



Key Indicator – 1.1 Curriculum Design and Development
(50)

1.1.1 Curricula developed and implemented have relevance to the local, national, regional and global developmental needs, which is reflected in the Programme outcomes (POs), and Course Outcomes(COs) of the Programmes offered by the University
(20)

Criterion 1 – Curricular Aspects
(150)



KEY INDICATOR – 1.1.1

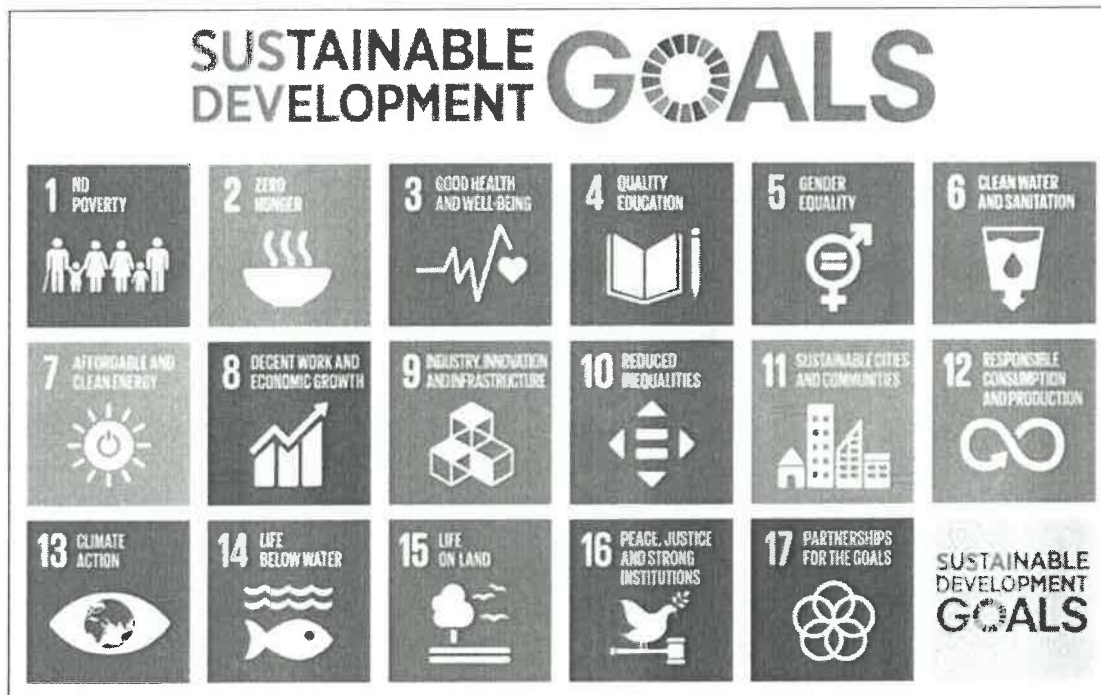
Curricula developed and implemented have relevance to the local, national, regional and global developmental needs, which is reflected in the Programme outcomes (POs), and Course Outcomes (COs) of the Programmes offered by the University

Curriculum Mapping with SDG Goals

SCHOOL OF ENGINEERING & TECHNOLOGY

Alignment of Master of Computer Application (MCA) Program with Sustainable Development Goals (SDGs)

The Master of Computer Application (MCA) program is designed to provide advanced knowledge and skills in computer science and its applications. This program aligns closely with the Sustainable Development Goals (SDGs) by fostering technological innovation, promoting sustainability, and addressing global challenges.



Below is a detailed mapping of various subjects within the MCA program to specific SDGs.

SDG 4: Quality Education

Subjects:

- **Internet and Web Designing-I:** Focuses on developing digital tools and platforms to improve education access and quality.
- **Mathematical Foundation of Computer Science:** Explores the design and implementation of interactive educational content.



- **Research Methodology:** Equips students with skills to conduct impactful research and contribute to educational advancements.

Impact: These courses promote equitable access to education by leveraging technology and fostering research in educational methodologies.

SDG 7: Affordable and Clean Energy

Subjects:

- **Cloud Computing:** Explores energy-efficient computing solutions and sustainable technology practices.
- **IoT Threats and Safeguards:** Focuses on using IoT to monitor and optimize energy consumption.
- **Digital Design and Computer Architecture:** Enables the development of energy-efficient communication protocols.

Impact: These subjects encourage the development of innovative solutions for energy efficiency and sustainable energy consumption.

SDG 8: Decent Work and Economic Growth

Subjects:

- **Social Media Security:** Enhances business processes and economic efficiency.
- **Advanced Database Management Systems:** Prepares students for leadership roles in the tech industry.
- **Advanced Database Management Systems:** Focuses on managing IT projects that create employment and drive economic growth.

Impact: These courses empower students to contribute to economic development through efficient management and technological innovation.

SDG 9: Industry, Innovation, and Infrastructure

Subjects:

- **Artificial Intelligence and Machine Learning:** Drives innovation in industrial processes.
- **Data Structures:** Supports the development of data-driven infrastructure.



- **Analysis of Design and Algorithms:** Promotes robust and scalable digital solutions for industries.

Impact: These subjects enable students to create technological infrastructure that supports sustainable industrialization and innovation.

SDG 11: Sustainable Cities and Communities

Subjects:

- **IoT Threats and Safeguards:** Focuses on the application of technology to create sustainable urban solutions.
- **Internet and Web Designing-II:** Explores interconnected systems for efficient resource management in cities.
- **Firewall Management:** Ensures secure and resilient digital infrastructure for urban environments.

Impact: These courses contribute to building sustainable, safe, and smart cities using advanced technologies.

SDG 12: Responsible Consumption and Production

Subjects:

- **Advanced Java:** Emphasizes efficient software design and resource optimization.
- **Firewall Management:** Encourages environmentally responsible technology use.
- **Cloud Security:** Promotes resource-sharing and efficient technology deployment.

Impact: These subjects support the development of sustainable IT solutions and responsible consumption of technological resources.

SDG 13: Climate Action

Subjects:

- **Artificial Intelligence and Machine Learning:** Enables climate modeling and environmental predictions.
- **Cloud Computing:** Focuses on applying computing to address environmental challenges.



- **IoT Threats and Safeguards:** Develops sensor-based systems to track environmental parameters.

Impact: These courses equip students to leverage technology for climate action and sustainability initiatives.

SDG 16: Peace, Justice, and Strong Institutions

Subjects:

- **IoT Threats and Safeguards:** Enhances transparency and accountability in governance.
- **Social Media Security:** Educates students on the ethical implications of technology use.
- **Cloud Security:** Focuses on safeguarding critical infrastructure and promoting justice through secure systems.

Impact: These courses contribute to building secure, ethical, and transparent institutions using advanced technologies.

SDG 17: Partnerships for the Goals

Subjects:

- **Advanced Database Management Systems:** Enables global teamwork and resource sharing.
- **Internet and Web Designing-II:** Promotes collaboration and knowledge-sharing across borders.
- **Cloud Computing:** Facilitates partnerships by providing scalable and accessible technology platforms.

Impact: These courses foster global collaboration and knowledge-sharing to achieve sustainable development goals.

Conclusion

The MCA program is well-aligned with the Sustainable Development Goals, emphasizing the use of advanced computing technologies to address global challenges. By integrating sustainability principles and promoting innovation, the program prepares graduates to make significant contributions toward achieving a sustainable and equitable future.

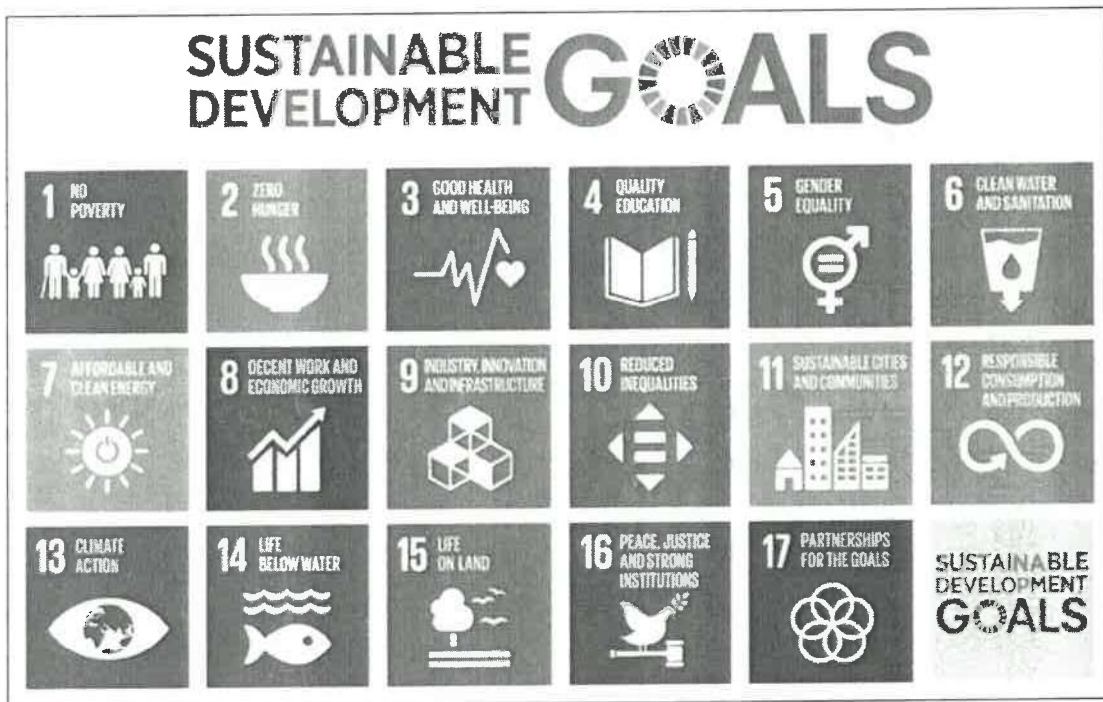
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SCHOOL OF ENGINEERING & TECHNOLOGY

Alignment of Bachelor in Computer Applications (BCA) Program with Sustainable Development Goals (SDGs)

The Bachelor of Computer Applications (BCA) program plays a pivotal role in addressing the Sustainable Development Goals (SDGs). With its focus on computing, technology, and innovation, the BCA program equips students with the knowledge and skills needed to contribute meaningfully to sustainable development.



Below is a detailed analysis of how various subjects within the program can be mapped to specific SDGs.

SDG 4: Quality Education

Subjects:

- **Computer Fundamentals:** Builds foundational digital literacy skills essential for modern education.
- **Emerging Technology Trends -1 (Elective):** Explores the creation and use of digital tools to enhance learning experiences.



- **Web Development:** Enables the creation of accessible and inclusive educational resources.

Impact: These courses help bridge the digital divide and promote lifelong learning opportunities through technology-enabled education.

SDG 7: Affordable and Clean Energy

Subjects:

- **Computer Organization and Architecture:** Focuses on designing software and hardware systems that optimize energy usage.
- **Environmental Science:** Encourages environmentally sustainable practices in technology development and usage.

Impact: By promoting energy-efficient technologies, these subjects support the transition to cleaner energy solutions and sustainable computing practices.

SDG 8: Decent Work and Economic Growth

Subjects:

- **Software Development and Testing:** Prepares students for professional roles in the tech industry.
- **Entrepreneurship Essentials:** Encourages innovation and job creation through technology-driven ventures.
- **Software Project Management:** Equips students with skills to manage large-scale IT projects effectively.

Impact: These courses contribute to creating employment opportunities and fostering economic growth through technological innovation.

SDG 9: Industry, Innovation, and Infrastructure

Subjects:

- **Database Management Systems:** Focuses on building robust data infrastructure.
- **Cloud Computing:** Introduces scalable solutions for modernizing industries.
- **Emerging Technology Trends - 2:** Explores cutting-edge technologies like AI, IoT, and blockchain.



Impact: These subjects enable students to innovate and develop the infrastructure necessary for sustainable industrialization.

SDG 11: Sustainable Cities and Communities

Subjects:

- **Introduction to Digital Electronics:** Explores the development of smart urban solutions like traffic management and waste monitoring.
- **Internet of Things:** Focuses on interconnected systems for better resource management in cities.
- **Cybersecurity in social media:** Ensures the safety of digital systems critical to urban sustainability.

Impact: These courses equip students to create technologies that enhance urban resilience and sustainability.

SDG 12: Responsible Consumption and Production

Subjects:

- **IT Workshop:** Emphasizes responsible use of technology resources.
- **Software Engineering:** Encourages the development of efficient and resource-conserving software.
- **Corporate Governance -Ethics &Fraud Control:** Educates students on the ethical implications of technology consumption and production.

Impact: These courses advocate for responsible technology use and sustainable production practices.

SDG 13: Climate Action

Subjects:

- **Fundamentals of cloud:** Applies computing to environmental monitoring and analysis.
- **Introduction to Data Analytics:** Enables data-driven decision-making to tackle climate challenges.



- **IoT Security Essentials:** Focuses on deploying sensor-based systems for tracking environmental changes.

Impact: These courses prepare students to leverage technology for climate action and environmental sustainability.

SDG 16: Peace, Justice, and Strong Institutions

Subjects:

- **Cryptography and cyber security:** Ensures secure and transparent digital environments.
- **Blockchain Technology:** Promotes accountability and transparency in systems.
- **Cyber Law and Ethics:** Focuses on creating ethical and effective digital policies.

Impact: These courses contribute to building secure, transparent, and ethical digital systems, fostering strong institutions.

SDG 17: Partnerships for the Goals

Subjects:

- **Software Engineering and project management:** Promotes teamwork in global tech projects.
- **Learn to program using python:** Encourages sharing knowledge and resources for collective progress.
- **Cloud Computing:** Enables global collaboration through technology.

Impact: These courses foster global partnerships and resource sharing to achieve sustainable development goals.

Conclusion

The BCA program is intricately aligned with the Sustainable Development Goals, offering students the tools and knowledge to address global challenges through technology. By incorporating sustainability-focused subjects and fostering innovation, the program not only prepares students for successful careers but also empowers them to contribute to a more sustainable and equitable future.

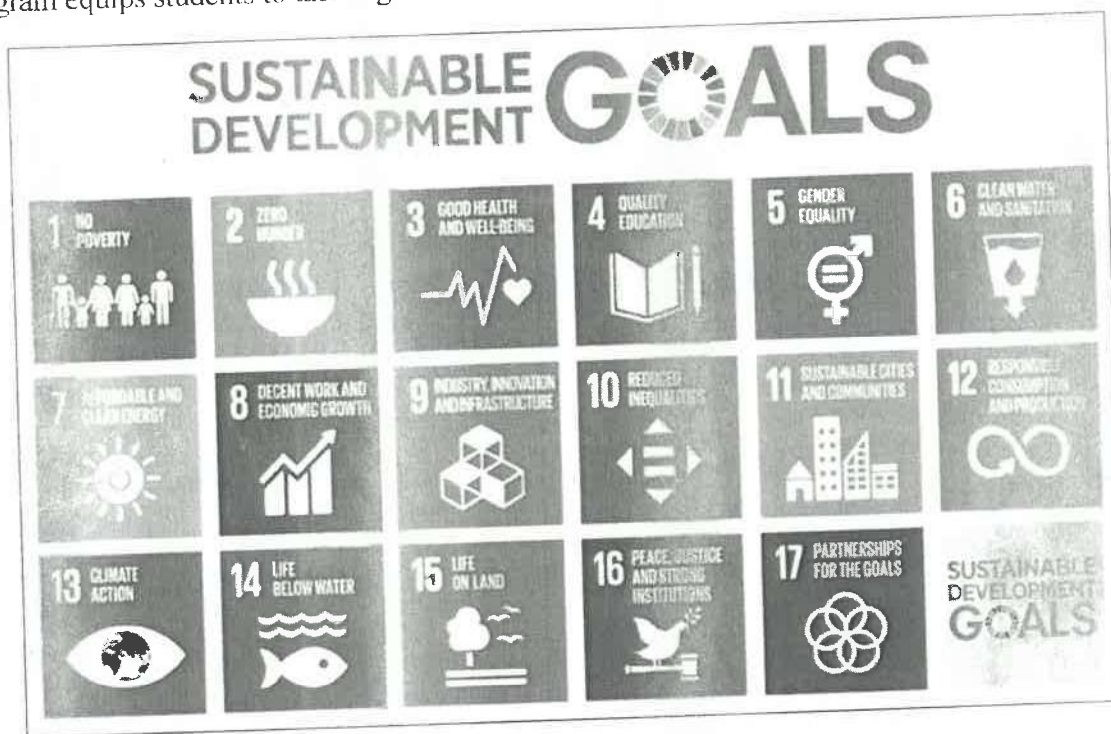
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SCHOOL OF ENGINEERING & TECHNOLOGY

Alignment of M.Tech in Computer Science & Engineering Program with Sustainable Development Goals (SDGs)

The M.Tech in Computer Science & Engineering (CSE) program fosters advanced knowledge and innovation in computing, aligning closely with the Sustainable Development Goals (SDGs). By integrating cutting-edge technologies and sustainability principles into the curriculum, this program equips students to tackle global challenges.



Below is a detailed mapping of subjects within the program to specific SDGs.

SDG 4: Quality Education

Subjects:

- **Data Analytics Projects:** Focuses on the development of digital platforms and tools to improve educational accessibility and quality.
- **Research Methodology:** Teaches students robust research practices, enabling them to contribute to the knowledge economy.



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- **Learning Analytics:** Leverages data-driven insights to enhance teaching and learning experiences.

Impact: These courses promote lifelong learning opportunities, bridging educational gaps through technology.

SDG 7: Affordable and Clean Energy

Subjects:

- **Blockchain:** Emphasizes energy-efficient software and hardware designs.
- **IoT for Energy Management:** Explores how IoT technologies can optimize energy usage.
- **Distributed Systems:** Focuses on designing energy-efficient computing networks.

Impact: These subjects encourage innovative solutions for sustainable and energy-efficient technologies.

SDG 8: Decent Work and Economic Growth

Subjects:

- **Python Programming:** Prepares students to develop scalable and efficient software systems.
- **Artificial Intelligence:** Encourages innovation and the creation of technology-driven businesses.
- **Probability and Statistics:** Provides skills for industries adopting advanced IT infrastructures.

Impact: These courses support economic growth by equipping students with skills to innovate and create employment opportunities.

SDG 9: Industry, Innovation, and Infrastructure

Subjects:

- **Deep Learning and Big data Analytics:** Drives innovation across sectors through intelligent automation and analytics.
- **Machine Learning:** Develops secure and transparent solutions for industrial and societal challenges.



- **Python Programming:** Supports the creation of robust digital infrastructures.

Impact: These subjects contribute to sustainable industrialization and technological innovation.

SDG 11: Sustainable Cities and Communities

Subjects:

- **Data Analytics Projects:** Focuses on technology-driven solutions for urban challenges such as traffic management and waste disposal.
- **IoT Applications:** Explores interconnected systems for urban sustainability.
- **Cybersecurity:** Ensures secure and resilient urban digital infrastructures.

Impact: These courses enable students to develop solutions that contribute to the sustainability and resilience of urban communities.

SDG 12: Responsible Consumption and Production

Subjects:

- **Natural Language Processing:** Promotes the responsible use and disposal of technological resources.
- **Optimization Techniques(Elective):** Teaches methods to maximize efficiency and reduce waste in computing systems.
- **Exploratory Data and Analytics:** Facilitates data-driven decision-making for sustainable resource management.

Impact: These courses encourage sustainable practices in the development and use of technology.

SDG 13: Climate Action

Subjects:

- **Trans disciplinary Learning:** Applies computing to monitor and mitigate environmental impacts.
- **Machine Learning:** Enables predictive analysis for climate-related challenges.
- **Internet of Things:** Focuses on sensor-based systems for tracking environmental parameters.



Impact: These subjects empower students to address climate challenges through innovative technological solutions.

SDG 16: Peace, Justice, and Strong Institutions

Subjects:

- **Research Methodology:** Focuses on the ethical implications of AI and its societal impact.
- **Cybersecurity and Forensics:** Ensures secure digital environments for institutions and governance.
- **Block chain:** Promotes transparency and accountability in public and private sectors.

Impact: These courses contribute to building secure, transparent, and ethical institutions.

SDG 17: Partnerships for the Goals

Subjects:

- **Collaborative Computing (Project):** Encourages teamwork in solving global challenges through technology.
- **Open-Source Development(Project):** Promotes global collaboration and knowledge sharing.
- **Cloud Computing (Project):** Provides scalable solutions for partnerships across borders.

Impact: These courses foster global cooperation to achieve sustainable development goals through technological integration.

Conclusion

The M.Tech in Computer Science & Engineering program integrates sustainability principles and advanced technologies to address global challenges. By aligning its curriculum with the SDGs, the program prepares graduates to make meaningful contributions to sustainable development and innovation in various sectors.

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SCHOOL OF ENGINEERING & TECHNOLOGY

Alignment of B.Tech Computer Science & Engineering Program with Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs) provide a blueprint for achieving a better and more sustainable future. The B.Tech Computer Science & Engineering (CSE) program has significant potential to contribute to these goals through its curriculum, research, and practical applications.

SUSTAINABLE DEVELOPMENT GOALS



Below is an outline of how various subjects within the program can be mapped to specific SDGs.

SDG 4: Quality Education

Subjects:

- **Introduction to Computing:** Equips students with foundational computing skills essential for modern education and professional development.
- **Data Structures and Algorithms:** Enhances problem-solving skills, critical thinking, and technical competency.
- **Web Development:** Focuses on developing digital tools and platforms to make education accessible and inclusive.



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Impact: By building technical skills and fostering innovation, these subjects directly contribute to improving education quality and accessibility.

SDG 7: Affordable and Clean Energy

Subjects:

- **Internet of Things (IoT):** Includes applications in energy monitoring and management.
- **Green Computing(Elective):** Focuses on energy-efficient computing practices and technologies.
- **Block chain and Smart Grid Technologies (Elective):** Explores the role of computing in optimizing energy distribution.

Impact: These subjects encourage students to develop and implement technologies that optimize energy consumption and promote sustainability.

SDG 8: Decent Work and Economic Growth

Subjects:

- **Software Engineering:** Emphasizes creating scalable, efficient, and secure software systems, enhancing productivity in various industries.
- **Entrepreneurship Development:** Prepares students to innovate and create employment opportunities.
- **Human-Computer Interaction:** Focuses on designing user-centric technologies that improve workplace efficiency.

Impact: These courses prepare students for careers that contribute to economic growth and technological innovation.

SDG 9: Industry, Innovation, and Infrastructure

Subjects:

- **Database Management Systems:** Supports the development of robust digital infrastructure.
- **Artificial Intelligence and Machine Learning:** Drives innovation across industries by enabling advanced decision-making tools.



- **Cloud Computing:** Provides scalable solutions for modernizing industrial processes and services.

Impact: These subjects help students build the technological infrastructure necessary for innovation and sustainable industrial growth.

SDG 11: Sustainable Cities and Communities

Subjects:

- **Computer Vision (Elective):** Covers the design and implementation of smart urban solutions using technology.
- **IoT for Smart Environments:** Focuses on developing interconnected systems for better urban management.
- **Cybersecurity:** Ensures the safety and reliability of digital services in urban settings.

Impact: These subjects contribute to creating sustainable and resilient urban communities by integrating technology into urban planning and management.

SDG 12: Responsible Consumption and Production

Subjects:

- **Dynamic Programming:** Promotes environmentally responsible computing practices.
- **Software Optimization:** Focuses on resource-efficient software development.
- **Technology Trends** Encourages the creation of sustainable digital products.

Impact: These subjects promote sustainability in technology use and development, aligning with responsible consumption and production.

SDG 13: Climate Action

Subjects:

- **Data Analytics:** Enables climate modeling and predictive analysis.
- **Environmental Informatics (Elective):** Applies computational techniques to environmental monitoring.
- **Embedded IoT:** Focuses on deploying sensors and systems for tracking environmental changes.



Impact: These courses empower students to use technology to monitor, analyze, and mitigate climate change.

SDG 16: Peace, Justice, and Strong Institutions

Subjects:

- **Ethical Hacking and Cybersecurity:** Ensures the security of critical digital infrastructure.
- **Blockchain Technology:** Enhances transparency and accountability in governance.
- **Ethics in Technology:** Educates students on the ethical implications of technology development and use.

Impact: These subjects contribute to building secure, transparent, and ethical systems for strong institutions and governance.

SDG 17: Partnerships for the Goals

Subjects:

- **Collaborative Software Development:** Encourages teamwork in global projects.
- **Open-Source Development (Elective):** Promotes the sharing of knowledge and resources across borders.
- **Cloud-Based Collaboration Tools:** Focuses on enabling partnerships through technology.

Impact: These subjects foster global collaboration and resource sharing to achieve sustainable development goals.

Conclusion

The B.Tech Computer Science and Engineering program aligns closely with the SDGs through its diverse curriculum. By integrating sustainability principles into core and elective courses, the program equips students with the skills and knowledge needed to address global challenges. This alignment not only enhances the relevance of the program but also prepares students to make meaningful contributions toward a sustainable future.

Laticia

