



Computer Science & Engineering Department M.Tech in Cyber Security

Objectives

Cyber security is a very fast moving field. A program in security that aims to be on the forefront has to necessarily have a companion-advanced program that has a good balance between theoretical and practical aspects, analytical methods and system architectures, academic ideas and industry practices. The M.Tech in Cybersecurity programme is designed to provide an outcome-driven and skill-based learning to make students become proficient cybersecurity professionals.



Major aspects of the programme

- The programme focuses on preparing expert cyber security professionals those who can easily handle the real-life difficulties directly connected with the cyber security scenario
- The two-year MTech programme covers two semesters of course work and two semesters of project work in the institute or industry.
- The programme offers opportunities to work with specialized faculty who have multidomain expertise.

ELIGIBILITY

- Bachelor's degree in Engineering/Technology or equivalent in an appropriate area or an MCA with at least 60% marks or equivalent (CGPA of 6.5) for General, OBC category students and 55% marks or 6.0 CGPA in case of SC/ST category of students.
- Valid GATE score for regular (full-time) students for receiving institute assistantship only.

CAREER OPPORTUNITIES

- Undertake industry careers involving innovation and problem-solving and join the industry as a Cybersecurity Analyst, Security Engineer, Security Architect.
- Pursue higher studies (PhD) to join leading R & D organizations as a Scientist or as a Faculty member in leading academic institutions.

CONTACT

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Computer Science & Engineering Department M.Tech in Cyber Security

Vission

To be an academic leader in the areas of Computer Science and Engineering, Information Technology and other potential of Computer Science with worldwide recognition.



Mission

- 1. Provide high quality graduate educational programs in Computer Science and Engineering.*
- 2. Contribute significantly to the research and the discovery of new knowledge and methods in computing.*
- 3. Offer expertise, resource, and service to the community.*
- 4. To retain the present faculty members by providing*

Program Outcomes (POs)

PO1: To develop the ability to apply knowledge of mathematics, engineering sciences for conducting independent research/investigation for solving practical problems.

PO2: To develop the ability to identify, formulate, conduct experiments, interpret data, synthesize information, and analyse engineering problems by writing and presenting an effective technical report/document.

PO3: To develop the ability to demonstrate mastery over the area as per the program's specialization. The knowledge should be at a level higher than the requirements in the appropriate bachelor's program.

PO4: To develop problem-solving ability to design solutions for complex engineering problems in the context of societal and environmental commitments.

PO5: To demonstrate the capability of functioning effectively as a member or team leader in software projects considering multidisciplinary environments, thus solving real-world multifaceted problems.

PO6: To develop design thinking capabilities for innovation and contribute to technological knowledge and intellectual property development.



Course structure for M.Tech in Cyber Security

Semester	Subject	L	T	P	Credit	Class Hours Per week	Marks
1	1. Advanced Data Structures and Algorithms	3	1	0	4	4	100
	2. Mathematical Foundation of Computer Science	3	1	0	4	4	100
	3. Principles of Cryptography	3	1	0	4	4	100
	4. Elective-I * *To be chosen from the list of electives.	3	1	0	4	4	100
	5. Elective –II * *To be chosen from the list of electives.	3	1	0	4	4	100
	6. Laboratory - I (Advanced Data Structures and Algorithms)	0	0	2	2	3	100
	7. Laboratory - II (Cryptography)	0	0	2	2	3	100
	8. Seminar			1	1	2	100
	Total :	15	5	5	25	28	800
2	1. Information Security & Risk Management	3	1	0	4	4	100
	2. Design of Secure Protocols	3	1	0	4	4	100
	3. Elective-III *To be chosen from the list of electives.	3	1	0	4	4	100
	4. Elective –IV *To be chosen from the list of electives.	3	1	0	4	4	100
	5. Laboratory-III (Cyber Security & Digital Forensic)	0	0	2	2	3	100
	6. Laboratory-IV ()	0	0	2	2	3	100
	7. Project Preliminary	0	0	3	3	6	100
	8. Comprehensive Viva			2	2	0	100
	Total	12	4	9	25	28	800
3	Project and Thesis Work- I *	0	0	10	10	FULL	100
	Total	0	0	10	10		100
4	Project and Thesis Work- II *	0	0	20	20	FULL	300
	Total	0	0	20	20		300
	* For Project and Thesis Work- I & II Students may go for industrial or inter institute collaboration, based Project work for 6 months to 1 year. The DPPC and concerned local guide may be empowered to recommend such provision. All existing academic rules of institute will prevail. The exact modalities may be recommended by DPPC.					Class Hours per week	



Course structure for M.Tech in Cyber Security

Cumulative credit of the course							
Semester-I		15	5	5	25	28	800
Semester -II		12	4	9	25	28	800
Semester -III		0	0	10	10	Full	100
Semester -IV		0	0	20	20	Full	300
Total		30	6	44	80		2000

S. No.	List of Elective Subjects	L	T	P	Cr	Class Hours per week	Marks
1	Information Systems Control & Audit	4	0	0	4	4	100
2	Natural Language Processing	4	0	0	4	4	100
3	Soft computing	4	0	0	4	4	100
4	Data Mining	4	0	0	4	4	100
5	Secure Software Engineering	4	0	0	4	4	100
6	Advanced Computer Networks	4	0	0	4	4	100
7	Information Retrieval	4	0	0	4	4	100
8	Coding Theory	4	0	0	4	4	100
9	Cyber Crime, Cyber Laws & IPR	4	0	0	4	4	100
10	Data Hiding	4	0	0	4	4	100
11	Deep learning	4	0	0	4	4	100
12	Secure Coding	4	0	0	4	4	100
13	Social Network Analysis	4	0	0	4	4	100
14	Cyber Forensics, Audit & Investigation	4	0	0	4	4	100
15	Cloud and IoT Security	4	0	0	4	4	100
16	Big Data Analytics	4	0	0	4	4	100
17	Ethical Hacking	4	0	0	4	4	100
18	Wireless Network Security	4	0	0	4	4	100