

GOPALAN COLLEGE OF ENGINEERING AND MANAGEMENT

Department of Electronics & Communication Engineering

Academic Year: **2017**Semester: **EVEN**

COURSE PLAN

Semester: **VIII**

Subject Code& Name: Digital switching system&10EC82

Name of Subject Teacher: **DEEPA A**Name of Subject Expert (Reviewer): **KAVTHA M V**

For the Period: From: 23-01-17 to 02-06-17

Details of Book to be referred:

Text Books	T1: Telecommunication and Switching, Traffic and Networks - J E Flood: Pearson Education, 2002. T2. Digital Switching Systems, Syed R. Ali, TMH Ed 2002.
Reference Books	R1. Digital Telephony - John C Bellamy: Wiley India India Pvt. Ltd, 3rd Ed, 2008.

Lecture NO	Topic Planned	Practical Applications & Brief objectives	Book referred with Pg No.	Planned Date	Executed Date	Deviation Reasons thereof	How Made Good / Reciprocate arrangement	Remarks by HOD
1.	Introduction to the subject	Objectives: It deals with introduction of telecommunication systems. Mainly aims with historical development. Also deals with the telecommunication standards organizations.		06.02.17				
2.	UNIT-I Introduction		T1 1	06.02.17				
3.	Developments of telecommunications, network structure		T1 1-5	07.02.17				

4.	Network services, terminology, Regulation, Standards	Deals with the telephone systems, transmission systems . Evaluation of PSTN, electromechanical switching system Application: Cellular radio and intelligent control processes, mobile data services. Outcomes: Historical development of telecommunication networks and switching systems. The elements of switching systems. Students Able to Write the advantages and applications of telecommunications.	T1 8-12	08.02.17				
5.	Power levels, Four wire circuits		T1 17-23	09.02.17				
6.	Four wire circuits, Introduction to Digital transmission		T1 23-25	13.02.17				
7.	Time Division Multiplexing		T1 27-28	14.02.17				
8.	Frequency Division Multiplexing		T1 29-33	15.02.17				
9.	PDH, SDH,		T1 34-39	16.02.17				
10.	Transmission performance		T1 40-41	20.02.17				
11.	UNIT II Introduction		T1 49	21.02.17				
12.	Message switching		T1 49-56	22.02.17				
13.	Circuit switching, Functions of switching systems		T1 56-57	22.02.17				
14.	Distribution systems,	T1 64-65	23.02.17					
15.	Basics of crossbar systems	T1 66-69	27.02.17					
16.	Electronic switching	T1 76-78	28.02.17					
17.	Digital switching systems.	T1 80-84	01.03.17					
18.	DIGITAL SWITCHING SYSTEMS Purpose of analysis, Basic central office linkages	T2 3-6	01.03.17					

19.	Outside plant versus inside plant,	routing. 4. Transmission plan. 5. Numbering plan and charging plans Principle of cross bar switching.	T2 7	01.03.17				
20.	Switching system hierarchy, Evolution of digital switching systems		T2 7-9	02.03.17				
21.	Stored program control switching systems, Digital switching system fundamentals		T2 10-15	06.03.17				
22.	Building blocks of a digital switching system		T2 15-17	07.03.17				
23.	Basic call processing		T2 17-20	08.03.17				
24.	Revision/Test			08.03.17				
25.	UNIT-III Introduction		<p>Objectives: Objectives are the function and working principle of switching and signalling system along with historical overview and application.</p> <p>Application: Application mainly includes in the telecommunication system and in modern age.</p> <p>Outcomes: Students are able to Differentiate single stage and multistage networks.</p>	T1 87	13.03.17			
26.	Unit of traffic	T1 88-90		14.03.17				
27.	Congestion	T1 90-92		15.03.17				
28.	Traffic measurement, Mathematical model	T1 92-96		15.03.17				
29.	lost call systems	T1 96-98		16.03.17				
30.	Traffic carried by last choice trunk	T1 99		20.03.17				
31.	Numericals	T1		21.03.17				
32.	Queuing systems	T1 105-108		22.03.17				
33.	Queuing systems	T1 109-113		22.03.17				
34.	Queuing systems			23.03.17				

35.	UNIT-IV Introduction	<p>Objectives: Objectives are the function and working principle of switching and signalling system along with historical overview and application.</p> <p>Application: Application mainly includes in the telecommunication system and in modern age.</p> <p>Outcomes: Students are able to Differentiate single stage and multistage networks.</p>	T1 117	27.03.17				
36.	Single stage networks		T1 117-119	28.03.17				
37.	Gradings,		T1 119-121	30.03.17				
38.	Design of progressive grading, Skipped grading		T1 121-126	03.04.17				
39.	Two stage networks,		T1 129-135	04.04.17				
40.	Three stage networks ,Four stage networks		T1 137	05.04.17				
41.	GOS of linked systems,numericals		T1 138-142	05.04.17				
42.	Revision/Test			06.04.17				
43.	UNIT-V Introduction, space and time switching	<p>Objectives: Objective of time division switching network is disclosed using both time division switching stages and space division switching stages. The network is designed for high traffic volume and includes configurations in which the number of channels for one direction of transmission in each time-division stage group is equal to half the number of elementary network time slots.</p> <p>Application: Telephone headsets with microphones.</p> <p>Outcomes:</p>	T1 156-161	10.04.17				
44.	Time switching networks		T1 161-166	11.04.17				
45.	Synchronization		T1 167-170	12.04.17				
46.	Gos of Time-division switching networks		T1 170-173	12.04.17				
47.	Numericals		T1	13.04.17				

		Students are able to Design multi stage switching structures involving time and space switching stages.						
48.	UNIT-VIII Introduction, Scope	Objectives: Objectives of Telecommunications software architecture that controls message transmission over the network. Application: Routers, Modems, Switches, Bridges, and Gateways .Application Software for Personal, Enterprise & Workgroup objectives. Outcomes: Able to analyse performance of basic communication networks using both analytical and simulation techniques.	T2 166	20.04.17				
49.	Hardware architecture		T2 166-168	24.04.17				
50.	Software architecture		T2 169-170	25.04.17				
51.	Recovery strategy, Simple call through a digital system		T2 171-174	26.04.17				
52.	Simple call through a digital system ,Common characteristics of digital switching systems		T2 176-179	27.04.17				
53.	Analysis Report		T2 180	02.05.17				
54.	UNIT-VI Introduction, Scope, Basic software architecture	Objectives: Objective of the Software Communications Architecture (SCA) is an open architecture framework that tells designers how elements of hardware and software are to operate in harmony within a <u>software defined radio</u> .	T2 88	03.05.17				
55.	Operating systems, Database Management, Concept of generic program		T2 88-92	03.05.17				
56.	Software architecture for level 1 control, Software architecture for level 2 control		T2 92	04.05.17				
57.	Software architecture for level 3 control, Digital switching system		T2 93-97	08.05.17				

	software classification	of the U.S. military's <u>Joint actual Radio System (JTRS)</u> , enabling programmable radios to load waveforms run applications, and be networked into an integrated system.						
58.	Call models, Connect sequence, Software linkages during call, Call features, Feature flow diagram, Feature interaction	Outcomes: Ability to apply the knowledge of reliability modeling to determine the downtimes of the subsystems.	T2 98-104	09.05.17				
59.	Revision/Test			10.05.17				
60.	UNIT-VII Introduction, Scope, Software maintenance, Interface of a typical digital switching system central office	Objectives: The main purpose for introducing stored program control is to provide flexible systems where additions and changes can be introduced primarily through program modification rather than through changes in hardware.	T2 128-130	10.05.17				
61.	System outage and its impact on digital switching system reliability, Impact of software patches on digital switching system maintainability	Application: Electronic exchanges.	T2 131-132	11.05.17				
62.	Embedded patcher concept, Growth of digital switching system central office	Outcomes: Able to troubleshoot the telecommunication network systems. Able to develop the process of the telecommunication system	T2 132-133	18.05.17				
63.	A methodology for proper maintenance of digital switching system		T2 133-134	22.05.17				
64.	Effect of firmware deployment, Firmware-Switching system maintainability metrics		T2 135-138	23.05.17				
65.	Upgrade process success rate, Diagnostic resolution rate, A strategy improving software quality, Defect analysis		T2 138-144	23.05.17				

66.	Revision & QP solving			24.05.17				
67.	Revision & QP solving			25.05.17				
68.	Revision & QP solving			29.05.17				
69.	Revision & QP solving			30.05.17				
70.	Revision & QP solving			31.05.17				
71.	Revision & QP solving			31.05.17				
72.	Revision & QP solving			01.06.17				

Prepared By: _____
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 Date & Sign _____

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