

# **Curriculum & Contents**

**Department of Computer Science and  
Engineering**

**M. Tech. in  
Computer Sciences and Engineering**

**ABV-Indian Institute of  
Information Technology &  
Management, Gwalior**

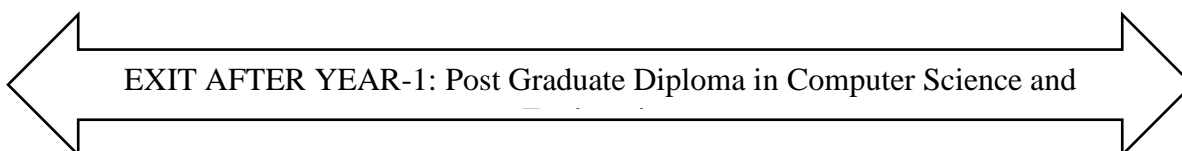
**For Batch 2025 Onwards**

**M. Tech in Computer Science and Engineering**  
**Department of Computer Science and Engineering**

Semester – I				
SN	Subject Code	Course Title	L-T-P	Credits
1	MCSE-501	Machine Learning Techniques	3-0-2	4
2	MCSE-502	Modelling and Simulation	3-0-2	4
3	MCSE-503	Advanced Data Structures and Algorithms	3-0-2	4
4	MCSE-50X	Distributed Systems	3-0-2	4
5	MCSE-50X	Elective I	3-0-0	3
6	MCSE-510	Seminar *	0-1-0	1
			Credits	20

\*Seminar – To provide training to the students on presentations, paper writing and oratory skills at early stage.

Semester – II				
SN	Subject Code	Course Title	L-T-P	Credits
1	MCSE-512	Cyber Physical Systems	3-0-2	4
2	MCSE-513	Complex Networks	3-0-2	4
3	MCSE-5XX	Optimization Techniques	3-0-0	3
4	MCSE-5XX	Elective II	3-0-0	3
5	MCSE-5XX	Elective III	3-0-0	3
6	MCSE-524	Engineering Research Methodology	2-1-0	3
			Credits	20



Semester – III				
SN	Subject Code	Course Title	L-T-P	Credits
1	MCSE-523	Elective IV/MOOC	3-0-0	3
2		Dissertation Part - I		12
			Credits	15

Semester – IV				
SN	Subject Code	Course Title	L-T-P	Credits
1		Dissertation Part - II		15
			Credits	15

**Distribution of Credits:**

SEMESTER-I	SEMESTER-II	SEMESTER-III	SEMESTER-IV	TOTAL CREDITS
20	20	15	15	<b>70</b>

**Department of Computer Science and Engineering**  
**List: Electives Courses for MTech CSE**

<b>SN</b>	<b>Course Title</b>	<b>Remarks</b>
1.	Cryptography and Network Security	Information Security
2.	Modern Cryptography	Information Security
3.	Formal Verification of Security Protocols	Information Security
4.	IoT and its security	Information Security
5.	Data privacy in Social Networks	Information Security
6.	Cyber Forensics: Tools and Techniques	Information Security
7.	Malware Analysis	Information Security
8.	Big Data and Cyber fraud analysis	Information Security
9.	Hardware Security	Information Security
10.	Fault Tolerant Systems	Information Security
11.	Secure System Engineering	Information Security
12.	Blockchain Technology	Information Security
13.	AI and ML Techniques for Cyber Security	Information Security
14.	Natural Language Processing	Computational Intelligence
15.	Information Retrieval	Computational Intelligence
16.	Recommender Systems	Computational Intelligence
17.	Reinforcement Learning	Computational Intelligence
18.	Graphical NN	Computational Intelligence
19.	Nature Inspired Computing	Computational Intelligence
20.	Meta-Heuristics for Multi-Objective Optimization	Computational Intelligence
21.	Distributed Machine Learning	Computational Intelligence
22.	Fair, Accountable, Transparent AI	Computational Intelligence
23.	Machine Learning System Optimization	Computational Intelligence
24.	Computational Biology	Computational Intelligence
25.	Pattern Recognition	Computational Intelligence
26.	Deep Learning Techniques	Computational Intelligence
27.	Cognitive Science	Computational Intelligence
28.	Data Mining Techniques	Theory and Systems for Data Computing
29.	Cloud Computing	Theory and Systems for Data Computing
30.	Advanced Software Engineering	Theory and Systems for Data Computing
31.	Machine Learning for Operations (MLOps)	Theory and Systems for Data Computing
32.	Data Science	Theory and Systems for Data Computing
33.	Data Visualization and Explainable Model	Theory and Systems for Data Computing
34.	Time Series Data Analysis	Theory and Systems for Data Computing
35.	Quantum Computing	Theory and Systems for Data Computing
36.	Robotics and Intelligent Systems (Multi-Agents)	Theory and Systems for Data Computing
37.	Big Data Analytics	Theory and Systems for Data Computing
38.	Complexity and Advanced Algorithms	Theory and Systems for Data Computing
39.	Randomized Algorithms	Theory and Systems for Data Computing

40.	Algorithmic Game Theory	Theory and Systems for Data Computing
41.	Computational Learning Theory	Theory and Systems for Data Computing
42.	Biometric Image Processing	Visual Computing
43.	Perception for Autonomous Systems	Visual Computing
44.	Computer Vision	Visual Computing
45.	Remote Sensing and Satellite Image Processing	Visual Computing
46.	Human-Computer Interaction	Visual Computing
47.	Medical Imaging	Visual Computing
48.	Virtual Reality and Augmented Reality	Visual Computing
49.	Speech Processing	Visual Computing
50.	Digital Signal Processing	Visual Computing
51.	Multimedia Systems	Visual Computing
52.	Digital Watermarking & Steganalysis	Visual Computing
53.	Video Analytics	Visual Computing
54.	Visual Saliency and Attention Modelling	Visual Computing