GUJARAT TECHNOLOGICAL UNIVERSITY

<u>Master in Computer Application (Integrated MCA)</u>

Year IV – (Semester-VII) (W.E.F. June 2016)

Subject Name: Information Security
Subject Code: 4470621

Objectives: -
1. Identify and list various security related terms
2. State the importance and identify where they are needed for security processes like authentication, access control, cryptography
3. Differentiate between malicious and non malicious coding
4. Identify a countermeasure for a given problem

Content: -

Unit No.	Course Content	No Of Lectures
1	**Security problem in computing** The meaning of Secure, Attacks, vulnerabilities, threats, control methods opportunities and motive, Security goals and vulnerabilities, Types of computer criminals from armature to career criminals, Defense methods	06
2	**Program security & Trusted OS** Secure Programs, Finding faults, unexpected behavior, Types of Flaws, Non malicious program errors, buffer overflow, incomplete mediation, time related errors, combination of non-malicious program flaws What is a trusted system, Military and commercial security policies, models of security, multilevel security?	09
3	**Database security and Threats in networks** Integrity requirements, Element integrity, auditability, access control, user authentication, Integrity, confidentiality, availability, Network vulnerabilities, who attacks networks, Reconnaissance, threats in transit, protocol flaws, integrity and confidentiality threats, website and other vulnerabilities, complex attacks	09
4	**Administrative Security** Security planning, members, commitment, incident response, business continuity, Risk analysis, organization security policies, characteristics of good policy, examples	08

5	**Privacy in computing & Protecting programs and data** Privacy concepts, computer related privacy problems, US and non US privacy policies, Identity theft, authentication and privacy Copy rights, patents, trade secrets, protection of computer objects.	07

Text Book

Security in computing, Charles P, Pfleeger, Shari Lawrence Pfleeger, 4th edition, PHI

Reference book

Information security fundamentals by Thomas R Peltier, Justine Peltier Johm Blackley, Special Indian Edition, Auerbach

Chapter wise coverage from the text books

Chapter 1: Complete
Chapter 3: 3.1, 3.2
Chapter 5: 5.1, 5.2, 5.3
Chapter 6: 6.1, 6.2
Chapter 7: 7.2
Chapter 8: 8.1, 8.2, 8.3
Chapter 10: 10.1, 10.2, 10.3
Chapter 11: - 11.1

Practical

Note: -Practical should be ideally performed using Python or Java, should explore complete security libraries and have knowledge about functions/classes related to what they study in theory.

The student should be able to write programs to encrypt, authenticate, communicate securely, use secure hash function for message digest, implement trusted OS and network concepts and managing privacy