

Curriculum for B.Tech

Computer Science and Engineering with Major in Artificial Intelligence

From The Academic Year 2025

(Approved in Senate 60)



Indian Institute of Information Technology Design and Manufacturing, Kancheepuram

Chennai-600 127

| Semester 1 | | | | | |
|------------|--|---|---|---|-------------|
| Category | Course Name | L | T | P | C |
| BSC | Calculus | 3 | 1 | 0 | 4 |
| BSC | Physics for Engineers | 3 | 0 | 2 | 4 |
| BEC | Basic Electrical Engineering | 3 | 1 | 0 | 4 |
| ITC | Problem Solving and Programming | 3 | 0 | 2 | 4 |
| DSC | Concepts in Engineering Design | 2 | 0 | 2 | 3 |
| BEC | Engineering Skills Practice | 0 | 0 | 2 | 1 |
| HMC | Effective Language and Communication Skills | 1 | 0 | 2 | 2 |
| HMC | NSO/NCC/SSG/NSS/YOGA | 0 | 0 | 2 | P/F |
| | | | | | 22.0 |
| Semester 2 | | | | | |
| Category | Course Name | L | T | P | C |
| BSC | Differential Equations | 3 | 1 | 0 | 4 |
| SEC | Dept. Specific Science Elective I | 3 | 0 | 0 | 3 |
| BEC | Engineering Graphics and Modeling | 2 | 0 | 2 | 3 |
| ITC | Data Structures and Algorithms | 3 | 0 | 2 | 4 |
| DSC | Design Realization | 2 | 0 | 2 | 3 |
| PCC | Discrete Structures for Computer Science | 3 | 1 | 0 | 4 |
| HMC | Earth, Environment and Design | 1 | 0 | 0 | P/F |
| | | | | | 21.0 |
| Semester 3 | | | | | |
| Category | Course Name | L | T | P | C |
| SEC | Dept. Specific Science Elective II [Linear Algebra] | 3 | 0 | 0 | 3 |
| ITC | Introduction to AI with Python | 2 | 0 | 2 | 3 |
| PCC | Object Oriented Programming | 2 | 0 | 4 | 4 |
| PDC | Digital Systems Design | 3 | 0 | 2 | 4 |
| PCC | Design & Analysis of Algorithms | 3 | 0 | 2 | 4 |
| PDC | Database Systems Design | 3 | 0 | 2 | 4 |
| PCC | Computing Paradigms | 2 | 0 | 0 | 2 |
| HMC | Indian Constitution and Essence of Indian Traditional Knowledge | 1 | 0 | 0 | P/F |
| | | | | | 24.0 |
| Semester 4 | | | | | |
| Category | Course Name | L | T | P | C |
| SEC | Dept. Specific Science Elective III [Probability and Statistics] | 3 | 0 | 0 | 3 |
| ITC | Applied Data Science | 2 | 0 | 2 | 3 |
| PDC | Computer Organization | 3 | 0 | 2 | 4 |
| PCC | Machine Learning Algorithms | 3 | 0 | 2 | 4 |
| PCC | Operating Systems | 3 | 0 | 2 | 4 |
| PCC | Data - Driven Optimization | 2 | 0 | 0 | 2 |
| PCC | Theory of Computation | 3 | 1 | 0 | 4 |
| HMC | Human Values and Stress Management | 1 | 0 | 0 | P / F |
| | | | | | 24.0 |

| Semester 5 | | | | | |
|------------|---|---|---|----|-------------|
| Category | Course Name | L | T | P | C |
| HMC | Entrepreneurship and Management Functions | 1 | 0 | 2 | 2 |
| PCC | Computer Networks | 3 | 0 | 2 | 4 |
| PCC | Prompt Engineering | 1 | 0 | 2 | 2 |
| PDC | Human Computer Interaction | 2 | 0 | 2 | 3 |
| PCC | Reinforcement Learning | 3 | 0 | 2 | 4 |
| PCC | Natural Language Processing | 2 | 0 | 2 | 3 |
| PEC | Program Elective 1 | 3 | 1 | 0 | 4 |
| HMC | Professional Ethics and Organizational Behaviour | 1 | 0 | 0 | P/F |
| | | | | | 22.0 |
| Semester 6 | | | | | |
| Category | Course Name | L | T | P | C |
| PCD | Product Design and Prototyping | 0 | 0 | 2 | 1 |
| PDC | Full Stack Development | 2 | 0 | 2 | 3 |
| PCC | Introduction to Generative AI | 2 | 0 | 2 | 3 |
| PCC | Cyber Security | 3 | 0 | 2 | 4 |
| PEC | Program Elective 2 | 3 | 1 | 0 | 4 |
| ELC | Open Elective 1 | 3 | 0 | 0 | 3 |
| HMC | Professional Communication | 1 | 0 | 2 | 2 |
| HMC | Intellectual Property Rights | 1 | 0 | 0 | P/F |
| | | | | | 20.0 |
| | Summer | | | | |
| PCD | Summer Internship MID MAY to MID JULY | | | | P/F |
| Semester 7 | | | | | |
| Category | Course Name | L | T | P | C |
| PEC | Program Elective 3 | 3 | 0 | 0 | 3 |
| ELC | Open Elective 2 | 3 | 0 | 0 | 3 |
| ELC | Open Elective 3 | 3 | 0 | 0 | 3 |
| ELC | Open Elective 4 | 3 | 0 | 0 | 3 |
| ELC | Open Elective 5 | 3 | 0 | 0 | 3 |
| PCD | Comprehensive Exam | | | | P/F |
| HMC | Invited Expert Lectures* | 0 | 0 | 0 | P/F |
| | * 6 Expert lectures to be attended from Sem 1 to Sem 7 | | | | 15.0 |
| Semester 8 | | | | | |
| Category | Course Name | L | T | P | C |
| PCD | B.Tech. Project (BTP) | 0 | 0 | 18 | 9 |
| | | | | | 9.0 |

9 Credits for the BTP can be earned by any of the following:

1. Fully In-house BTP at the institute.
2. BTP IITs/IISc/IISERs/TIFR/ISI/DRDO/ISRO, etc if 148 credits are completed by the end of 7th semester.
3. Three Program Elective courses, each with a minimum of three credit, in lieu of BTP.
4. Industry Internship/Training in lieu of BTP at the company selected through the Institute Placement Cell and if 148 credits are completed by the end of 7th semester.

| Semester wise Credit Distribution | Credits | | | | | | | | | |
|---|----------------|-----------|-----------|-----------|------------|------------|------------|------------|--------------|----------|
| Category | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | Total | % |
| Basic Science Course (BSC) | 8 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 7.6 |
| Science Elective Course (SEC) | 0 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 9 | 5.7 |
| Basic Engineering Course (BEC) | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 5.1 |
| Design Course (DSC) | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 3.8 |
| IT Skill Course (ITC) | 4 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 14 | 8.9 |
| Program Core Course (PCC) | 0 | 4 | 10 | 14 | 13 | 7 | 0 | 0 | 48 | 30.6 |
| Program Design Course(PDC) | 0 | 0 | 8 | 4 | 3 | 3 | 0 | 0 | 18 | 11.5 |
| Program Elective Course (PEC) | 0 | 0 | 0 | 0 | 4 | 4 | 3 | 0 | 11 | 7.0 |
| Elective Course (ELC) | 0 | 0 | 0 | 0 | 0 | 3 | 12 | 0 | 15 | 9.6 |
| Humanities and Management Course (HMC) | 2 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 6 | 3.8 |
| Professional Career Development (PCD) | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 9 | 10 | 6.4 |
| Total | 22 | 21 | 24 | 24 | 22 | 20 | 15 | 9 | 157 | 100 |
| | 22 | 43 | 67 | 91 | 113 | 133 | 148 | 157 | 157 | |