

**DEPARTMENT OF INFORMATION TECHNOLOGY**



**LESSON PLAN**

**SUBJECT: CRYPTOGRAPHY & NETWORK SECURITY**

**BRANCH: 6<sup>TH</sup> SEM, IT**

**FACULTY NAME: MR. RABI KUMAR DARJI**

## Department of Information Technology

### Vision:

To focus on development of skilled and confident personalities of today and tomorrow by using cutting edge technology in the department of Information Technology to accept need based challenges with a sense of social responsibilities.

### Mission:

- M1: To impart quality education by implementing state-of- the- art teaching-learning methods to enrich the academic competency, credibility and integrity of the students.
- M2: To implement the educational program in our department from fundamental engineering to recent technology as per emerging trends in the field of Information Technology.
- M3: To facilitate a conducive ambience and infrastructure to develop professional skills and nurture innovation in students.
- M4: To inculcate sensitivity towards society, respect for environment and promote high standards of ethics.

## **LEARNING OUTCOMES:**

After completion of this course the student will be able to:

- Understand the basic concepts that of security approach.
- Learn about different attack on the computer systems.
- Learn about the measures to save computer hardware and software.
- Understand different certification to ensure security.
- Learn about basic concepts of firewalls and their use.
- Understand privacy and security.

# JES, JHARSUGUDA

## Lesson Plan

Name	RABI KUMAR DARJI	Total Hrs planned:60 Total Hrs per week:04
Subject: Code/Name	TH-1	Cryptography & Network Security
Semester/Programme/ Department	6 <sup>th</sup> Sem / Diploma/ Information Technology	Session: 2025 - 26
Course Objective	<ol style="list-style-type: none"> <li>1. To understand basics of Cryptography and Network Security.</li> <li>2. To be able to secure a message over insecure channel by various means.</li> <li>3. To learn about how to maintain the Confidentiality, Integrity and Availability of a data.</li> <li>4. To understand various protocols for network security to protect against the threats in the networks.</li> </ol>	

Sl. No	Detail Description of Topics/Subtopics	Mode of Lecture
1	<b>Chapter1: Possible attacks onComputers</b>	Chalk & talk
2	The need for security	Chalk & talk
3	Security approach	Chalk & talk
4	Principles of security	PPT
5	Types of attacks	NPTEL VIDEO
6	Revision of Chapter 1	Questionnaires
7	<b>Chapter2: Cryptography Concepts</b>	Chalk & talk
8	Plain text	NPTEL VIDEO
9	Cipher Text	Chalk & talk
10	Substitution techniques	Chalk & talk
11	Transposition techniques	NPTEL VIDEO
12	Encryption	Chalk & talk
13	Decryption	Chalk & talk
14	Revision of Chapter 2	Questionnaires
15	<b>Chapter 3: Symmetric &amp; Asymmetric key algorithms</b>	Chalk & talk

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16	Symmetric key	Chalk & talk
17	Types of algorithm in Symmetric key	Chalk & talk
18	Overview of Symmetric key cryptography	PPT
19	Data encryption standards	Chalk & talk
20	Over view of Asymmetric key cryptography	Chalk & talk
21	Creating an Object	Chalk & talk
22	The RSA algorithm	NPTEL VIDEO
23	Symmetric	Chalk & talk
24	Asymmetric key cryptography	
25	Digital signature	NPTEL VIDEO
26	Revision of Chapter 3	Questionnaires & Quiz
27	<b>Chapter 4: Digital certificate &amp; Public key infrastructure</b>	Chalk & talk
28	Digital certificates	PPT
29	Private key management	Chalk & talk
30	PKIX Model	Chalk & talk
31	Public key cryptography standards	NPTEL VIDEO
32	Revision of Chapter 4	Questionnaires

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33	<b>Chapter 5: Internet security protocols</b>	Chalk & talk
34	Basic concept	PPT
35	Secure socket layer	Chalk & talk
36	Secure socket layer	PPT
37	Transport layer security	NPTEL VIDEO
38	Secure Hyper text transfer protocol(SHTTP)	Chalk & talk
39	Difference between HTTP & SHTTP	PPT
40	Time stamping protocol (TSP)	Chalk & talk
41	Secure electronic transaction (SET)	Chalk & talk
43	Revision of Chapter 5	Questionnaires
44	<b>Chapter 6 : User authentication</b>	Chalk & talk
45	Authentication basics	Chalk & talk
46	Authentication basics	PPT
47	Password	NPTEL VIDEO
48	Authentication Tokens	Chalk & talk
49	Certificate based authentication	PPT
50	Biometric authentication	Chalk & talk
51	Difference between certificate based authentication & biometric authentication.	PPT
52	Revision of Chapter 6	Questionnaires
53	<b>Chapter 7 : Network Security &amp; VPN</b>	Chalk & talk
54	Brief introduction of TCP/IP	Chalk & talk
55	Firewall	NPTEL VIDEO
56	Why Do We Need Firewalls?	
57	IP Security	PPT
58	Components of IP Security	
59	Virtual Private Network (VPN)	NPTEL VIDEO
60	Revision of Chapter 7	Questionnaires

Text Book- 1(TB1 Cryptography & Network security; By: A. Kahate : TMH

Reference Book 1 (RB1): Cryptography & Network Security – Principals and Practices; By: W.Stallings, Prentice Hall.

  
SUBJECT FACULTY

  
H.O.D

DEAN (ACADEMIC)

PRINCIPAL