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SEMESTER 6

KU6DSCCSC305:DATACOMMUNICATION AND COMPUTER NETWORKING

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
6	DSC	300-399	KU6DSCCSC305	4	60

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
4	0		30	70	100	2hrs.

Course Description:

The course data communication refers to the exchange of data between two or more networked or connected devices. The topics in this course include networking principles, Transmission Control Protocol/Internet Protocol, naming and addressing (Domain Name System), data encoding/decoding techniques, link layer protocols, routing protocols, transport layer services, congestion control, quality of service, network services, and Software Defined Networks.

Course Prerequisite: NIL

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Explain the basics of data communication, networking, internet and their importance	U
2	Identify the services and features of various protocol layers in data networks.	R/ U

3	Differentiate wired and wireless computer networks	R/U/A
4	Describe TCP/IP and their protocols.	U/A
5	Recognize the different internet devices and their functions.	U/A

**Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)*

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	3			2			2
CO 2	3	2		2			
CO 3	2						2
CO 4	3	2					
CO 5	3	2					2

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**MODULE TITLEIntroduction to data communication**	
		a) Ccomponents of data communication	12
	2	b) Network Transmission media- Guided media, Unguided media. Synchronous	
		c) Asynchronous data transmission. – Simplex, Half duplex, Duplex communication	
	3	Network topologies – star, Bus, ring, Mesh. , ,	
		a) Computer networks	
		b) Use	
	4	Hardware, network structure	
		a) point to point connection	
		b) multicast, broadcast	

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		c) classification of networks-LAN, WAN, MAN	

2	**MODULE TITLE: Reference models**		
	1	The OSI reference model, TCP / IP reference model.	
	2	Comparison between OSI and TCP / Ip models.	12
	3	Data Link Layer, Design issues,	
	4	Services to network layer	
	5	Framing- character count, character stuffing, bit stuffing, physical layer coding violation	
	6	Error control, flow control,	
	7	Elementarydata link protocols- unrestricted simplex protocol	
	8	simplex stop and wait protocol, simplex protocol for a noisy channel	

3	**MODULE TITLE: Network layer**		
	1	Design issues, services to the transport layer,	12
	2	a)Routing algorithms- adaptive, Non-adaptive algorithms	
		b) optimality principle, dijkstras shortest path routing algorithm,	
		c) flow-based routing, hierarchical routing	
	3	congestion control algorithms–the leaky bucket algorithm, the token bucket algorithm.	

4	**MODULE TITLE : Transport layer,**		
	1	Design issues , connection management-addressing	
		a) Establishing and releasing connection,	

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	2	Transport layer protocols- ,	12
		a) TCP	
		b) UDP	
	3	Application layer – Basic Idea oftelnet,	
		a) ftp, http, smtp, pop3	

5	**Teacher Specific Module**	
	Directions	
	Hands on training to identify and connect network devices. *Discussion on network issues in various design layers while communication*	12

Essential Readings:

1. Computer Networks, Andrew S. Tanenbaum& David J. Wetherall, Pearson

Suggested Readings:

7. Data Communication and Networking, Behrouz A. Forouzan, McGraw Hill Education.
8. Achyut S. Godbole and AtulKahate, Data communication and Networks, 2nd Ed, McGraw Hill
9. Computer Networking: A Top-Down Approach, Kurose James F. and Ross Keith W., Pearson.
10. R. S. Rajesh, K. S. Easwara Kumar and R. Balasubramanian, Computer Networks Fundamentals and Applications, Vikas Publishing House.

Assessment Rubrics:

Evaluation Type		**Marks**
End Semester Evaluation		**70**
Continuous Evaluation		**30**
a)	Test Paper- 1	5
b)	Model Examination	10

c)	Assignment- 2 Numbers	10
d)	Seminar	5
e)	Book/ Article Review	
f)	Viva-Voce	
g)	Field Report	
Total		**100**

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