on the resources at hand and opportunities for linkages with other courses.

The electives offered in the ***Third Semester*** are expected to impart ***conceptual understanding*** on Subject Knowledge and Relationship with Architecture as part of the course objectives.

The subjects would be based on the following suggested groups:

1. ALLIED FACETS OF ARCHITECTURE

This course explores the interdisciplinary aspects of architecture, delving into fields such as urban planning, landscape architecture, and interior design. Students will gain insights into how these allied fields interact with and influence architectural design.

2. ARCHITECTURE TECHNOLOGIES

This course focuses on the technological aspects of architecture, covering advancements in building materials, construction methods, and digital tools. Students will learn how technology enhances the design process, sustainability, and the overall functionality of architectural structures.

3. BUILDING INTERIORS

This course centers on the interior aspects of architectural design, addressing spatial planning, furniture design, and aesthetics within built environments. Students will explore how to create functional and aesthetically pleasing interior spaces that align with user needs.

4. COMMUNICATION AND REPRESENTATION

This course emphasizes effective communication in architecture through various mediums such as drawings, models, digital presentations and basic understanding of various software like MS office, Rhino, Sketchup, Revit, BIM etc. Students will develop skills in architectural representation to effectively convey design ideas and concepts to clients, stakeholders, and the public.

5. SUSTAINABILITY IN ARCHITECTURE

This course introduces students to the fundamental principles and practices of sustainability within the context of architectural design. Through lectures, discussions, case studies, and hands-on exercises, students will explore the economic, social, and environmental dimensions of sustainability as they relate to the built environment. The course aims to develop a foundational understanding of sustainable design concepts and their application in architectural practice.

6. HERITAGE & PHILOSOPHY

This course delves into the historical and philosophical aspects of architecture, exploring the cultural significance of built heritage. Students will study preservation methods, restoration techniques, and ethical considerations related to working with historically significant structures.

7. INFRASTRUCTURE

Infrastructure plays a crucial role in the urban landscape. This course covers the planning, design, and implementation of essential infrastructure elements such as transportation systems, utilities, and public spaces, providing students with a comprehensive understanding of the built environment.

8. SITE SETTING AND SYSTEMS

Focusing on the integration of architectural design with the natural and built context, this course explores site planning, landscape architecture, and the relationship between buildings and their surroundings. Students will learn to harmonize architectural solutions with the site's topography, climate, and ecosystems.

9. ART AND ARCHITECTURE

The Art and Architecture formative course provides students with a comprehensive understanding of the relationship between art and architecture throughout history. Through lectures, discussions, and visual analysis, students will explore how artistic movements, styles, and concepts have influenced architectural design and vice versa. Emphasis will be placed on developing critical thinking skills and an appreciation for the aesthetic, cultural, and social dimensions of art and architecture.

Please refer to the appendix 1A for references of the courses offered in the past in this semester.

COURSE OUTCOMES (COs)

The students would be expected to:

CO1. Demonstrate specialized learning in subjects covering areas of concern to architecture.
CO2. Apply interdisciplinary methods and skill in the production of architecture.
CO3. Research on a diverse range of subjects in relevance to architecture

Course Content

The faculty offering each elective will develop a weekly programme for the course, a list of compulsory and suggestive readings, and evaluation parameters, based on the resources at hand and opportunities for linkages with other courses.

The faculty will offer the course in a module system and there shall only be four modules. The modules will progressively address the course outcomes to develop all the competences (knowledge, skills and design) through electives. Each module should have an assessment criterion.

Pedagogy

The pedagogical scheme/approach opted for Electives will be developed by the individual faculty according to their respective courses. The pedagogical approach for every course offered under Electives may differ. Elective courses shall be open to all students, and allotted on a ratio of 1 Faculty: 20 Students.

Suggested Readings

To be provided by course faculty as per course outline.

Resources

Suggested readings

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
End Term : 60 Marks
Total : 100 Marks

Subject	Internal 1		Internal 2		TOTAL
Elective 1	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	
	20	20	30	30	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture **(tools and technology)**
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built

environment (**context**)

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping Of COs, POs & PSOs

	Programme Specific Outcome			
	PSO1	**PSO2**	**PSO3**	**PSO4**
CO1	M	M	L	H
CO2	H	L	L	H
CO3	H	M	L	H

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

Mapping Of COs and POs

	Programme Outcomes								
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**
CO1	H	M	M	L	L	L	M	M	M
CO2	H	M	M	L	H	L	M	M	M
CO3	H	M	M	H	L	L	M	M	M

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

Course Title : TRANS DISCIPLINARY CERTIFICATE COURSE
Course Code : XXXX
Course Credits : 2
Teaching Mode

COURSE CODE	COURSE TITLE	SKILLSET	TEACHING HOURS/WEEK			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
XXXX	Trans Disciplinary Certificate Course	Skill Development	2	0	0	2	100	NA	NA

Course Objectives

The course is beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course.

Course Content

TDCC is an open elective platform for learning across the various schools of the University. The offerings are beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 60 Marks
End Term Evaluation : 40 Marks

GENERAL ELECTIVE 2 – MOOC

Course Title : MASSIVE OPEN ONLINE COURSE
Course Code : 23BAR-4MX21S
Course Credits : 2
Teaching Mode

COURSE CODE	COURSE TITLE	SKILL SET	TEACHING HOURS/WEEK			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-4MX21S	MOOC	Skill Development	2	0	0	2	100	NA	NA
23BAR-4MF21S	MOOC_Allied Facets of Architecture 1								
23BAR-4MT21S	MOOC_Architecture Technologies 1								
23BAR-4MB21S	MOOC_Building Interiors 1								
23BAR-4MC21S	MOOC_Communication and Representation 1								
23BAR-4MS21S	MOOC_Sustainability in Architecture 1								
23BAR-4MH21S	MOOC_Heritage & Philosophy 1								
23BAR-4MI21S	MOOC_Infrastructure 1								
23BAR-4ME21S	MOOC_Site Setting and Systems 1								
23BAR-4MA21S	MOOC_Art and Architecture 1								

Course Objectives

MOOC is an open elective platform for learning across the general pool of online courses. The offerings can be within the discipline or beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course. Elective courses shall be open to all students, and students are required to register for the course as per the Standard Operating Procedure issued from time to time.

Course Outcomes (Cos)

The students would be expected to:

CO1 To provide learners with essential knowledge and understanding of the subject matter covered in the course.
CO2 To help learners develop practical skills relevant to the course topic, such as problem-solving, critical thinking, communication, or technical proficiency.
CO3 To enable learners to apply the knowledge and skills gained in real-world situations or contexts related to the course content.
CO4 To empower learners to take ownership of their learning process and develop self-directed learning skills, including goal-setting, time management, and self-assessment.

Course Content
According to specific course floated

Pedagogy
To be provided by course faculty as per course.

Text Books
To be provided by course faculty as per course outline.

Resources
To be provided by course faculty as per course outline.

Course Assessment Scheme
Intermediate Reviews by Internal Faculty : 40 Marks
End Term External exam : 60 Marks
Total : 100 Marks

	Internal 1		Internal 2		
MOOC	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	TOTAL
	20	20	30	30	**100**

Programme Outcomes (POs)
PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping Of COs & PSOs

	Programme Specific Outcome			
	PSO1	**PSO2**	**PSO3**	**PSO4**
CO1	M	M	L	H
CO2	H	L	L	H
CO3	H	M	L	H
CO4	H	L	L	H

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

Mapping Of COs & POs

	Programme Outcomes								
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**
CO1	H	M	M	L	L	L	M	M	M
CO2	H	M	M	L	H	L	M	M	M
CO3	H	M	M	H	L	L	M	M	M
CO4	H	M	M	L	H	L	M	M	M

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

Sushant University
soaring high

Course Course Title : Design Studio 2
Course Code : 23BAR-1DS22P
Course Credits : 8
Teaching Mode : Studio Based Teaching

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-1DS22P	Design Studio 2	Employability, Entrepreneur-ship, Skill Development	0	8	0	8	50	50	NA

Course Objective

This semester's approach to the design studio is to introduce students to the varied flavour of small towns and their architecture. In the interest of broadening the framework and scope of architectural inquiry, students are encouraged to connect their investigations to larger ideas and cultural themes in areas such as philosophy, art, literature and popular culture. The lines of inquiry may challenge assumptions of the site, the conventions of architecture and help in the reaffirmation or the situation of one's own beliefs. The design exercise will be inquiry driven and the process will enable students to explore, interpret, manipulate, derive organisational patterns of the built environment at the Meso-system scale, or that which impact at the level of family, peers, neighbourhoods, close-knit occupational communities or workgroups. The students will explore material languages, patterns and compositions for small multicellular buildings as a response to the strong phenomenological and physical understanding of the specific site. The studio will delve into the idea of the 'need' of a project rather than the 'wish'. While no particular emphasis is given on hand skills or digital techniques, students should understand the appropriateness of the technique they choose to the task at hand and the time available

Course Outcomes (COs)

Value Based Design Thinking Process

Architecture Design thinking starts with the understanding of space by an individual, expanding to understanding of space for individuals and groups in public space and synchronising that with the understanding of space for large sections of the society. Based on the above ideology the process is divided into four important value sets;

1. The Integral Values
2. The Ecological Values
3. The Operational Values
4. The Disciplinary Values

The above value sets also lead to Course Outcomes. The students are expected to display;

CO1: The Integral Values:

Architectural space is for the living Self – Students will be able to investigate interpretations of self. This will lead to understanding comfort, personal space, anthropometrics, the need and requirement of a body. This exploration in self-awareness shall make a student portray the ways and means of inhabitation that are linked with age, diurnal cycles, time and human actions. Thus changing the meaning of everyday context. This will assist in understanding modules that a self inhabits.

CO2: The Ecological Values:
Manifestation of Nature - The students will be able to engage themselves in nature studies that include forms, expressions, patterns and overall systems. However, nature primarily is governed by the presence of weather; students will be able to extrapolate the various weather conditions that can be used as tools of creation to sculpt spaces and develop design systems. This will enable students to critique their own ideologies and expressions and shall systematize architecture production or representations; and develop an architectural vocabulary associated with it.

CO3: The Operational Values:
Structural, constructional and material thinking: students would be exposed to various physical constituents of space and elements of architecture. These constituents will be created, modulated and communicated in order to understand the execution process by graphical representation via digital media in the studio. Students will be exposed to understand architecture design as a cohesive process to explore First Principles - why a thing is made the way it is - reducing the object/ form to its core or fundamentals - factors underlying forms rather than the forms themselves. Students will be able to do a thorough research and extract information that demonstrates various execution styles and form analysis with various materials and interpret it in relevant situations.

CO4: The Disciplinary Values:
Students will be able to gauge unseen qualities of things and places by learning to look beyond what is easily visible. Students will be exposed to the creative process used in various fields which revolve around a representation and expression of the self, thus students will be able to choose, critique and weigh the level of merger for a specific project situation and further demonstrate awareness of design principles.

Course Content

The Studio can be divided into 4 modules of four weeks each that showcases elements of Spatial Analysis of Settlement and its Built Environment.

Module 1:
Capturing/Re-capturing the memories of the settlement posing an inquiry - Mental Maps leading to questions such as - What is relevant for the settlement? What makes the built form belong to that place? Study of the context - Cultural setting, physical setting, social, lifestyle, social engagement, daily lifestyle, history (what/ why/impact, influence). Study of weather, climate, material and raising the enquiry points. Articulation of critical inquiry through research and enquiry.

Module 2:
Study on architecture formulating the space that belongs to the larger community; thus, helping in nation building/ democracy. Mapping of stand from Module 1 into architecture qualities - articulation of stand in physical dimensions - Stand has different layers of details (Macro to Micro) - Articulation of these layers into physical model of multiple spaces. Design Attitudes

(Time as emergent/rebirth) - Architecture for the settlement striving for Democracy, Stability and Identity. Articulation of physical models to 2D plans and sections.

Module 3:
Comparing various case studies for understanding and developing programme sets. Develop primary responses to the Setting - Programmatic and Spatial. Emergent Scenarios - Form and Ecology

Module 4:
Emergent Scenarios - Materials and Retrofitting
Articulating various layered meanings of contexts in an architectural setting leading to setting of queries. Critical analysis of the emergent architectural future of the settlement that can be addressed and translating that into 3D architectural and spatial qualities - space, object, element, arrangement and composition, material, usage, identity. Developing programme sets for the emergent scenarios and generate the final 3D into 2D articulations - plans and sections. Responding to the setting via architectural interventions with an ecological lens - Nature, Sustainability, Retrofitting, climate, weather and comfort. Developing the architectonics based material systems, structural frameworks and construction processes and prepare a convincing architectural output that is in line with the Stand taken.

Pedagogy

Lectures will be delivered on above mentioned topics and predominantly, discussions on Site planning & design development shall take place. A great amount of emphasis will be on hands-on approach 3D site/design model making. Research on topics such as anthropology, place making & other book readings shall be supported by Guest Lecture and Site Visits.

With the above aims, "Learning-by-doing" in the design studio, and an online delivery system, the methodology includes:
1. (Partially) Flipped classroom:
   - Questions and extensive group and individual studio discussions/ feedback session
   - Comprehensive Peer learning strategies with students presenting and critiquing each other's' works at every stage

2. Documentation and Analysis:
   - Group study/ analysis and/ or self-study assignments of the prescribed topic where in students would be delving into varied projects across the world through prescribed lenses

3. Experiential and technical learning

4. Flexible design programming (individual/ group)
   - (Guided) Development of individual design projects based on the previous exercises

This will be done through individual module exercises and overall case and context capsule workshops for the whole batch. The course delivery will include, but not limited to, hands-on exercises using two-dimensional and three-dimensional techniques, group- discussions, exercises focusing on observation, critical thinking and representation, workshops, lectures. The studio sessions will have extensive discussions and feedback from faculty as well as peers to enable a constructive learning environment.

Textbooks and Resources

1. Key Thinkers on Space and Place Paperback by Phil Hubbard
2. Architectural Regionalism: Collected Writings on Place, Identity, Modernity, and Tradition by Vincent Canizaro (Editor)
3. How Buildings Learn, what happens after they're built by Stewart Brand
4. Architecture of the Everyday by Steven Harris (Author, Editor), Deborah Berke (Editor)
5. Lynch, K., 1960. The Image of the City. Cambridge: The MIT Press.
6. Memory and Architecture, ed. Eleni Bastéa
7. The place of Memory by Donlyn Lyndon, Spatial Recall: Memory in Architecture and Landscape, ed. Marc Treib
8. Architecture and Memory: References in Contemporary Culture, Zeuler Lima and Vera M Pallamin, ACSA West Central Region Conference, Memory and Architecture, 1998
9. Edges of Multiplicity: A discussion of the contemporary Urban Edge, Nadia M Anderson, Iowa State University, Architecture Conference Proceedings and Presentations Paper 36, 2007
10. The City of Collective Memory: Its Historical Imagery and Architectural Entertainments, M Christine Boyer
11. Memories of cities: trips and Manifestoes (Ashgate Studies in Architecture), Jonathan Charley & Dr Eamonn Canniffe, 2013
12. Losing Site: Architecture, Memory and Place (Ashgate Studies in Architecture), Shelley Hornstien, 2011
13. Poetics of Space, Gaston Bachelard
14. Invisible Cities, Italo Calvino
15. Such Places as Memories, John Hedjuk
16. Architecture and Narrative, The formation of Space and Cultural Meaning, Sophie Psarra
17. Elements of Architecture: From Form to Place, Pierre von Meiss

Assessment Scheme

Intermediate Reviews by Internal Faculty : 50 Marks
End Term External Jury : 50 Marks
Total : 100 Marks

INTERNAL ASSESSMENT		END SEM EXAMINATION (JURY)	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
20	30	50	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context**)
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical Skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implements the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

Course Outcomes	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	H	H	H	H	H	M	M	H	H	H	H	M	H
CO2	H	M	M	H	H	H	H	H	M	H	H	H	M
CO3	H	H	M	H	H	M	H	H	M	H	H	H	M
CO4	H	M	H	H	H	M	H	H	L	H	H	H	L

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Course Title : **Construction Systems Studio 4–Materials, Techniques, Structural Systems,Surveying and Services**
Course Code : **23BAR-2CS22P**
Course Credits : **8**
Teaching Mode : **Studio Based Teaching**

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-2CS22P	Construction Systems Studio 4 - Materials, Techniques, Structural Systems, Surveying and Services	Employability, Entrepreneurship, Skill Development	0	8	0	8	50	50	NA

Course Objectives

The course is designed to expose students to different construction systems adopted for low rise construction and development. An elementary understanding of different construction techniques available, basis of structures and the decision making process for feasible adoption of technique for building processes. Exposure to actual building processes on sites and materials in the markets shall be complemented with experimental hands-on work on campus to enable students to develop a respect for the craft of building as the only way in which their dream designs can be executed.
The course has three components i.e.

i. Lectures in materials, structural mechanics, methods of construction and related services
ii. Studio wherein the principles and practice shall be applied to the production of meaningful construction details and working drawings
iii. Site visits and hands-on workshops for exposure to real world situations.

Studio Theme-Empirical construction – Low Rise public building systems with mixed (load bearing & columns) construction– Materials, techniques, structural systems and Services.
The course also, emphasizes on bringing a relationship between structural mechanics, building material sciences, building construction systems and building services, primarily at low rise public building development with mixed construction systems.

Course Outcomes

The student will be able to

- CO1. Construction Techniques and material thinking: *Students will examine* components of a mixed (load bearing & partial framed) building construction system in terms of material applications, limitations and roles within a built environment for low

rise building systems.

- CO2. Building Services: *Students will analyse* intermediate level of MEP requirements of a low rise public building and provide possible solutions for the same.
- CO3. Structural Mechanics: *Students would be able to analyse* structural aspects related to different loading systems, bending moment systems and other applicable structural mechanics for mixed (load bearing & partial framed) construction systems in low rise buildings.
- CO4. Construction related Communications: *Students will be able to* draft good for construction working drawings with respect to civil, structural and MEP aspects.

Course Content

Module 1 – Construction Techniques and material thinking – Mixed construction systems and its Structural systems

- Understanding different types of construction scales & complexities in construction methods and techniques for a low-rise public building G+3.
- Different forces acting on a built space, and their behavior with respect to framed and load bearing construction systems especially in 2-3 storied structures.
- Foundational requirements, soil bearing capacity of soil and the need for different type of footings for load bearing and framed structural, relation of SBC with choice of building structure type and footing type.
- Validation and understanding of different loads that contribute in a low rise building type for different functions –commercial, institutional.
- Material properties and their behavior patterns, limitations and strengths of the material. Performance of a material for a building type with respect to the technique it has been used for various architectural and structural members in tension and compression.
- Process and technique of up-lifting any G+3 structure.

Module 2 – Building Services – Intermediate MEP services.

- To study and draw Mechanical, Electrical, Plumbing, HVAC and Firefighting services from the codes for a public building up to 15m height.

Module 3- Steel

- Introduction to Steel, and its usage in construction industry.
- Use of steel as building material in different forms in an Architectural building.

Module 4 – Working drawings – Low rise mixed construction built up systems of any public building.

- Civil Working drawings for mixed construction systems – grid marking, construction details, civil layouts, door window schedules etc.
- Electrical layouts- wall & ceiling electrical layouts and detailing, marking of switch boards and other electrical points, transformer, USP's, power generators, solar etc.
- Plumbing layouts – Sanitary fixtures, plumbing points, toilet details, kitchen/ pantry details, waste water disposal and treatment methods.

Pedagogy:

Building and Construction focuses on integrating theoretical knowledge of materials and methods with hands-on practice, enabling students to understand both the technical and creative aspects of construction. It emphasises experiential learning, critical thinking, and problem solving to prepare students for real-world challenges in the field.

Text Book:

1. Building construction by Barry and W B McKay
2. Francis D.K. Ching, Building construction.
3. Building construction, B.C. Punmia, Laxmi Publications
4. Building Construction –Materials by M.V. NAIK.
5. S.C.Rangwala, Engineering Materials, CharotarPub.House, Anand, 1997
6. Building Construction –Materials by M.V. NAIK.
7. Building Construction Handbook by R. Chudley & R. Greeno
8. Building Construction – Principles, Materials, Systems by Madan Mehta, Walter Scarborough, Diane Armpriest.
9. Best of Architects, Working Details – Vol.2 Internal by Colin Boyne & Lance Wright
10. Best of Architects, Working Details – Vol.1 Internal by Colin Boyne & Lance Wright
11. House Framing by John.D.Wagner.
12. Building Construction Illustrated by D.K.Ching

Resources:

Suggested Readings

- National Building Code 2016
- IS Codes for Brick works, Masonry, Carpentry

Course Assessment Scheme

Intermediate Reviews by Internal Faculty:	50 Marks
End Term External Jury:	50 Marks
Total:	100 Marks

Internal Assessment		End-Semester Examination (External)	Total
Mid-Semester Examination	Internal End-Term Examination		
Cumulative Internal Assessment Presentation/ viva/ jury			
20	30	50	100

PROGRAM OUTCOME - (PO)

Upon successful completion of this program of study, the graduates shall:

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical Skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implements the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

Course Outcomes	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	L	M	H	H	L	M	H	L	L	M	M	L	H
CO2	H	L	L	M	L	M	L	H	L	H	L	L	M
CO3	H	M	H	L	M	L	L	L	H	H	M	L	L
CO4	H	L	L	L	M	M	H	L	L	H	M	M	L

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Course Course Title : Architecture Representation 4 - Digital Skills
Course Code : 23BAR-1AR22S
Course Credits : 8
Teaching Mode : Lecture + Studio Based Teaching

Course Code	Course Title	Skillset	Course Structure			Credits	Examinations Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-1AR22S	Architecture Representation 4 – *Digital Skills*	Skill Development	1	3	0	4	100	NA	NA

Course Objective

The aim of the course is to enable students in understanding the move from hand-sketching to digital platforms maintaining the skills-sets; and analysing the application of the visualisations in digital format so that digital illustrations and renders are appropriately made.

Course Outcomes (COs)

The students shall be able to:

CO1. Implement ways of representation and nomenclature of the basic layer system in Photoshop and Illustrator
CO2. Demonstrate the awareness of typology of lines and polygons and its translation in the software
CO3. Orient and be aware of how to represent their work and attention to the ideas of composition
CO4. Demonstrate Advanced knowledge of Photoshop and Illustrator with respect to various plugins

Course Content

The Studio can be divided into 4 modules of four weeks each that showcases elements of Photoshop and Adobe Illustrator in tandem with real world Environment. The modules' bifurcation is dependent on the theme of the studio as discussed and decided by the studio directors. However, running the studio in modules shall make the faculty team alert on the delivery and performance of the students at various stages.

Pedagogy

The studio shall use various teaching methods such as lectures, physical model making, sketches, photography, site visits, etc. The exercises may vary from visual observations (measured drawings, physical observations) to visualised representations (manual-drafted drawings). Tutorials on topics shall be followed by discussion and working sessions within the studio. The process of learning shall be achieved through hand-drafting, Sketch-up, Photoshop and other parallel vector programs. This studio is a student centric studio, where the assignments are scheduled as per the

capacity to hold and process the knowledge by the students. Students shall be taught from the key question - purpose of the images that require modification? Why do we need to modify it? This shall further be explored using various digital softwares to enhance their visualisation and presentation skills. The students will be taught by making them understand the relationship between the objective of drawing and real world execution. In order to do that a lot of emphasis will be on the colour schemes, understanding foreground & background, addition and subtraction of elements.

Textbooks and Resources

1. Ching, F. D., & Juroszek, S. P. 2011. "Design drawing". John Wiley & Sons.
2. Gill & Robert W., 1974, "Basic Perspective", Thames and Hudson.
3. Malik S., 1994, "Perspective and Sciography", Allied Publishers.
4. Leslie M C., 1970, "Architectural Graphics", Macmillan Pub Co.
5. Frank C., Architectural Graphics.
6. Kelsey W.E., Geometrical & Building Drawing.
7. Leslie M..C., Architectural Graphics.
8. J. Metric Hand Book.
9. Architectural Graphic Standards.
10. Architectural Drawing ISI Publication.
11. James B., Essentials of Drafting.
12. Robert G., Rendering with pen and ink.
13. Holmes J.M., Applied perspective.
14. Perspective for the Architect,Thames and Hadson.
15. Friendrich W.C., Professional perspective Drawing for Architects and Engineers.
16. Perspective Drawings of Modern Architecture, Japan Publishing Co.
17. Marvin Trachtenberg and Isabelle Hyman. Architecture from Prehistory to Postmodernity. New York: H.N. Abrams, 2002.
18. Architectural Graphics(Sixth Edition)
19. Introduction to Architecture - with James F. Eckler
20. Architecture-Form, Space, & Order (Fourth Edition)
21. Building Construction Illustrated (Fifth Edition)
22. Design Drawing (Third Edition) - With Steven P. Juroszekt
23. A Global History of Architecture (Third Edition)- With Mark Jarzombek and Vikramditya Prakash

YouTube:

1. Show It Better -https://www.youtube.com/channel/UC_eRv_Rzr671BaKFtpYSi4A
2. Alex Hogrefe - https://www.youtube.com/user/hogrefal
3. Upstairs - https://www.youtube.com/channel/UC1ptLbehYDNqwdnIGwLpysw
4. Nick Senske - https://www.youtube.com/user/nsenske
5. Surviving Architecture - https://www.youtube.com/channel/UC8kmK7NIn7MY5xZFxDA5oGw
6. Arqui9 Visualisation - https://www.youtube.com/channel/UCBzPV2uSji-Z5-x_svnZV1w
7. 30 X 40 Design Workshop - https://www.youtube.com/user/30by40

Instagram:

1. Architecture Competitions - instagram.com/competitions.archi
2. bartlettunit10 - https://www.instagram.com/bartlettunit10/
3. Show It Better - https://www.instagram.com/letsshowitbetter/

4. KooZA/rch - https://www.instagram.com/koozarch/
5. Act of Mapping

Various other platform

1. Exploring Cartography, Landscape.urbanism, Architecture, Design, Arts in contemporary Map[ping] https://www.instagram.com/act.of.mapping/

2. BARTLETT KIOSK is an archive of work by students at the Bartlett School of Architecture Drawings/Models/ Crits/Installations collected by @storpweber, storpweber.com https://www.instagram.com/bartlettkiosk/

3. Axonometric Madness - https://www.instagram.com/axo_madness/

4. Archisource - https://www.instagram.com/archisource/

5. illustrArch - https://www.instagram.com/illustrarch/

Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
End Term with Time Problem : 50 Marks
Total : 100 Marks

INTERNAL ASSESSMENT		ONE TIME TEST/ TIME PROBLEM	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
40	40	20	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context**)
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**
PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

H. Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implements the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	M	H	L	L	H	L	L	L	L	L	M	L	L
CO2	L	H	L	L	M	L	M	L	L	L	L	L	L
CO3	L	M	L	L	H	H	L	L	L	L	M	L	M

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Course Course Title : **Sustainable Approaches - Community Engagement**
Course Code : **23BAR-1SA22P**
Course Credits : **2**
Teaching Mode : **Lecture Based Teaching**

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-1SA22P	Sustainable Approaches – *Community Engagement*	Employability	2	0	0	2	100	NA	NA

Course Objectives

The course aims to understand and empower community members to explore, plan and act together on their priority issues. This will strengthen collective capacity and improve programmes initiated for community enhancement. Community Engagement also seeks to strengthen the link between people and the systems, structures and services—both formal and informal. It means that governance, quality of service delivery and systems, and accountability mechanisms need to be strengthened. Through Community Engagement it is envisaged that mechanisms for participatory ideation, planning, implementation and monitoring can be supported and transformed. The overall idea is to engage and collaborate with external partners, especially governmental and community-led organisations.

Course Outcomes (COs)

The students shall be able to:
CO1. Identify and define characteristics of the community.
CO2. Evaluate the efficacy of community engagement strategies/methodologies
CO3. Synthesise the information gathered and optimise for its implementation
CO4. Develop effective and innovative techniques for community collaboration over a project.

Course Content

Community participation is now central to planning and policy reforms around the world. It is considered fundamental to fair and representative decision-making in modern-day urban planning and is also a key element in achieving a sustainable future. In the case of India, the 74th Constitutional Amendment Act, in its section 243 S provides for setting up ward committees to ensure citizen participation in decision making and to bring the governance and the citizens together. Keeping in line with the above, the course is outlined in a manner which combines learning through community service in ways that enhance common good. It intends to integrate with a studio project to give students experiential opportunities to learn in real world contexts and develop skills of community engagement. It will focus on examining the policies of public participation, types of methods used along with developing and designing programmes for effective community engagement.

The Studio can be divided into 4 modules of four weeks each that showcases elements of community engagement in tandem with real world Environment. The modules' bifurcation is dependent on the theme of the studio as discussed and decided by the studio directors. However, running the studio in modules shall make the faculty team alert on the delivery and performance of the students at various stages.

Modules 1
Study of the community – Postcolonial Debates and Discourses

Module 2: What is Indian-ness?

Module 3: The City versus The Village – Ideologies and Implications on what we are today

Module 4: The Global India – The new 'Identity Crisis'.

Pedagogy

The lectures, discussions, and assignments will be around the built environment associated with shared spaces used by diverse groups. The focus will be on how these spaces are created, what it means to the people who make them, what they tell us about history, and how it responds to the ideas and needs of people living at a particular time. We explore both the material aspects of architecture (form, design, technology, etc.) as well as the intellectual and social conditions that bring it into being. Efforts will be made to make connections between the past and present (current scenario of architecture/ ideologies/ culture). Students will engage in more hands-on, interactive exercises, along with research, for a better spatial understanding of architectural history.

Textbooks and Resources

- Get Together - How to Build a Community With Your People by Bailey Richardson
- Community: The Structure of Belonging by Peter Block
- Changeology: How to enable groups, communities and societies to do things they've never done before by Les Robinson
- The Art of Gathering: How We Meet and Why It Matters (Hardcover) by Priya Parker
- Fragile Neighbourhoods: Repairing American Society, One Zip Code at a Time (Hardcover) by Seth D. Kaplan
- Elevating Engagement: Uncommon Strategies for Creating a Thriving Member Community (Paperback) by Amanda Lea Kaiser
- Dream Play Build: Hands-On Community Engagement for Enduring Spaces and Places (Paperback) by James Rojas
- Transformative Scenario Planning: Working Together to Change the Future (Paperback) by Adam Kahane

Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
End Term with Time Problem : 50 Marks
Total : 100 Marks

INTERNAL ASSESSMENT		ONE TIME TEST/ TIME PROBLEM	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
40	40	20	100

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**
PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities
PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.
PSO3 Implements the understanding gained through experiential learning, industry connecting national and international collaborations in the field of architecture.
PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	H	L	H	M	M	L	M	M	M	H	M	M	M
CO2	H	M	H	M	H	L	H	H	M	H	M	H	M
CO3	H	M	H	M	H	L	H	H	M	H	M	H	M
CO4	H	H	M	L	M	L	H	M	M	H	L	H	M

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

DISCIPLINE SPECIFIC ELECTIVE

Course Title : Elective 2 (Foundational)
Course Code : 23BAR-4__22S
Course Credits : 3
Teaching Mode

COURSE CODE	COURSE TITLE	SKILLSET	TEACHING HOURS/WEEK			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-4__22S	Discipline Specific Elective Elective 2 (Foundational)	Skill Development				3			
23BAR-4EF 22S	Allied Facets of Architecture 2		1	2	0		100	NA	NA
23BAR-4ET 22S	Architecture Technologies 2								
23BAR-4EB 22S	Building Interiors 2								
23BAR-4EC 22S	Communication and Representation 2								
23BAR-4ES 22S	Sustainability in Architecture 2								
23BAR-4EH 22S	Heritage & Philosophy 2								
23BAR-4EI2 2S	Infrastructure 2								
23BAR-4EE 22S	Site Setting and Systems 2								
23BAR-4EA 22S	Art and Architecture 2								

Course Objectives

Elective courses are offered to students from the 3rd Semester onward, till the 9th semester of the 5 Year B.Arch Programme.The course contents to be followed will be developed by course teachers based on the resources at hand and opportunities for linkages with other courses.

The electives offered in the ***Fourth Semester*** are expected to impart ***conceptual understanding*** on Subject Knowledge and Relationship with Architecture as part of the course objectives.

The subjects would be based on the following suggested groups:

1. ALLIED FACETS OF ARCHITECTURE

This course explores the interdisciplinary aspects of architecture, delving into fields such as urban planning, landscape architecture, and interior design. Students will gain insights into how these allied fields interact with and influence architectural design.

2. ARCHITECTURE TECHNOLOGIES

This course focuses on the technological aspects of architecture, covering advancements in building materials, construction methods, and digital tools. Students will learn how technology enhances the design process, sustainability, and the overall functionality of architectural structures.

3. BUILDING INTERIORS

This course centers on the interior aspects of architectural design, addressing spatial planning, furniture design, and aesthetics within built environments. Students will explore how to create functional and aesthetically pleasing interior spaces that align with user needs.

4. COMMUNICATION AND REPRESENTATION

This course emphasizes effective communication in architecture through various mediums such as drawings, models, digital presentations and basic understanding of various software like MS office, Rhino, Sketchup, Revit, BIM etc. Students will develop skills in architectural representation to effectively convey design ideas and concepts to clients, stakeholders, and the public.

5. SUSTAINABILITY IN ARCHITECTURE

This course introduces students to the fundamental principles and practices of sustainability within the context of architectural design. Through lectures, discussions, case studies, and hands-on exercises, students will explore the economic, social, and environmental dimensions of sustainability as they relate to the built environment. The course aims to develop a foundational understanding of sustainable design concepts and their application in architectural practice.

6. HERITAGE & PHILOSOPHY

This course delves into the historical and philosophical aspects of architecture, exploring the cultural significance of built heritage. Students will study preservation methods, restoration techniques, and ethical considerations related to working with historically significant structures.

7. INFRASTRUCTURE

Infrastructure plays a crucial role in the urban landscape. This course covers the planning, design, and implementation of essential infrastructure elements such as transportation systems, utilities, and public spaces, providing students with a comprehensive understanding of the built environment.

8. SITE SETTING AND SYSTEMS

Focusing on the integration of architectural design with the natural and built context, this course explores site planning, landscape architecture, and the relationship between buildings and their surroundings. Students will learn to harmonize architectural solutions with the site's topography, climate, and ecosystems.

9. ART AND ARCHITECTURE

The Art and Architecture formative course provides students with a comprehensive understanding of the relationship between art and architecture throughout history. Through lectures, discussions, and visual analysis, students will explore how artistic movements, styles, and concepts have influenced architectural design and vice versa. Emphasis will be placed on developing critical thinking skills and an appreciation for the aesthetic, cultural, and social dimensions of art and architecture.

Please refer to the appendix 1A for references of the courses offered in the past in this semester.

Course Outcomes (COs)

The students would be expected to:

CO1. Demonstrate specialized learning in subjects covering areas of concern to architecture.
CO2. Apply interdisciplinary methods and skill in the production of architecture.
CO3. Research on a diverse range of subjects in relevance to architecture

Course Content

The faculty offering each elective will develop a weekly programme for the course, a list of compulsory and suggestive readings, and evaluation parameters, based on the resources at hand and opportunities for linkages with other courses.
The faculty will offer the course in a module system and there shall only be four modules. The modules will progressively address the course outcomes to develop all the competences (knowledge, skills and design) through electives. Each module should have an assessment criterion. Elective courses shall be open to all students, and allotted on a ratio of 1 Faculty: 20 Students.

Pedagogy

The pedagogical scheme/approach opted for Electives will be developed by the individual faculty according to their respective courses. The pedagogical approach for every course offered under Electives may differ.

Text Books

To be provided by course faculty as per course outline.

Resources

To be provided by course faculty as per course outline.

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
End Term : 60 Marks
Total : 100 Marks

Subject	Internal 1		Internal 2		TOTAL
Elective 2	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/. Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	
	20	20	30	30	**100**

Programme OutcomeS (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture **(tools and technology)**
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment **(context)**
PO4 Examine and analyze the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets.

(communication)

PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping Of COs & PSOs

	Programme Specific Outcome			
	PSO1	**PSO2**	**PSO3**	**PSO4**
CO1	M	M	L	H
CO2	H	L	L	H
CO3	H	M	L	H

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

Mapping Of COs & POs

	Programme Outcomes								
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**
CO1	H	M	M	L	L	L	M	M	M
CO2	H	M	M	L	H	L	M	M	M
CO3	H	M	M	H	L	L	M	M	M

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

GENERAL ELECTIVE 1 – TDCC

Course Title : TRANS DISCIPLINARY CERTIFICATE COURSE

Course Code : XXXX
Course Credits : 2
Teaching Mode

COURSE CODE	COURSE TITLE	SKILLSET	TEACHING HOURS/WEEK			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
XXXX	Trans Disciplinary Certificate Course	Skill Development	2	0	0	2	100	NA	NA

Course Objectives

The course is beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course.

Course Content

TDCC is an open elective platform for learning across the various schools of the University. The offerings are beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course.

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 60 Marks
End Term Evaluation : 40 Marks

GENERAL ELECTIVE 2 – MOOC
Course Title : MASSIVE OPEN ONLINE COURSE
Course Code : 23BAR-4MX22S
Course Credits : 2
Teaching Mode

COURSE CODE	COURSE TITLE	SKILLSET	TEACHING HOURS/WEEK			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-4MX22S	MOOC	Skill Development	2	0	0	2	100	NA	NA
23BAR-4MF22S	MOOC_Allied Facets of Architecture 2								
23BAR-4MT22S	MOOC_Architecture Technologies 2								
23BAR-4MB22S	MOOC_Building Interiors 2								
23BAR-4MC22S	MOOC_Communication and Representation 2								
23BAR-4MS22S	MOOC_Sustainability in Architecture 2								
23BAR-4MH22S	MOOC_Heritage & Philosophy 2								
23BAR-4MI22S	MOOC_Infrastructure 2								
23BAR-4ME22S	MOOC_Site Setting and Systems 2								
23BAR-4MA22S	MOOC_Art and Architecture 2								

Course Objectives

MOOC is an open elective platform for learning across the general pool of online courses. The offerings can be within the discipline or beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course. Elective courses shall be open to all students, and students are required to register for the course as per the Standard Operating Procedure issued from time to time.

Course Outcomes (COs)

The students would be expected to:

CO1 To provide learners with essential knowledge and understanding of the subject matter covered in the course.

CO2 To help learners develop practical skills relevant to the course topic, such as problem-solving, critical thinking, communication, or technical proficiency.

CO3 To enable learners to apply the knowledge and skills gained in real-world situations or contexts related to the course content.

CO4 To empower learners to take ownership of their learning process and develop self-directed learning skills, including goal-setting, time management, and self-assessment.

Course Content

According to specific course floated

Pedagogy

To be provided by course faculty as per course.

Text Books

To be provided by course faculty as per course outline.

Resources

To be provided by course faculty as per course outline.

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
End Term Exam : 60 Marks
Total : 100 Marks

	Internal 1		Internal 2		
MOOC	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	TOTAL
	20	20	30	30	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping Of COs & PSOs

	Programme Specific Outcome			
	PSO1	**PSO2**	**PSO3**	**PSO4**
CO1	M	M	L	H
CO2	H	L	L	H
CO3	H	M	L	H
CO4	H	L	L	H

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

Mapping Of COs & POs

	Programme Outcomes								
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**
CO1	H	M	M	L	L	L	M	M	M
CO2	H	M	M	L	H	L	M	M	M
CO3	H	M	M	H	L	L	M	M	M
CO4	H	M	M	L	H	L	M	M	M

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

Course Course Title : Design Studio 3
Course Code : 23BAR-1DS31P
Course Credits : 8
Teaching Mode : Studio Based Teaching

Course Code	Course Title	Skillset	Course Structure			Credits	Examinations Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-1DS31P	Design Studio 3	Employability, Entrepreneurship, Skill Development	0	8	0	8	50	50	NA

Course Objective

This semester is envisaged as an attempt to shift from the conceptual to the physicality of the architectural construct to provide the first step in the comprehensive experience of the discipline in design and professional knowledge. The studio is interspersed by a range of subjects – humanistic, environmental and technological. The design exercise will enable students to explore and invent meaningful spatial articulations for users at the Meso-system scale, or those which impact at the level of family, peers, neighbourhoods, occupational communities or workgroups. The building programmes will be of public nature and will respond to and design spaces that can collect a number of discrete, small groups, which can coexist within them. Following a methodology of integrated introduction to the environmental, social, and programmatic parameters, the studio will aim at developing the capacity to evaluate, evolve, design, articulate and speculate the emergent built environments. Detailed development and refinement of architectural design will be conducted as informed by the technical knowledge of structural systems, enclosure systems, material systems and the process of construction. The design studio will aim to go from analysis to synthesis of singular building constructs and smaller-scale design exercises leading to the development of a comprehensive design.

Further details are mentioned in the R.E.A.L Handbook

Course Outcomes (COs)

Value Based Design Thinking Process

Architecture Design thinking starts with the understanding of space by an individual, expanding to understanding of space for individuals and groups in public space and synchronising that with the understanding of space for large sections of the society. Based on the above ideology the process is divided into four important value sets;

1. The Integral Values
2. The Ecological Values
3. The Operational Values
4. The Disciplinary Values

The above value sets also lead to Course Outcomes. The students are expected to display;

CO1: The Integral Values:

Architectural space is for the living Self – Students will be able to investigate interpretations of self. This will lead to understanding comfort, personal space, anthropometrics, the need and requirement of a body. This exploration in self-awareness shall make a student portray the ways and means of inhabitation that are linked with age, diurnal cycles, time and human actions. Thus changing the meaning of everyday context. This will assist in understanding modules that a self inhabits.

CO2: The Ecological Values:

Manifestation of Nature - The students will be able to engage themselves in nature studies that include forms, expressions, patterns and overall systems. However, nature primarily is governed by the presence of weather; students will be able to extrapolate the various weather conditions that can be used as tools of creation to sculpt spaces and develop design systems. This will enable students to critique their own ideologies and expressions and shall systematise architecture production or representations; and develop an architectural vocabulary associated with it.

CO3: The Operational Values:

Structural, constructional and material thinking: students would be exposed to various physical constituents of space and elements of architecture. These constituents will be created, modulated and communicated in order to understand the execution process by graphical representation via digital media in the studio. Students will be exposed to understand architecture design as a cohesive process to explore First Principles - why a thing is made the way it is - reducing the object/ form to its core or fundamentals - factors underlying forms rather than the forms themselves. Students will be able to do a thorough research and extract information that demonstrates various execution styles and form analysis with various materials and interpret it in relevant situations.

CO4: The Disciplinary Values:

Students will be able to gauge unseen qualities of things and places by learning to look beyond what is easily visible. Students will be exposed to the creative process used in various fields which revolve around a representation and expression of the self, thus students will be able to choose, critique and weigh the level of merger for a specific project situation and further demonstrate awareness of design principles.

Course Content

The details of the module can be found in the R.E.A.L Handbook that leads to the Benchmarking Review and Term Review (Mid and End).

Pedagogy

Lectures will be delivered on above mentioned topics and predominantly, discussions on visualisations, prototype models. Site planning & design development shall take place. A great amount of emphasis will be on hands-on approach 3D model making. Research on topics such as Amorphous Frames and Autopoietic Armours and other book readings shall be supported by software tutorials.

Textbooks and Resources

- On Growth and Form, D'Arcy Thompson, Cambridge 1917
- Bier S.W.S., Zhu M.B.E. (1991); retail and multi-functional building; Unknown (Chinese)
- Ching F.D.K, Building Construction Illustrated, Van Nostrand Reinhold Staff, New York.
- Erl T. (2005); Service-Oriented Architecture (SOA): Concepts, Technology, and Design; Prentice Hall
- Gehl J. (2011); Life Between Buildings: Using Public Space; Island Press; 6 edition
- Newman O. (1973); Defensible Space; Crime prevention through Urban Design; Macmillan Pub Co
- Parish S. (1993); National Building Code Compliance Manual: 1996 Boca National Building Code; Mcgraw-Hill (Tx)
- White E.T. (1983); Site Analysis: Diagramming Information for Architectural Design; Architectural Media Ltd; First edition.
- BIG. HOT TO COLD. An Odyssey of Architectural Adaptation by Bjarke Ingels (Author)"
- How Buildings Learn: What Happens After They're Built by Stewart Brand"
- Adaptive Architecture: Changing Parameters and Practice 1st Edition by Wolfgang F. E. Preiser (Editor), Andrea E. Hardy (Editor), Jacob J. Wilhelm (Editor)"
- Adaptive Ecologies: Correlated Systems of Living Book by Brett Steele, David Ruy, John Frazer, John Henry Holland, Makoto Sei Watanabe, Mark Burry, Mollie Claypool, Patrik Schumacher, Ryan Dillon, and Theodoros Spyropoulos"
- A Theory of Adaptation 2nd Edition by Linda Hutcheon (Author)"
- ALIVE: Advancements in adaptive architecture (Applied Virtuality Book Series) by Manuel Kretzer (Editor), Ludger Hovestadt (Editor)"
- Material Computation: Higher Integration in Morphogenetic Design (Architectural Design) by Achim Menges"
- Advancing Wood Architecture: A Computational Approach by Achim Menges and Tobias Schwinn"
- Material Synthesis: Fusing the Physical and the Computational (Architectural Design) by Achim Menges (Editor)"
- Crossover by Cecil Balmond"
- Informal by Cecil Balmond and Jannuzzi Smith"
- SML XL: Second Edition by Rem Koolhaas and Bruce Mau"
- Endless Forms Most Beautiful: The New Science of Evo Devo and the Making of the Animal Kingdom" Sean B. Carroll. Read and make sure you understand particularly Derix, C., and Izaki, A., eds., Architectural Design Special Issue
- Empathic Space: The Computation of Human-Centric Architecture. Hillier, B.,
- "The Generic City and its Origins," Routledge, 2014, pp 100-105.
- Erell, E., Pearlmutter, D., and Williamson, T. Urban Microclimate: Designing the Spaces Between Buildings. Routledge, 2010.
- Marshall, Stephen. Cities, Design and Evolution. Routledge, 2008.
- Marshall, Stephen. Streets and Networks. Spon Press, 2005.
- Weinstock, Michael, ed. Architectural Design Special Issue
- System City: Infrastructure and the Space of Flows. John Wiley and Sons, 2013.
- Weinstock, Michael. The Architecture of Emergence: The Evolution of Form in Nature and Civilisation. John Wiley and Sons, 2010.

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 50 Marks
End Term External Jury : 50 Marks
Total : 100 Marks

INTERNAL ASSESSMENT		END SEM EXAMINATION (JURY)	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
20	30	50	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context**)
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**
PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities
PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.
PSO3 Implements the understanding gained through experiential learning, industry connecting national and international collaborations in the field of architecture.
PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

Course Outcomes	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	H	H	H	H	M	M	M	H	M	H	H	M	M
CO2	H	H	H	H	H	M	H	H	H	H	H	H	H
CO3	H	H	M	H	H	M	H	H	M	H	H	H	M
CO4	H	H	H	H	H	M	H	H	H	H	H	H	H

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Field Trip

The Study Tour is devised with an objective to expose the students to the practical understanding of architecture and the philosophies connected with the futuristic scenarios. Trips will be organised by Mentors to make the students aware of the learning objectives and expose them to various discussions and reading in the domain. The study tour shall be of maximum 8 to 10 days out of the city, accompanied by mentors, where students will be observing, noting, photographing, sketching, drawing and interviewing people and documenting. They will be given interactive assignments to do realistic documentation. The Study trip shall be an integral part of the even semester but planning operations shall begin in the odd semester. The town selection for the 6th semester study trip should have a minimum population of 50,00,000 and maximum 200,00,000.

Course Title : **Construction Systems Studio 5 - Materials, Techniques, Structural Systems and Services**
Course Code : **23BAR-2CS31P**
Course Credits : **8**
Teaching Mode : **Studio Based Teaching**

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-2CS31P	Construction Systems Studio 5 - Materials, Techniques, Structural Systems, and Services	Employability, Entrepreneurship, Skill Development	0	8	0	8	50	50	NA

Course Objectives

The course is designed to expose students to different construction systems adopted for low rise construction and development. An elementary understanding of different construction techniques available, basis of structures and the decision making process for feasible adoption of technique for building processes. Exposure to actual building processes on sites and materials in the markets shall be complemented with experimental hands-on work on campus to enable students to develop a respect for the craft of building as the only way in which their dream designs can be executed.

The course has three components i.e.

i. Lectures in materials, structural mechanics, methods of construction and related services
ii. Studio wherein the principles and practice shall be applied to the production of meaningful construction details and working drawings
iii. Site visits and hands-on workshops for exposure to real world situations.

Studio Theme- Programmatic construction – Mid Rise public building with framed construction systems– Materials, techniques, structural systems and Services

The course also, emphasizes on bringing a relationship between structural mechanics, building material sciences, building construction systems and building services, primarily at mid-rise residential & public building development with framed construction systems.

Course Outcomes
The student will be able to
CO1. Construction Techniques and material thinking: *Students will examine* components of a framed building construction system in terms of material applications, limitations and roles within a built environment for mid-rise building systems.

CO2. Building Services: *Students will analyse* complex level of MEP requirements of a low rise public building and provide possible solutions for the same.
CO3. Structural Mechanics: *Students would be able to analyse* structural aspects related to framed construction systems, bending moment systems and other applicable structural mechanics for framed construction systems in mid-rise buildings.
CO4. Construction related Communications: *Students will be able to* draft good for construction working drawings with respect to civil, structural and MEP aspects.

Course Content

Module 1. Cement, Sand, Reinforcement steel, Plain Cement Concrete, Reinforced Cement Concrete

- Theory, production methodology, manufacturing.
- Concept of Concrete frame construction. Module.

Module 2. RCC Members

- Types of Beams, columns and slabs.
- Retaining walls and shear walls.
- RCC foundations –
  - § Isolated footing, combined footing, strip foundation, specialized machine foundations.
  - § Types of raft foundations, Types of pile foundations.
  - § Basements Single & double

Module 3. Allied techniques

- Terracing, waterproofing, insulation.
- Types of concrete walls,
- Expansion joints, construction joints.

Module 4. Integral and external services

- Internal - Service cores.
- External – Site development.

Pedagogy:

Building and Construction focuses on integrating theoretical knowledge of materials and methods with hands-on practice, enabling students to understand both the technical and creative aspects of construction. It emphasises experiential learning, critical thinking, and problem-solving to prepare students for real-world challenges in the field.

Text Book:

- Building construction by Barry and W B McKay
- Francis D.K. Ching, Building construction.
- Building construction, B.C. Punmia, Laxmi Publications
- Building Construction –Materials by M.V. NAIK.
- S.C.Rangwala, Engineering Materials, CharotarPub.House, Anand, 1997
- Building Construction –Materials by M.V. NAIK.
- Building Construction Handbook by R. Chudley & R. Greeno
- Building Construction – Principles, Materials, Systems by Madan Mehta, Walter Scarborough, Diane Armpriest.
- Best of Architects, Working Details – Vol.2 Internal by Colin Boyne & Lance Wright
- Best of Architects, Working Details – Vol.1 Internal by Colin Boyne & Lance Wright
- House Framing by John.D.Wagner.

- Building Construction Illustrated by D.K.Ching

Resources:

Suggested Readings

- National Building Code 2016
- IS Codes for Brick works, Masonry, Carpentry

Course Assessment Scheme

Intermediate Reviews by Internal Faculty:	50 Marks
End Term External Jury:	50 Marks
Total:	100 Marks

Internal Assessment		End-Semester Examination (External)	Total
Mid-Semester Examination	Internal End-Term Examination		
Cumulative Internal Assessment Presentation/ viva/ jury			
20	30	50	100

Program Outcome - (PO)

Upon successful completion of this program of study, the graduates shall:

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implements the understanding gained through experiential learning, industry connecting national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs and PSOs

	PSO1	PSO2	PSO3	PSO4
CO1	M	M	L	H
CO2	H	L	L	M
CO3	H	M	L	L
CO4	H	M	M	L

Note : *H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)*

Mapping of COs and POs

	PO1	PO2	PO 3	PO 4	P05	PO 6	PO 7	PO 8	P09
CO1	L	M	H	H	L	M	H	L	L
CO2	H	L	L	M	L	M	L	H	L
CO3	H	M	H	L	M	L	L	L	H
CO4	H	L	L	L	M	M	H	L	L

Note : *H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)*

Course Course Title : Architecture Representation 5 - Digital Skills
Course Code : 23BAR-1AR31S
Course Credits : 4
Teaching Mode : Studio Based Teaching

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-1AR31S	Architectural Representation 5 – *Digital Skills*	Skill Development	1	3	0	4	100	NA	NA

Course Objective

The future of architecture design is based on algorithmic models and with advancements in 3D, XR, VR and other forms of immersive experiences it becomes necessary that these become an integral part of the curriculum. To begin with Grasshopper, the groundbreaking tool for algorithmic modelling is transforming the industry. Crafting intricate and dynamic shapes through customizable parameters shall open many doors in 3D design. The innovative features of Grasshopper shall empower a student to automate tedious processes, create unparalleled geometry and mathematical functions, develop complex models and generate amazing architecture forms. The course includes modules of organic and fluidic modelling, NURBS modelling, Sub-D modelling and panelling tools. This will clear the intricacies of data lists, list management, and data tree structures.

Course Outcomes (COs)

The students shall be able to:

CO1 Understand the Grasshopper and Rhino 3D interface, Add components, analyse their inputs, and connect components
CO2 Analyse Grasshopper for Making and Breaking Connections
CO3 Execute variables and functions, data management and debugging
CO4 Demonstrate basic learning of Rhino 3D with Grasshopper and develop simple scripts

Course Content

The Studio can be divided into 4 modules of four weeks each that showcases elements of Rhino 3D + Grasshopper Plugin in tandem with real world Environment. The modules' bifurcation is dependent on the theme of the studio as discussed and decided by the studio directors. However, running the studio in modules shall make the faculty team alert on the delivery and performance of the students at various stages.

Pedagogy

Lectures will be delivered on above mentioned softwares and predominantly, discussions on visualisations, prototype models, and module development shall take place. A great amount of emphasis will be on hands-on approach 3D model making. The lessons will include modules of organic and fluidic modelling, NURBS modelling, Sub-D modelling and panelling tools. This shall be done via guest lectures, online video recording, class tutorials and discussions.

Textbooks and Resources

Books

1. The Grasshopper Primer - by Andrew O. Payne
2. Advanced 3D Printing with Grasshopper" by Diego Garcia Cuevas and Gianluca Pugliese
3. Grasshopper: Visual Scripting for Rhinoceros 3D (Volume 1) First Edition by Prof. David Bachman
4. AAD Algorithms-Aided Design: Parametric Strategies using Grasshopper by Arturo Tedeschi
5. Landscape Performance Modeling Using Rhino and Grasshopper by Phillip Zawarus
6. Rhinoceros Visualisation & Rendering: A guide to using Rhino 6 & Grasshopper for 3D rendering by Sim Pern Chong
7. RHINOCEROS 3D EXERCISES: 200 3D Practice Exercises For RHINOCEROS 3D and Other Feature-Based 3D Modeling Software by Sachidanand Jha
8. Rhino NURBS 3D Modeling by Margaret Becker

Websites

- https://parametrichouse.com/learn-grasshopper/
- https://www.classcentral.com/course/linkedin-learning-learning-grasshopper-30473
- https://vimeopro.com/rhino/grasshopper-getting-started-by-david-rutten/video/79844992
- https://archademia.com/lessons/grasshopper/

Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
End Term with Time Problem : 60 Marks
Total : 100 Marks

INTERNAL ASSESSMENT		ONE TIME TEST/ TIME PROBLEM	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
40	40	20	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture **(tools**

and technology)

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implements the understanding gained through experiential learning, industry connecting national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CO1	M	H	L	L	H	L	L	L	L	L	M	L	L
CO2	L	H	L	L	M	L	M	L	L	L	L	L	L
CO3	L	M	L	L	H	H	L	L	L	L	M	L	M

H- High, M- Medium, L-Low

Note :

H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Course Course Title : **Sustainable Approaches - Circular Economy, Real Estate etc, Policy and Governance**
Course Code : **23BAR-1SA31S**
Course Credits : **2**
Teaching Mode : **Lecture Based Teaching**

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-1SA31S	**Sustainable Approaches - Circular Economy, Real Estate etc, Policy and Governance**	Employability	2	0	0	2	100	NA	NA

Course Objective

The course aims to equip architecture students with a foundation of Knowledge, skill, values and creativity drawn from the academic discipline of Planning and Development that can be applied to understanding of Circular Economy and Real-Estate planning and Governance. It will also expose students to diverse concepts of sustainable development, sustainable financing, community based environmental planning, environmental justice, and global environmental challenges.

Course Outcome (COs)

The students shall be able to:

CO 1- Demonstrate knowledge of land fundamentals, local regulations regarding land, costs associated with land buying, land uses, circular economy in real-estate, land economics, government and private mechanism of land, purpose of land and building valuations, types of valuations, land acquisition and compensation principles, social impact assessment of urban development programs.

CO 2- Evaluate methods of land and building valuations, calculation of development costs, pricing of land with respect to land economics, study of important clauses in lease ,sale deed, people participation techniques in real estate planning.

CO 3- Bring in the awareness of market practices of land buying and selling in India, market practices for land valuations both from banking perspective and commercial perspective.

Course Content

The course is divided into five modules as below;

Module 1: Economic concept of Land

- Economic concepts of land, objectives and scope of land economics; relevance for spatial planning; economic principles of land uses;
- Economic rent, land use and land values, market mechanism and land use pattern.

Module 2: Developments of Land and Real Property

- Process, cost of development, source of finance, sustainable financing and financial calculation for real estate developer

Module 3: Real Property Markets

- Heterogeneity and imperfections, valuation of real property - principles and practices; private ownership and social control of land; disposal of land;
- Achieving Circular Economy in Real-Estate
- Land development charges and betterment levy; land use restrictions, compensation and requisition taxation of capital gain on land versus public ownerships, economic aspects of land policies at various levels of decision making.

Module 4: Factors Influencing Locational Decisions

- Analysis of location of specific uses like residential, industrial, commercial and institutional in the light of location theories in intra-regional and inter-regional context; Techniques of cost benefit analysis of urban development programmes.

Module 5: Case Studies

- Case studies of real estate development in public, private, partnership sectors;
- Real estate as facilitator of development;
- Development of real estate as a tool for controlling land and property prices;
- Transaction and renting of real estate, Lease deeds/ sale deeds, sale documents, registration; Mortgage and pledging

Pedagogy

The lectures, discussions, and assignments will be around the built environment associated with economy, real-estate market and value estimation of land parcels. This will be explored with site-visits, interpreting research papers, guest lectures and interactions with industry experts. Efforts will be made to make connections between the past and present (current scenario of architecture/ ideologies/ culture). Students will engage in more hands-on, interactive exercises, along with research, for a better spatial understanding of real-estate.

Textbooks and Resources

- Alan, E.W. (1985), "Urban Economics – An Introduction", BlackWell Publication, New York. Ralicuff, Darlodwen (1992), "Land Economics", Michigan Publishers, New York. Lean, W (1982), "Aspects of Land Use Planning ", Gonthic Publications, New Fersy Paul, B. N. (1977), "Urban Land Economics' ', The McMillan Press, London.
- Raleich, Barlowe (1980), "Land Resource Economics", Prentice Hall Publication, New Jersy. Arnott, Richard J, and Daniel P. McMillen (Ed.) (2008), "A companion to Urban Economics", Blackwell Publishing, U.K.
- Rateliffe, John, Micheal Stubbs and Mark Shepherd (2001), "Urban Planning and Real Estate Development (Natural and Built Environment)", Spon Press, New York.
- Mcdonald, John and Danial McMillen (2006), "Urban Economics and Real Estate: Theory and Policy", Blackwell Publishing, U.K.
- Report of the Committee of Urban Land Policy (1965), Ministry of Health, Govt. of India. Dutta, B.N., (2001), Estimating and Costing in Civil Engineering, UBS Publishers' Distributors Ltd., New Delhi.
- Singh, Gurcharan and Singh, Jagdish, (2004), Estimating, Costing & Valuation, Standard Publishers, Delhi.

Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
End Term with Time Problem : 60 Marks
Total : 100 Marks

INTERNAL ASSESSMENT		ONE TIME TEST/ TIME PROBLEM	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
40	40	20	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**
PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities
PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.
PSO3 Implements the understanding gained through experiential learning, industry connecting national and international collaborations in the field of architecture.
PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	H	H	H	H	H	L	M	M	L	H	H	M	L
CO2	H	H	H	M	H	L	H	H	L	H	M	H	L
CO3	H	M	H	M	M	L	H	H	M	H	M	H	M

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

DISCIPLINE SPECIFIC ELECTIVE
Course Title : ELECTIVE 3 (INTERMEDIATE)
Course Code : 23BAR-4__31S
Course Credits : 3
Teaching Mode

COURSE CODE	COURSE TITLE	SKILLSET	TEACHING HOURS/WEEK			CREDITS	EXAMINATION SCHEME		
23BAR-4__31S	Discipline Specific Elective ELECTIVE 3 (Intermediate)	Skill Development	L	S	P	3	Internal Assessment	External Jury	External Exam
23BAR-4EF 31S	Allied Facets of Architecture 3		1	2	0		100	NA	NA
23BAR-4ET 31S	Architecture Technologies 3								
23BAR-4EB 31S	Building Interiors 3								
23BAR-4EC 31S	Communication and Representation 3								
23BAR-4ES 31S	Sustainability in Architecture 3								
23BAR-4EH 31S	Heritage & Philosophy 3								
23BAR-4EI3 1S	Infrastructure 3								
23BAR-4EE 31S	Site Setting and Systems 3								
23BAR-4EA 31S	Art and Architecture 3								

Course Objectives
Elective courses are offered to students from the 3rd Semester onward, till the 9th semester of the 5 Year B.Arch Programme.The course contents to be followed will be developed by course teachers based on the resources at hand and opportunities for linkages with other courses.

The electives offered in the ***Fifth Semester*** are expected to impart knowledge on ***theory, skill set development and relationship with allied fields*** of importance to Architecture as part of the course objectives.

The subjects would be based on the following suggested groups:

1. ALLIED FACETS OF ARCHITECTURE
This course explores the interdisciplinary aspects of architecture, delving into fields such as urban planning, landscape architecture, and interior design. Students will gain insights into how these

allied fields interact with and influence architectural design.

2. ARCHITECTURE TECHNOLOGIES

This course focuses on the technological aspects of architecture, covering advancements in building materials, construction methods, and digital tools. Students will learn how technology enhances the design process, sustainability, and the overall functionality of architectural structures.

3. BUILDING INTERIORS

This course centers on the interior aspects of architectural design, addressing spatial planning, furniture design, and aesthetics within built environments. Students will explore how to create functional and aesthetically pleasing interior spaces that align with user needs.

4. COMMUNICATION AND REPRESENTATION

This course emphasizes effective communication in architecture through various mediums such as drawings, models, digital presentations and basic understanding of various software like MS office, Rhino, Sketchup, Revit, BIM etc. Students will develop skills in architectural representation to effectively convey design ideas and concepts to clients, stakeholders, and the public.

5. SUSTAINABILITY IN ARCHITECTURE

This course introduces students to the fundamental principles and practices of sustainability within the context of architectural design. Through lectures, discussions, case studies, and hands-on exercises, students will explore the economic, social, and environmental dimensions of sustainability as they relate to the built environment. The course aims to develop a foundational understanding of sustainable design concepts and their application in architectural practice.

6. HERITAGE & PHILOSOPHY

This course delves into the historical and philosophical aspects of architecture, exploring the cultural significance of built heritage. Students will study preservation methods, restoration techniques, and ethical considerations related to working with historically significant structures.

7. INFRASTRUCTURE

Infrastructure plays a crucial role in the urban landscape. This course covers the planning, design, and implementation of essential infrastructure elements such as transportation systems, utilities, and public spaces, providing students with a comprehensive understanding of the built environment.

8. SITE SETTING AND SYSTEMS

Focusing on the integration of architectural design with the natural and built context, this course explores site planning, landscape architecture, and the relationship between buildings and their surroundings. Students will learn to harmonize architectural solutions with the site's topography, climate, and ecosystems.

9. ART AND ARCHITECTURE

The Art and Architecture formative course provides students with a comprehensive understanding of the relationship between art and architecture throughout history. Through lectures, discussions, and visual analysis, students will explore how artistic movements, styles, and concepts have influenced architectural design and vice versa. Emphasis will be placed on developing critical thinking skills and an appreciation for the aesthetic, cultural, and social dimensions of art and architecture.

Please refer to the appendix 1A .for references of the courses offered in the past in this semester.

Course Outcomes (COs)

The students would be expected to:

CO1. Demonstrate specialized learning in subjects covering areas of concern to architecture.
CO2. Apply interdisciplinary methods and skill in the production of architecture.
CO3. Research on a diverse range of subjects in relevance to architecture

Course Content

The faculty offering each elective will develop a weekly programme for the course, a list of compulsory and suggestive readings, and evaluation parameters, based on the resources at hand and opportunities for linkages with other courses.

The faculty will offer the course in a module system and there shall only be four modules. The modules will progressively address the course outcomes to develop all the competences (knowledge, skills and design) through electives. Each module should have an assessment criterion. Elective courses shall be open to all students, and allotted on a ratio of 1 Faculty: 20 Students.

Pedagogy

The pedagogical scheme/approach opted for Electives will be developed by the individual faculty according to their respective courses. The pedagogical approach for every course offered under Electives may differ.

Text Books

To be provided by course faculty as per course outline.

Resources

To be provided by course faculty as per course outline.

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
End Term : 60 Marks
Total : 100 Marks

Subject	Internal 1		Internal 2		TOTAL
Elective 3	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	
	20	20	30	30	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built

environment **(context)**

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping Of COs & PSOs

	Programme Specific Outcome			
	PSO1	**PSO2**	**PSO3**	**PSO4**
CO1	M	M	L	H
CO2	H	L	L	H
CO3	H	M	L	H

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

Mapping Of COs & POs

	Programme Outcomes								
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**
CO1	H	M	M	L	L	L	M	M	M
CO2	H	M	M	L	H	L	M	M	M
CO3	H	M	M	H	L	L	M	M	M

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

GENERAL ELECTIVE 1 – TDCC

Course Title : TRANS DISCIPLINARY CERTIFICATE COURSE
Course Code : XXXX
Course Credits : 2
Teaching Mode

COURSE CODE	COURSE TITLE	SKILLSET	TEACHING HOURS/WEEK			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
XXXX	Trans Disciplinary Certificate Course	Skill Development	2	0	0	2	100	NA	NA

Course Objectives

The course is beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course.

Course Content

TDCC is an open elective platform for learning across the various schools of the University. The offerings are beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course.

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 60 Marks
End Term Evaluation : 40 Marks

GENERAL ELECTIVE 2 – MOOC

Course Title : MASSIVE OPEN ONLINE COURSE
Course Code : 23BAR-4MX31S
Course Credits :2
Teaching Mode

COURSE CODE	COURSE TITLE	SKILLSET	TEACHING HOURS/WEEK			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-4MX31S	MOOC	Skill Development	2	0	0	2	100	NA	NA
23BAR-4MF31S	MOOC_Allied Facets of Architecture 3								
23BAR-4MT31S	MOOC_Architecture Technologies 3								
23BAR-4MB31S	MOOC_Building Interiors 3								
23BAR-4MC31S	MOOC_Communication and Representation 3								
23BAR-4MS31S	MOOC_Sustainability in Architecture 3								
23BAR-4MH31S	MOOC_Heritage & Philosophy 3								
23BAR-4MI31S	MOOC_Infrastructure 3								
23BAR-4ME31S	MOOC_Site Setting and Systems 3								
23BAR-4MA31S	MOOC_Art and Architecture 3								

Course Objectives

MOOC is an open elective platform for learning across the general pool of online courses. The offerings can be within the discipline or beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course. Elective courses shall be open to all students, and students are required to register for the course as per the Standard Operating Procedure issued from time to time.

Course Outcomes (COs)

The students would be expected to:

CO1 To provide learners with essential knowledge and understanding of the subject matter covered in the course.
CO2 To help learners develop practical skills relevant to the course topic, such as problem-solving, critical thinking, communication, or technical proficiency.
CO3 To enable learners to apply the knowledge and skills gained in real-world situations or contexts related to the course content.
CO4 To empower learners to take ownership of their learning process and develop self-directed learning skills, including goal-setting, time management, and self-assessment.

Course Content
According to specific course floated

Pedagogy
To be provided by course faculty as per course.

Text Books
To be provided by course faculty as per course outline.

Resources
To be provided by course faculty as per course outline.

Course Assessment Scheme
Intermediate Reviews by Internal Faculty : 40 Marks
End Term Exam : 60 Marks
Total : 100 Marks

	Internal 1		Internal 2		
MOOC	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	TOTAL
	20	20	30	30	**100**

Programme Outcomes (POs)
PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture **(tools and technology)**
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment **(context)**
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a sustainable

development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping Of COs & PSOs

	Programme Specific Outcome			
	PSO1	**PSO2**	**PSO3**	**PSO4**
CO1	M	M	L	H
CO2	H	L	L	H
CO3	H	M	L	H
CO4	H	L	L	H

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

Mapping Of COs & POs

	Programme Outcomes								
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**
CO1	H	M	M	L	L	L	M	M	M
CO2	H	M	M	L	H	L	M	M	M
CO3	H	M	M	H	L	L	M	M	M
CO4	H	M	M	L	H	L	M	M	M

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

Course Course Title : Design Studio 4
Course Code : 23BAR-1DS32P
Course Credits : 8
Teaching Mode : Studio Based Teaching

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-1DS32P	Design Studio 4	Employability, Entrepreneurship, Skill Development	0	8	0	8	50	50	NA

Course Objective

This semester is envisaged as an attempt to shift from the conceptual to the physicality of the architectural construct to provide the first step in the comprehensive experience of the discipline in design and professional knowledge. The studio is interspersed by a range of subjects – humanistic, environmental and technological. The design exercise will enable students to explore and invent meaningful spatial articulations for users at the Meso-system scale, or those which impact at the level of family, peers, neighbourhoods, occupational communities or workgroups. The building programmes will be of public nature and will respond to and design spaces that can collect a number of discrete, small groups, which can coexist within them. Following a methodology of integrated introduction to the environmental, social, and programmatic parameters, the studio will aim at developing the capacity to evaluate, evolve, design, articulate and speculate the emergent built environments. Detailed development and refinement of architectural design will be conducted as informed by the technical knowledge of structural systems, enclosure systems, material systems and the process of construction. The design studio will aim to go from analysis to synthesis of singular building constructs and smaller-scale design exercises leading to the development of a comprehensive design.

Course Outcomes (COs)

Value Based Design Thinking Process

Architecture Design thinking starts with the understanding of space by an individual, expanding to understanding of space for individuals and groups in public space and synchronising that with the understanding of space for large sections of the society. Based on the above ideology the process is divided into four important value sets;
1. The Integral Values
2. The Ecological Values
3. The Operational Values
4. The Disciplinary Values

The above value sets also lead to Course Outcomes. The students are expected to display;

CO1: The Integral Values:
Architectural space is for the living Self – Students will be able to investigate interpretations of self. This will lead to understanding comfort, personal space, anthropometrics, the need and requirement of a body. This exploration in self-awareness shall make a student portray the ways and means of inhabitation that are linked with age, diurnal cycles, time and human actions. Thus changing the meaning of everyday context. This will assist in understanding modules that a self inhabits.

CO2: The Ecological Values:
Manifestation of Nature - The students will be able to engage themselves in nature studies that include forms, expressions, patterns and overall systems. However, nature primarily is governed by the presence of weather; students will be able to extrapolate the various weather conditions that can be used as tools of creation to sculpt spaces and develop design systems. This will enable students to critique their own ideologies and expressions and shall systematise architecture production or representations; and develop an architectural vocabulary associated with it.

CO3: The Operational Values:
Structural, constructional and material thinking: students would be exposed to various physical constituents of space and elements of architecture. These constituents will be created, modulated and communicated in order to understand the execution process by graphical representation via digital media in the studio. Students will be exposed to understand architecture design as a cohesive process to explore First Principles - why a thing is made the way it is - reducing the object/ form to its core or fundamentals - factors underlying forms rather than the forms themselves. Students will be able to do a thorough research and extract information that demonstrates various execution styles and form analysis with various materials and interpret it in relevant situations.

CO4: The Disciplinary Values:
Students will be able to gauge unseen qualities of things and places by learning to look beyond what is easily visible. Students will be exposed to the creative process used in various fields which revolve around a representation and expression of the self, thus students will be able to choose, critique and weigh the level of merger for a specific project situation and further demonstrate awareness of design principles.

Course Content

The Studio can be divided into 4 modules of four weeks each that showcases elements of Spatial Analysis and Environment. The details of the module can be found in the R.E.A.L Handbook that leads to the Benchmarking Review and Term Review (Mid and End).

Pedagogy

Lectures will be delivered on above mentioned topics and predominantly, discussions on visualisations, prototype models, Site planning & design development shall take place. A great amount of emphasis will be on hands-on approach 3D model making. Research on topics such as Amorphous Frames and Autopoietic Armours and other book readings shall be supported by software tutorials.

Textbooks and Resources

- On Growth and Form, D'Arcy Thompson, Cambridge 1917
- Bier S.W.S., Zhu M.B.E. (1991); retail and multi-functional building; Unknown (Chinese)
- Ching F.D.K, Building Construction Illustrated, Van Nostrand Reinhold Staff, New York.
- Erl T. (2005); Service-Oriented Architecture (SOA): Concepts, Technology, and Design; Prentice Hall
- Gehl J. (2011); Life Between Buildings: Using Public Space; Island Press; 6 edition
- Newman O. (1973); Defensible Space; Crime prevention through Urban Design; Macmillan Pub Co
- Parish S. (1993); National Building Code Compliance Manual: 1996 Boca National Building Code; Mcgraw-Hill (Tx)
- White E.T. (1983); Site Analysis: Diagramming Information for Architectural Design; Architectural Media Ltd; First edition.
- BIG. HOT TO COLD. An Odyssey of Architectural Adaptation by Bjarke Ingels (Author)"
- How Buildings Learn: What Happens After They're Built by Stewart Brand"
- Adaptive Architecture: Changing Parameters and Practice 1st Edition by Wolfgang F. E. Preiser (Editor), Andrea E. Hardy (Editor), Jacob J. Wilhelm (Editor)"
- Adaptive Ecologies: Correlated Systems of Living Book by Brett Steele, David Ruy, John Frazer, John Henry Holland, Makoto Sei Watanabe, Mark Burry, Mollie Claypool, Patrik Schumacher, Ryan Dillon, and Theodoros Spyropoulos"
- A Theory of Adaptation 2nd Edition by Linda Hutcheon (Author)"
- ALIVE: Advancements in adaptive architecture (Applied Virtuality Book Series) by Manuel Kretzer (Editor), Ludger Hovestadt (Editor)"
- Material Computation: Higher Integration in Morphogenetic Design (Architectural Design) by Achim Menges" .
- Advancing Wood Architecture: A Computational Approach by Achim Menges and Tobias Schwinn"
- Material Synthesis: Fusing the Physical and the Computational (Architectural Design) by Achim Menges (Editor)"
- Crossover by Cecil Balmond"
- Informal by Cecil Balmond and Jannuzzi Smith"
- SML XL: Second Edition by Rem Koolhaas and Bruce Mau"
- Endless Forms Most Beautiful: The New Science of Evo Devo and the Making of the Animal Kingdom" Sean B. Carroll. Read and make sure you understand particularly Derix, C., and Izaki, A., eds., Architectural Design Special Issue
- Empathic Space: The Computation of Human-Centric Architecture. Hillier, B.,
- "The Generic City and its Origins," Routledge, 2014, pp 100-105.
- Erell, E., Pearlmutter, D., and Williamson, T. Urban Microclimate: Designing the Spaces Between Buildings. Routledge, 2010.
- Marshall, Stephen. Cities, Design and Evolution. Routledge, 2008.
- Marshall, Stephen. Streets and Networks. Spon Press, 2005.
- Weinstock, Michael, ed. Architectural Design Special Issue
- System City: Infrastructure and the Space of Flows. John Wiley and Sons, 2013.
- Weinstock, Michael. The Architecture of Emergence: The Evolution of Form in Nature and Civilisation. John Wiley and Sons, 2010.

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 50 Marks
End Term External Jury : 50 Marks
Total : 100 Marks

INTERNAL ASSESSMENT		END SEM EXAMINATION (JURY)	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
20	30	50	100

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context**)
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**
PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities
PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.
PSO3 Implements the understanding gained through experiential learning, industry connecting national and international collaborations in the field of architecture.
PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	H	H	H	H	M	M	M	H	M	H	H	M	M
CO2	H	H	H	H	H	M	H	H	H	H	H	H	H
CO3	H	H	M	H	H	M	H	H	M	H	H	H	M
CO4	H	H	H	H	H	M	H	H	H	H	H	H	H

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Study Trip 3

Independent Study Tour is devised with an objective to expose the students to the practical understanding of architecture and the philosophies connected. With the History of the Existing structures, settlement or city, their functional, cultural, social, technological status of the era. Trips will be organised by Mentors to make the students aware of the learning objectives. These Trips can be organised with an objective to make it more interactive; thus, exposing them to various philosophies of people with respective periods.

The study tour shall be of maximum 8 to 10 days out of the city, accompanied by mentors, where students will be observing, noting, photographing, sketching, drawing and interviewing people and documenting. They will be given interactive assignments to do realistic documentation. The Study trip shall be an integral part of the even semester but planning operations shall begin in the odd semester. The town selection for the 6th semester study trip should have a population of 50,00,000 - 150,00,000. This could be Tier-1 or Tier-2 cities and can be any city in the world that suits the trajectory of the course.

Course Title : **Construction Systems Studio 6 - Materials, Techniques, Structural Systems and Services**
Course Code : **23BAR-2CS32P**
Course Credits : **8**
Teaching Mode : **Studio Based Teaching**

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-2CS32P	Construction Systems Studio 6 - Materials, Techniques, Structural Systems, and Services	Employability, Entrepreneurship, Skill Development	0	8	0	8	50	50	NA

Course Objectives

The course is designed to expose students to different construction systems adopted for low rise construction and development. An elementary understanding of different construction techniques available, basis of structures and the decision making process for feasible adoption of technique for building processes. Exposure to actual building processes on sites and materials in the markets shall be complemented with experimental hands-on work on campus to enable students to develop a respect for the craft of building as the only way in which their dream designs can be executed.
The course has three components i.e.

- Lectures in materials, structural mechanics, methods of construction and related services
- Studio wherein the principles and practice shall be applied to the production of meaningful construction details and working drawings
- Site visits and hands-on workshops for exposure to real world situations.

Studio Theme - Architectonics – High Rise public building with advanced construction systems– Materials, techniques, structural systems and Services
The course also, emphasizes on bringing a relationship between structural mechanics, building material sciences, building construction systems and building services, primarily at high rise residential & commercial building development with advanced construction systems.

Course Outcomes

The student will be able to
CO1. Construction Techniques and material thinking: *Students will examine* components of a advanced building construction system in terms of material applications, limitations and roles within a built environment for high rise building systems.

CO2. Building Services: *Students will analyse* advance level of MEP requirements of a high rise residential & public building and provide possible solutions for the same.

CO3. Structural Mechanics: *Students would be able to analyse* structural aspects related to advanced construction systems, bending moment systems and other applicable structural mechanics for advanced construction systems used in high rise buildings.

CO4. Complexity and Scale: *Students will be able to develop* an understanding the relevance of complexity and scale in the processes of finding feasibility for different materials, construction techniques and services with respect to high rise building construction.

Course Content

Module 1: Introduction to Construction Document and Building Byelaws

- Introduction to Compliance sheet need and its format.
- Need to prepare Municipal Submission Drawings, Construction ready sheets in Standard format as per byelaws and NBC 2016.
- Deliverable: Compliance document as per the byelaws and Design sheets of last semester Architecture Design Studio.

Module 2: Structures – Conventional and Alternate Technologies

- Conventional - Vaults, Folded Plates, Flat slabs, Mushroom Columns, Domes etc.
- Alternate – Filler Slab, Husk slab, Straw Bales, Light weight slabs, Ferro cement, Insulation types and materials.

Module 3: Preparation of Elevations, Sections, Service Core, Basement and Utility Plans

- Preparation on of all Elevations and their details
- Preparation on of all the Sections
- Detailing of Service Cores including details of staircase, fire-fighting, lift wells, toilets, electrical ducts, HVAC and AHU
- Preparation of Basement Plan
- Preparation Of all the utilities in Site Plan
- Demarcation of all the utilities in Site Plan Deliverable: Elevations, Details of Elevations, Sections, Service Cores, Utilities

Module 4: Preparation of Outdoor Development and Details of Services

- Preparation of Landscape Plans and Details
- Details of Toilets, Staircases and Door Window Details
- Preparation of Boundary wall, Main Gate and Entrance
- Terrace and Other Miscellaneous Details Deliverable: Landscape Plans, Details of toilets, staircase, doors, windows, boundary wall, main gate, entrance and terrace.

Pedagogy:

Building and Construction focuses on integrating theoretical knowledge of materials and methods with hands-on practice, enabling students to understand both the technical and creative aspects of construction. It emphasises experiential learning, critical thinking, and problem-solving to prepare students for real-world challenges in the field.

Text Book:

- Building construction by Barry and W B McKay
- Francis D.K. Ching, Building construction.

- Building construction, B.C. Punmia, Laxmi Publications
- Building Construction –Materials by M.V. NAIK.
- S.C.Rangwala, Engineering Materials, CharotarPub.House, Anand, 1997
- Building Construction –Materials by M.V. NAIK.
- Building Construction Handbook by R. Chudley & R. Greeno
- Building Construction – Principles, Materials, Systems by Madan Mehta, Walter Scarborough, Diane Armpriest.
- Best of Architects, Working Details – Vol.2 Internal by Colin Boyne & Lance Wright
- Best of Architects, Working Details – Vol.1 Internal by Colin Boyne & Lance Wright
- House Framing by John.D.Wagner.
- Building Construction Illustrated by D.K.Ching

Resources:

Suggested Readings

- National Building Code 2016
- IS Codes for Brick works, Masonry, Carpentry

Course Assessment Scheme

Intermediate Reviews by Internal Faculty:	50 Marks
End Term External Jury:	50 Marks
Total:	100 Marks

Internal Assessment		End-Semester Examination (External)	Total
Mid-Semester Examination	Internal End-Term Examination		
Cumulative Internal Assessment Presentation/ viva/ jury			
20	30	50	100

Program Outcome - (PO)
Upon successful completion of this program of study, the graduates shall:

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context**)
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a

sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implements the understanding gained through experiential learning, industry connecting national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs and PSOs

	PSO1	PSO2	PSO3	PSO4
CO1	M	M	L	H
CO2	H	L	L	M
CO3	H	M	L	L
CO4	H	M	M	L

Note : *H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)*

Mapping of COs and POs

	PO1	PO2	PO 3	PO 4	P05	PO 6	PO 7	PO 8	P09
CO1	L	M	H	H	L	M	H	L	L
CO2	H	L	L	M	L	M	L	H	L
CO3	H	M	H	L	M	L	L	L	H
CO4	H	L	L	L	M	M	H	L	L

Note : *H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)*

Course Course Title : Architecture Representation 6 - Digital Skills
Course Code : 23BAR-1AR32S
Course Credits : 4
Teaching Mode : Studio Based Teaching

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-1AR32S	Architecture Representation 6 – *Digital Skills*	Skill. Development	1	3	0	4	100	NA	NA

Course Objectives

The objective of this course is to make the student understand the theory and application of Building Information Modeling/Management (BIM) Concept for Architecture-Engineering-Construction Industry Practices. The course will be taught by analysing examples of challenging projects and specific tricks, that shall enable students to create impressive steel and concrete structures. This comprehensive course shall teach Revit Structure to students, who shall gain hands-on experience with various examples of projects, discussing the entire project delivery process to the client. The course shall teach students from walls, columns, beams, and floors to intricate design details in Revit, this course shall equip any student with the knowledge and skills to excel in creating robust structural designs using Revit.

Course Outcomes (COs)

The students shall be able to:

CO1 Demonstrate analysis of the model-based workflow in the architecture engineering construction industry using Building Information Modeling (BIM)

CO2 Demonstrate the understanding of functionalities and use of BIM related software programs and real-world project information and improvement in construction practices using BIM.

CO3 Conduct studies on varied case examples and projects and Identify technical limitations and drawbacks in current practices and devise conceptual or well-developed solutions to overcome the problems.

CO4 Create modelling in BIM, design/construction coordination, estimating, scheduling, safety planning, as-built modelling etc. Master Structural Design and BIM Modeling Techniques, Reinforcement Modelling and Rebar Detailing, Truss and Brace Families, Dynamo for Revit Structure, Structural Analysis, Shop Drawings and Sheets, U-Boot & Metal Deck and Waffle Structure Modeling

Course Content

The Studio can be divided into 4 modules of four weeks each that showcases elements of BIM in tandem with real world Environment. The modules' bifurcation is dependent on the theme of the studio as discussed and decided by the studio directors. However, running the studio in modules shall make the faculty team alert on the delivery and performance of the students at various stages.

Pedagogy

Lectures will be delivered on above mentioned softwares and predominantly, discussions on visualisations, prototype models, and module development shall take place. A great amount of emphasis will be on hands-on approach 3D model making. The lesson modules shall be in combination of lectures and video tutorials besides class tutorials. This shall be further augmented via guest lectures, online video recording, class tutorials and discussions.

Textbooks and Resources

- "BIM and Construction Management: Proven Tools, Methods, and Workflows", Brad Hardin, Dave McCool, John Wiley & Sons
- "BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors", Chuck Eastman, Paul Teicholz, Rafael Sacks, Kathleen Liston, Wiley
- The Impact of Building Information Modelling by Ray Crotty
- Beyond Bim: Architecture Information Modeling by Danelle Briscoe
- BIM in Small Practices: Illustrated Case Studies by Robert Klaschka
- BIM Design: Realising the Creative Potential of Building Information Modelling by Richard Garber
- Mastering Autodesk Revit 2020 1st Edition by Robert Yori

Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
End Term with Time Problem : 60 Marks
Total : 100 Marks

INTERNAL ASSESSMENT		ONE TIME TEST/ TIME PROBLEM	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
40	40	20	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the

built environment (**context)**

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implements the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	H	H	L	L	H	L	M	L	L	H	L	M	L
CO2	H	H	L	M	H	L	M	M	L	H	M	M	L
CO3	H	H	L	L	H	L	M	L	L	H	L	M	L
CO4	H	H	L	L	H	L	M	L	L	H	L	M	L

H- High, M- Medium, L-Low

Note :

H= High relationship (covers up to 75-95% of the desired outcome);

M=Medium (covers up to 50 to 75%);

L=Low (covers up to 10-50% of the desired outcome)

Course Title :Academic Writing
Course Code : 23BAR-3AW32P
Course Credits : 2
Teaching Mode : Lecture + Studio

COURSE CODE	COURSE TITLE	SKILLSET	COURSE STRUCTURE			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-3 AW32P	Academic Writing	Skill Development	1	1	0	2	100	NA	NA

Course Objectives

This course is designed to equip students with the essential skills necessary for effective academic writing in the field. Through a combination of theoretical exercises, and knowledge of real-world applications, students will develop the ability to communicate their ideas, summarize, and express design concepts clearly, coherently, and persuasively.

Course Outcomes (COs)

The students would be expected to:

CO1. Develop proficiency in conducting research specific to architectural topics by locating and integrating relevant sources to support arguments and design concepts.

CO2. Enhance critical thinking through the practice of constructing well-structured arguments and addressing potential counterarguments.

CO3. Application of appropriate language and visual communication techniques, enabling students to articulate architectural ideas and design principles with clarity.

Course Content

Module 1. Academic & research writing

- Introduction; Importance of academic writing
- Basic rules of academic writing

Module 2 : Research and Arguments in Architectural Writing

- Frame arguments defending a specific design approach, incorporating counterarguments
- Frame hypothesis
- Ethical behavior

Module 3 : Language and Visual Communication in Academic Writing

- Introduction to visual communication techniques, including graphic representation in architecture
- Structuring a narrative (Photo essays, journalism etc)

Pedagogy:

The semester consists in a step-by-step process which culminates with the final production of the research synopsis. The teaching method will involve a combination of interactive lectures and discussions to introduce students to the importance and basic rules of academic writing. Students will engage in hands-on activities to frame arguments defending specific design approaches, incorporating counterarguments to strengthen critical thinking skills. Through collaborative group discussions and individual reflections, students will learn to formulate hypotheses and uphold ethical standards in research and argumentation within the architectural context. The teaching approach will include demonstrations and practical exercises to introduce students to visual communication techniques relevant to architectural writing.

Text Books:

- Ajay Semalty, Academic Writing, 2021, ISBN: 9789390211739, BS Publications, Hyderabad, India; https://bspublications.net/book_detail.php?bid=1574
- Ajay Semalty, Mona Semalty, Art of Writing and Publishing in Pharmaceutical Journals, 2021, ISBN: 9789386819994, Pharma Med Press, Hyderabad, India, https://bspublications.net/
- Mathukutty M Monippally, Academic Writing: A Guide for Management Students and Researchers, ISBN 9788132104414, Sage Publications, New Delhi, India.
- Semalty A, Literature Search & Reference Management in Academic Writing, https://pharmastate.academy/courses/literature-search-reference-managements/

Resources
Suggested Readings

- Gupta, Anju Sahgal, Copyright and Plagiarism, https://egyankosh.ac.in/handle/123456789/72449
- Free lectures on Academic writing on YouTube Channel: https://cutt.ly/OKlive
- UGC, Guidance Document "Good Academic Research Practices"; Sept. 2020, https://www.ugc.ac.in/e-book/UGC_GARP_2020_Good%20Academic%20Research%20Practices.pdf

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
Internal 2 Review : 60 Marks
Total : 100 Marks

INTERNAL 1 MSE	INTERNAL 2 IE		TOTAL
Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	
40	30	30	100

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture **(tools and technology)**

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment **(context)**

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping Of COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CO1	M	H	L	H	H	H	L	H	H	L	L	M	L
CO2	H	H	M	M	M	L	L	M	L	M	H	H	M
CO3	H	L	H	H	M	L	L	M	L	L	M	M	L

H- High, M- Medium, L-Low

Note :

H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

DISCIPLINE SPECIFIC ELECTIVE
Course Title : ELECTIVE 4 (INTERMEDIATE)
Course Code : 23BAR-4__32S
Course Credits : 3
Teaching Mode

COURSE CODE	COURSE TITLE	SKILLSET	TEACHING HOURS/WEEK			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-4__32S	Discipline Specific Elective ELECTIVE 4 (Intermediate)	Skill Development				3			
23BAR-4EF32S	Allied Facets of Architecture 4		1	2	0		100	NA	NA
23BAR-4ET32S	Architecture Technologies 4								
23BAR-4EB32S	Building Interiors 4								
23BAR-4EC32S	Communication and Representation 4								
23BAR-4ES32S	Sustainability in Architecture 4								
23BAR-4EH32S	Heritage & Philosophy 4								
23BAR-4EI32S	Infrastructure 4								
23BAR-4EE32S	Site Setting and Systems 4								
23BAR-4EA32S	Art and Architecture 4								

Course Objective

Elective courses are offered to students from the 3rd Semester onward, till the 9th semester of the 5 Year B.Arch Programme.The course contents to be followed will be developed by course teachers based on the resources at hand and opportunities for linkages with other courses.

The electives offered in the ***Sixth Semester*** are expected to impart knowledge on ***theory, skill set development and relationship with allied fields*** of importance to Architecture as part of the course objectives.

The subjects would be based on the following suggested groups:

1. ALLIED FACETS OF ARCHITECTURE

This course explores the interdisciplinary aspects of architecture, delving into fields such as urban planning, landscape architecture, and interior design. Students will gain insights into how these

allied fields interact with and influence architectural design.

2. ARCHITECTURE TECHNOLOGIES

This course focuses on the technological aspects of architecture, covering advancements in building materials, construction methods, and digital tools. Students will learn how technology enhances the design process, sustainability, and the overall functionality of architectural structures.

3. BUILDING INTERIORS

This course centers on the interior aspects of architectural design, addressing spatial planning, furniture design, and aesthetics within built environments. Students will explore how to create functional and aesthetically pleasing interior spaces that align with user needs.

4. COMMUNICATION AND REPRESENTATION

This course emphasizes effective communication in architecture through various mediums such as drawings, models, digital presentations and basic understanding of various software like MS office, Rhino, Sketchup, Revit, BIM etc. Students will develop skills in architectural representation to effectively convey design ideas and concepts to clients, stakeholders, and the public.

5. SUSTAINABILITY IN ARCHITECTURE

This course introduces students to the fundamental principles and practices of sustainability within the context of architectural design. Through lectures, discussions, case studies, and hands-on exercises, students will explore the economic, social, and environmental dimensions of sustainability as they relate to the built environment. The course aims to develop a foundational understanding of sustainable design concepts and their application in architectural practice.

6. HERITAGE & PHILOSOPHY

This course delves into the historical and philosophical aspects of architecture, exploring the cultural significance of built heritage. Students will study preservation methods, restoration techniques, and ethical considerations related to working with historically significant structures.

7. INFRASTRUCTURE

Infrastructure plays a crucial role in the urban landscape. This course covers the planning, design, and implementation of essential infrastructure elements such as transportation systems, utilities, and public spaces, providing students with a comprehensive understanding of the built environment.

8. SITE SETTING AND SYSTEMS

Focusing on the integration of architectural design with the natural and built context, this course explores site planning, landscape architecture, and the relationship between buildings and their surroundings. Students will learn to harmonize architectural solutions with the site's topography, climate, and ecosystems.

9. ART AND ARCHITECTURE

The Art and Architecture formative course provides students with a comprehensive understanding of the relationship between art and architecture throughout history. Through lectures, discussions, and visual analysis, students will explore how artistic movements, styles, and concepts have influenced architectural design and vice versa. Emphasis will be placed on developing critical thinking skills and an appreciation for the aesthetic, cultural, and social dimensions of art and architecture.

Please refer to the appendix 1A for references of the courses offered in the past in this semester.

Course Outcomes (COs)

The students would be expected to:

CO1. Demonstrate specialized learning in subjects covering areas of concern to architecture.
CO2. Apply interdisciplinary methods and skill in the production of architecture.
CO3. Research on a diverse range of subjects in relevance to architecture

Course Content

The faculty offering each elective will develop a weekly programme for the course, a list of compulsory and suggestive readings, and evaluation parameters, based on the resources at hand and opportunities for linkages with other courses.

The faculty will offer the course in a module system and there shall only be four modules. The modules will progressively address the course outcomes to develop all the competences (knowledge, skills and design) through electives. Each module should have an assessment criterion. Elective courses shall be open to all students, and allotted on a ratio of 1 Faculty: 20 Students.

Pedagogy

The pedagogical scheme/approach opted for Electives will be developed by the individual faculty according to their respective courses. The pedagogical approach for every course offered under Electives may differ.

Text Books

To be provided by course faculty as per course outline.

Resources

To be provided by course faculty as per course outline.

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
End Term External Exam : 60 Marks
Total : 100 Marks

Subject	Internal 1		Internal 2		TOTAL
Elective 4	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	
	20	20	30	30	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment **(context)**

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping Of COs & PSOs

	Programme Specific Outcome			
	PSO1	**PSO2**	**PSO3**	**PSO4**
CO1	M	M	L	H
CO2	H	L	L	H
CO3	H	M	L	H

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

Mapping Of COs & POs

	Programme Outcomes								
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**
CO1	H	M	M	L	L	L	M	M	M
CO2	H	M	M	L	H	L	M	M	M
CO3	H	M	M	H	L	L	M	M	M

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

GENERAL ELECTIVE 1 – TDCC

Course Title : TRANS DISCIPLINARY CERTIFICATE COURSE
Course Code : XXXX
Course Credits : 2
Teaching Mode

COURSE CODE	COURSE TITLE	SKILLSET	TEACHING HOURS/WEEK			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
XXXX	Trans Disciplinary Certificate Course		2	0	0	2	100	NA	NA

Course Objectives

The course is beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course.

Course Content

TDCC is an open elective platform for learning across the various schools of the University. The offerings are beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course.

Assessment Scheme
Intermediate Reviews by Internal Faculty : 60 Marks
End Term Evaluation : 40 Marks

GENERAL ELECTIVE 2 – MOOC
Course Title : MASSIVE OPEN ONLINE COURSE
Course Code : 23BAR-4MX32S
Course Credits : 2
Teaching Mode

COURSE CODE	COURSE TITLE	SKILLS ET	TEACHING HOURS/WEEK			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-4MX32S	MOOC	kill Development	2	0	0	2	100	NA	NA
23BAR-4MF32S	MOOC_Allied Facets of Architecture 4								
23BAR-4MT32S	MOOC_Architecture Technologies 4								
23BAR-4MB32S	MOOC_Building Interiors 4								
23BAR-4MC32S	MOOC_Communication and Representation 4								
23BAR-4MS32S	MOOC_Sustainability in Architecture 4								
23BAR-4MH32S	MOOC_Heritage & Philosophy 4								
23BAR-4MI32S	MOOC_Infrastructure 4								
23BAR-4ME32S	MOOC_Site Setting and Systems 4								
23BAR-4MA32S	MOOC_Art and Architecture 4								

Course Objectives

MOOC is an open elective platform for learning across the general pool of online courses. The offerings can be within the discipline or beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course. Elective courses shall be open to all students, and students are required to register for the course as per the Standard Operating Procedure issued from time to time. Elective courses shall be open to all students, and students are required to register for the course as per the Standard Operating Procedure issued from time to time.

Course Outcomes (COs)

The students would be expected to:

CO1 To provide learners with essential knowledge and understanding of the subject matter covered in the course.
CO2 To help learners develop practical skills relevant to the course topic, such as problem-solving, critical thinking, communication, or technical proficiency.
CO3 To enable learners to apply the knowledge and skills gained in real-world situations or contexts related to the course content.
CO4 To empower learners to take ownership of their learning process and develop self-directed learning skills, including goal-setting, time management, and self-assessment.

Course Content

According to specific course floated

Pedagogy

To be provided by course faculty as per course.

Text Books

To be provided by course faculty as per course outline.

Resources

To be provided by course faculty as per course outline.

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
End Term Exam : 60 Marks
Total : 100 Marks

	Internal 1		Internal 2		
MOOC	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	TOTAL
	20	20	30	30	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**
PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities
PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.
PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.
PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

MAPPING OF COs & PSOs

	Programme Specific Outcome			
	PSO1	**PSO2**	**PSO3**	**PSO4**
CO1	M	M	L	H
CO2	H	L	L	H
CO3	H	M	L	H
CO4	H	L	L	H

H- High, M- Medium, L-Low
Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

MAPPING OF COs & POs

	Programme Outcomes								
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**
CO1	H	M	M	L	L	L	M	M	M
CO2	H	M	M	L	H	L	M	M	M
CO3	H	M	M	H	L	L	M	M	M
CO4	H	M	M	L	H	L	M	M	M

H- High, M- Medium, L-Low
Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

Course Course Title : **Design Studio 5** Complex Architecture Project
Course Code : **23BAR-4AR32S**
Course Credits : **4**
Teaching Mode : **Studio Based Teaching**

Course Code	Course Title	Skillset	Course Structure			Credits	Examination Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-1DS41P	Design Studio 5 -Complex Architecture Project	Employability, Entrepreneurship, Skill Development	0	10	0	10	50	50	NA

Course Objective

The studio will focus on the city – at various scales (all the way from the structural level to urban placemaking) – and will attempt to use urban design as a tool for addressing cohesion and integrity of the built environment. At the study level, the studio will try to address the city through its inhabitants/ as smart cities/ or as receptors of affordable building while the design output would be geared more towards the production of architecture. Principles such as "First life, then spaces, then buildings" will be used to create quality spaces that encourage people to actively participate in the public realm. Urban studies will focus on the structural constructs such as temporalities of landscape; the ever-changing nature of our cities; lasting urbanity; liveable urban habitat, etc. Urban contexts – as political / economic / social / global frameworks – will be studied in detail as systems that form the city. These studies will help in the articulation of green-field projects as urban extensions or brown-field projects as redevelopment of inner city areas to address issues of Resilience, Indian Identity, Walkability, Last mile connectivity, Urban Poor, Indian Urbanity, Urban Safety, the new neighbourhood etc. The projects would be used to understand and develop tools for urban architecture (urban structure, form, density, fringes and edges, streetscapes, façade, interfaces to name a few). Students would be encouraged to look at the design outputs through different lenses such as sustainability, futuristic design, adaptability, historicity, urban rejuvenation, parametrics, adaptive reuse, temporality, ecology, etc. to name a few.

The studio focuses on projects at the Macro-system complexity and deals with attitudes and ideologies of cultures and how these are reflected in the urban environment. The aim is to understand, imagine and describe the relationship of the built environment to the public, the city and the world at large. While helping the student in the identification and appropriation of a manner/ a framework for addressing urban issues, the studio would intend to explore possibilities of the future of architecture with respect to the personal approach.

The aim of this semester's studio is to speculate on the sustainable future of cities as reservoirs of life triggered by their individual and collective inhabitants, their neighbourhoods and the systems that allow these to coexist. In discussion will be urban dwelling, collective large-scale residential solutions, their nature and types and modern city planning principles for urban, semi-urban and small town precincts in the country. The students would explore and understand the challenges for improving neighbourhood quality, identify areas for improvement and necessary corrective measures to be taken. Based on a self-driven conceptual position, the students would be expected

to explore societal systems in order to derive a well-researched and contextualised personal position with respect to the future of collective urban living. The studio explores the basic idea of need requirement, want and aspirational. Through the understanding of larger contextual frameworks, the students will question the given prevalent and unconsciously accepted prevalent trends. Taking the story "How much land does a man need?" by Leo Tolstoy, as a metaphor, the idea of comfort and adequate are interpreted under the larger umbrella of sustainable, contextual, identifiable and relevant Habitat outcomes. Exercises that help gain insight into the canonical architectural works and movements in the past as well as processes and methods of design thinking will give the students an opportunity to begin to place their own design ideas within a contextual scenario.

Course Outcomes (COs)

Value Based Design Thinking Process

Architecture Design thinking starts with the understanding of space by an individual, expanding to understanding of space for individuals and groups in public space and synchronising that with the understanding of space for large sections of the society. Based on the above ideology the process is divided into four important value sets;

1. The Integral Values
2. The Ecological Values
3. The Operational Values
4. The Disciplinary Values

The above value sets also lead to Course Outcomes. The students are expected to display;

CO1: The Integral Values:

Architectural space is for the living Self – Students will be able to investigate interpretations of self. This will lead to understanding comfort, personal space, anthropometrics, the need and requirement of a body. This exploration in self-awareness shall make a student portray the ways and means of inhabitation that are linked with age, diurnal cycles, time and human actions. Thus changing the meaning of everyday context. This will assist in understanding modules that a self inhabits.

CO2: The Ecological Values:

Manifestation of Nature - The students will be able to engage themselves in nature studies that include forms, expressions, patterns and overall systems. However, nature primarily is governed by the presence of weather; students will be able to extrapolate the various weather conditions that can be used as tools of creation to sculpt spaces and develop design systems. This will enable students to critique their own ideologies and expressions and shall systematise architecture production or representations; and develop an architectural vocabulary associated with it.

CO3: The Operational Values:

Structural, constructional and material thinking: students would be exposed to various physical constituents of space and elements of architecture. These constituents will be created, modulated and communicated in order to understand the execution process by graphical representation via digital media in the studio. Students will be exposed to understand architecture design as a cohesive process to explore First Principles - why a thing is made the way it is - reducing the object/ form to its core or fundamentals - factors underlying forms rather than the forms themselves. Students will be able to do a thorough research and extract information that demonstrates various execution styles and form analysis with various materials and interpret it in relevant situations.

CO4: The Disciplinary Values:
Students will be able to gauge unseen qualities of things and places by learning to look beyond what is easily visible. Students will be exposed to the creative process used in various fields which revolve around a representation and expression of the self, thus students will be able to choose, critique and weigh the level of merger for a specific project situation and further demonstrate awareness of design principles.

Course Content

The Studio can be divided into 4-5 modules of three - four weeks each that showcases elements of Spatial Analysis and Context. The modules' bifurcation is dependent on the theme of the studio as discussed and decided by the studio directors. However, running the studio in modules shall make the faculty team alert on the delivery and performance of the students at various stages.

Pedagogy

The course is conducted in a studio format involving thorough documentation and analysis of urban contexts, culminating in a creative design project. It consists of both field work and studio design problems. In addition it is envisaged that a regular series of lectures will expose students to the current debates surrounding urban development and its various agendas. The students are supposed to make a model of the precincts at 1: 750 to have a better understanding of the area. With the above the students are expected to demonstrate:

Knowledge – Appreciation and understanding of various layers of urbanism, including movement (both vehicular and non-vehicular), morphological scales and types such as building, block, neighbourhood, districts, land use regulations, building bye laws, physical, social infrastructure and open space networks
Skills – Be able to overlap diverse sets of spatial and non-spatial information to analyse the urban environment. Be able to work in teams consisting of different perspectives and skill sets towards common goals. Be able to strategize and conceive projects including development of area programmes and appropriate design responses. In addition students must demonstrate the ability to clearly represent and communicate the intent and physical manifestations of their design interventions at different scales.
Values or Orientations and Awareness– Understand the urban context and appreciate its complexity in terms of systems and networks rather than discrete instances or buildings; focus on different values such as urban economics, liveability, urban movement, urban structure and urban principles and parameters that define their strategy and design decisions, both at the macro and micro level. Sensitise themselves to the complexity inherent in cities and imbibe a sense of urban design to become responsible architects.

The studio format will follow a sequential process:

- Beginning with a brief introduction to the study area, group formation for data collection, site visit and photo documentation.
- Data collection based on the parameters identified and discussed in the class.
- Followed with a quick speculation exercise in a workshop format exposing students to the dialectics of urban development agendas, culminating into a Poster on possible VISION
- Further documentation of spatial and non-spatial characteristics will be carried out in order to strengthen / gather evidence to support SWOT (Strength Weakness Opportunity

Threat) analyses specific to the selected agenda for development and development of structure plans, visions-strategies-goals, culminating in design projects ranging from surgical interventions and reuse to contiguous building complexes.

- Such an approach sufficiently covers many of the basics of understanding design in the urban environment and its impact. For architectural students the urban environment will be approached thematically, instead of comprehensively covering large zones of the city.
- Using a thematic approach such as Investments, Networks, Stakeholders and Permanence for studying the urban space and situating the narrative of revitalisation vision. This allows the student to understand and respond to simple issues first and create a matrix of solutions that creates a positive change in the larger urban precinct.

Additionally, design interventions are limited in scale to remodelling of specific urban area and exclude large master plans, townships, and redevelopment zones

Textbooks and Resources

- The Social Life of Small Urban Spaces – William Whyte
- Cities for People – Jan Gehl
- Walkable City – Jeff Speck
- Tactical Urbanism – Mike Lydon and Anthony Garcia
- Kinetic City – Rahul Mehrotra
- A Sense of Space: The Crisis of Urban Design in India - Ranjit Sabhiki
- The Indian Metropolis: Deconstructing India's Urban Spaces by Feroze Varun Gandhi
- 101 Things I Learned? in Urban Design School Hardcover – 25 June 2018 by Matthew Frederick (Author), Vikas Mehta (Author)
- Soft City: Building Density for Everyday Life Paperback – 30 October 2019 by David Sim
- Triumph of the City: How Urban Spaces Make Us Human Paperback – by Edward Glaeser
- Healthy Placemaking: Wellbeing Through Urban Design – Fred London
- Order without Design: How Markets Shape Cities - Alain Bertaud

Assessment Scheme

Intermediate Reviews by Internal Faculty	: 50 Marks
End Term	: 50 Marks
Total	: 100 Marks

INTERNAL ASSESSMENT		END SEM EXAMINATION (JURY)	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
20	30	50	100

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to

the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context**)

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implements the understanding gained through experiential learning, industry connecting national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	H	M	H	H	M	M	H	H	M	H	H	H	M
CO2	H	H	H	H	H	M	H	H	H	H	H	H	H
CO3	H	H	H	H	H	L	H	H	M	H	H	H	M
CO4	H	H	H	H	H	M	M	H	L	H	H	M	L

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Study Trip

It is devised with an objective to expose the students to the practical understanding of

architecture and the philosophies connected. Trips will be organised for the students with respect to other courses such as Design Studio, Construction Studio, Sustainability Approaches and Electives by instructors and mentors, whenever required.

Course Title :Research Methodology
Course Code :23BAR-3RM41P
Course Credits : 4
Teaching Mode : Lecture + Studio

COURSE CODE	COURSE TITLE	SKILLSET	COURSE STRUCTURE			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-3 RM41P	Research Methodology	Skill Development	1	3	0	4	100	NA	NA

Course Objectives

The course serves as a continuation of the Academic writing and a bridge to Dissertation. The aim of this course is to introduce students to different research methods for them to acquire solid theoretical and practical pre-requisites for taking dissertation in a later semester. Students will learn about the purpose of research, types of research, difference between method and methodology, research design, data, sampling etc. They will be taken through the process of structuring and planning a research work on a topic of their choice, enabling the students to write a research proposal – synopsis – following a step-by-step process. At the end of the semester, they are expected to resume their learning outcomes in the shape of a research synopsis which will be used as their main tool for dissertation the subsequent course of their study.

Course Outcomes (COs)
The students would be expected to:

CO1. Critique and organize existing literature in terms of its contribution of existing body of knowledge, writing style, identifying the gap in existing body of research.
CO2. Articulate a valid research question, aims, objectives and research design.
CO3. Demonstrate the knowledge of different research methods, data collection, data analysis tools and techniques.

Content

Module 1. Literature review and identifying research gap

- What is research? Introduction to Citing and Referencing. Harvard style guide.
- Bibliography template, List of digital tools for referencing, Type of sources, list of libraries, list of digital platform
- Research Process, How to develop a research question? Literature Review Annotated Bibliography

Module 2 : Research design

- Research approach, aims and objectives
- Defining quantitative & qualitative research
- Plagiarism

Module 3 : Research methods

- Methods of data collection – Primary and secondary, Sampling techniques, Survey, questionnaire and interview.
- Case studies
- Research proposal : Proposed solution concept and methodology, discussions and closing arguments

Pedagogy:

The semester consists in a step-by-step process which culminates with the final production of the research proposal.
It will include lectures and short exercises and discussions about the process of research, selection of a research topic and literature review. It will focus on research designs, methodology and plagiarism, formulating aim & objectives, data collection, surveys, case studies and experiments.
The outcome of this course would be to develop a research proposal. Therefore the teaching methods will be both theoretical and practical and will include: short introductory lectures, active interactions and writing sessions. Students are expected to conduct their own readings.

Text Books:

- Godfrey, J. (2013) The Student Phrase Book: Vocabulary for Writing at University (Palgrave Study Skills). Palgrave Macmillan
- Groat, L & Wang, D 2016, *Architectural Research Methods,* John Wiley & Sons Inc., Hoboken, New Jersey.

Resources

Suggested Readings

-
- Pears, R. (2013) Cite Them Right (Palgrave Study Skills). Palgrave Macmillan. Swetnam, D. (2000)
- Ridley D., (2012) The Literature Review: A Step-by-Step Guide for Students (SAGE Study Skill Series). Sage Publication Ltd
- Strunk Jr, W. (2005) The Elements of Style (Dover Language Guides). Dover Publication Inc.
- Williams, K. (2009) Getting Critical (Pocket Study Skills). Palgrave Macmillan.
- Williams K. (2017) Referencing and Understanding Plagiarism. Palgrave

ONLINE SOURCES
https://www.imperial.ac.uk/media/imperial-college/administration-and-support-services/library/public/Harvard.pdf

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks

Internal 2 Review : 60 Marks
Total : 100 Marks

INTERNAL 1 MSE	INTERNAL 2 IE		TOTAL
Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	
40	30	30	100

Programme OutcomeS (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context**)
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**
PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities
PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.
PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.
PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

MAPPING OF COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	M	H	L	H	H	H	L	H	L	L	L	M	L
CO2	H	H	M	M	M	L	L	M	M	M	H	H	M
CO3	H	L	H	H	M	L	L	M	H	L	M	M	L

H- High, M- Medium, L-Low

Note :

H= High relationship (covers up to 75-95%.of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Course Title : Project Documentation & Processes
Course Code : 23BAR-2PD41S
Course Credits : 4
Teaching Mode

COURSE CODE	COURSE TITLE	SKILLSET	TEACHING HOURS/WEEK			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-2PD41S	Project Documentation & Processes	Skill Development	1	3	0	4	100	NA	NA

Course Objectives

The course serves as the purpose of necessary documentation work that needs to be carried out in order to execute a building. It is essential for an architect to convey to his client the tentative expenditure and the quantities of various materials required at various stages of the construction which become part of the tender document. The architect should also be aware of the various ways through which the contractors, materials and other related things with the construction can be hired or engaged. The students will be introduced and familiarized with the various techniques and processes of preparing an estimate, tender documents and the process of Tendering.

Course Outcomes (COs)

The students would be expected to:

CO1. Gain an overall understanding and knowledge of the processes involved in the initial phase of executing building projects.
CO2. Demonstrate the basic concepts of measurement of building works, preparations of quantities and estimates, writing of specifications and preparations of contract documents for small works.
CO3. Demonstrate the knowledge by developing reports, tables and other tools to monitor and document the execution related processes.

Course Content

Module 1: Procurement of Materials & Site progress documentation.

- Selecting the appropriate procurement method, Nature and scope of work proposed
- Site coordination, project management approaches, Collaboration and briefing in
- construction and provisions for team working.

- On what price basis the contract is to be awarded, the effect of different procurement
- routes on programme, cost, risk, quality.
- Site processes, quality monitoring, progress recording, payment and completion

Module 2: Classification of Areas & Types of Estimates

- Introduction to the basic terms used in Estimation. Important considerations while preparing an Estimate
- Introduction to various types of Estimates. Various Techniques of Preparing the Estimates and BOQ's

Module 3: Schedule of Quantities, Bill of Quantities, Specifications, Analysis of Rates

- Introduction to material and labor quantification, take off sheets and preparation of schedule of quantities. Bill of quantities, consideration, description and purpose. Developing an understanding a BOQ document, DPR.
- Introduction to Specifications, important considerations while writing the Specifications.

Specifications as per CPWD, PWD etc., and how to read them. Writing specifications for
building and finishing works.

- Introduction to Schedule of Rates, importance of Rate Analysis. Considerations &

Calculations for basic building materials like RCC, Brick work. Calculating the various quantities of materials required per unit

- Introduction to BIM.

Pedagogy

Students will engage in hands-on exercises to develop skills in material quantification, specification writing, and understanding industry standards. The course incorporates case studies and real-world scenarios to illustrate the tendering process and contract management, helping students grasp the procedural and legal aspects of architectural projects. Collaborative projects and site visits will reinforce procurement strategies, site coordination, and project management practices.

Text Books

- Estimating, costing and valuation: professional practice and quantity surveying by S. C. Rangwala and K. S. Rangwala
- Estimating and costing in civil engineering : theory and practice by B.N. Dutta
- Estimating costing and building economics for architects by Harbhajan Singh
- Estimating, costing, specification and valuation in civil engineering : principles and applications by Manojit Chakraborti

Resources

- CPWD Specifications by Central Public Works Department
- Delhi Schedule of Rates by CPWD

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
End Term External Exam : 60 Marks
Total : 100 Marks

INTERNAL 1 MSE	INTERNAL 2 IE		TOTAL
Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	
40	30	30	100

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

MAPPING OF COs & PSOs

	Programme Specific Outcome			
	PSO1	PSO2	PSO3	PSO4
CO1	M	H	H	M
CO2	H	H	M	M
CO3	L	L	M	L

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

MAPPING OF COs & POs

	Programme Outcomes								
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	H	H	M	M	M	L	L	M	M
CO2	H	M	L	L	L	H	M	H	H
CO3	M	H	L	H	H	H	L	H	L

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

Course Title : Entrepreneurship and Professional Practice
Course Code : 23BAR-2EP41S
Course Credits : 2
Teaching Mode

COURSE CODE	COURSE TITLE	SKILLSET	TEACHING HOURS/WEEK			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-2EP41S	Entrepreneurship and Professional Practice	Skill Development	2	0	0	2	100	NA	NA

Course Objectives

Focus will be on the role of the architect in a developing society and the emerging influence of economic liberalization. Emphasis will be on the ethical dimension governing professional conduct in serving the client/society. Course will further provide a comprehensive understanding of entrepreneurship and business management within the context of architecture.

Course Outcomes (COs)

The students would be expected to:

CO1. Understand the legal, economic and social issues related to professional practice and entrepreneurship.

CO2. Learn to engage with and respond respectfully, generatively and analytically to different stakeholders in the practice community, cultural and environmental contexts to promote agency and collaboration whilst being aware of the rights and duties attached with the profession. Demonstrate essential leadership attributes necessary for guiding and motivating teams within an entrepreneurial setting.

CO3. Use principled approaches for designing and developing trans-disciplinary initiatives for betterment of communities. Also to recognize and promote the humanity of self and others and engage ethically and sensitively to the values and particular individuals, groups, organizations or communities. Identify viable business opportunities and formulate comprehensive business plans to establish and manage successful enterprises.

Course Content

Module 1

- Understanding who is a professional and why architecture is considered a profession. Architect & his office, responsibilities, office management, project co-ordination clients - Refer to Manual of Architectural Practice (Published by Council of Architecture).
- Importance of architectural entrepreneurship. Different typologies of entrepreneurship. Relationship with clients, consultants.

- Rules, regulations and guidelines of Council of Architecture. Code of professional practice, fees, Agreements and contracts, categories of membership, election procedure and code of conduct.
- Economic reality of practicing the profession in India.
- Scale of charges – responsibilities of architect, copy-rights, scale of charges, variation of charges, mode of payment, termination of services
- The Architects Act 1972. Process of Registration.
- Role of professional bodies and institutions - Indian Institute of Architecture.
- Influence of WTO and GKTTS
- Architectural education and the profession.
- Conditions of engagements and professional liability and indemnity.
- Architecture competitions and getting work. Identifying business opportunities in architecture.
- Components of a business plan. Setting short-term and long-term goals.
- Negotiation and Arbitration. Indian Arbitration Act.
- Consultant and project managers, office accounts and billing.
- Design audit & efficiency studies, analysis for special efficiency of buildings. With reference to ECBC codes and NBC.
- Office automation information storage and retrieval.

Module 2

- Valuation: the principle factors affecting the supply and demand for land and building
- Principles governing the rates of interest for different types of property
- Calculation of rental values-net income-virtual rent
- Valuation for sale and purchase of freehold and leasehold properties; Rental method of valuation, valuation on land and building basis, valuation for mortgage, valuation for acquisition, valuation for taxation of properties
- Contemporary trends of valuation of property
- Compensation & betterment levy, dilapidation & depreciation
- Easement rights and natural rights, the nature of arbitration and awards
- Budgeting and financial planning, Financial risk management

Module 3

- Introduction to various types of tenders and the tendering process.
- Introduction to contract and its various components. Processes and procedure for Award of contract, ethical practices.
- Use of Branding, Digital marketing and social media, Emerging technologies (BIM, AI, VR/AR) in entrepreneurship ventures
- Introduction to project management principles and resource allocation
- Conflict resolution and management

Pedagogy

Students will explore the roles, responsibilities, and ethical obligations of architects, guided by the Manual of Architectural Practice and the Architects Act of 1972. The course will provide a comprehensive introduction to entrepreneurship, fostering essential skills and knowledge for aspiring entrepreneurs.
Interactive discussions, case studies, and real-life examples will help students understand office

management, client relations, and the economic realities of practicing architecture in India. Valuation principles, tendering, and contract management will be taught through practical exercises and analysis of contemporary trends, ensuring students are equipped with the necessary skills for professional practice.

Text Books

- Nanavati R (1993) Professional Practice, Lakhani Book Depot.
- Kahr J &Thomsett MC (2005) Real Estate Market valuation and Analysis, Wiley Publishers.
- Gelbtuch HC, Mackmin D &Gelbtuch M (1997) Real Estate Valuation in Global Markets, Chicago: Appraisal Institute.

Resources

- Handbook of professional Documents published by the Council of Architecture (latest).
- Manual of Architectural Practice published by the Council of Architecture (latest).

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
End Term Exam : 60 Marks
Total : 100 Marks

INTERNAL 1 (I1)			INTERNAL 2 (I2)			MSE (I1 + I2)
Continuous Evaluation (Assignment, Presentation)	Time Problem / Seminar (Open Book*)	Internal Test / Quiz / Project Presentation	Continuous Evaluation (Assignment, Presentation)	Time Problem	Internal Test / Quiz / Project Presentation (External**)	
20	10	10	30	10	20	100

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture **(tools and technology)**

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment **(context)**.

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional**

understanding)

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

MAPPING OF COs & PSOs

	Programme Specific Outcome			
	PSO1	**PSO2**	**PSO3**	**PSO4**
CO1	L	L	M	L
CO2	L	M	M	L
CO3	H	M	L	H

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

MAPPING OF COs & POs

	Programme Outcomes								
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**
CO1	L	L	L	M	L	H	H	L	M
CO2	L	L	L	M	H	H	H	L	H
CO3	L	M	L	L	H	H	H	L	H

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

DISCIPLINE SPECIFIC ELECTIVE

Sushant University
soaring high

Course Title : ELECTIVE 5 (ADVANCED)
Course Code : 23BAR-4__41S
Course Credits : 2
Teaching Mode

COURSE CODE	COURSE TITLE	SKILLSET	TEACHING HOURS/WEEK			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-4__41S	Discipline Specific Elective ELECTIVE 5 (Advanced)	Skill Development				2			
23BAR-4EF 41S	Allied Facets of Architecture 5		1	1	0		100	NA	NA
23BAR-4ET 41S	Architecture Technologies 5								
23BAR-4EB 41S	Building Interiors 5								
23BAR-4EC 41S	Communication and Representation 5								
23BAR-4ES 41S	Sustainability in Architecture 5								
23BAR-4EH 41S	Heritage & Philosophy 5								
23BAR-4EI4 1S	Infrastructure 5								
23BAR-4EE 41S	Site Setting and Systems 5								
23BAR-4EA 41S	Art and Architecture5								

Course Objectives

Elective courses are offered to students from the 3rd Semester onward, till the 9th semester of the 5 Year B.Arch Programme.The course contents to be followed will be developed by course teachers based on the resources at hand and opportunities for linkages with other courses.

The course contents to be followed will be developed by course teachers based on the resources at hand and opportunities for linkages with other courses. The electives offered in the ***Seventh Semester*** are expected to focus ***on development on Opinions and Futuristic Forms, Disciplinary positions*** in Architecture as part of the course objectives.

The subjects would be based on the following suggested groups:

1. ALLIED FACETS OF ARCHITECTURE

This advanced course delves deeply into the intersections between architecture and allied fields,

emphasizing interdisciplinary collaboration. Students will engage in complex projects that require integration with urban planning, landscape architecture, and interior design, fostering a comprehensive understanding of the symbiotic relationship between these disciplines.

2. ARCHITECTURE TECHNOLOGIES

Building upon foundational knowledge, this advanced course explores cutting-edge technologies in architecture. Students will engage with parametric design, advanced building information modeling (BIM), and emerging construction methods. The focus is on applying innovative technologies to address complex design challenges and enhance sustainability.

3. BUILDING INTERIORS

This advanced course goes beyond basic interior design principles, challenging students to create innovative and functional interior spaces. Emphasis will be placed on advanced spatial planning, human-centric design, and the integration of smart technologies. Students will undertake complex projects that require a high level of creativity and technical expertise.

4. COMMUNICATION AND REPRESENTATION

In this advanced course, students refine their communication skills to convey complex architectural ideas. Through advanced digital modeling, virtual reality, and sophisticated graphical techniques, students will create compelling presentations. The focus is on developing a high level of proficiency in architectural representation for professional contexts.

5. SUSTAINABILITY IN ARCHITECTURE

This Advanced course provides an in-depth exploration of sustainable design principles with a comprehensive focus on economic, social, and environmental dimensions. Building upon foundational knowledge, students will critically examine the interconnectedness of these aspects and their implications for architectural practice. Through advanced studies, case studies, and hands-on projects, students will develop the skills and expertise necessary to create resilient and environmentally responsible architectural solutions.

6. HERITAGE & PHILOSOPHY

This advanced course delves into advanced topics in architectural history, preservation, and philosophical considerations. Students will explore complex restoration projects, engage in theoretical debates surrounding heritage conservation, and critically analyze the ethical dimensions of working with historic structures.

7. INFRASTRUCTURE

At an advanced level, this course addresses the intricate challenges of designing and managing urban infrastructure. Students will tackle large-scale projects involving transportation networks, resilient urban planning, and advanced infrastructure systems. The focus is on developing solutions that meet the evolving needs of contemporary urban environments.

8. SITE SETTING AND SYSTEMS

In this advanced course, students will take on complex projects that demand a nuanced understanding of site integration. Emphasis is placed on sustainable site planning, ecological design, and the integration of advanced systems to create harmonious built environments. Students will explore innovative ways to address the evolving challenges of site-specific architectural design.

9. ART AND ARCHITECTURE

This advanced course builds upon the foundational knowledge acquired in the introductory course, delving deeper into theoretical frameworks, critical discourse, and practical applications of art and architecture. Through seminar-style discussions, research projects, and hands-on exercises, students will engage with advanced topics in art and architectural theory, exploring contemporary issues and debates in the field. Emphasis will be placed on developing analytical and creative skills, as well as fostering independent inquiry and expression.

Please refer to the appendix 1A for references of the courses offered in the past in this semester.

Course Outcomes (COs)

The students would be expected to:

CO1. Demonstrate specialized learning in subjects covering areas of concern to architecture.
CO2. Apply interdisciplinary methods and skill in the production of architecture.
CO3. Research on a diverse range of subjects in relevance to architecture

Course Content

The faculty offering each elective will develop a weekly programme for the course, a list of compulsory and suggestive readings, and evaluation parameters, based on the resources at hand and opportunities for linkages with other courses.

The faculty will offer the course in a module system and there shall only be four modules. The modules will progressively address the course outcomes to develop all the competences (knowledge, skills and design) through electives. Each module should have an assessment criterion. Elective courses shall be open to all students, and allotted on a ratio of 1 Faculty: 20 Students.

Pedagogy

The pedagogical scheme/approach opted for Electives will be developed by the individual faculty according to their respective courses. The pedagogical approach for every course offered under Electives may differ.

Text Books

To be provided by course faculty as per course outline.

Resources

To be provided by course faculty as per course outline.

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
End Term : 60 Marks
Total : 100 Marks

Subject	Internal 1		Internal 2		TOTAL
Elective 5	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	
	20	20	30	30	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

MAPPING OF COs & PSOs

	Programme Specific Outcome			
	PSO1	**PSO2**	**PSO3**	**PSO4**
CO1	M	M	L	H
CO2	H	L	L	H
CO3	H	M	L	H

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

MAPPING OF COs & POs

	Programme Outcomes								
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**
CO1	H	M	M	L	L	L	M	M	M
CO2	H	M	M	L	H	L	M	M	M
CO3	H	M	M	H	L	L	M	M	M

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

GENERAL ELECTIVE – TDCC

Course Title : TRANS DISCIPLINARY CERTIFICATE COURSE
Course Code : XXXX
Course Credits : 2
Teaching Mode

COURSE CODE	COURSE TITLE	SKILLSET	TEACHING HOURS/WEEK			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
XXXX	Trans Disciplinary Certificate Course	Skill Development	2	0	0	2	100	NA	NA

Course Objectives

The course is beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course.

Course Content

TDCC is an open elective platform for learning across the various schools of the University. The offerings are beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course.

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 60 Marks
End Term Evaluation : 40 Marks

Course Title : Practical Training
Course Code : 23BAR-4PT42P
Course Credits : 16
Teaching Mode

COURSE CODE	COURSE TITLE	SKILLSET	TEACHING HOURS/WEEK			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-4PT42P	Practical Training	Employability, Entrepreneurship, Skill Development	0	0	0	16	50	50	NA

Course Objectives

The purpose of the Practical Training is to share an opportunity with students to relate and apply the techniques learnt in the studios to the real world experiences set in a professional practices environment. And eventually it should provide students a strong grounded base to frame their design thesis in the last semester of the bachelor of architecture programme.

Course Outcomes (COS)

CO1. Demonstrate technical knowledge & skills related to architectural practice. Analysing the Intricacies of the projects and process of project articulation as a team.
CO2. Gain exposure in Concept and Design Development, DPR, software and model skills, site coordination, municipal and working drawing preparations and presentation skills.
CO3. Demonstrate and develop their technical skills, professional skills, effective communication, and team-player skills, an understanding of business procedures and critical thinking and eventually providing a concrete base to frame the design thesis in the last semester of the bachelor of architecture programme.

Course Content

Practical Training is a period of time during which a student works for a company or organisation in order to get experience in a particular type of work. It consists of specialised duties. The work of the intern will be monitored by a professional during the said period. This will allow students to demonstrate and develop their technical skills, professional skills, effective communication, team-player skills, an understanding of business procedures and critical thinking.

Pedagogy

Practical Training course immerses students in a professional architectural environment, where they engage in specialized tasks under the supervision of experienced professionals. This hands-on experience allows students to apply and enhance their technical and professional skills, such as design, communication, and teamwork. Through monitored activities, students gain an understanding of business procedures and develop critical thinking abilities essential for solving real-world architectural challenges. This training serves as a bridge between academic learning and professional practice, preparing students for their future careers in architecture.

Text Books

None

Resources

- Handbook of professional Documents published by the Council of Architecture (latest).
- Manual of Architectural Practice published by the Council of Architecture (latest).

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 50 Marks
End Term External Jury : 50 Marks
Total : 100 Marks

INTERNAL ASSESSMENT	END SEM EXAMINATION (JURY)	TOTAL
Cumulative Internal Assessment Presentation/ viva/ jury		
50	50	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context**)
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**
PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills

of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

MAPPING OF COs & PSOs

	Programme Specific Outcome			
	PSO1	**PSO2**	**PSO3**	**PSO4**
CO1	H	H	H	M
CO2	H	H	H	H
CO3	H	H	H	H

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

MAPPING OF COs & POs

	Programme Outcomes								
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**
CO1	H	H	H	H	M	H	H	H	M
CO2	H	M	H	H	H	H	H	H	H
CO3	H	H	H	H	H	H	H	H	H

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

GENERAL ELECTIVE – MOOC

Course Title : Massive Open Online Course
Course Code : 23BAR-4MX42S
Course Credits : 2
Teaching Mode

COURSE CODE	COURSE TITLE	SKILL SET	COURSE STRUCTURE			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-4MX42S	MOOC	Skill Development	2	0	0	2	100	NA	NA
23BAR-4MF42S	MOOC_Allied Facets of Architecture 5								
23BAR-4MT42S	MOOC_Architecture Technologies 5								
23BAR-4MB42S	MOOC_Building Interiors 5								
23BAR-4MC42S	MOOC_Communication and Representation 5								
23BAR-4MS42S	MOOC_Sustainability in Architecture 5								
23BAR-4MH42S	MOOC_Heritage & Philosophy 5								
23BAR-4MI42S	MOOC_Infrastructure 5								
23BAR-4ME42S	MOOC_Site Setting and Systems 5								
23BAR-4MA42S	MOOC_Art and Architecture 5								

Course Objectives

MOOC is an open elective platform for learning across the general pool of online courses. The offerings can be within the discipline or beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course. Elective courses shall be open to all students, and students are required to register for the course as per the Standard Operating Procedure issued from time to time.

Course Outcomes (COs)

The students would be expected to:

CO1 To provide learners with essential knowledge and understanding of the subject matter covered in the course.
CO2 To help learners develop practical skills relevant to the course topic, such as problem-solving, critical thinking, communication, or technical proficiency.
CO3 To enable learners to apply the knowledge and skills gained in real-world situations or contexts related to the course content.
CO4 To empower learners to take ownership of their learning process and develop self-directed learning skills, including goal-setting, time management, and self-assessment.

Course Content

According to specific course floated

Pedagogy

To be provided by course faculty as per course.

Text Books

To be provided by course faculty as per course outline.

Resources

To be provided by course faculty as per course outline.

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
End Term Exam : 60 Marks
Total : 100 Marks

	Internal 1		Internal 2		TOTAL
MOOC	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	
	20	20	30	30	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

MAPPING OF COs & PSOs

	Programme Specific Outcome			
	PSO1	**PSO2**	**PSO3**	**PSO4**
CO1	M	M	L	H
CO2	H	L	L	H
CO3	H	M	L	H
CO4	H	L	L	H

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

MAPPING OF COs & POs

	Programme Outcomes								
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**
CO1	H	M	M	L	L	L	M	M	M
CO2	H	M	M	L	H	L	M	M	M
CO3	H	M	M	H	L	L	M	M	M
CO4	H	M	M	L	H	L	M	M	M

H- High, M- Medium, L-Low

Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

Course Course Title : **Design Studio 6-Complex Architecture Project**
Course Code : **23BAR-1DS51P**
Course Credits : **10**
Teaching Mode : **Studio Based Teaching**

Course Code	Course Title	Skillset	Course Structure			Credits	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-1DS51P	Design Studio 6 -Complex Architecture Project	Employability, Entrepreneurship, Skill Development	0	10	0	10	50	50	NA

Course Objective

The aim of this semester's studio is to speculate on the sustainable future of cities as reservoirs of life triggered by their individual and collective inhabitants, their neighbourhoods and the systems that allow these to coexist. In discussion will be urban dwelling, collective large-scale residential solutions, their nature and types and modern city planning principles for urban, semi-urban and small town precincts in the country. The students would explore and understand the challenges for improving neighbourhood quality, identify areas for improvement and necessary corrective measures to be taken. At the urban level, the studio will look at the neighbourhood and its relationship with the larger public realm along with the integration of infrastructure and systems related to collective dwelling. It looks at space as a social space in which we create relations with other people, society, urbanity, the city and its infrastructure. The projects will attempt to cover a wide range of ideas, which are demographic or concerning large / particular sections of the society, technological, socio-economic, issue-based or concerning ideas of affordability, adequacy, liveability, sustainability, nature-culture connect, resilience while considering cultural identity and values. At the building level, the studio will attempt to incorporate appropriate technologies concerning structure, materiality, and services into the design proposal. The designs will attempt to understand the sociological and psychological relationships to space, community and wellbeing, health and safety, the spatial quality and the social network distinctive for each space. Based on a self-driven conceptual position, the students would be expected to explore societal systems in order to derive a well-researched and contextualised personal position with respect to the future of collective urban living.

Course Outcomes (COs)

Value Based Design Thinking Process

Architecture Design thinking starts with the understanding of space by an individual, expanding to understanding of space for individuals and groups in public space and synchronising that with the understanding of space for large sections of the society. Based on the above ideology the process is divided into four important value sets;

1. The Integral Values

2. The Ecological Values
3. The Operational Values
4. The Disciplinary Values

The above value sets also lead to Course Outcomes. The students are expected to display;

CO1: The Integral Values:

Architectural space is for the living Self – Students will be able to investigate interpretations of self. This will lead to understanding comfort, personal space, anthropometrics, the need and requirement of a body. This exploration in self-awareness shall make a student portray the ways and means of inhabitation that are linked with age, diurnal cycles, time and human actions. Thus changing the meaning of everyday context. This will assist in understanding modules that a self inhabits.

CO2: The Ecological Values:

Manifestation of Nature' - The students will be able to engage themselves in nature studies that include forms, expressions, patterns and overall systems. However, nature primarily is governed by the presence of weather; students will be able to extrapolate the various weather conditions that can be used as tools of creation to sculpt spaces and develop design systems. This will enable students to critique their own ideologies and expressions and shall systematise architecture production or representations; and develop an architectural vocabulary associated with it.

CO3: The Operational Values:

Structural, constructional and material thinking: students would be exposed to various physical constituents of space and elements of architecture. These constituents will be created, modulated and communicated in order to understand the execution process by graphical representation via digital media in the studio. Students will be exposed to understand architecture design as a cohesive process to explore First Principles - why a thing is made the way it is - reducing the object/ form to its core or fundamentals - factors underlying forms rather than the forms themselves. Students will be able to do a thorough research and extract information that demonstrates various execution styles and form analysis with various materials and interpret it in relevant situations.

CO4: The Disciplinary Values:

Students will be able to gauge unseen qualities of things and places by learning to look beyond what is easily visible. Students will be exposed to the creative process used in various fields which revolve around a representation and expression of the self, thus students will be able to choose, critique and weigh the level of merger for a specific project situation and further demonstrate awareness of design principles.

A. Course Content

The Studio can be divided into 4-5 modules of three - four weeks each that showcases elements of Spatial Analysis and Context. The modules' bifurcation is dependent on the theme of the studio as discussed and decided by the studio directors. However, running the studio in modules shall make the faculty team alert on the delivery and performance of the students at various stages.

Pedagogy

The course's studio format, involving thorough documentation and analysis of a selected site, sets the stage for students to engage in a comprehensive exploration of group habitat design. The culmination of this process is an innovative and practical project. Let's elaborate on how students can integrate the overall regional dictates, immediate context, and the values of the built, while considering sustainability through the lenses of **Ecology, Economy, and Equity.**

1) ***Thorough Site Documentation and Analysis:***

Ecology: The students are to begin by understanding the natural features of the site, including its flora, fauna, topography, and climate. Consider how the design can minimise disruption to the local ecosystem and enhance biodiversity. Implementing sustainable landscaping practices, such as rainwater harvesting and native plantings, can contribute to ecological balance.
Economy: The students will be encouraged to analyse the economic aspects of the site, including local resources, material availability, and economic opportunities for the community. They will be mentored to consider how the project can contribute to the local economy, perhaps by sourcing materials locally, providing job opportunities, or supporting local businesses.(strategies)
Equity: By evaluating the social dynamics of the site and after understanding the needs and aspirations of the surrounding community, the students can incorporate the learning in the process of design that can promote social equity, inclusivity, and community engagement. This may involve creating public spaces that serve as gathering points or ensuring accessibility for all members of the community.

2) ***Innovative and Practical Built Project (Habitat/ Mixed Use/ Healthcare/ Institute)***

a) **Response to Meaning of Context:**
Ecology: The students will be guided to design with sensitivity to the natural environment, incorporating sustainable features such as green roofs, energy-efficient systems, and eco-friendly materials. Create a building (as selected typology) that harmonises with the surrounding ecosystem, promoting environmental stewardship.
Economy: Deliberating and innovating strategies for integrated cost-effective design solutions that maximise the efficient use of resources will be discussed with the students. This could involve exploring innovative construction techniques, utilising recycled materials, and incorporating energy-efficient technologies to ensure long-term economic viability.
Equity: The students along with their respective mentors will be asked to develop a design that responds to the cultural and social context of the region with incorporation of elements that reflect the local identity and traditions, ensuring that the built typology resonates with the community it serves.

b) **Spirit of Time:**
Ecology: The students will be asked to consider contemporary environmental challenges and design with a forward-thinking approach and further explore renewable energy solutions, carbon-neutral strategies, and sustainable waste management practices to address current ecological concerns.
Economy: The design approach should embrace technologies and design methodologies that align with current economic trends, focusing on sustainable practices that are both economically viable and responsible.

Equity: the students while designing the building should address the social dynamics of the present time, acknowledging diversity and inclusivity and ensure that the design caters to the evolving needs of the community, embracing a dynamic and adaptable approach.

3) ***Evaluation of Built Typology Values and Sustainability:***

a) **Response to Context:**
Ecology: Assess how the habitat project responds to and enhances the local ecology, considering factors such as water conservation, biodiversity, and ecosystem health.
Economy: Evaluate the economic impact of the habitat on the immediate context, examining whether the project contributes positively to local economies and supports sustainable development.
Equity: Consider how the habitat project promotes social equity by addressing the specific needs of the community and fostering a sense of belonging.

b) **Spirit of Time:**
Ecology: Evaluate how the project aligns with current ecological trends and practices, ensuring that it contributes to the broader goals of environmental sustainability.
Economy: Assess the economic sustainability of the habitat project over time, considering its long-term impact on the local economy and resource utilisation.
Equity: Examine whether the project embraces contemporary principles of inclusivity, diversity, and community engagement, reflecting the evolving spirit of the time.

With the above students shall be able to gain an understanding of:

Knowledge (Remember + Understand)

- Ability to illustrate connection between habitats for the living in the urban context w.r.t. affordability, liveability and cultural interactions.
- The students will be able to create contextual design solutions while situating and respecting the social fabric within which a project exists – lifestyles, cultural history, traditions, organisational dynamics, etc.
- Ability to design for individual and collective inhabitants, their neighbourhoods and the systems that allow these to coexist.

Skills (Apply +Analyse)

- Ability to demonstrate meaningful design diagrams.
- Ability to relate a set of building elements to follow a coherent architectonic language.

Values, Orientations and Awareness (Evaluate)

- Ability to incorporate implications of light, sunlight, heat, rain, water, wind and the outside into their architectural outputs.

Design (Create)

- Ability to students to work on Exo-system level projects which deal with societal systems – ecological, economic, social, governmental, political, etc. They will be trained to articulate the built environment as a socio-ecological construct.
- Ability to design and present a structure congruent with chosen values.

Approach

The studio format will follow a sequential process:

- Case study presentation as per the groups assigned. Assessing case examples as per the aspects discussed.
- Followed up with a brief introduction to the study area, group formation with mentors for data collection (in case required) site visit and photo documentation.
- Understanding and presentation of Exploring Key Aspects of Built Planning & Design.
- Followed with a quick exercise and discussion of Bye Laws for Built Calculations leading to VOLUMETRIC ANALYSIS (model -1:200 scale)
- VISION/ CONCEPT CREATION :
    - Taking forward the Understanding of Urban Precincts through from the previous semester: Historic, Connectivity, Socio-economic Profile, Infrastructure (Physical and Social), Open Spaces, Existing Housing Typology, and Bye-Laws
    - Exploration of habitat/ healthcare/ Mixed use/Institutional Built issues and prospects w.r.t. urban context in discussion using tools such as Master Plans, Policy Documents etc.
    - Studies on Realisation of the selected built as an Ecosystem: demographic, technological, socio- economic, sustainability and ecology
    - Explorations on affordability, adequacy, adaptability, inclusion etc. in the selected typology.
- DESIGN DEVELOPMENT: working on the site plan, Functional plans , floor wise plans with respect to the Bye laws and guidelines as discussed in class. The students are expected to work on this considering the right product mix .
- MATERIALITY: Materiality is to be considered with context to build the environment of cities and how they influence human experiences, behaviours, and interactions within urban spaces. The most important aspects to be covered: cultural context, economic functionality, adaptability & flexibility of the material used at various scales.
- BROCHURE: We will continue working to achieve our aim of producing a Brochure.

E. Textbooks and Resources

1. Alexander C., Davis H., Marteniz J, (1985): The Production of Houses; Oxford University Press, USA; First Edition edition
2. Cook P. (1999); Archigram; Princeton Architectural Press
3. Katz P. (1993); New Urbanism: Towards an Architecture of Community; McGraw-Hill Professional; 1st edition
4. Jacobs J. (1992); The Death and Life of Great American Cities; Vintage; LATER PRINTING edition
5. Lynch K. (1960); Image of a City; The MIT Press
6. Lynch K. (1984); Good City Form; The MIT Press
7. MVRDV (1999), Metacity Data town; 010 Uitgeverij

Assessment Scheme

Intermediate Reviews by Internal Faculty : 50 Marks
End Term Exam : 50 Marks
Total : 100 Marks

INTERNAL ASSESSMENT		END SEM EXAMINATION (JURY)	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
20	30	50	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context**)
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**
PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities
PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.
PSO3 Implements the understanding gained through experiential learning, industry connecting national and international collaborations in the field of architecture.
PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CO1	H	M	H	H	M	M	H	H	M	H	H	H	M
CO2	H	H	H	H	H	M	H	H	H	H	H	H	H
CO3	H	H	H	H	H	L	H	H	M	H	H	H	M
CO4	H	H	H	H	H	M	M	H	L	H	H	M	L

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Study Trip or Field Trip

It is devised with an objective to expose the students to the practical understanding of architecture and the philosophies connected. Trips will be organised for the students with respect to other courses such as Design Studio, Construction Studio, Sustainability Approaches and Electives by instructors and mentors, whenever required.

Course Title : Dissertation
Course Code :23BAR-3DI51P
Course Credits : 6
Teaching Mode : Studio

COURSE CODE	COURSE TITLE	SKILLSET	COURSE STRUCTURE			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-3DI51P	Dissertation	Skill Development	2	4	0	6	50	50	NA

Course Objectives

The Academic writing and Research Methodology courses in the sixth semester and seventh semester respectively introduced the student to the fundamentals of academic research writing, research methodology, research design, and tools of analysis. At the culmination of the semester each student prepared and submitted a synopsis outlining a topic, method of research inquiry and possible texts and case studies – the 'what, why and how' of, as well as the academic apparatus of academic writing. The synopsis forms the bridge to Dissertation in the seventh semester. It offers an opportunity to make a contribution to what we think about architecture, situate our thoughts within a larger body of existing literature and texts, and present them to others in an acceptable academic format.

Course Outcomes (COs)

The students would be expected to:

CO1 Identify and describe key components of the area of research

CO2 Data collection methods, tabulation methods, data representation and techniques, design the research, determine appropriate methodology to gather information, analyse and synthesise data, present results

CO3 Demonstrate the ability to present research findings, conclusions, contributions and future recommendations

Course Content

Module 1: Key components of research

Evaluation of Synopsis, topic, and research plan in consultation with the assigned Guide

- Final articulation of Aims and Objectives, Scope and limitations

Deliverable: *Refined Synopsis with a well defined* Aims and Objectives, Scope and limitations *and indicative Bibliography (3000 words excluding citations and bibliography) + Presentation*

Module 2: Data collection and representation, data analysis and results

- Complete collection of Primary and Secondary data – case studies, interviews, site visits, etc.
- Verification and sorting of data and its sources
- Tabulation of data and learning
- Analysis of data (quantitative and qualitative)
- Development of analytical frameworks and simulation/experimental models
- Presentation of final results

Deliverable: *Synopsis, detailed primary and secondary data collection with brief indication of contents (7000 words excluding citations and bibliography)*

Module 3: Research conclusions, Contributions and future recommendations

- Examining arguments, counter arguments
- Conclusion and contribution
- Proposition and recommendations for future research
- Presentation of material in a logically organized, well written report complete with illustrations, maps, data charts and appendices (if required)
- Making the report error free, complete in terms of captions, citations, bibliography, images, etc
- Providing three hard bound copies to the Guide in the prescribed format

Deliverable: *Final Report (8000-10,000 words excluding citations and bibliography)*

Pedagogy

The course will be conducted through guide sessions (individual tutorials) and lectures / seminars on various topics by the mentor and experts. Together these would help the student to design their research, collect and analyze data, and present their findings in a coherent, well written and properly cited dissertation. The student will be encouraged to demonstrate originality in research without compromising on the rigor of research, writing and adhering to academic frameworks.

Text Books:

- Black, James A. and Dean J. Champion, Methods and Issues in Social Research, Wiley, New Jersey, 1976
- Borden, Iain and Katerina Ruedi Ray, The Dissertation: A Guide for Architecture Students, Routledge, 2014 (III edition)
- Groat, Linda and David Wang, Architectural Research Methods, Wiley, New Jersey, 2013 (2nd edition)

Resources

Suggested Readings

- Eco, Umberto, How to Write a Thesis (trans. Caterina Mongiat Farina and Geoff Farina), The MIT Press, London and Cambridge, 2015
- http://www.newagepublishers.com/samplechapter/000896.pdf
- http://www.authorstream.com/Presentation/drpattron68-138583-Research-Methodology-CONTENTS-Constitutes-Topic-Select-Limitations-method-Entertainment-ppt-powerpoint

Recommended Databases

- JSTOR
- Web of Science Full Text
- Oxford Art Online (trial till October)These and other databases can be found in http://libguides.lib.xjtlu.edu.cn/architecture

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 50 Marks
End Term External Jury : 50 Marks
Total : 100 Marks

INTERNAL 1	INTERNAL 2		MSE	ESE
Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)		
15	15	20	50	50

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture **(tools and technology)**
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment **(context)**
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**
PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities
PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.
PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.
PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

MAPPING OF COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	H	M	L	H	M	M	L	L	M	L	L	M	L
CO2	H	H	L	H	M	M	L	L	M	M	H	H	M
CO3	H	H	L	H	M	M	L	L	M	L	M	M	L
CO4	H	M	L	H	H	M	L	M	H	H	M	L	H

H- High, M- Medium, L-Low

Note :

H= High relationship (covers up to 75-95% of the desired outcome);

M=Medium (covers up to 50 to 75%);

L=Low (covers up to 10-50% of the desired outcome)

Course Course Title : Pre Thesis Seminar
Course Code : 23BAR-1PT51S
Course Credits : 2
Teaching Mode : Tutorial Based Teaching

Course Code	Course Title	Skillset	Course Structure			Credits	Examinations Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-1PT51S	Pre Thesis Seminar	Employability, Entrepreneurship, Skill Development.	0	2	0	2	100	NA	NA

Course Objective

Students are required to understand the synthesis of design and research methods in order to develop an independent thesis proposal. This course offers a mandate to undertake Thesis Seminar during their penultimate year. The intent of the course is to streamline and encourage students with new ideas/ research avenues/ design experimentation in architecture and allied fields; to provide a framework within which a systematic approach for research is developed. This shall lead to a better development of one's proposition, narrative and overall methodology that would be tested in the X-Semester. The course work shall include exposure to different theories and practices of design inquiry, explorations of critical positions for individual development, and preparation of a document encapsulating research leading to a thesis proposition. The main objectives of the course are;

1. To outline the larger focus and relevance of the Thesis topic (design/research), its architectural implications and projected design results.
2. To conceptually formulate an architectural proposition, explore and articulate ideas through research and critically evaluate the feasibility of the Thesis Proposal. This includes determining the Project, context where it shall be explored and its significance to architecture.
3. To encourage students to pose relevant questions on the discipline (theoretical/design); to undertake self-directed study with inquisitiveness, rigour and demonstrate a depth of inquiry in exploring the chosen topics.
4. To focus on innovation, experimentation (theoretical premise/ tectonics/modes of representation/other) as some of the learning outcomes and draw inspiration/build on the various Electives/ Design Studios proposed/taken through the undergraduate Programme

Course Outcomes (COs)

The students shall be able to:

CO1 Demonstrate various research methods learnt in previous years and shall be able to clearly highlight the architecture proposition

CO2 Illustrate the critical readings, models and drawings necessary for Thesis Project development

CO3 Meticulously articulate the reasons for project development and present it with in-depth inquiry

CO4 Highlight the capacity building for thesis project development and showcase apt project document clearly highlighting/explaining the Project type; architectural Proposition/ Premise; Site/ Location; Scope and Limitations; Program (includes basic documentation with drawings, images or photographs of context, case studies, citations to various sources).

Course Content

The course can be divided into 4-5 modules of three - four weeks each that showcases elements of research, design and context. The modules' bifurcation is dependent on the sessions of the Thesis as discussed and decided by the Thesis director. However, running the Thesis in modules shall make the faculty team alert on the delivery and performance of the students at various stages. Faculty members should refer to Thesis Structure Document prepared by the Thesis Director.

Pedagogy

The Thesis Seminar shall be conducted combining interactive workshops, presentations, key lectures and focused discussions with individual students on chosen topics. Each topic should be studied using extensive literature reviews including readings in relevant critical theoretical/ philosophical premises; case studies (site visits); focused meetings with external subject/ topic experts and design research methods. The Thesis Seminar should be seen as an opportunity to engage with a topic/ question on the discipline architecture through reading, writing, drawing, diagramming and modelling ideas. The role of the Tutors / Thesis advisors is to introduce the issues relevant to architecture (allied fields), significant design research methodologies and discuss the new research directions in the discipline through readings, exercises and workshops. The Tutor/ Thesis advisors shall also critique student ideas/ research and help formulate/ shape a design/ research method. The dedicated discussion sessions on each topic should clarify the intent, type of project, location, scope and limitations.

Textbooks and Resources

1. Booth, Wayne C., Colomb, Gregory G., and Williams, Joseph M. 2003. The Craft of Research. Third Edition. Chicago: University of Chicago Press. (ISBN 0-226-06566-9)
2. Newing, Helen. Conducting Research in Conservation: A Social Science Perspective. New York:
Routledge, 2010.
3. Turabian, Kate L. A Manual for Writers of Term Papers, Theses, and Dissertations. Seventh Edition. Chicago: The University of Chicago Press.

4. Zeisel, John. 2006. Inquiry by Design: Environmental/Behavior/Neuroscience in Architecture, Interiors, Landscape, and Planning. New York: W.W. Norton Company. (ISBN 0-393-73184-7)
5. Cherry, Edith. 1999. Programming for Design: From Theory to Practice. New York: John Wiley and Sons. (ISBN 0-471-19645-2)
6. Cresswell, John W. Research Design: Qualitative, Quantitative, and Mixed Method Approaches, Third Edition. Thousand Oaks: Sage Publications, 2008.
7. Dandekar, Hemalata, ed. 2003. The Planners Use of Information, Second Edition. Chicago: Planners Press, American Planning Association. (ISBN 1-884829-72-4)
8. Fink, Arlene G. Conducting Research Literature Reviews: From the Internet to Paper, Third Edition.Thousand Oaks: Sage Publications, 2010.
9. Groat, Linda and Wang, David. 2002. Architectural Research Methods. New York: John Wiley and Sons. (ISBN 0-471-33365-4)
10. Meltzoff, Julian. Critical Thinking About Research: Psychology and Related Fields, Third Edition. Covent Garden: American Psychological Association, 1999.
11. Sommer, Barbara, and Rommer, Robert. 1991. A Practical Guide to Behavioral Research: Tools and Techniques, Third Edition. New York: Oxford University Press.
12. Yin, Robert K. Case Study Research: Design and Methods: Applied Social Science Research Methods, Fourth Edition. Thousand Oaks: Sage Publications, 2009.

Assessment Scheme

Intermediate Reviews by Internal Faculty : 100 Marks
End Term Exam : 0 Marks
Total : 100 Marks

INTERNAL ASSESSMENT		END SEM EXAMINATION (JURY)	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
40	60	NA	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**
PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)
PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context**)
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a

sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implements the understanding gained through experiential learning, industry connecting national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CO1	H	H	H	H	H	H	H	M	L	H	H	H	M
CO2	H	H	H	H	H	M	M	H	L	H	H	M	L
CO3	H	M	H	H	L	H	L	H	H	H	H	L	H
CO4	H	H	M	H	H	H	H	H	M	H	H	H	M

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

GENERAL ELECTIVE 1 – TDCC

Course Title : TRANS DISCIPLINARY CERTIFICATE COURSE
Course Code : XXXX
Course Credits : 2
Teaching Mode

COURSE CODE	COURSE TITLE	SKILLSET	TEACHING HOURS/WEEK			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
XXXX	Trans Disciplinary Certificate Course	Skill Development	2	0	0	2	100	NA	NA

Course Objectives

The course is beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course.

Course Content

TDCC is an open elective platform for learning across the various schools of the University. The offerings are beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course.

Assessment Scheme

Intermediate Reviews by Internal Faculty : 60 Marks
End Term Evaluation : 40 Marks

GENERAL ELECTIVE 2 – MOOC

Course Title : MASSIVE OPEN ONLINE COURSE
Course Code : 23BAR-4MX51S
Course Credits : 2
Teaching Mode

COURSE CODE	COURSE TITLE	SKILLS ET	TEACHING HOURS/WEEK			CREDITS	EXAMINATION SCHEME		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-4MX51S	MOOC	Skill Development	2	0	0	2	100	NA	NA
23BAR-4MF51S	MOOC_Allied Facets of Architecture 6								
23BAR-4MT51S	MOOC_Architecture Technologies 6								
23BAR-4MB51S	MOOC_Building Interiors 6								
23BAR-4MC51S	MOOC_Communication and Representation 6								
23BAR-4MS51S	MOOC_Sustainability in Architecture 6								
23BAR-4MH51S	MOOC_Heritage & Philosophy 6								
23BAR-4MI51S	MOOC_Infrastructure 6								
23BAR-4ME51S	MOOC_Site Setting and Systems 6								
23BAR-4MA51S	MOOC_Art and Architecture 6								

Course Objectives

MOOC is an open elective platform for learning across the general pool of online courses. The offerings can be within the discipline or beyond individual disciplines, enabling learners from all disciplinary backgrounds to come together in their choice of course. Elective courses shall be open to all students, and students are required to register for the course as per the Standard Operating Procedure issued from time to time.

Course Outcomes (COs)

The students would be expected to:

CO1 To provide learners with essential knowledge and understanding of the subject matter covered in the course.

CO2 To help learners develop practical skills relevant to the course topic, such as problem-solving, critical thinking, communication, or technical proficiency.

CO3 To enable learners to apply the knowledge and skills gained in real-world situations or contexts related to the course content.

CO4 To empower learners to take ownership of their learning process and develop self-directed learning skills, including goal-setting, time management, and self-assessment.

Course Content

According to specific course floated

Pedagogy

To be provided by course faculty as per course.

Text Books

To be provided by course faculty as per course outline.

Resources

To be provided by course faculty as per course outline.

Course Assessment Scheme

Intermediate Reviews by Internal Faculty : 40 Marks
End Term Exam : 60 Marks
Total : 100 Marks

	Internal 1		Internal 2		
MOOC	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	Quiz(s)/ Presentation (s)/ Viva/Project (s)	TOTAL
	20	20	30	30	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture **(tools and technology)**

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment **(context)**

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**
PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcome (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities
PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.
PSO3 Implement the understanding gained through experiential learning, industry connect national and international collaborations in the field of architecture.
PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

MAPPING OF COs, POs & PSOs

	Programme Specific Outcome			
	PSO1	**PSO2**	**PSO3**	**PSO4**
CO1	M	M	L	H
CO2	H	L	L	H
CO3	H	M	L	H
CO4	H	L	L	H

H- High, M- Medium, L-Low
Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

MAPPING OF COs & POs

	Programme Outcomes								
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**
CO1	H	M	M	L	L	L	M	M	M
CO2	H	M	M	L	H	L	M	M	M
CO3	H	M	M	H	L	L	M	M	M
CO4	H	M	M	L	H	L	M	M	M

H- High, M- Medium, L-Low
Note : H= High relationship (covers up to 75-95% of the desired outcome); M=Medium (covers up to 50 to 75%); L=Low (covers up to 10-50% of the desired outcome)

Course Course Title : Architecture Thesis
Course Code : 20BAR-1AT52P
Course Credits : 16
Teaching Mode : Tutorial Based Teaching

Course Code	Course Title	Skillset	Course Structure			Credits	Examinations Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-1AT52P	Architecture Thesis	Employability, Entrepreneurship, Skill Development	0	16	0	16	50	50	NA

Course Objective

Design Thesis is the culmination of undergraduate studies in architecture. Students work independently in a studio-based setting. The aim of this course is to engage students in developing the architecture component that critically analyses the ongoing trends in architectural research and design endeavours. Students will be shaping their research, streamline issues and concepts, approach, methods, form programmatic derivatives of the thesis project. The conclusion of research-work on the thesis project will specify - through an architectural programme and subsequent design - the practical understanding of architecture that is generally expected of architecture graduates. In this course, students examine an architecture issue of their choice and develop a related Design Thesis Proposal. Students can select/identify issues from categories;

A. Structural and Formal Design Exploration;
B. Conservation, Integration and Adaptive Reuse
C. Socially-responsive Design;
D. Design as Interpretation and
E. Environment and Ecology

Students prepared a proposal that best describes their research, goals, objectives, approach and methodology and relevance of their proposal; further in collaboration with an assigned guide students redefine their methodology and research to envision a final product. The categories above are assumed to be the start point of the research but while in the process they tend to overlay each other. Approach and Method: The thesis research and proposals are presented to the review members at scheduled review times within the academic calendar, where recommendations are made toward fulfilment of final requirement at the end of the semester. These reviews are intended not only to build collective and critical knowledge bases, but also to guide students effectively through the processes.

Course Outcomes (COs)

CO1. Define design thesis topic, develop a thesis proposal with comprehensive understanding of methodical work, including the ability to reflect and perform systematic/scientific evaluations

CO2. Review literature for thesis and develop critical skills for assessing design proposals and discuss various scenarios before diving deeper into the solution.

CO3. Perform independent research, formulate problem statement and analyze these together with theoretical and empirical material while performing the related tasks in a methodical and satisfactory way

CO4. Develop presentation skills and write in a scientific style. The student will be able to gain insight into the ethics of science and an understanding of ethical challenges that may be of relevance to the problem statement.

Course Content

The Studio can be divided into 4-5 modules of three - four weeks each that showcases elements of Spatial Analysis and Context. The modules' bifurcation is dependent on the sessions of the Thesis as discussed and decided by the Thesis director. However, running the Thesis in modules shall make the faculty team alert on the delivery and performance of the students at various stages. Faculty members should refer to Thesis Structure Document prepared by the Thesis Director.

Pedagogy

The course will be conducted based on evaluation that shall be developed for two stages:

1. Stage One: Research and Background Study,
2. Stage Two: Design Development and Proposal.

Stage One is mainly student directed, independent research work to prepare a comprehensive background research document, which must be analysed and implemented in Stage Two. Stage Two will be primarily divided into two Sub-parts;

1. Discussion with thesis advisor
2. Tutorials.

A student must interact and be guided by a thesis advisor and the director of the course. And the tutorials are a mix of class lectures, discussions, and exercises. Besides this the course shall also have an advisory committee, which is made of five architecture faculty (one of them or all shall serve as student's guide). Students should establish weekly meetings with their guides at the start of the first stage one, and are expected to attend scheduled reviews with the guide and advisory committee throughout the semester.

The course shall have following set of examination carrying equal weightage of marks

1. Internal Jury – 50% Weightage
2. External Jury – 50% Weightage

Textbooks and Resources

1. Booth, Wayne C., Colomb, Gregory G., and Williams, Joseph M. 2003. The Craft of Research. Third Edition. Chicago: University of Chicago Press. (ISBN 0-226-06566-9)
2. Newing, Helen. Conducting Research in Conservation: A Social Science Perspective. New York:
Routledge, 2010.
3. Turabian, Kate L. A Manual for Writers of Term Papers, Theses, and Dissertations. Seventh Edition. Chicago: The University of Chicago Press.
4. Zeisel, John. 2006. Inquiry by Design: Environmental/Behavior/Neuroscience in Architecture, Interiors, Landscape, and Planning. New York: W.W. Norton Company. (ISBN 0-393-73184-7)
5. Cherry, Edith. 1999. Programming for Design: From Theory to Practice. New York: John Wiley and Sons. (ISBN 0-471-19645-2)
6. Cresswell, John W. Research Design: Qualitative, Quantitative, and Mixed Method Approaches, Third Edition. Thousand Oaks: Sage Publications, 2008.
7. Dandekar, Hemalata, ed. 2003. The Planners Use of Information, Second Edition. Chicago: Planners Press, American Planning Association. (ISBN 1-884829-72-4)
8. Fink, Arlene G. Conducting Research Literature Reviews: From the Internet to Paper, Third
Edition.Thousand Oaks: Sage Publications, 2010.
9. Groat, Linda and Wang, David. 2002. Architectural Research Methods. New York: John Wiley and Sons. (ISBN 0-471-33365-4)
10. Meltzoff, Julian. Critical Thinking About Research: Psychology and Related Fields, Third Edition. Covent Garden: American Psychological Association, 1999.
11. Sommer, Barbara, and Rommer, Robert. 1991. A Practical Guide to Behavioral Research: Tools and Techniques, Third Edition. New York: Oxford University Press.
12. Yin, Robert K. Case Study Research: Design and Methods: Applied Social Science Research Methods, Fourth Edition. Thousand Oaks: Sage Publications, 2009.

Assessment Scheme

Intermediate Reviews by Internal Faculty : 50 Marks
End Term Exam : 50 Marks
Total : 100 Marks

INTERNAL ASSESSMENT		END SEM EXAMINATION (JURY)	TOTAL
MSE	IE		
Cumulative Internal Assessment Presentation/ viva/ jury			
20	30	50	**100**

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture (**tools and technology**)

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context)**

PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**

PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**

PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**

PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**

PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**

PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities

PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.

PSO3 Implements the understanding gained through experiential learning, industry connecting national and international collaborations in the field of architecture.

PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3	PSO4
CO1	H	H	H	H	L	H	H	H	H	H	H	H	H
CO2	H	M	H	H	M	M	M	H	L	H	H	M	L
CO3	H	M	H	H	L	H	L	H	H	H	H	L	H
CO4	H	H	L	H	H	H	H	H	M	H	H	H	M

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

Course Course Title : Seminar
Course Code : 23BAR-3SM52P
Course Credits : 4
Teaching Mode : Tutorial Based Teaching

Course Code	Course Title	Skillset	Course Structure			Credits	Examinations Scheme		
			L	S	P		Internal Assessment	External Jury	External Exam
23BAR-3SM52P	Seminar	Employability, Entrepreneurship, Skill Development	0	0	4	4	50	50	NA

Course Objective

This course is designed for final semester architecture students to engage in scholarly research within the field of architecture. As a culmination of their theoretical endeavour through the course the students will present their research in a national / international student seminar. They will write a research paper based on the dissertation that they submitted in the 7th semester or identify a new area of research, formulate a research question, and establish aims and objectives. They will learn to present the methodologies that were employed for their research, culminating in the production of a comprehensive research paper. The course will involve presenting findings at an interschool seminar, fostering communication and critical thinking skills.

The main objectives of the course are;

1. To summarise the research done their dissertation under the formal headings of a research paper and present to a larger audience.
2. To encourage students to organise academic events that involve their peers.
3. To encourage students to network and publicise their academic work.

Course Outcomes (COs)

The students shall be able to:

CO1 Demonstrate knowledge of appropriate architecture research design and methodologies
CO2 Illustrate findings from their literature review, survey outcomes and analysis of observations with respect to their research inquiry.
CO3 Display knowledge of organisational skills, pragmatic forward planning and team work.
CO4 Enhance entrepreneurial skills

Course Content

The course can be divided into 4-5 modules of three - four weeks each that showcases elements of research, design and context. The modules' bifurcation is dependent on the sessions of the

Thesis as discussed and decided by the Thesis director. However, running the Thesis in modules shall make the faculty team alert on the delivery and performance of the students at various stages. Faculty members should refer to Thesis Structure Document prepared by the Thesis Director.

Pedagogy

- Lectures: Provide foundational knowledge and introduce key concepts.
- Group Work: Encourage collaboration and peer learning.
- Workshops: Hands-on sessions for drafting, writing, and presenting.
- Seminars: Facilitate discussion and critique among peers and faculty.
- Guest Lectures: Invite experienced researchers and practitioners to share insights.

Textbooks and Resources

1. Designing Research: A Guide to Conducting Research in Architecture by Thomas A. A. B. van der Voordt
2. Writing for the Architecture Profession by Steven H. W. Thompson
3. Turabian, Kate L. A Manual for Writers of Term Papers, Theses, and Dissertations. Seventh Edition. Chicago: The University of Chicago Press.
4. Research Methods for Architects by Murray Fraser
5. Architectural Research Methods by Linda N. Groat and David Wang
6. How to organise an event https://www.cardiffmet.ac.uk/about/conferenceservices/Pages/How-to-organise-an-event.aspx

Assessment Scheme

Intermediate Reviews by Internal Faculty : 50 Marks
End Term External Jury : 50 Marks
Total : : 100 Marks

Internal Assessment		End-Semester Examination (External)	Total
Mid-Semester Examination	Internal End-Term Examination		
Cumulative Internal Assessment Presentation/ viva/ jury			
20	30	50	100

Programme Outcomes (POs)

PO1 Demonstrate a high degree of critical thinking, technical competence and skills related to the built environment **(knowledge and skill)**

PO2 Exhibit knowledge of emerging tools and techniques in the field of architecture **(tools and technology)**

PO3 Illustrate understanding of the social, cultural, political and ecological factors affecting the built environment (**context**)
PO4 Examine and analyse the built environment through research and critical thinking **(critical thinking)**
PO5 Show the ability to represent the ideas/concepts using appropriate media and skill sets. **(communication)**
PO6 Exhibit a high degree of ethical and professional standards. **(ethical and professional understanding)**
PO7 Demonstrate the ability to work in a collaborative environment. **(collaborative engagement)**
PO8 Understand the importance and impact of proposed solutions on environment for a sustainable development **(environment and sustainability)**
PO9 Exhibit resilient leadership and the ability to evaluate situations to achieve goals **(leadership and management)**

Programme Specific Outcomes (PSOs)

PSO1 Demonstrate design thinking through technical, theoretical, conceptual and analytical skills of architecture for enriching the lives of communities
PSO2 Apply the knowledge and skills gained through fundamental/foundation of hands on learning, critical thinking, heritage, sustainability and arts in the built environment.
PSO3 Implements the understanding gained through experiential learning, industry connecting national and international collaborations in the field of architecture.
PSO4 Show the ability to evaluate, adapt and achieve goals, acknowledging the changing trends and technology in the built environment.

Mapping of COs, POs & PSOs

	Programme Outcomes									Programme Specific Outcome			
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CO1	H	H	H	H	H	H	H	M	L	H	H	H	H
CO2	H	H	H	H	H	M	M	H	L	H	M	H	M
CO3	H	M	H	H	L	H	L	H	H	H	H	H	H
CO4	H	H	M	H	H	H	H	H	M	H	H	H	M

H- High, M- Medium, L-Low

Note :
H= High relationship (covers up to 75-95% of the desired outcome);
M=Medium (covers up to 50 to 75%);
L=Low (covers up to 10-50% of the desired outcome)

*****