Master of Technology - Cyber Security

Programme Outcomes (POs)

- **PO1**: An ability to independently carry out research /investigation and development work to solve practical problems.
- **PO2:** An ability to write and present a substantial technical report / document.
- **PO3:** Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor.

Program Specific Outcomes (PSOs)

- **PSO 1:** Develop an in-depth knowledge and skill sets in Cyber Security to monitor, prepare, predict, detect and respond and prevent cyber-attacks and ensure enterprise security.
- **PSO 2:** Identify, Assess and protect the enterprise IT assets and risks, perform risk analysis and develop policies and procedures based on compliance and able to define the architecture, design, and management of the security of an organization.

Course Outcomes COs

Batch: 2019-2021

Semester	Course Code	Course Name	Course Outcomes (COs)
I	**18MTCS101**	Information Security & Cryptography	CO1:Discuss the basic concepts and importance of information security
			CO2:Demonstrate the impact by identifing threats to information security and propose suitable countermeasures
			CO3:Demonstrate various aspects of securing network infrastructure and importance of classifying information
			CO4:Simplify the fundamental concepts involved in cryptography and how they help in achieving the goals of information security
			CO5:assess various algorithms and processes used in cryptography for authenticating users, securing information and communication
I	**18MTCS102**	Network Security Protocols	CO1:Discuss fundamental concepts of information and network security with developing policies
			CO2:Use the concepts of network security in implementing email and content security
			CO3:Employ the importance of management of network security.
I	**18MTCS102L**	Network Security Protocols LAB	CO1:Discuss fundamental concepts of information and network security with developing policies
			CO2:Use the concepts of network security in implementing email and content security
			CO3:Employ the importance of management of network security.
I	**18MTCS131**	Ethical hacking	CO1:Demonstrate the importance of ethical hacking in achieving the goals of information security
			CO2:Examine the processes of vulnerability assessment and ethical hacking from penetration testing
			CO3:Illustrate the importance of appropriate countermeasures for managing vulnerabilities
			CO4:simplify and Justify the need for meticulous documentation in writing reports for consumption of both technical and management audiences
			CO5:Assess the rationale for having an adequate legal framework for dealing with hacking and ethical hacking
I	**18MTCS131L**	Ethical hackingLab	CO1:Demonstrate the importance of ethical hacking in achieving the goals of information security
			CO2:Examine the processes of vulnerability assessment and ethical hacking from penetration testing

			CO3:Illustrate the importance of appropriate countermeasures for managing vulnerabilities
			CO4:simplify and Justify the need for meticulous documentation in writing reports for consumption of both technical and management audiences
			CO5:Assess the rationale for having an adequate legal framework for dealing with hacking and ethical hacking
I	**18MTCS132**	Web application testing	CO1:Discuss how security is integrated into software development
			CO2:Demonstrate the importance of security principles in protecting web applications from vulnerabilities
			CO3: Demonstrate the importance of security principles in protecting web applications from exploits and attacks
			CO4:Demonstrate the importance of security principles in protecting web applications from attacks
I	**18MTCS141**	Mobile, Wireless and VOIP Security	CO1:Discuss how principles of Security is integrated in mobile communication and application development
			CO2:Illustrate steps involved in forensic investigation of mobile devices
I	**18MTCS142**	Security Architecture	CO1:Discuss fundamental concepts of information and network security in designing security architecture
			CO2:Use the concepta of security principles in building a sustainable security architecture
			CO3:Illustrate the importance of managing the security architecture using policies, processes and framework for effective and efficient security.
I	**18MTCS143**	Importance of Security in E-Commerce	CO1:Discuss how eCommerce works and what are its components
			CO2:Classify the Security threats to eCommerce
			CO3 : Demonstrate the management of Security threats to eCommerce
I	**18MTRM01**	Research Methodology & IPR	**CO1 :** Describe the writing skills to prepare a well-structured research paper or report.
			CO2 : Demonstrate the key skills needed while writing literature review.
			CO3 : Illustrate the principles, scope, aim of research ethics and ethical issues.
			CO4 : Demonstrate the process of patenting and development.
			CO5 : Dramatize the scope of Patent Rights, Licensing and transfer of technology.
			CO 6: Illustrate the new developments on IPR.
II	**18MTCS201**	Cyber Forensics	CO1:Discuss the importance of cyber forensics in achieving the goals of information security
			CO2: Discuss steps involved and tools used in performing forensics of OS, web server, network and

			malware research process
II	**18MTCS201L**	Cyber ForensicsLAB	CO1:Discuss the importance of cyber forensics in achieving the goals of information security
			CO2: Discuss steps involved and tools used in performing forensics of OS, web server, network and malware research process
II	**18MTCS202**	Security and Privacy for Big Data Analytics	CO1:Discuss the need for and importance of security and privacy for Big Data
			CO2: Explain fundamental concepts of security and privacy and threats to them
			CO3:Illustrate the design strategy for implementing Privacy in Big Data
			CO4: Simplify the process involved in digital forensics relevant for Big Data
II	**18MTCS231**	Cloud security	CO1: Define how security is implemented in virtualization and cloud computing and in a datacentre
			CO2: Discuss the need for understanding legal aspects of security and privacy in Cloud computing
II	**18MTCS231L**	Cloud securityLAB	CO1: Define how security is implemented in virtualization and cloud computing and in a datacentre
			CO2: Discuss the need for understanding legal aspects of security and privacy in Cloud computing
II	**18MTCS241**	Cyber security incident response management	CO1:Define how security incidents are responded to.
			CO2: Explain importance and ways of preventing security incidents
II	**18MTCS242**	End Point Security Management	CO1: Define how Security principles are implemented in ensuring endpoint security
			CO2: Discuss how endpoint security management is achieved using a combination of processes and technologies
II	**18MTCS243**	Android Security	CO1: Discuss how security is implemented in Android
			CO2: Illustrate the importance of security principles in protecting the Android ecosystem from vulnerabilities, exploits and attacks
			CO3: demonstrate the need for awareness and implementing basic security measures by mobile users
II	**18MTCS201L**	Cyber Forensics Lab	CO1: Discuss the Ability to solve public and private forensic
			CO2: Create a bit stream image of electronic evidence
			CO3: choose the to track the recent URL visited with timestamp using windows registry hives
			CO4: Examine to determine the application log, system log and information log.
			CO5: assess to investigate diverse set of investigative tools.

II	**18MTCS232L**	Database security Lab	CO1: .Discuss the risk analysis for a large database techniques.
			CO2: Demonstrate the authentication procedures, fine-grained access control and data encryption techniques.
			CO3: demonstrate Set up accounts with privileges and roles.
			CO4: Examine Audit accounts and the database system.
			CO5:Assess Back-up and Restore a database
III	**18MTCS311**	IoT Security	CO1: Discuss Security and Privacy challenges are face by IoT and how are they managed
			CO2: Demonstarte the important aspects of integrating Security with IoT
III	**18MTCS312**	Smart Grid Security for Industrial IoT	CO1: Disuss the Security and Privacy challenges are face by IoT and how are they managed
			CO2: Demonstrate important aspects of integrating Security with IoT
III	**18MTCS313**	Securing Servers	CO1:Discuss fundamental concepts of information security in securing servers
			CO2:Demonstrate their understanding of security principles and controls in protecting windows, linux, database and web servers
III	**18MTCS314**	Adaptive Security Architecture	CO1: Discuss fundamental concepts of information and network security in designing security architecture
			CO2: Use the concepts of security principles in building a sustainable security architecture
			CO3: Illustrate the importance of managing the security architecture using policies, processes and framework for effective and efficient security
III	**18MTOE321**	Business Analytics	CO1: Memorize the knowledge of data analytics.
			CO2: recognize the technical skills in predicative and prescriptive modeling to support business decision makin
			CO3: demonstrate data into clear, actionable insights
III	**18MTOE322**	Industrial Safety	CO1: define knowledge of industrial safety
			CO2: .Explain the use of technical skills in maintaining equipment's, building's, cleaning safety
			CO3: employ the Students to take actionable insights
III	**18MTOE323**	Cost Management	CO1: Demonstrate cost and time managing

		of Engineering Projects	CO2: Use soft and technical tools in designing the project
			CO3: Take actionable insights
III	**18MTOE321**	Business Analytics	CO1 : demonstrate knowledge of data analytics.
			CO2 :Use technical skills in predicative to support business decision-making
			CO3 :Use technical skills in prescriptive modeling to support business decision-making
			CO4 :Translate data into clear, actionable insights
III	**18MTOE322**	Industrial Safety	CO1 :demonstrate knowledge of industrialsafety
			CO2 : use technical skills in maintaining equipment's, building's, cleaning safety
			CO3: take actionable insights
III	**18MTOE323**	Cost Management of Engineering Projects	CO1 : Demonstrate cost and time managing
			CO2 : Use soft and technical tools in designing the project
			CO3: Take actionable insights
IV	**18MTCSE41**	Project Work and Dissertation	CO1 : Demonstrate a depth of knowledge of Computer Science Engineering
			CO2 : Undertake problem identification, formulation and solution
			CO3 : Complete an independent research project, resulting in at least a thesis publication, and research outputs in terms of publications in high impact factor journals, conference proceedings, and patents
			CO4 : Demonstrate knowledge of contemporary issues in their chosen field of research.
			CO5 : Demonstrate an ability to present and defend their research work to a panel of experts.