



MANIPAL INSTITUTE OF TECHNOLOGY
BENGALURU
(A constituent unit of MAHE, Manipal)

Department of Information Technology

Syllabus

2022 Batch

Manipal Institute of Technology Bengaluru,
Manipal Academy of Higher Education (MAHE),
(Institution of Eminence, Deemed to be University)
Govindapura, Yelahanka, Bengaluru-560064.

B TECH INFORMATION TECHNOLOGY

year	THIRD SEMESTER					FOURTH SEMESTER							
	Sub. Code	Subject Name	L	T	P	C	Sub. Code	Subject Name	L	T	P	C	
II	MAT_2126	Engineering Mathematics – III	2	1	0	3	MAT_2226	Engineering mathematics – IV	2	1	0	3	
	IT_2121	Data Structures	3	1	0	4	IT_2221	Database Systems	3	1	0	4	
	IT_2122	Object Oriented Programming	3	1	0	4	IT_2222	Design and Analysis of Algorithms	3	1	0	4	
	IT_2123	Digital Systems and Computer Organization	4	0	0	4	IT_2223	Embedded Systems	4	0	0	4	
	IT_2124	Principles of Data Communication	3	0	0	3	IT_2224	Computer Networks	4	0	0	4	
	IT_2141	Data Structures Lab	0	0	3	1	IT_2241	Database Systems Lab	0	0	3	1	
	IT_2142	Object Oriented Programming Lab	0	0	3	1	IT_2242	Embedded Systems Lab	0	0	3	1	
	IT_2143	Digital Systems Lab	0	0	3	1	IT_2243	Network Programming and Simulation Lab	0	0	3	1	
				15	3	9	21			16	5	9	22
	Total Contact Hours (L + T + P)		27				Total Contact Hours (L + T + P)		30				
	FIFTH SEMESTER					SIXTH SEMESTER							
	Sub. Code	Subject Name	L	T	P	C	Sub. Code	Subject Name	L	T	P	C	
III	HUM_3022	Essentials of Management	3	0	0	3	HUM_3021	Engineering Economics and Financial Management	3	0	0	3	
	IT_3121	Information Security	3	0	0	3	IT_****	Flexible Core – 2 (A2/B2/C2)	3	0	0	3	
	IT_3122	Principles of Operating Systems	4	0	0	4	IT_3221	Data Mining	4	0	0	4	
	IT_3123	Software Engineering	3	0	0	3	IT_****	Program Elective–I / Minor Specialization	3	0	0	3	
	IT_****	Flexible Core – 1 (A1/B1/C1)	3	0	0	3	IT_****	Program Elective -II/ Minor Specialization	3	0	0	3	
	IPE 4302	Open Elective-1 Creativity, Problem Solving and Innovation	3	0	0	3	*** ****	Open Elective-2	3	0	0	3	
	IT_3141	Information Security Lab	0	0	3	1	IT_3241	Advanced Technology Lab	0	0	3	1	
	IT_3142	Principles of Operating Systems Lab	0	0	3	1	IT_3242	Data Mining Lab	0	0	3	1	
				19	0	6	21			19	0	6	21
	Total Contact Hours (L + T + P)		27				Total Contact Hours (L + T + P)		30				
	SEVENTH SEMESTER					EIGHTH SEMESTER							
	Sub. Code	Subject Name	L	T	P	C	Sub. Code	Subject Name	L	T	P	C	
IV	IT ****	Program Elective –III / Minor Specialization	3	0	0	3	IT_ 4291	Industrial Training				1	
	IT ****	Program Elective –IV/ Minor Specialization	3	0	0	3	IT_ 4292	Project Work /Practice School				12	
	IT ****	Program Elective –V	3	0	0	3	IT_4293	Project Work (B. Tech Honours) **				20	
	IT ****	Program Elective - VI	3	0	0	3	IT ****	B Tech Honours (Theory 1)** (V Semester)				4	
	IT ****	Program Elective -VII	3	0	0	3	IT ****	B Tech Honours (Theory 2)** (VI Semester)				4	
	*** ****	Open Elective-3	3	0	0	3	IT ****	B Tech Honours (Theory 3)** (VII Semester)				4	
	IT_ 4191	Mini Project (Minor specialization)*				8							
				18	0	0	18/26						13/33
		Total Contact Hours (L + T + P)		27				Total Contact Hours (L + T + P)		30			

*Applicable to students who opted for minor specialization

**Applicable to eligible students who opted for and successfully completed the B Tech – Honours requirements

Flexi Core 1:

A1: IT_3124 Data Structures for Databases.

B1: IT_3125 Software Project Management.

C1: IT_3126 Theoretical Foundations of Computer Science.

Flexi Core 2:

A2: IT_3222 Distributed Database Management System

B2: IT_3223 Software Verification and Validation

C2: IT_3224 Compiler Construction

Minor Specializations**I. Computational Intelligence**

IT_4401 Artificial Intelligence

IT_4402 Machine Learning

IT_4403 Pattern recognition

IT_4404 Neural Computation and Applications

II. Computer Graphics and Visualization

IT_4405 Computer Graphics

IT_4406 Digital Image Processing

IT_4407 Augmented and Virtual Reality

IT_4408 Computer Vision

III. Data Analytics

IT_4409 Information Retrieval

IT_4410 Big Data Analytics

IT_4411 Social Network Analysis

IT_4412 Semantic Web

IV. Cyber Security

IT_4413 Cyber Forensics and Cyber laws

IT_4414 Ethical hacking

IT_4415 Blockchain Technology

IT_4416 Artificial Intelligence in Cyber security

V. Software System Design

IT_4417 Advanced Software Engineering

IT_4418 Software Architecture

IT_4419 Software Quality Management

IT_4420 Software Construction

Other Program Electives

IT_4441 Cloud Computing

IT_4442 Deep Learning

IT_4443 Evolutionary Computing and Swarm Intelligence

IT_4444 Explainable AI

IT_4445 Game Theory and Applications

IT_4446 High Performance Computing

IT_4447 Human Computer Interaction

IT_4448 Internet of Things

IT_4449 Mobile Computing

IT_4450 Software Reliability

Open Electives

IT_4311 Computer Graphics and Animation

IT_4312 Design and Development of Web Applications

IT_4313 Fundamentals of Data Structures and Algorithms

IT_4314 Machine Learning Tools and Technologies

IT_4315 Networking with TCP/IP

IT_4316 Fundamentals of Cyber Security

IT_4317 Game Theory & Applications

The additional theory courses:

IT_5012 Advanced Machine Learning

IT_5006 Pattern Recognition

IT_5171 Advanced Cryptography