MASTER OF SCIENCE (INFORMATION AND NETWORK SECURITY)

PROGRAMME SPECIFIC OUTCOMES

Students of this Post Graduation will be able to:

PSO1: Highlight the need of security architecture and its relevance to system, services, continuity and reliability.

PSO2: Identify the trade-offs for functionality usability and security and to differentiate between controls to protect system availability and reliability: controls to protect information.

PSO3: Measure the performance of security systems within an enterprise-level information system and to troubleshoot, maintain and update an enterprise-level information security system.

PSO4: Comprehend the role of forensics, cyber incidents, intrusions and investigations in revealing how an attack was carried out and understand how to support investigation.

PSO5: Apply skills gained for evaluation and protection of computer networks and security system.

Master of Science (Information and Network Security) Semester – I

COURSE CODE: MINL-1111
COMPUTER NETWORKS

Course Outcomes:

After passing this course the student will be able to:

CO1: The student will understand the fundamental concepts of computer networking and will be familiarized with the basic taxonomy and terminology of the computer networking area.

CO2: The student will be able to understand the physical and logical as well as the electrical characteristics of digital signals and the basic methods of data transmission.

CO3: To understand the organization of computer networks, factors influencing computer network development and the reasons for having variety of different types of networks.

CO4: To study the basic taxonomy and terminology of the computer networking and enumerate the layers of OSI model and TCP/IP model in order to have a good understanding of various Reference Models and protocols.

COURSE CODE: MINL-1112
NETWORK PROTOCOLS

Course Outcomes:

After passing this course the student will be able to:

CO1: To get in depth knowledge about various networking protocols, their working, management and operations.

CO2: To understand the layered approach that makes design, implementation and operation of extensive networks possible.

CO3: Classify the routing protocols and analyze how to assign the IP addresses for the given network.

CO4: To understand the TCP/IP suite of protocols and the networked applications supported by it.

COURSE CODE: MINL - 1113
NETWORK OPERATING SYSTEM

Course Outcomes:

After passing this course the student will be able to:

CO1: Understand the installation, configuration and administration of Network Operating Systems.

CO2: The student will gain and will improve the capabilities in:

- Installing, configuring and administering network operating system
- Remote administration using network operating systems
- Connecting client computers to the network
- Linux working

CO3: This course aims to provide an understanding of the general security concepts of windows and Linux systems, network security tools and implementation of organizational security.

CO4: To learn the fundamentals and gain knowledge of Operating Systems.

COURSE CODE: MINL - 1114
INFORMATION SECURITY AND THREATS

Course Outcomes:

After passing this course the student will be able to:

CO1: To understand the network attacks (denial of service, flooding, sniffing and traffic redirection, inside attacks, etc.) and basic networking defense tools.

CO2: The student will be able to differentiate between organizational security policies and security mechanism and will be able to analyze the security needs of a small enterprise, design a strategic plan to address those security requirements and select the appropriate tools to implement the organizational policies.

CO3: To be able to explain various Information security threat and controls for it.

CO4: The student will be able to explain the mechanism to protect confidentiality and completeness of data.

COURSE CODE: MINL-1115
JAVA PROGRAMMING

Course Outcomes:

After passing this course the student will be able to:

CO1:To understand the fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, variables, conditional and iterative execution, methods, etc.

CO2: To be aware of the important topics and principles of software development and have the ability to write a computer program to solve specified problems in order to test, document and prepare a professional looking package for each business project.

CO3: To be able to use the Java SDK environment to create, debug and run simple Java programs and to model of object oriented programming: abstract data types, encapsulation, inheritance and polymorphism

CO4: To understand how to take the statement of a business problem and from this determine suitable logic for solving the problem; then be able to proceed to code that logic as a program written in Java.

MASTER OF SCIENCE (INFORMATION & NETWORK SECURITY) SEMESTER II

COURSE CODE: MINL-2111
NETWORK PLANNING, ANALYSIS AND PERFORMANCE

Course Outcomes:

After passing this course the student will be able to:

CO1: Comprehend design of computer and communication network.

CO2: Evaluate network planning, including minimum cost and maximum flow methodologies.

CO3: Analyze network performance through design tools, traffic matrix, etc.

CO4: Comprehend and tune various network design.

CO5: Design hypothetically security measures in Network.

COURSE CODE: MINL-2112
NETWORK SECURITY PRACTICES

Course Outcomes:

After passing this course the student will be able to:

CO1: Demonstrate various security attacks like Interruption, Interception, Modification, integrity, non–repudiation, etc.

CO2: Analyze the performance of various Classical and Modern Cryptography Techniques.

CO3: Comprehend security requirements and issues at application layer.

CO4: Demonstrate the key exchange and generation through public key infrastructure.

COURSE CODE: MINL-2113
COMPUTER FORENSIC FUNDAMENTALS

Course Outcomes:

After passing this course the student will be able to:

CO1: Comprehend the role of digital forensics in the field of information assurance and cyber security

CO2: Apply various principles of effective digital forensics investigation techniques.

CO3: Identify housing, hardware and software requirements for Computer Forensics.

CO4: Comprehend processing of evidence and report preparation

COURSE CODE: MINL-2114
SECURE CODE DEVELOPMENT

Course Outcomes:
After passing this course the student will be able to:

CO1: Identify and evaluate various process model used for development of software.
CO2: Identify various attacks like buffer overrun, DOS and various principals concerning security.
CO3: Comprehend various securities related techniques and methodologies.
CO4: Apply secure coding practices to maintain the Confidentiality, Integrity and Availability of a data.

COURSE CODE: MINL-2115
MOBILE APPLICATION DEVELOPMENT AND SECURITY

Course Outcomes:
After passing this course the student will be able to:

CO1: Setup Integrated Development Environment for developing and configuring mobile applications.
CO2: Comprehend and utilize various UI widgets and components for designing User Interface of application.
CO3: Identify various issues involved in developing mobile application.
CO4: Manage view and navigation in mobile application through intents, activities, services, etc.

MASTER OF SCIENCE (INFORMATION AND NETWORK SECURITY)
SEMESTER – III
COURSE CODE: MINL - 3111
CYBER INCIDENT HANDLING AND REPORTING

Course Outcomes:

CO1: Obtain the basic knowledge on dealing with system security related incidents.
CO2: Gain experience using tools and common processes in performing the analysis of compromised systems.
CO3: Increase knowledge on potential defenses and counter measures against common threats / vulnerabilities.

COURSE CODE: MINL - 3112
CLOUD COMPUTING AND ITS SECURITY

Course Outcomes:

CO1: Analyze the Cloud computing setup and applications using different architectures.
CO2: Design different workflows according to requirements
CO3: Analyze the Virtualization concept
CO4: Access cloud Storage systems and Cloud security, the risks involved, its impact and develop cloud application

COURSE CODE: MINL - 3113
PROACTIVE SECURITY TOOLS AND TECHNOLOGY

Course Outcomes:

CO1: Learn about the security policies and strategies
CO2: Gain the knowledge about various tools to be used in the implementation of penetration testing
CO3: Learn various commands used in the implementation of proactive security

COURSE CODE: MINL - 3114
PENETRATION TESTING AND AUDITING

Course Outcomes:

CO1: Learn about the risk analysis
CO2: Student can achieve the knowledge about the planning and scheduling of penetration testing
CO3: Achieve the knowledge about different platforms of testing

COURSE CODE: MINL - 3115
CRYPTOGRAPHY AND NETWORK SECURITY

Course Outcomes:

CO1: Learning of classifying the symmetric encryption techniques
CO2: Illustrate various public key cryptographic techniques
CO3: Evaluate the authentication and hash algorithms
CO4: Learn basic concepts of system level security.

MASTER OF SCIENCE (INFORMATION AND NETWORK SECURITY)
SEMESTER IV

COURSE CODE: MINL-4111
INTRUSION DETECTION SYSTEM

Course Outcomes:

After passing this course the student will be able to:

CO1: Comprehend the importance of intrusion detection.
CO2: Identify various Intrusion Detection systems and methodologies associated with them.
CO3: Evaluate the impact of Intrusion Detection Systems.
CO4: Identify the integration of multiple IDS.

COURSE CODE: MINL-4112
REVERSE ENGINEERING AND MALWARE

Course Outcomes:

After passing this course the student will be able to:

CO1: Comprehend complete taxonomy of malware.
CO2: Comprehend the Reverse Engineering Malware Methodology.
CO3: Examine the presence and impact of malware.

COURSE CODE: MINL-4113
ETHICAL HACKING

Course Outcomes:

After passing this course the student will be able to:

CO1: Articulate the concept of security and phases involved in hacking.
CO2: Comprehend various hacking techniques Sniffing Traffic, DNS and IP Sniffing, HTTPS Sniffing, WLAN Sniffers, etc.
CO3: Comprehend session hijacking along with its types and phases.

COURSE CODE: MINL-4114
BLOCKCHAIN FOR ENTERPRISE APPLICATIONS

Course Outcomes:

After passing this course the student will be able to:

CO1: Comprehend elements and working of Blockchain.

CO2: Identify the role of Blockchain in Decentralization.

CO3: Apply payment process in Bitcoin and Ethereum.

COURSE CODE: MIND-4115
MAJOT PROJECT / DISSERTATION

Course Outcomes:

After passing course the student will be able to:

CO1: Apply the tools and techniques learnt to frame problems and their corresponding solutions.
CO2: Develop skills necessary to structure, manage and execute projects.
CO3: Learn to work as a member of a cohesive unit.
CO4: Develop presentation skills.
CO5: Perform documentation related to development of the project.