DSCE
Dept. of Information Science & Engg

DAYANANDA SAGAR COLLEGE OF ENGINEERING
(An Autonomous Institute Affiliated to VTU, Belagavi) Approved by AICTE & ISO 9001:2008 Certified)
Accredited by National Assessment & Accreditation Council (NAAC) with 'A' grade
Shavige Malleshwara Hills, Kumaraswamy Layout, Bengaluru-560078
DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING
SCHEME 2018

COMPUTER NETWORKS AND CYBER SECURITY

Course code: 18IS5DCCNS **Credits: 04**

L: P: T: S: 4: 0:0: 0 **CIE Marks: 50**

Exam Hours: 03 **SEE Marks: 50**

Total Hours: 50

Course Objectives:

1.To gain an insight into the functionality of network layer from a design and performance perspective.
2. To gain ample understanding of key concepts of transport layer protocols.
3. To understand the need and techniques for network security and cryptography.
4. To introduce the basic application layer protocols.

Course Outcomes: After completion of the course, the graduates will be able to

CO1	Develop capability to design networks based on their knowledge of layered communication architecture and its functionalities (TCP/IP) in teams.
CO2	Design and build solutions for problems in routing.
CO3	Know how the different Internet Protocol message formats are designed and implemented
CO4	Identify different types of networks, their management and security issues.
CO5	Comprehend areas affected by cyber crime
CO6	Investigate the use of tools used in cyber security

Mapping of Course outcomes to Program outcomes:

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	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	2	-	-	-	-	-	-	-	-	2	-	-	2
CO2	2	3	-	-	-	-	-	-	-	-	-	1	-	2	2
CO3	3	3	2	2	-	-	-	-	-	-	-	2	-	2	2
CO4	3	3	2	2	-	-	-	-	-	-	-	2	-	2	2
CO5	3	3	-	-	-	-	-	-	-	-	-	2	-	2	1
CO6	3	3	-	-	-	-	-	-	-	-	-	2	-	-	1

Unit	Contents of the experiment	Hours	Cos
1.	Packet Switching Networks-1: Network services and internal network operation, Packet network topology, Routing in Packet networks, Shortest path routing: Bellman-Ford algorithm. Shortest path routing.	10	CO1, CO2 & CO3, CO4
2.	Packet Switching Networks -2: Traffic management at the Packet level, Traffic management at Flow level, Traffic management at flow aggregate level.TCP/IP-1: TCP/IP architecture, The Internet Protocol, IPv6, UDP, Internet Routing Protocols.	10	CO1, CO2 & CO3, CO4
3.	Applications, Network Management, Network Security: Application layer overview, Domain Name System (DNS), Remote Login Protocols, E-mail ,File Transfer and FTP, World Wide Web and HTTP, Network management, Overview of network security, Overview of security methods, Secret-key encryption protocols, Public-key encryption protocols, Authentication, Authentication and digital signature	10	CO1, CO2, & CO3, CO4
4.	Introduction to Cybercrime: Cybercrime: Definition and Origins of the Word, Cybercrime and Information Security, Who are Cybercriminals?, Classifications of Cybercrimes, Cybercrime: The Legal Perspectives,	10	CO5& CO6

	Cybercrimes: An Indian Perspective, Cybercrime and the Indian ITA 2000, A Global Perspective on Cybercrimes, Cybercrime Era: Survival Mantra for the Netizens. Cyber offenses: How Criminals Plan Them: How Criminals Plan the Attacks, Social Engineering, Cyberstalking, Cybercafe and Cybercrimes.		
5.	Tools and Methods Used in Cybercrime: Introduction, Proxy Servers and Anonymizers, Phishing, Password Cracking, Keyloggers and Spywares, Virus and Worms, Trojan Horses and Backdoors, Steganography, DoS and DDoS Attacks, SQL Injection, Buffer Overflow, Phishing and Identity Theft: Introduction, Phishing	10	CO5& CO6

Self-study component:
UNIT 1: Source routing
UNIT 2: Multicast Routing
UNIT 3: Firewalls.
UNIT 4: Cybercafe and Cybercrimes.
UNIT 5: Identity Theft (ID Theft)

TEXT BOOKS:

1 Communication Networks – Fundamental Concepts & key architectures, Alberto Leon Garcia
&IndraWidjaja, 2nd Edition,Tata McGraw-Hill, India (7 - excluding 7.6, 8)
2 Computer & Communication Networks, Nadir F Mir, Pearson Education, India
(9, 10 excluding 10.7, 12.1 to 12.3, 16, 17.1 to 17.6, 18.1 to18.3,18.5, 19, 20)
3 SunitBelapure and Nina Godbole, "Cyber Security: Understanding Cyber Crimes,Computer Forensics And Legal Perspectives", Wiley India Pvt Ltd, ISBN: 978-81-265-21791, 2013.

REFERENCE BOOKS:

1. Behrouz A. Forouzan: Data Communications and Networking, 4th Edition, Tata McGraw-Hill, 2006.
2. William Stallings: Data and Computer Communication, 8th Edition,Pearson Education, 2007.

Assessment Pattern:

CIE –Continuous Internal Evaluation Theory (50 Marks)

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Bloom's Category	**Tests**	**Assignments**	**AAT1**	**AAT2**
Marks (Out of 50)	**30**	**10**	**05**	**05**
Remember	10			01
Understand	10	05	01	01
Apply	10	05	02	01
Analyze			02	
Evaluate				
Create				02

***AAT 1– Alternate Assessment Tool 1: Quiz**

AAT 2 - Alternate Assessment Tool 2: Surprise Test

SEE –Semester End Examination Theory (50 Marks)

Bloom's Category	**Marks Theory(50)**
Remember	10
Understand	20
Apply	10
Analyze	10
Evaluate	
Create	