

BCA

Bachelor of Computer Application (Honours) **With Specialization in AI-ML**

Syllabus

2026-2030



SCHOOL OF
ENGINEERING & TECHNOLOGY
SUSHANT UNIVERSITY

Department of Computer Applications

School of Engineering & Technology, Sushant University

Gurugram Sector 55, 122003

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BCA HONOURS (AI-ML)

Syllabus (1st Year_1st & 2nd Semester)

| Year | Semester-1 | | | | | | |
|------------|-------------|------------------------------------|---|---|---|---|-----------|
| First Year | Course Code | Course Title | L | T | P | H | Credit |
| | SU131 | Communication in English | 1 | 0 | 2 | 3 | 2 |
| | SE143 | Introduction to Data Analytics | 2 | 0 | 2 | 4 | 3 |
| | SE151 | Universal Human Values | 2 | 0 | 0 | 2 | 2 |
| | CA101 | Fundamentals of Programming | 2 | 0 | 4 | 6 | 4 |
| | | Multidisciplinary Course -1 | | | | | 3 |
| | CA105 | IT Workshop | 0 | 0 | 2 | 2 | 1 |
| | CA121 | Computer Fundamentals | 2 | 0 | 2 | 4 | 3 |
| | | Total Credits | | | | | 18 |

| Year | Semester-2 | | | | | | |
|------------|-------------|------------------------------------|---|---|---|---|-----------|
| First Year | Course Code | Course Title | L | T | P | H | Credit |
| | SU132 | Environmental Studies | 2 | 0 | 0 | 2 | 2 |
| | CA142 | Web Development-1 | 1 | 0 | 4 | 5 | 3 |
| | CA154 | Entrepreneurship | 2 | 0 | 0 | 2 | 2 |
| | CA152 | Mathematics-I | 3 | 0 | 2 | 5 | 4 |
| | CA102 | Data Structures | 3 | 0 | 2 | 5 | 4 |
| | CA104 | Python for Problem Solving | 2 | 0 | 4 | 6 | 4 |
| | SE156 | Sports and Yoga or NSS/NCC | 0 | 0 | 2 | 2 | 1 |
| | CA144 | Design Thinking | 1 | 0 | 2 | 3 | 2 |
| | | Multidisciplinary Course -2 | | | | | 3 |
| | | Total Credits | | | | | 25 |

BCA HONOURS (AI-ML)

Syllabus (2nd Year_ 3rd & 4th Semester)

| | | Semester-3 | | | | | |
|-------------|-------------|------------------------------------|----------|----------|----------|----------|-----------|
| Second Year | Course Code | Course Title | L | T | P | H | Credit |
| | CA153 | Constitution of India | 1 | 0 | 0 | 1 | 1 |
| | CA241 | Mathematics-II | 3 | 0 | 2 | 5 | 4 |
| | CA243 | Statistics using Python | 2 | 0 | 2 | 4 | 3 |
| | CA210 | Web Development-2 | 1 | 0 | 4 | 5 | 3 |
| | CA205 | Introduction to Database Systems | 3 | 0 | 2 | 5 | 4 |
| | | Multidisciplinary Course -3 | | | | | 3 |
| | | Specialization Elective-I | 2 | 0 | 2 | 4 | 3 |
| | | Total Credits | | | | | 21 |

| | | Semester-4 | | | | | |
|-------------|-------------|--------------------------------------|----------|----------|----------|----------|-----------|
| Second Year | Course Code | Course Title | L | T | P | H | Credit |
| | CA234 | Professional Etiquettes | 2 | 0 | 0 | 2 | 2 |
| | CA204 | Fundamentals of Computer Networks | 3 | 0 | 2 | 5 | 4 |
| | CA206 | Operating Systems | 3 | 0 | 2 | 5 | 4 |
| | CA208 | Object Oriented Programming | 2 | 0 | 4 | 6 | 4 |
| | CA203 | Computer Architecture | 3 | 0 | 0 | 3 | 3 |
| | | Specialization Elective-II | 2 | 0 | 2 | 4 | 3 |
| | | Total Credits | | | | | 20 |
| | | Summer Internship * - 8 weeks | | | | | |

BCA HONOURS (AI-ML)

Syllabus (3rd Year_5th & 6th Semester)

| Third year | Semester-5 | | | | | | |
|------------|----------------------|-----------------------------|---|---|----|----|-----------|
| | Course Code | Course Title | L | T | P | H | Credit |
| | CA215 | Software Engineering | 2 | 0 | 2 | 4 | 3 |
| | CA495 | Minor Project | 0 | 0 | 14 | 14 | 7 |
| | CA405 | Artificial Intelligence | 3 | 0 | 2 | 5 | 4 |
| | | Specialization Elective-III | 2 | 0 | 2 | 4 | 3 |
| | CA375 | Internship | 0 | 0 | 4 | 4 | 2 |
| | Total Credits | | | | | | 19 |

| Third year | Semester-6 | | | | | | |
|------------|----------------------|----------------------------|---|---|----|----|-----------|
| | Course Code | Course Title | L | T | P | H | Credit |
| | CA302 | Blockchain Technology | 3 | 0 | 2 | 5 | 4 |
| | CA398 | Major Project | 0 | 0 | 24 | 24 | 12 |
| | | Specialization Elective-IV | 2 | 0 | 2 | 4 | 3 |
| | | Specialization Elective-V | 2 | 0 | 2 | 4 | 3 |
| | Total Credits | | | | | | 22 |

BCA HONOURS (AI-ML)

Syllabus (4th Year/7th & 8th Semester)

| Semester - 7 | | | | | | |
|--------------------|----------------------|-------------------------------------|--|--|--|---|
| Fourth Year | CA401 | Data Mining and data Ware housing | | | | 4 |
| | CA402 | Knowledge Representation and Graphs | | | | 4 |
| | | Specialization Elective-VI | | | | 3 |
| | | Specialization Elective-VII | | | | 3 |
| | | Specialization Elective-VIII | | | | 3 |
| | Total Credits | | | | | |

| Semester - 8 | | | | | | |
|----------------------|---|--|--|--|--|-----------|
| CA403 | Theory of Computation and Compiler Design | | | | | 4 |
| TBA | TBA | | | | | 4 |
| CA405 | Image Processing | | | | | 4 |
| | Specialization Elective-IX | | | | | 3 |
| | Specialization Elective-X | | | | | 3 |
| Total credits | | | | | | 18 |

Total no. of credit – 160

L = Lecture

T = Tutorial

P = Practical

H = Hours

C = Credits

BCA HONOURS (AI-ML)

Electives List

| ELECTIVES LIST BCA | | | | | | | | | |
|--------------------|------|----------|------------------------------|----------------|------------------------------|---|---|---|---------|
| S.NO | Year | Semester | Elective | Specialisation | Subject Name | L | T | P | Credits |
| 1 | II | III | Specialization Elective-I | AI | Statistics and Visualisation | 2 | 0 | 2 | 3 |
| 2 | II | IV | Specialization Elective-II | AI | Fundamentals of Cloud | 2 | 0 | 2 | 3 |
| 3 | III | V | Specialization Elective-III | AI | Machine Learning-1 | 2 | 0 | 2 | 3 |
| 4 | III | VI | Specialization Elective-IV | AI | Machine Learning-2 | 2 | 0 | 2 | 3 |
| 5 | III | VI | Specialization Elective-V | AI | Deep learning | 2 | 0 | 2 | 3 |
| 6 | IV | VII | Specialization Elective-VI | AI | Generative AI | 2 | 0 | 2 | 3 |
| 7 | IV | VII | Specialization Elective-VII | AI | Internet of Things | 2 | 0 | 2 | 3 |
| 8 | IV | VII | Specialization Elective-VIII | AI | NoSQL databases | 2 | 0 | 2 | 3 |
| 9 | IV | VIII | Specialization Elective-IX | AI | App development | 2 | 0 | 2 | 3 |
| 10 | IV | VIII | Specialization Elective-X | AI | Image Processing | 2 | 0 | 2 | 3 |