

COURSE NAME : ELECTRONICS ENGINEERING GROUP
COURSE CODE : EJ/ET/EX/EN/DE/ED/EI
SEMESTER : SIXTH FOR ET/EJ/EN/EX/DE AND SEVENTH FOR ED/EI
SUBJECT TITLE : TELEMATICS (ELECTIVE-II)
SUBJECT CODE : 9175

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme						
TH	TU	PR	PAPER HRS	TH	TEST	PR	OR	TW	TOTAL
03	--	02	03	80	20	--	25#	25@	150

Rational:

In the telecommunication field still the landline telecommunication users are in huge amount because of clear and cheap service, so it becomes very essential to learn the different landline services, operations, and maintenance of telephone system.

This subject is a technology subject which expert the student for fault finding, servicing & maintaining the telephone instrument and EPABX system.

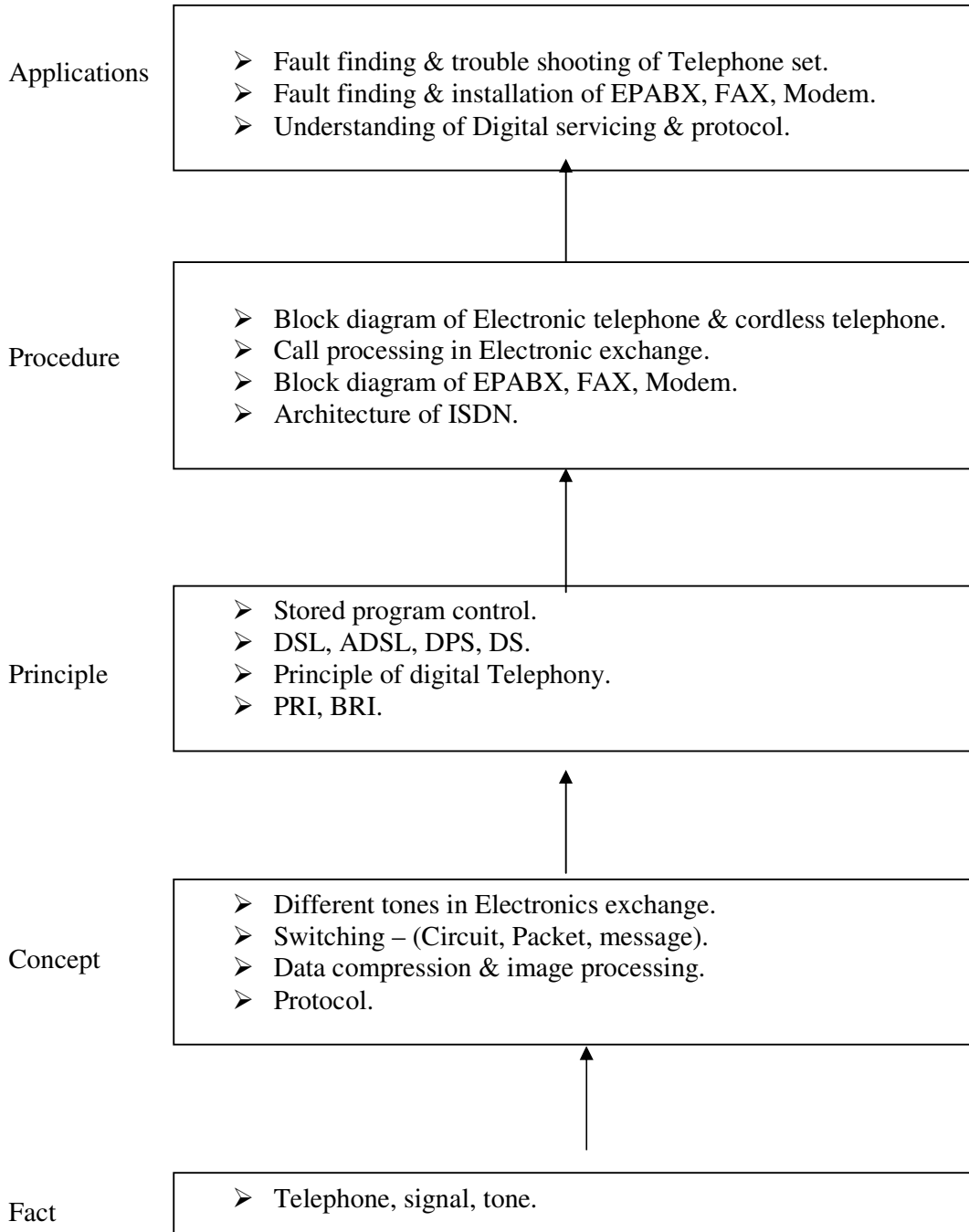
This subject covers the telephone instrument, switching, EPABX, cordless telephone, Fax, modem & ISDN.

Objectives:

The student will be able to:

1. Identify different sections of telephone receiver.
2. Identify different tones used in telephone exchange.
3. Describe operation of cordless telephone.
4. Explain different digital switching system.
5. Explain analog and digital services.
6. Explain Principle and services provided by ISDN.
7. Install EPABX system.
8. Explain the operation of FAX and modem.

Learning Structure:



Contents: Theory

Chapter	Name of the Topic	Hours	Marks
01	Telephone Instrument and signals 1.1 Introduction. 1.2 Telephone receiver 1.2.1. Block diagram & operation of electronic telephone. 1.3 Tones used in telephone exchange dial tones, busy tone, ring tone, number unobtainable tone. 1.4 Touch tone (DTMF) 1.5 Block diagram of cordless telephone system 1.5.1 Frequency allocation.	04	08
02	Digital Switching System. 2.1 Introduction 2.2 Classification of switching system 2.3 Telecommunication network – trunks, subscriber lines, 2.4 Basic of switching system.- Inlets, outlets symmetric network, folded network, blocking network, non blocking network 2.4.1 Elements of Switching system 2.5 SPC (Stored program control) 2.6 Centralize SPC 2.7 Distributed SPC 2.8 Enhanced services 2.9 Telephone Network 2.9.1 Subscribers loop system – MDF,MF, FP, BF,DP,DC,DW 2.9.2 Switching Hierarchy routing 2.9.3 Numbering plan- Telephone number.	08	12
03	Analog, Digital Services and Applications of Telecommunication. (only informative treatment) 3.1 Analog services – Switched, leased, local call service, Toll call services, 800 services, WATs, 900 services. 3.2 Digital services- switched / 56, Digital data service (DDS), Digital signal services (DS). 3.3 Digital subscriber line (DSL) – ADSL. 3.4 Business applications of telecommunication 3.4.1 Automated teller machines(ATM) 3.4.2 Videoconferencing 3.4.3 Banking, Shopping 3.4.4 Telecommuting 3.4.5 Distance Learning, Telemedicine	08	12
04	ISDN. 4.1 Motivation for ISDN 4.2 Services provide by ISDN. 4.3 X. 400 family of standards 4.4 Architecture of ISDN. 4.5 ISDN rate access interface 4.5.1 Primary rate access (PRI) interface. 4.5.2 Basic rate access (BRI) interface 4.6 Message format for ISDN 4.7 ISDN address structure	08	14

	4.8 Broad band ISDN. 4.9 Introduction to FAX 4.10 Working principle of FAX. 4.11 Image processing. 4.12 Data compression 4.13 Block diagram & operation of FAX machine. 4.15 Introduction to Modem. 4.16 Working principle of Modem. 4.17 Types of Modem- Synchronous, A Synchronous, half duplex & full duplex. 4.18 Block schematic of Modem. 4.19 ADSL & cable Modem		
05	Telephone Instrument (DTMF) 5.1 Tone Type 5.2 MF 5.3 Wireless Telephone 5.4 FAX 5.5 ISDN Installation 5.6 ISDN Procedure 5.7 PRZ, BRZ Line 5.8 ISDN telephone 5.9 FAX 5.10 Conferencing 5.11 Internet	04	08
06	EPABX (Electronic private automatic business exchange). 5.1 Block diagram 5.2 Signal Processing (working) 5.2.1 Analog CMOS cross point switch. 5.2.2 Digital TDM / PCM switch. 5.2.3 Installation procedure for EPABX.	08	12
07	EPABX 7.1 Installing Procedure 7.2 Programming on Console, on terminal, on computer 7.3 Maintenance technique 7.4 Voice Over IP Phone 7.5 Wiring Diagram	08	14
	Total	48	80

Practical:

Skills to be developed:

Intellectual Skills:

1. Reading
2. Sourcing of Web sites

Motor Skill:

1. Testing
2. Measurement

List of Practical:

1. Testing and installation of fixed telephone
2. Testing and installation of cordless telephone
3. Visit to Telephone exchange and prepare report.
4. Draw the layout of given EPABX system.
5. Installation and testing of EPABX system.
6. Preparation and installation of wiring layout using MDF, CT boxed box.
7. Installation of FAX machine.
8. Installation of MODEM.

Learning Resources:**Books:**

Sr. No.	Author	Title	Publisher
01	T. Vishwanathan	Telecommunication switching systems and networks	Prentice Hall of India
02	Louis E. Frenzel	Communication Electronics	Tata McGraw-Hill
03	Behrouz A. Forouzan	Data Communication working	Tata McGraw-Hill
04	N.N Biswas	Principle of Telephony	--
05	H. Carr and C. Snyder	Management of Telecommunication	Tata McGraw-Hill