

(Annex-4)

**MADHYA PRADESH BHOJ (OPEN) UNIVERSITY,  
Raja BhojMargKolar Road, BHOPAL (M.P.)**



**M.Sc Cyber Security**

**II Year**

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## M.Sc Cyber Security - II year

S.No	Paper_Desc	Assign ment Max	Assign ment Min	Theory Max	Theory Min	Max	Min
1	Principles of Cyber Security	30	15	70	28	100	43
2	Cyber Attacks & Counter Measures: User Perspective	30	15	70	28	100	43
3	Cloud Computing	30	15	70	28	100	43
4	Application and Network Security Course	30	15	70	28	100	43
5	Introduction to Hacking	30	15	70	28	100	43
6	Cyberspace and Its Governance	30	15	70	28	100	43
7	LAB : APPLICATION CYBER SECURITY LAB					100	50
8	LAB : NETWORK CYBER SECURITY LAB					100	50

### MSCS0201:Principles of Cyber Security

- UNIT 1: Cyber Security Essentials Learning Objectives , What is Cyber Security ,Indian Cyberspace , Security Concepts ,Basic Cryptography , Public Key Infrastructure ,
- UNIT 2: Attack Vectors, Threat, Risk And Vulnerability Learning Objectives , Introduction, Key Terminologies, Attack, Risk Assessment ,
- UNIT 3: Advance Persistent Threat And Cyber Kill Chain Learning Objectives , Understanding the Problem, Advance Persistent Threat,Cyber Kill Chain,
- UNIT 4: Cyber Security Framework Learning Objectives Introduction, Cyber security Policy, Cyber security Regulations in INDIA, Cyber security Regulations In Other Countries, Cyber security Policy Framework,
- UNIT 5: Information Warfare, Cyber terrorism, and Hacktivism, Terrorism, Radicalization, and The War of Ideas, Trade Secret Theft and Economic Espionage, National Security

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## **MSCCS 202: Cyber Attacks & Counter Measures: User Perspective**

- UNIT 1: Learning Objectives, Introduction, Cyber Attack, Types of Cyber Attack and Threats, Motivation.
- UNIT 2: Learning Objectives, Introduction to Asset, Vulnerability and Threats, Risk Management.
- UNIT 3: Organization Security & Frameworks Learning Objectives, Introduction to Information Security Framework, Policies, Standards, Baselines, Guidelines and Procedures.
- UNIT 4: Introduction to Cryptography Learning Objectives, Introduction, Definition of Computer Forensics, Cyber Crime, Evolution of Computer Forensics, Stages of Computer Forensics Process, Benefits of Computer Forensics, Uses of Computer Forensics, Objectives of Computer Forensics, Role of Forensics Investigator, Forensics Readiness, Issues Facing Computer Forensics.
- UNIT 5: INFORMATION SECURITY GOVERNANCE Introduction to information security governance, Desired Outcome, Benefits of Information Security Governance, Importance of information security and information security governance, legal frameworks, Sarbanes-Oxley Act (SOX), Health Insurance Portability and Accountability Act (HIPAA), Gramm-Leach-Bliley Act of 1999 (GLBA), Security standards and procedure, Why do we need security standards?.

## **MSCCS 203: Cloud Computing**

- UNIT 1: Infrastructure as a Service & Platform as a Service Learning Objective, Cloud Service Models, Infrastructure as a Service, Platform as a Service, Case Studies.
- UNIT 2: Software as a Service and Database as a Service Learning Objectives, Software as a Service (SaaS), Database as a Service (DBaaS).
- UNIT 3: Security as a Service Learning Objectives, Introduction to Security as a Service, Cloud Security Risk analysis, SECaaS Categories, Benefits Of Security As A Service, Evaluation of Cloud Security Issues, Cloud Security Standards.
- UNIT 4: Specialized Cloud Services Learning Objectives, Recovery as a Service (RaaS), Identity as a Service (IDaaS), Storage as a Service, Communication as a Service (CaaS).
- UNIT 5: Cloud Security: Top concern for cloud users, Risks, Privacy Impact Assessment, Cloud Data Encryption, Security of Database Services, OS security, VM Security, Security Risks Posed by Shared Images and Management OS, XOAR, A Trusted Hypervisor, Mobile Devices and Cloud Security Cloud Security and Trust Management: Cloud Security Defense Strategies, Distributed Intrusion/Anomaly

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Detection, Data and Software Protection Techniques, Reputation-Guided  
Protection of Data Centers

### MSCCS-204

#### Application and Network Security Course

- UNIT 1 Desktop Security, Programming Bugs and Malicious Codes, Database Security, Operating System Security
- UNIT 2 Disaster Recovery, Digital Signature, Ethical Hacking, Penetration Testing, Computer Forensics
- UNIT 3 ISO 27001, cyber law and it act-2000, international standards for cyber security audit and investigation, cyber security solutions
- UNIT 4 E-mail security, web application security, web browser security, e-commerce security
- UNIT 5 Wireless network security, security issues in wireless networks, securing a wireless network, mobile device security

### MSCCS205 : Introduction to Hacking

- UNIT 1 Introduction: Hacking, Types of Hacking/Hackers, Cybercrime, Types of cybercrime, Hacker Mind set, Threats, Concept of ethical hacking, , Phases involved in hacking, Role of Ethical Hacking, Common Hacking Methodologies, Profiles of Hackers, Benefits of Ethical Hacking, Limitations of Ethical Hacking
- UNIT 2 Foot Printing & Reconnaissance: Introduction to foot printing, Use of foot printing, Types of foot printing, Understanding the information gathering process, Information on a company website, methodology of the hackers, Tools used for the reconnaissance phase.
- UNIT 3 System Hacking: System hacking, Types of System hacking, hacking tools, Computer Hole, Hacking Process, Various methods of password cracking, Remote Password Guessing, Role of eavesdropping, Keystroke Loggers, Types of Keystroke Loggers, Detection, Prevention and Removal
- UNIT 4 Sniffers: Introduction, Sniffer, Types of Sniffer, Protocols Susceptible to Sniffing, Active and Passive Sniffing, ARP Spoofing, ARP Spoofing, ARP Poisoning, DNS Spoofing Techniques, MAC Flooding, Sniffing Countermeasures. Block -02 Hacking Techniques
- UNIT 5 Trojans, Backdoors, Viruses, and Worms: Overt and Covert Channels, Types of Trojans, Reverse-Connecting Trojans, Netcat Trojan ,Indications of a Trojan

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Attack, Wrapping, Trojan Construction Kit and Trojan Makers , Countermeasure Techniques in Preventing Trojans, Trojan-Evading Techniques, System File Verification Sub objective to Trojan Countermeasures Viruses and Worms, Difference between a Virus and a Worm, Types of Viruses, Understand Antivirus Evasion Techniques, Understand Virus Detection Methods..

## MSCCS-206

### Cyberspace and Its Governance

- UNIT 1      Cyberspace – An Overview of the Concept, Inherent Characteristics of Cyberspace Forms of Cyberspace Regulations, Cyberspace Regulatory Theory of Lawrence Lessig
- UNIT 2      Outline of Legislative Framework for Cyber Law, History and Emergence of Cyber Law Outreach and Impact of Cyber Law, Major Amendments in Various Statutes
- UNIT 3      Establishment of Personal Jurisdiction in Cyberspace, Overview of Tests and Interactivity Jurisdictional Approaches of Online Contract, Basis of Jurisdiction and Indian Approach
- UNIT 4      Indian Constitution and Freedom of Expression, Examination of Rights Under Indian Laws, The Legislative Responses in Cyberspace, National Sovereignty And Freedom Of Expression

### LAB : APPLICATION CYBER SECURITY LAB

Expt-1 Study of steps to protect your personal computer system by creating User Accounts with Passwords and types of User Accounts for safety and security.

Expt-2 Study the steps to protect a Microsoft Word Document of different version with different operating system.

Expt-3 Study the steps to remove Passwords from Microsoft Word

Expt-4 Study various methods of protecting and securing databases.

Expt-5 Study “How to make strong passwords” and “passwords cracking techniques”.

Expt-6 Study the steps to hack a strong password.

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## LAB : NETWORK CYBER SECURITY LAB

Expt-1 Study of different wireless network components and features of any one of the Mobile Security Apps.

Expt-2 Study of the features of firewall in providing network security and to set Firewall Security in windows.

Expt-3 Steps to ensure Security of any one web browser (Mozilla Firefox/Google Chrome)

Expt-4 Study of different types of vulnerabilities for hacking a websites / Web Applications.

Expt-5 Analysis the Security Vulnerabilities of E-commerce services.

Expt-6 Analysis the security vulnerabilities of E-Mail Application.

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