| RGPV (DIPLOMA WING) BHOPAL | OBE CURRICULUM FOR THE COURSE | FORMAT-3 | Sheet No. 1/5 |
|---|---|---|---|
| **Branch** | **Computer Science & Engineering** | **Semester** | **VI** |
| **Course Code** | | **Course Name** | **Network and Cyber Security** |

| | | | |
|---|---|---|---|
| **Course Outcome- 1** | **Identify Information system security issues and attacks.** | **Teach Hrs** | **Marks** |
| **Learning Outcome 1** | **Explain fundamental concepts of information system** | 8 | **10** |
| **Contents** | Introduction to information system, PAIN: privacy, authentication, integrity, Non-repudiation, issues in information security, goals of information system, architecture of information system, privacy policy of information system. | | |
| ***Method of Assessment*** | External: End semester theory examination (Pen paper test). | | |
| **Learning Outcome 2** | **Illustrate the concept and issues of hacking** | **8** | **10** |
| **Contents** | Introduction to hacking, types of hacking: phishing, cookie theft, Dos, DNS Spoofing, types of hackers: black ,grey, white hackers, ethical hacking, penetration testing, issues in ethical hacking | | |
| ***Method of Assessment*** | Internal pen paper test | | |
| **Learning Outcome 3** | **Explain the DoS (Denial of Service Attack)** | **8** | **10** |
| **Contents** | Denial of service attacks, Flooding attack, distributed denial of service attacks, application based bandwidth attack, defense against DoS, responding to DoS | | |
| ***Method of Assessment*** | External: End semester theory examination (Pen paper test). | | |
| **Course outcome 2** | **Describe cryptography, encryption and decryption techniques** | **Teach Hrs** | **Marks** |
| **Learning Outcome 4** | **Determine the common type of cryptographic ciphers** | **10** | **10** |

| RGPV (DIPLOMA WING) BHOPAL | OBE CURRICULUM FOR THE COURSE | FORMAT-3 | Sheet No. 2/5 |
|---|---|---|---|
| **Branch** | **Computer Science & Engineering** | **Semester** | **VI** |
| **Course Code** | | **Course Name** | **Network and Cyber Security** |

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|---|---|---|---|
| **Contents** | Basic elementary cryptography, Steganography, characteristics of modern cryptography, cryptography techniques : encryption decryption, hash function, MaC, introduction to ciphers, types of ciphers : substitution cipher ,transposition ciphers , block ciphers (AES and DES) techniques | | |
| ***Method of Assessment*** | External: End semester theory examination (Pen paper test). | | |
| **Learning Outcome 5** | **Compare symmetric and asymmetric encryption systems** | **9** | **10** |
| **Contents** | Components of cryptosystem,Types of cryptosystem: symmetric and Asymmetric key encryption, challenges of symmetric and asymmetric cryptosystem,Key management in cryptography: public and private key cryptosystem, challenges of public key system.Attacks of cryptosystem: passive attack ,active attack | | |
| ***Method of Assessment*** | Internal: Pen paper test | | |
| **Learning Outcome 6** | **Apply authentication techniques** | 7 | **10** |
| **Contents** | Introduction to authentication, need of authentication<br>Authentication techniques:- message authentication, digital signature<br>Encryption Algorithm: RSA Algorithm. | | |
| ***Method of Assessment*** | External: Laboratory observation and viva voce. | | |
| ***Course outcome 3*** | **Determine data protection Techniques from intrusion and other threats** | | |
| **Learning Outcome 7** | **Examine security policies of Operating System** | 6 | **10** |
| **Contents** | Introduction to Intrusion detection system , Intrusion prevention system, Security policies of operating system. | | |
| ***Method of Assessment*** | External: Laboratory observation and viva voce. | | |

| RGPV (DIPLOMA WING) BHOPAL | OBE CURRICULUM FOR THE COURSE | FORMAT-3 | Sheet No. 3/5 |
|---|---|---|---|
| **Branch** | **Computer Science & Engineering** | **Semester** | **VI** |
| **Course Code** | | **Course Name** | **Network and Cyber Security** |

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| **Learning Outcome 8** | **Distinguish between different types of security threats** | **8** | **10** |
| **Contents** | Introduction of malware, types of malware: Viruses, Trojan horse, malicious codes , logic bombs, ransom wares, zombies<br>Security threats to system : hacking ,cracking, sneaking | | |
| ***Method of Assessment*** | External: End semester theory examination (Pen paper test). | | |
| **Learning Outcome 9** | **Explain firewall securities of windows** | 10 | **10** |
| **Contents** | Introduction to firewalls, Types of Firewalls, Need of firewalls, Function of firewalls, enabling and disabling firewalls, User Management in firewall , VPN Security<br>Basic functions of Antivirus, advantages and disadvantages of antivirus, Differentiate between Firewalls and Antivirus, some examples of ant viruses. | | |
| ***Method of Assessment*** | External: End semester theory examination (Pen paper test). | | |
| ***Course outcome 4*** | **Analyze the Regulatory framework for ensuring a Secure Cyberspace** | | |
| **Learning Outcome 10** | **Classify particulars of cyber Security** | **7** | **10** |
| **Contents** | Introduction to cyber space, cyber-attacks and its types, cyber-crime, cyber terrorism, the state and Private Sector in Cyberspace. Difference between cyber security and information security | | |
| ***Method of Assessment*** | External: End semester theory examination (Pen paper test). | | |
| **Learning Outcome 11** | **List steps to ensure security of web browser** | 8 | **10** |
| **Contents** | E-mail security services, concept of web services, characteristics of web services, architecture of web services, components of web services, implementation of web browser security, web security standards. | | |
| ***Method of Assessment*** | Internal : Laboratory observation / Lab File | | |

| RGPV (DIPLOMA WING) BHOPAL | | OBE CURRICULUM FOR THE COURSE | | FORMAT-3 | Sheet No. 4/5 |
|---|---|---|---|---|---|
| **Branch** | **Computer Science & Engineering** | | | **Semester** | **VI** |
| **Course Code** | | **Course Name** | **Network and Cyber Security** | | |

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| **Learning Outcome 12** | **Elaborate features of any mobile security app** | 7 | **10** |
| **Contents** | Wireless security basics: concepts, access points, network, standards, wi-fi authentication modes, Wireless threats and its types, Security challenges in mobile device and cloud security | | |
| ***Method of Assessment*** | Internal : Laboratory observation | | |
| **Learning Outcome 13** | **Demonstrate security vulnerabilities of e-commerce** | 8 | **10** |
| **Contents** | Essentials of e-commerce security, steps to ensure security, electronic payment system, types of electronic payment system, security in electronic payment system. | | |
| ***Method of Assessment*** | External: Laboratory observation and viva voce. | | |
| **Course Outcome - 5** | **Summarize security standards and cyber laws** | **Teach Hrs** | **Marks** |
| **Learning Outcome 14** | **Discuss the Cyber security standards and its basic laws** | 8 | **10** |
| **Contents** | Cyber Law overview and its objectives, Introduction to Cyber Security Regulations and strategies, Roles of International Law, Basics of ISO27001, Introduction to Indian IT Act 2000, IPR laws, offenses and penalties. | | |
| ***Method of Assessment*** | External: End semester theory examination (Pen paper test). | | |
| **Learning Outcome 15** | **Interpret Legal information security governance and regulatory issues.** | 8 | **10** |
| **Contents** | Security audit procedures, Developing security policies, disaster recovery, legal privacy information and the law | | |
| ***Method of Assessment*** | Internal: Short Answer Type Test/Quiz/Pen Paper Test | | |

**REFERENCE BOOKS:**

| S No | Title & Publication | Author |
|---|---|---|
| 1 | Cryptography and Network Security (principles and approaches) | William Stallings Pearson Education |
| 2 | Principles of Information Security | Whitman, Thomson. |
| 3 | Network Security Essentials (Applications and Standards) | William Stallings Pearson Education |
| 4 | https://en.wikipedia.org/wiki/Information_Technology_Act,_2000 | |
| 5 | https://en.wikipedia.org/wiki/IT_law | |
| 6 | E-books/E-tools/Relevant software to be used as recommended by AICTE/NITTTR/RGPV | |

## Suggested List of Experiments:

1. Write a program to implement concept of authentication. (Collect a password from user and test for user validity).
2. Write a program to implement the concept of RSA algorithm.
3. Install intrusion detection software and monitor behavior of other software.
4. Install and configure windows firewall
5. Install and configure security protocols on windows.
6. Configure browser security with different extensions.
7. Install and configure SMTP sever.
8. Install and configure antivirus software for security.
9. Configure wireless network and its security protocol.
10. Study and implementation of e-commerce security protocols and software.
11. Setup secure network in laboratory.