

5 Year Integrated B. Tech. – M. Tech. (Dual-Degree) in Computer Science and Engineering

1st Semester:

S. No.	Course Code	Course Description	Type	L	T	P	Credits
1	PHY102	Classical Physics	IC	3	1	0	4
2	MTH102	Mathematics – I	IC	3	1	0	4
3	ECE105	Basic Electronics	IC	3	1	0	4
4	ECE106	Basic Electronics Lab	IC	0	0	3	2
5	CSE104	Computer Programming	IC	3	0	0	3
6	CSE104(L)	Computer Programming Lab	IC	0	0	3	2
7	ENG105(B)	Technical Communication in English	IC	3	0	0	3
Total Credits = 22							

2nd Semester:

S. No.	Course Code	Course Description	Type	L	T	P	Credits
1	MTH108	Mathematics – II	IC	3	1	0	4
2	PHY113	UG Physics Laboratory	IC	0	0	3	2
3	CSE213	Data Structures and Algorithms	IC	3	0	0	3
4	CSE213(L)	Data Structures and Algorithms Lab	IC	0	0	2	1
5	HSS102	Value Education and Ethics	IC	3	0	0	3
6	MME201	Environmental Ecology & Biology	IC	2	0	2	3
7	CSE119	Discrete Mathematical Structures	PC	3	0	0	3
8	CSE111	Digital Systems	PC	3	0	0	3
9	PHY114	Introduction to Modern Physics*	OE	3	0	0	3
Total Credits* = 22							

3rd Semester:

S. No.	Course Code	Course Description	Type	L	T	P	Credits
1	MTH213	Mathematics – III	IC	3	1	0	4
2	HSS204 / HSS203	Economics for Engineers/Psychology, Technology and Society	IC	3	0	0	3
3	CSE216	Computer Organization and Architectures	PC	3	0	2	4
4	CSE226	Advanced Programming	PC	3	0	2	4
5	CSE227	Information and Database Management Systems	PC	3	0	2	4
6	CSE228	Optimization Techniques and Applications	PC	3	0	0	3
Total Credits = 22							

4th Semester:

S. No.	Course Code	Course Description	Type	L	T	P	Credits
1	HSS204 / HSS203	Economics for Engineers/Psychology, Technology and Society	IC	3	0	0	3
2	MTH222	Probability and Statistics	PC	3	1	0	4
3	CSE325	Design and Analysis of Algorithms	PC	3	0	0	3
4	CSE331	Theory of Computation	PC	3	0	0	3
5	CSE222	Operating Systems	PC	3	0	2	4
6	CSE332	Computer Networks	PC	3	0	2	4
7		Program Elective – 1	PE	3	0	0	3
Total Credits = 24							

5th Semester:

S. No.	Course Code	Course Description	Type	L	T	P	Credits
1	CSE328	Artificial Intelligence	PC	3	0	0	3
2	CSE329	Computer Security	PC	3	0	0	3
3	CSE327	Introduction to Data Science	PC	3	0	0	3
4	CSE326	Software Engineering	PC	3	0	0	3
5	CSE330	Integrated Software Development Lab	PC	0	0	3	2
6		Program Elective – 2	PE	3	0	0	3
7		Program Elective – 3	PE	3	0	0	3
Total Credits = 20							

6th Semester:

S. No.	Course Code	Course Description	Type	L	T	P	Credits
1	CSE437	Compiler Design	PC	3	0	0	3
2		Program Elective – 4	PE	3	0	0	3
3		Program Elective – 5	PE	3	0	0	3
4		Program Elective – 6	PE	3	0	0	3
5		Other Elective – 1	OE	3	0	0	3
Total Credits = 15							

7th Semester:

S. No.	Course Code	Course Description	Type	L	T	P	Credits
1		M.Tech. Thesis	PC	3	0	0	3
2		Program Elective – 7	PE	3	0	0	3
3		Program Elective – 8	PE	3	0	0	3
4		Program Elective – 9	PE	3	0	0	3
5		Other Elective – 2	OE	3	0	0	3
Total Credits = 15							

8th Semester:

S. No.	Course Code	Course Description	Type	L	T	P	Credits
1		M.Tech. Thesis	PC	3	0	0	3
2		Program Elective – 10	PE	3	0	0	3
3		Program Elective – 11	PE	3	0	0	3
4		Other Elective – 3	OE	3	0	0	3
5		Other Elective – 4	OE	3	0	0	3
Total Credits = 15							

9th Semester:

S. No.	Course Code	Course Description	Type	L	T	P	Credits
1		M.Tech. Thesis	PC	9	0	0	9
2		Program Elective – 12	PE	3	0	0	3
Total Credits = 12							

10th Semester:

S. No.	Course Code	Course Description	Type	L	T	P	Credits
1		M.Tech. Thesis	PC	9	0	0	9
2		Program Elective – 13	PE	3	0	0	3
Total Credits = 12							

* A student can take Introduction to Modern Physics course in 2nd semester in lieu of one Other Elective in remaining semesters.

Total Credits	179
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Selective list of Programme Electives:

S. No.	Name of course
1	Artificial Intelligence
2	Cloud Computing
3	Computer Graphics
4	Compiler Optimization
5	Computer Security
6	Data Mining
7	Enterprise Architecture
8	Entrepreneurship Practice
9	Functional and Non-Functional Testing
10	Genetic Algorithms & Applications
11	Introduction to Artificial Intelligence
12	Introduction to Convex Optimization
13	Information Retrieval
14	Introduction to Randomized Algorithms
15	Information Retrieval and Web Search
16	Introduction to Simulation & Modeling
17	Mobile Ad Hoc Networks
18	Machine Learning and Pattern Recognition
19	Mathematical Structures for Engineers
20	Optimization Techniques
21	Optimization Techniques and Applications
22	Parallel Computer Architecture
23	Principles of Programming Languages
24	Real Time Systems
25	Software Metrics and Design Strategies
26	Unconventional Models of Computation

Selective list of Other Electives:

S. No.	Name of course
1	Active Directory
2	Algebra
3	Automotive Electronics
4	Autosar
5	Basics of Finance and Soft Skills
6	Bio-Medical Engineering
7	Biosensors: Concepts and Applications
8	Cinema and Indian Society
9	Classical Mechanics and Field Theory
10	Colonialism and the Making of Modern India
11	Computational Physics
12	Corpus Pragmatics
13	Digital VLSI Circuits
14	Electrical Machines & Power Systems
15	Engineering Chemistry

16	Entrepreneurship Practice
17	Ethnic Conflict: Literature and South Asia
18	French
19	Graph Theory
20	Green Communication and Networking
21	Indian Modernity: Text & Context
22	Industrial Engineering and Management
23	Industrial Management
24	International Economics and Soft Skills
25	Internet of Things
26	Introduction to Nano Science and Engineering
27	Linear Algebra
28	Logical and Critical Thinking
29	Macro Economics for Managers
30	Mathematical Physics
31	Mathematical Structures for Engineers
32	Modernism: Literary Representation
33	Nano Technology
34	Natural Nanoworld: Design, Fundamentals and Mechanics
35	Non Linear Dynamics and Chaos
36	Numeric Linear Algebra
37	Numerical Analysis
38	Numerical Methods
39	Operation Research
40	Optimization
41	Organic Electronics and Opto Electronics: Material and Applications
42	Organisational Behaviour
43	Pervasive Computing
44	Physics of Material
45	Physics of The Universe
46	Pragmatics in Social Media
47	Solid State Physics
48	Superconductivity: Basics and Applications
49	System Dynamics and Control
50	System Level Specifications and Design
51	The Self: Aspects and Implications