

# Department of Computer Science & Engineering The LNM Institute of Information Technology





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## M. Tech. in CSE

M. Tech. Programme students, irrespective of their discipline, must do a minimum of 32 credits through course work and a minimum of 36 credits through research (thesis) work.

PG Programme students come to LNMIIT from different institutions across India. Keeping their diversified background in mind, institute PG Programmes offer 3 to 4 mandatory courses that will provide a common and strong foundation to all the students.

### Research work is carried out in the following fields (including but not limited to):

- Artificial Intelligence: Intelligent Systems, Wearable computing
- Computational Sciences: Computational Geometry, Computational Neuroscience and Modeling
   & Simulation
- Computer Security: Cyber Security, Cryptology, Digital Forensics
- Data Science: Data Mining, Machine Learning, Pattern Recognition, Social Media Analytics
- Image/Signal Processing and Computer Vision: Medical image/signal processing, Bio-metrics,
   Image Retrieval
- Networks: Ad-Hoc Networks, Cloud Computing, Distributed Computing, IoT/CPS, Computer and Network Security, Software Defined Networking
- Software Engineering: Model Based Software Engineering, Software Testing
- Protocol Engineering, ITS

### Program Outcomes (POs) of M. Tech. in CSE

The main outcomes of the CSE (M.Tech.) program are given here. At the end of the program a student is expected to have:

- 1. Understanding of the theoretical foundations and the limits of computing.
- 2. Ability to adapt existing models, techniques, algorithms, data structures, etc. for efficiently solving problems.
- 3. Ability to design, develop and evaluate new computer based systems for novel applications which meet the desired needs of industry and society.
- 4. Understanding and ability to use advanced computing techniques and tools.
- 5. Ability to undertake original research at the cutting edge of computer science & its related areas.
- 6. Ability to function effectively individually or as a part of a team to accomplish a stated goal.
- 7. Understanding of professional and ethical responsibility.
- 8. Ability to communicate effectively with a wide range of audience.
- 9. Ability to learn independently and engage in life-long learning.
- 10. Understanding of the impact of IT related solutions in an economic, social and environment context.

### Program Educational Objectives (PEOs) of M. Tech. in CSE

**PEO1:** Be able to apply advanced principles of computer science and engineering to solve real world research and development problems in industry and academia.

**PEO2:** Be able to engage in research and use state-of-the-art tools, models and technologies to solve computing problems.

**PEO3:** Be able to engage in life-long learning by adapting to scientific, technological, and innovative advancements.

**PEO4:** Be able to demonstrate communication skills, team spirit, and leadership qualities.

**PEO5:** Be a responsible professional by being aware of contemporary socioeconomic, cultural, and ethical issues.

## Program Specific Outcomes (PSOs) of M. Tech. in CSE

**PSO1:** Be able to apply the advanced concepts of mathematics, algorithms, and systems to efficiently solve problems.

**PSO2:** Be able to apply knowledge in emerging areas of computer science for research and development.

**PSO3:** Be able to conduct research and to innovate using state-of-the-art technologies to provide computing solutions for industry and society.

# Semester-wise Curriculum for M.Tech Programme in CSE

# M. Tech. in Computer Science & Engineering

# 1st Semester:

S. No.	Course Description	Type	L	Т	Р	Credits
1	Advanced Data Structures & Algorithms	PC	3	0	2	4
2	Mathematical Structures for Engineers	PC	3	0	0	3
3	Program Elective 1++	PE	3	0	0	3
4	Program Elective 2++	PE	3	0	0	3
5	Program Elective 3	PE	3	0	0	3
			Total Credits = 16			

# 2nd Semester:

S. No.	Course Description	Туре	L	Т	Р	Credits
1	Machine Learning & Pattern Recognition	PC	3	0	2	4
2	Technical Writing and Research Methodology	PC	4	0	0	4
3	Program Elective – 4##	PE	3	0	0	3
4	Program Elective – 5##	PE	3	0	0	3
5	Program Elective – 6	PE	3	0	0	3
			Total Credits = 17			

# 3rd Semester:

S. No.	Course Description	Туре	L	Т	Р	Credits		
1	M. Tech. Thesis I	PC	0	0	18	9		
2	Program Elective – 7	PE	3	0	0	3		
3	Open Elective	OE	3	0	0	3		
			Total Credits = 15					

#### 4th Semester:

S. No.	Course Description	Туре	L	Т	P	Credits	
1	M. Tech. Thesis II	PC	0	0	36	18	
			Total Credits = 18				

++ Courses only from Bucket 1

## Courses only from Bucket 2

Program Electives 3, 6, 7 from Bucket 3

### **Tentative List of Program Electives:**

#### **Bucket 1**

- 1. Information Retrieval & Web Search
- 2. Introduction to Data Science
- 3. Data Mining
- 4. Artificial Intelligence

#### **Bucket 2**

- 1. Image Processing & Applications
- 2. Natural Language Processing
- 3. Social Network Analysis
- 4. Recommender Systems
- 5. Biomedical Engineering

### **Bucket 3**

- 1. Optimization Techniques
- 2. Applied Cryptography
- 3. Real Time Systems
- 4. Information Security
- 5. Cyber Security
- 6. Wireless Sensor Network
- 7. Internet of Things
- 8. Deep Learning
- 9. Principles of Evolutionary Computing
- 10. Information & Coding Theory

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- > WAY TO LNMIIT (../../uploaded\_files/Way to LNMIIT.pdf)
- > Plagiarism Prevention Software (../../Library/plagiarism\_prevention\_software.html)
- > Rules & MOA (../../Rules\_MOA.html)
- > Tender Notification (../../Tender\_Notification.html)
- > Sankalp (https://sankalp.lnmiit.ac.in/)
- > UGC (https://www.ugc.ac.in/)
- > ASME LNMIIT (https://asme.lnmiit.ac.in)
- > Counselling Cell (../../Councelling Cell.html)
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