NETWORK AND CYBER SECURITY

B.E., VIII Semester, Electronics & Communication Engineering

[As per Choice Based credit System (CBCS) Scheme

Subject Code	15EC835	IA Marks	20
Number of Lecture Hours/Week	03	Exam marks	80
Total Number of Lecture Hours	40 (8 Hours per Module)	Exam Hours	03

CREDITS – 03

Course Objectives: This course will enable students to:

- Know about security concerns in Email and Internet Protocol.
- Understand cyber security concepts.
- List the problems that can arise in cyber security.
- Discuss the various cyber security frame work.

Module-1	RBT Level
Transport Level Security: Web Security Considerations, Secure Sockets Layer, Transport Layer Security, HTTPS, Secure Shell (SSH) (Text 1: Chapter 15)	L1, L2
Module-2	
E-mail Security: Pretty Good Privacy, S/MIME, Domain keys identified mail (Text 1: Chapter 17)	L1, L2
Module-3	
IP Security: IP Security Overview, IP Security Policy, Encapsulation Security Payload (ESP), Combining security Associations Internet Key Exchange. Cryptographic Suites(Text 1: Chapter 18)	L1, L2
Module-4	
Cyber network security concepts: Security Architecture, antipattern: signature based malware detection versus polymorphic threads, document driven certification and accreditation, policy driven security certifications. Refactored solution: reputational, behavioural and entropy based malware detection. **The problems:** cyber antipatterns concept, forces in cyber antipatterns, cyber anti pattern templates, cyber security antipattern catalog (Text-2: Chapter1 & 2)	L1, L2, L3
Module-5	
Cyber network security concepts contd. : **Enterprise security using Zachman framework** Zachman framework for enterprise architecture, primitive models versus composite models, architectural problem solving patterns, enterprise workshop, matrix mining, mini patterns for problem solving meetings. **Case study:** cyber security hands on – managing administrations	L1, L2, L3

and root accounts, installing hardware, reimaging OS, installing system protection/ antimalware, configuring firewalls (Text-2: Chapter 3 & 4).	

Course Outcomes: After studying this course, students will be able to:

- Explain network security protocols
- Understand the basic concepts of cyber security
- Discuss the cyber security problems
- Explain Enterprise Security Framework
- Apply concept of cyber security framework in computer system administration

Question paper pattern:

- The question paper will have 10 full questions carrying equal marks.
- Each full question consists of 16 marks with a maximum of Three sub questions.
- There will be 2 full questions from each module covering all the topics of the module
- The students will have to answer 5 full questions, selecting one full question from each module.

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. Thomas J. Mowbray, "Cyber Security – Managing Systems, Conducting Testing, and Investigating Intrusions", Wiley.

Reference Books:

1. Cryptography and Network Security, Behrouz A. Forouzan, TMH, 2007.
2. Cryptography and Network Security, Atul Kahate, TMH, 2003.

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