



## **Sub Committee for Curriculum Development**

**Course Name: Wireless Networks (as per cc)**

**(UG/PG): PG**

**Number of Credits: 03**

**Level: 4**

### **Learning Objective(s):**

To equip students with

- Thorough understanding of theory, principles and applications of wireless networks, wireless technologies, wireless infrastructure & wireless security measures.
- Wlan design and deployment
- Principles and functioning of cellular technologies

### **Pedagogy:**

- Lectures
- Class work discussion
- Case studies
- Video sessions
- Presentations
- Research by students

### **Pre-learning:**

- Network Fundamentals
- Layered Communication
- TCP-IP
- Cryptography Basics

## Course Content

Session	Topic	Hours
1	Introduction - Wired versus Wireless, Pro and Cons, Fundamentals of Wireless Communication, EM Spectrum, Jargons ,Wireless NW Standards, Hotspots	3
2	Deploying a Wireless Network - Infrastructure and Adhoc	1.5
3	Wi-Fi Hands-On	1.5
4	Design Principles of Wi-Fi Network - Overview of Various Infrastructure and Software	1.5
5	Wireless Infrastructure Product line : Cisco and others Wireless AP, Routers, Bridges, Wireless Controllers, PoE Devices , Antennae, Client Devices	1.5
6	Design Principles of Wi-Fi Network - Geography , Indoor/Outdoor Site Survey Techniques , WiFi Deployment - Indoor/Outdoor	1.5
7	Design Principles of Wi-Fi Network - Security Measures and Protocols -	1.5
8	<b>Wireless Security Protocols</b> - Algorithms 1 - AES, WEP, Packet Analysis	1.5
9	<b>Wireless Security Protocols</b> - Algorithms 2 - WPA, WPA2, Packet Analysis	1.5
10	Wireless Authentication- EAP, LEAP, Service Sets, 802.1X, RADIUS	1.5
11	<b>Wireless Security - Hardening a Wireless Network, Hacking Principles</b>	1.5
12	WEP/Mac Filtering	1.5
13	802.11 architecture, 802.11 vs. 802.1X, OSI layer and 802.11	1.5
14	Radio Frequency, Spread Spectrum Techniques, CSMA/CA	1.5
15	Wireless Antennae Types and Functionality	1.5
16	<b>Wireless Antennae Design and Deployment Principles</b>	1.5
17	Wireless Technologies : Infrared, Bluetooth, Private Area Networks	1.5
18	Bluetooth Architecture , Communication and Packet Analysis	1.5
19	Performance of Wireless LAN	1.5
20	<b>Case Study of Designing a Wireless Network</b>	1.5
21	<b>Case Study of Wireless LAN and Security Measures</b>	1.5
22	<b>Recent Trends, Technologies in Wi-Fi</b>	1.5
23	Recent Advancements in Wireless, Satellite and	3

	<b>Cellular Technologies</b>	
24	<b>Projects-1,2</b>	3
25	<b>Presentations</b>	3
26	Revision, Interaction	1.5

### Books Recommended

#### **CWNA: Certified Wireless Network Administrator Official Study Guide**

By: David D. Coleman; David A. Westcott Publisher: Sybex

**Building a Cisco Wireless Lan** : Syngress

### Suggested Evaluation Methods:

- 1) Moodle Based Examination
- 2) Open Book Written Examination
- 3) Research Based Assignments
- 4) Group Projects and Presentation
- 5) Viva Voce

### Parallel/Similar courses the existing curriculum:

S.No.	Name of the course	Institute where it was offered

Name of Member					
Designation					
Org. / Inst.					
Signature					

Name of the Expert:

Signature:

Date: