

B.Tech. CSE Course Structure (2025-2029) -AIML (SAMATRIX)

| Sr.No | Semester | Course Code | Course Title | L | T | P | Contact Hrs. | Credits | Type |
|-------|----------|----------------|---|---|---|---|--------------|---------|------------|
| 1 | 1 | DEN001C | Communication Skills | 1 | 0 | 0 | 1 | 1 | AEC |
| 2 | 1 | DEN001D | Communication Skills Lab | 0 | 0 | 2 | 2 | 1 | AEC |
| 3 | 1 | DMA024A | Mathematics-I | 3 | 1 | 0 | 4 | 4 | Foundation |
| 4 | 1 | DPH001B | Applied Physics | 3 | 0 | 0 | 3 | 3 | Foundation |
| 5 | 1 | DCO013A | Computer Programming and Logical Thinking | 3 | 0 | 0 | 3 | 3 | Foundation |
| 6 | 1 | DPH002B | Applied Physics Lab | 0 | 0 | 2 | 2 | 1 | Foundation |
| 7 | 1 | DCO014A | Computer Programming and Logical Thinking Lab | 0 | 0 | 2 | 2 | 1 | Foundation |
| 8 | 1 | JIC001A | Entrepreneurship Development | 0 | 0 | 2 | 2 | 1 | SEC |
| 9 | 1 | BCO570A | Digital Data and AI Literacy | 0 | 0 | 4 | 4 | 2 | SEC |
| 10 | 1 | BCO572A | Decoding Data: Learn AI, ML, DS & Analytics | 2 | 0 | 0 | 2 | 2 | SEC |
| 11 | 1 | BCO573A | Decoding Data: Learn AI, ML, DS & Analytics lab | 0 | 0 | 2 | 2 | 1 | SEC |
| 12 | 1 | DCH010A | Environment Education | 2 | 0 | 0 | 2 | 0 | VAC |
| 1 | 2 | DEN002C | Professional Skills | 1 | 0 | 0 | 1 | 1 | AEC |
| 2 | 2 | DEN002D | Professional Skills Lab | 0 | 0 | 2 | 2 | 1 | AEC |
| 3 | 2 | <i>DMA025A</i> | Mathematics-II | 3 | 1 | 0 | 4 | 4 | Foundation |
| 4 | 2 | DCO001B | Computer Programming in C++ | 2 | 0 | 0 | 2 | 2 | Foundation |
| 5 | 2 | DCO018A | Advance Excel | 0 | 0 | 4 | 4 | 2 | SEC |
| 6 | 2 | DCO02B | Computer Programming in C++ Lab | 0 | 0 | 4 | 4 | 2 | Foundation |
| 7 | 2 | BCO169C | Data Analysis using Python | 2 | 0 | 0 | 2 | 2 | F |
| 8 | 2 | BCO574A | Data Analysis using Python lab | 0 | 0 | 2 | 2 | 1 | Core |
| 9 | 2 | | Inculcation of Human Values and Professional Ethics | 2 | 0 | 0 | 2 | 2 | VAC |
| 10 | 2 | <i>DCO006A</i> | Engineering workshop | 0 | 0 | 2 | 2 | 1 | Foundation |
| 11 | 2 | <i>DLW001A</i> | Indian Constitution | 2 | 0 | 0 | 2 | 0 | VAC |

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|-------|----------|-------------|--|---|---|---|--------------|---------|---------------------|
| 1 | 3 | BCO 011B | Computer Networks | 3 | 0 | 0 | 3 | 3 | Core |
| 2 | 3 | BCO002B | Data Structures and Algorithms | 3 | 1 | 0 | 4 | 4 | Core |
| 3 | 3 | BAS 007B | Discrete Mathematics | 3 | 0 | 0 | 3 | 3 | Foundation |
| 4 | 3 | BCO001B | Software Engineering | 3 | 0 | 0 | 3 | 3 | Core |
| 5 | 3 | BCO591A | Statistical Modelling and Data Reasoning with Python | 2 | 0 | 0 | 2 | 2 | Core |
| 6 | 3 | BCO248C | Data Visualization | 2 | 0 | 0 | 2 | 2 | Core |
| 7 | 3 | BCO603A | Data Visualization Lab | 0 | 0 | 2 | 2 | 1 | Core |
| 8 | 3 | BCO593A | Statistical Modelling and Data Reasoning with Python Lab | 0 | 0 | 2 | 2 | 1 | Core |
| 9 | 3 | BCO008B | Operating Systems | 3 | 0 | 0 | 3 | 3 | Core |
| 10 | 3 | BCO005B | Data Structure and Algorithms Lab | 0 | 0 | 2 | 2 | 1 | Core |
| 11 | 3 | BCO 014B | Operating Systems Lab | 0 | 0 | 2 | 2 | 1 | Core |
| 12 | 3 | BCO594A | Computer Networks Lab | 0 | 0 | 2 | 2 | 1 | Core |
| 13 | 3 | DBA112A | Leadership and Management Skills | 2 | 0 | 0 | 2 | 2 | AEC |
| 14 | 3 | BCO610A | Prompt Engineering for C and C++ | 0 | 0 | 4 | 4 | 2 | SEC |
| 15 | 3 | | Any of IKS Basic Courses | 2 | 0 | 0 | 2 | 2 | VAC |
| 1 | 4 | | Open Elective-I | 3 | 0 | 0 | 3 | 3 | Multidisciplinary |
| 2 | 4 | BCO 0239C | Machine Learning and Pattern Recognition | 2 | 0 | 0 | 2 | 2 | Core |
| 3 | 4 | BCO009B | Computer Organization and Design | 3 | 0 | 0 | 3 | 3 | Core |
| 4 | 4 | BCO010C | Database Management Systems | 3 | 1 | 0 | 4 | 4 | Core |
| 5 | 4 | BCO611A/BCO | Google Cloud Computing Fundamental/Salesforce AI | 0 | 0 | 2 | 2 | 1 | Department Elective |
| 6 | 4 | BCO 013B | Database Management Systems Lab | 0 | 0 | 2 | 2 | 1 | Core |
| 7 | 4 | BCO577A | Machine Learning and Pattern Recognition Lab | 0 | 0 | 2 | 2 | 1 | Core |
| 8 | 4 | BCO575A | AI Product Development and Deployment | 2 | 0 | 0 | 2 | 2 | Core |
| 9 | 4 | BCO576A | AI Product Development and Deployment Lab | 0 | 0 | 2 | 2 | 1 | Core |
| 10 | 4 | | Universal Human Value | 2 | 0 | 0 | 2 | 2 | AEC |
| 11 | 4 | BCO612A | Competitive Coding using AI (DSA) | 0 | 0 | 4 | 4 | 2 | SEC |
| 12 | 4 | | Any of IKS Elective Course | 2 | 0 | 0 | 2 | 2 | VAC |

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| 1 | 5 | BCO017B | Formal Languages & Automation Theory | 3 | 1 | 0 | 4 | 4 | Core |
| 2 | 5 | BCO023B | Design & Analysis of Algorithms | 3 | 1 | 0 | 4 | 4 | Core |
| 3 | 5 | BCO **** | Department Elective 1 | 3 | 0 | 0 | 3 | 3 | Department Elective |
| 4 | 5 | BCO **** | Department Elective 2 | 3 | 0 | 0 | 3 | 3 | Department Elective |
| 5 | 5 | BCO 074B | Minor Project | 0 | 0 | 8 | 8 | 4 | Core |
| 6 | 5 | | Open Elective II | 3 | 0 | 0 | 3 | 3 | Multidisciplinary |
| 7 | 5 | BCO 025B | Design & Analysis of Algorithms Lab | 0 | 0 | 2 | 2 | 1 | Core |
| 8 | 5 | BCO579A | Modern Machine Learning - From Ensemble to Insight lab | 0 | 0 | 2 | 2 | 1 | Department Elective |
| 9 | 5 | BCO581A | Deep Learning and Neural Networks with TensorFlow Lab | 0 | 0 | 2 | 2 | 1 | Department Elective |
| 10 | 5 | BCO571A | Prompt Engineering With Java and Python | 0 | 0 | 4 | 4 | 2 | SEC |
| 1 | 6 | BCO 028A | Compiler Construction | 3 | 1 | 0 | 4 | 4 | Core |
| 2 | 6 | BCO **** | Department Elective 3 | 3 | 0 | 0 | 3 | 3 | Department Elective |
| 3 | 6 | BCO **** | Department Elective 4 | 3 | 0 | 0 | 3 | 3 | Department Elective |
| 4 | 6 | BCO007C | Computer Graphics | 3 | 0 | 0 | 3 | 3 | Core |
| 5 | 6 | BCO 031B | Compiler Design Lab | 0 | 0 | 2 | 2 | 1 | Core |
| 6 | 6 | BCO583A | Natural Language Processing & Generative AI Lab | 0 | 0 | 2 | 2 | 1 | Core |
| 7 | 6 | BCO585A | Computer Vision: Detection, Segmentation, and Optimization lab | 0 | 0 | 2 | 2 | 1 | Core |
| 8 | 6 | BCO 015B | Computer Graphics Lab | 0 | 0 | 2 | 2 | 1 | Core |
| 9 | 6 | | Open Elective III | 3 | 0 | 0 | 3 | 3 | Multidisciplinary |
| 10 | 6 | BCO642A | Machine Learning | 1 | 0 | 0 | 1 | 1 | Core |
| 11 | 6 | BCO643A | Machine Learning and Capston Project Using Prompt | 0 | 0 | 6 | 6 | 3 | Core |

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| 1 | 7 | BCO **** | Department Elective 5 | 3 | 0 | 0 | 3 | 3 | Department Elective |
| 2 | 7 | BCO **** | Department Elective 6 | 3 | 0 | 0 | 3 | 3 | Department Elective |
| 3 | 7 | BCO **** | Department Elective 7 | 3 | 0 | 0 | 3 | 3 | Department Elective |
| 4 | 7 | BCO588A | AI-Powered Vision: Generative Models, 3D & Beyond Lab | 0 | 0 | 2 | 2 | 1 | Department Elective |
| 5 | 7 | BCO590A | Advanced Generative AI, Prompt Engineering, and Agentic AI Systems Lab | 0 | 0 | 2 | 2 | 1 | Department Elective |
| 6 | 7 | BCO 207A | Technical Writing | 0 | 0 | 2 | 2 | 1 | Core |
| 1 | 8 | BCO 034C | Industry Internship | 0 | 0 | 32 | 32 | 16 | Core |
| | | | | | | Total Credit: | | 171 | |