

Course List

The uniqueness of the IITB curriculum is that it makes for a broad-based program going beyond traditional computer science, and enables students to function well in industry, while keeping the rigorous learning expected of a classical program.

M Tech Program

PREP-SEMESTER COURSES		
Course Number	Course Name	Credits
PS 101	Introductory Programming	1
PS 102	Mathematics	1

CORE COURSES		
Course Number	Course Name	Credits
CS 101	Algorithms	4
DB 101	Data Management	4
SE 101	Object-Oriented Design	4
NC 101	Networking and Communication	4
CS 110	Operating Systems	4
SE 110	Industry-Oriented Software Engineering	4
MG 581	Accounting and Finance	3
MG 582	Marketing and Strategy	3

MG 583	Technical Communication	3
--------	-------------------------	---

COMPUTER SCIENCE		
Course Number	Course Name	Credits
CS 201	Advanced Algorithms	4
CS 205	Mathematical Models of Computation	4
	(also cross-listed as DB 205)	
CS 206	Graph Theory and Applications	4
	(also cross-listed as DB 206)	
CS 210	Advanced Operating Systems	4
CS 211	Real-time Systems	4
	(also cross-listed as ES 211)	
CS 220	Distributed Computing	4
	(also cross-listed as DB 220)	
CS 225	Computer Graphics	4
CS 230	Cryptography & Network Security	4
	(also cross-listed as NC 285)	
CS 240	Discrete Event Systems Modeling and Simulation	4
	(also cross-listed as NC 220)	
CS 250	Computer Architecture	4

	(also cross-listed as ES 250)	
CS 260	Quantum Computing	4
CS 270	Design and Analysis of Safety-Critical Systems	4
	(also cross-listed as SE 270)	
CS 280	Artificial Intelligence	4
CS 305	Logic in Computer Science	4
CS 290/390	Project	04-Aug
CS 295/395	Supervised Reading	04-Aug
CS 297/397	Special Topics/Seminar	04-Aug
CS 299	M.Tech. Internship / Thesis	16

DATABASE AND INFORMATION SYSTEMS		
Course Number	Course Name	Credits
DB 205	Mathematical Models of Computation	4
	(also cross-listed as CS 205)	
DB 206	Graph Theory and Applications	4
	(also cross-listed as CS 206)	
DB 210	Data Modeling	4
DB 220	Distributed Computing	4
	(also cross-listed as CS 220)	

DB 230	Advanced Database Management Systems	4
DB 240	Information Networks	4
DB 250	Web Information Retrieval	4
DB 270	Multi-Agent Systems	4
DB 280	Geographic Information Systems	4
	(cross-listed as ITS 280)	
DB 290/390	Project	04-Aug
DB 295/395	Supervised Reading	04-Aug
DB 297D	Conceptual Modeling & Knowledge Representation	4
DB 297/397	Special Topics / Seminar	04-Aug
DB 299	M.Tech. Internship / Thesis	16

SOFTWARE ENGINEERING		
Course Number	Course Name	Credits
SE 210	OOAD, UML, and Intro to Web 2.0	4
SE 220	Design Patterns and Software Architecture	4
SE 230	Software Testing	4
SE 240	Fundamentals of Performance and Reliable IT Infrastructures	4
SE 270	Design and Analysis of Safety-Critical Systems	4
	(also cross-listed as CS 270)	

SE 340	Performance, Reliability Analysis and Optimization of Contemporary Infrastructures	4
SE 290/390	Project	04-Aug
SE 295/395	Supervised Reading	04-Aug
SE 297/397	Special Topics / Seminar	04-Aug
SE 299	M.Tech. Internship / Thesis	16

NETWORKING AND COMMUNICATION SYSTEMS		
Course Number	Course Name	Credits
NC 205	Wireless Access Networks	4
	(also cross-listed as ITS 205)	
NC 210	Mobile Computing with IMS Architecture	4
NC 211	Fundamentals of Performance and Reliable IT Infrastructures	4
NC 220	Discrete Event Systems Modeling and Simulation	4
	(also cross-listed as CS 240)	
NC 230	Real-Time Embedded Communications Systems	4
	(also cross-listed as ES 230)	
NC 231	Wireless Communication	4
NC 232	Advanced Digital Communication	4
NC 240	Mechatronics	4

NC 250	Informatics in Industrial Process Automation	4
NC 251	Communication in Industrial Process Automation	4
NC 260	Digital Signal Processing	4
	(also cross-listed as ES 260)	
NC 270	Design Techniques for CMOS Integrated Circuits	4
	(also cross-listed as ES 270)	
NC 280	Information Theory and Coding	4
NC 285	Cryptography & Network Security	
	(also cross-listed as CS 230)	
NC 290/390	Project	04-Aug
NC 295/395	Supervised Reading	04-Aug
NC 297/397	Special Topics / Seminar	04-Aug
NC 299	M.Tech. Internship / Thesis	16

EMBEDDED SYSTEM DESIGN		
Course Number	Course Name	Credits
ES 211	Real-time Systems	4
ES 230	Real-Time Embedded Communications Systems	4
	(also cross-listed as NC 230)	
ES 240	Mechatronics	4

ES 250	Computer Architecture	4
ES 260	Digital Signal Processing	4
	(also cross-listed as NC 260)	
ES 270	Design Techniques for CMOS Integrated Circuits	4
	(also cross-listed as NC 270)	
ES 272	Modeling & Optimization of Circuits & Systems	4
ES 290/390	Project	04-Aug
ES 295/395	Supervised Reading	04-Aug
ES 297/397	Special Topics / Seminar	04-Aug
ES 299	M.Tech. Internship / Thesis	16

INFORMATION TECHNOLOGY AND SOCIETY		
Course Number	Course Name	Credits
ITS 205	Wireless Access Networks	4
	(also cross-listed as NC 205)	
ITS 210	Dynamics of the Information Technology Industry	4
ITS 220	Economic and Social Impacts of Information Technology	4
ITS 240	Intellectual Property Rights	4
ITS 280	Geographical Information Systems	4
ITS 290/390	Project	04-Aug

ITS 295/395	Supervised Reading	04-Aug
ITS 297/397	Special Topics / Seminar	04-Aug
ITS 299	M.Tech. Internship / Thesis	16

Special Topics Courses in various streams		
Course Number	Course Name	Credits
CS 297A	Special Topics - Computer Architecture	4
CS/DB 297B	Special Topics - Algorithmic Graph Theory	4
CS 297C	Special Topics - Computer Graphics	4
CS 297F	Special Topics - Multimedia Security	4
CS 297G	Special Topics - Algorithms in Bioinformatics	4
CS 297H	Special Topics - Complexity Theory	4
CS 297J	Special Topics - Approximation and Randomized Algorithms	4
CS 297K	Special Topics - Advanced Algorithms	4
CS/DB 297A	Special Topics - Graph Theory	4
CS/DB 297L	Special Topics - Mathematics	4
CS/DB 297M	Special Topics - Supply Chain Management	4
CS/ES 297A	Special Topics - Computer Architecture	4
CS/NC 297D	Special Topics - Image Processing	4

CS/NC 297F	Special Topics - Multimedia Security	4
CS/SE 297B	Special Topics Programming Languages & Models	4
CS/SE 297E	Special Topics - Automated Formal Verification	4
DB 297B/SE 297D	Special Topics - Enterprise Information Management	4
DB 297C	Special Topics - Data Analytics	4
ES 297C	Special Topics - Timing Analysis and optimization of Digital Circuits	4
ES 297E	Special Topics - Deep-submicron design issues	4
ES 297F	Special Topics - Digital Design using Verilog and FPGAs	4
ES 297G	Special Topics - Principles of Embedded Computing System Design	4
ES 297K	Special Topics - Video compression using embedded devices	4
ES 297L	Special Topics -Analog Circuit Design	4
ES/NC 297C	Special Topics - Wireless Sensor Networks	4
ES/NC 297D	Special Topics - Image Processing	4
ES/NC 297H	Special Topics - Inter-device communication	4
ES/NC 297I	Special Topics - Principles of Intelligent Systems	4
ES/NC 297C	Special Topics - Wireless Sensor Networks	4
GEN 297A	Special Topics - Green IT	4
ITS 297A	Special Topics - Invention and Innovation	4

