DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE MODULE

Faculty Name/s: **Mrs. Divyashree D A**			Academic Year:2025-2026				
Department: Electronics & Communication Engg.							
Course Code	Course Title	Core/Elective	Prerequisite	Contact Hours			Total Hrs/ Sessions
				L	T	P	
BEC714B	**Computer and Network Security**	**Core**	**Basics of Electronics**	**3**	**-**	**-**	**40**

Course objectives: This course will enable students to:

- Preparation: To prepare students with fundamental knowledge/ overview in the field of Network Security with knowledge of security mechanisms and services, Vulnerabilities in the host machines.
- Core Competence: To equip students with a basic foundation on computer as well as network security by delivering the basics of malicious software, intrusion detection, vulnerability Analysis, auditing as well as securities related to network, system, user and programs

Topics Covered as per Syllabus

MODULE-I

Attacks on Computers and Computer Security: Need for Security, Security Approaches, Principles of Security Types of Attacks. (Text2: Chapter1)
Security Mechanisms, Services and Attacks, A model for Network security (Text1: Chapter1: 3, 4, 5, 6)

(RBT: L1, L2 and L3)

MODULE-2

Malicious Logic: Introduction, Trojan Horses, Computer Viruses, Computer Worms, Other Forms of Malicious Logic, Defenses (Text 3: Chapter 12)
Vulnerability Analysis: Introduction, Penetration Studies, Vulnerability Classification, Frameworks (Text 3: Chapter 13)

(RBT: L1, L2 and L3)

MODULE – 3

Auditing: Definitions, Anatomy of an Auditing System, Designing an Auditing System, A Posterior Design, Auditing Mechanisms, Examples, Audit Browsing (Text 3: Chapter 14)
Intrusion Detection: Principles, Basic Intrusion Detection, Models, Architecture, Organization of Intrusion Detection Systems, Intrusion Response (Text 3: Chapter 15)

(RBT: L1, L2 and L3)

MODULE-4

Network Security: Introduction, Policy Development, Network Organization, Availability and Network Flooding, Anticipating Attacks (Text 3: Chapter 16)
System Security: Introduction, Policy, Networks, Users, Authentication, Processes, Files, Retrospective (Text 3: Chapter 17)

(RBT: L1, L2 and L3)

MODULE-5

User Security: Policy, Access, Files and Devices, Processes, Electronic Communications (Text 3: Chapter 18)
Program Security: Introduction, Requirements and Policy, Design, Refinement and Implementations (Text 3: Chapter 19: Section 1, 2, 3, 4)
(RBT: L1, L2 and L3)

List of Text Books

1. William Stallings, "Cryptography and Network Security Principles and Practice", Pearson Education Inc., 6th Edition, 2014, ISBN: 978-93-325-1877-3
2. Atul Kahate, "Cryptography and Network Security", TMH, 2003.
3. Matt Bishop, Sathyanarayana S Venkatramanayya, "Introduction to Computer Security", Pearson Education, 2006, ISBN 81-7758-425-1

List of Reference Books

1. Cryptography and Network Security, Behrouz A Forouzan, TMH, 2007.

List of URLs, Text Books, Notes, Multimedia Content, Web links and Video Lectures (e-Resources) etc

Printed Copy (Soft Copy): Available

Course Outcomes: At the end of the course, the student will be able to:	
CO1: Explain the various types of attacks on computer and network security from malicious logic and intruders.	**L1, L2, L3**
CO2: Explain how to analyze the various vulnerabilities in the system which can compromise the security.	**L1, L2, L3**
CO3: Explain how auditing is essential to detect intrusion or suspicious activities in the system.	**L1, L2, L3**
CO4: Explain the process involved to provide security with respect to network, system, user and program.	**L1, L2, L3**
Internal Assessment Marks: 50 (25 Marks for test and Internal Assessment Test for 25 Marks)	

The Correlation of Course Outcomes (CO's) and Program Outcomes (PO's)

Subject Code:	**BEC714B**		**TITLE: Computer and Network Security**						**Faculty Name:**			**Mrs. Divyashree D A**			
List of Course Outcomes	**Program Outcomes**												**PSO**		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO-1	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**3**	**2**	**2**
CO-2	**3**	**3**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**3**	**2**	**1**
CO-3	**3**	**-**	**2**	**2**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**2**	**-**	**-**	**1**
CO-4	**3**	**2**	**2**	**-**	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**2**	**3**	**3**	**1**
Avg. CO	**3**	**2.33**	**2**	**2**	**3**	**2**						**2**	3	**2.33**	1

Note: 3 = Strong Contribution 2 = Average Contribution 1 = Weak Contribution - = No Contribution