COURSE TITLE	**INTRODUCTION TO COMMUNICATION ENGINEERING**
COURSE CODE	**01CT1303**
COURSE CREDITS	**3**

Objective:

1 This course explores the fundamentals of electronic communication systems it provides the basic knowledge of Analog and Digital transmission, multiplexing, Transmission medium and reception. It also provides a brief overview of satellite and fiber optics communication.

2 This course explores the fundamentals of electronic communication systems it provides the basic knowledge of Analog and Digital transmission, multiplexing, Transmission medium and reception. It also provides a brief overview of satellite and fiber optics communication.

Course Outcomes: After completion of this course, student will be able to:

1 Understand various concepts of Signals, data communication, networking, switching techniques, transmission media and communication systems. [Understand]

2 Compare various analog to analog, analog to digital, digital to analog and digital to digital modulation techniques. [Analyze]

3 Analyze various concepts and methods for enhancement of channel capacity. [Analyze]

4 Analyze performance parameters of radio receiver. [Analyze]

5 Understand concepts of optical and satellite communication system. [Understand]

Pre-requisite of course: Basic electronics, Digital Electronics, and Basic Mathematics

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
3	0	0	50	30	20	0	0

Contents : Unit	Topics	Contact Hours
1	**Introduction to Electronic Communication** Significance of Human Communication, Communication systems, Types of electronic Communication, Modulation and Multiplexing, The electromagnetic Spectrum, A survey of Communication Applications.	4
2	**Introduction to Data Communication** Data Communication, Networks, The internet, Protocols and Standards.	2
3	**Data and Signals** Analog and Digital, Periodic analog signals, Digital Signals, Transmission Impairment, Data rate limits, Performance	4

MR. CHANDRASINH DHIRUBHA PARMAR
Digitally signed by (Name of HOD)

DR. RAJENDRASINH BAHADURSINH JADEJA
Digitally signed by (Name of Dean/ Principal)

Contents : Unit	Topics	Contact Hours
4	**Digital and Analog Transmission** Digital to Digital conversion, Analog to Digital conversion, ransmission modes, Digital to Analog conversion, Analog to Analog conversion	4
5	**Multiplexing and Spreading** Frequency division multiplexing, Wavelength division multiplexing, Time division multiplexing, pread Spectrum.	4
6	**Radio Receive** Tuned circuit, Filters, Classification of Noise, Functions of radio receivers, Types of Receivers, working of super heterodyne radio, tuning ranges, tracking, sensitivity and gain, image rejection, spurious responses, , Adjacent channel selectivity, Automatic gain control, Automatic Frequency control.	7
7	**Transmission Media** Guided media- Twisted Pair Cable, Co-axial cable, Fiber optic cable, Unguided media- Radio waves, Microwaves, Infrared	3
8	**Switching Network** Circuit switched network, Datagram networks, Virtual circuit networks.	3
9	**Introduction to telecommunication system** Telephone network, Dial-up modems, Digital subscriber line, Cable TV networks	3
10	**Introduction to satellite communication system** Satellite orbits, Three categories of satellite, Satellite communication systems, Satellite application, Global Positioning System (GPS)	5
11	**Introduction to Optical Communication** Optical Principles,, Optical Communication systems, Advantages and application of optical fiber.	3
Total Hours		**42**

Textbook :

1 Principles of Electronic Communication Systems, Louis E. Frenze, Tata-McGraw Hill., 2015

2 Data Communication and Networking, Behrouz A Forouzan, Tata- McGraw Hill, 2017

3 Introduction to Data and Network Communications, Michael A. Miller, Cengage Learning, 2010

References:

1 Satellite Communication, Satellite Communication, Dennis Rodd, TataMcGraw Hill., 2006

2 Optical Fiber Communication, Optical Fiber Communication, John M. Senior, PHI/Pearson, 2010

MR. CHANDRASINH DHIRUBHA PARMAR
Digitally signed by (Name of HOD)

DR. RAJENDRASINH BAHADURSINH JADEJA
Digitally signed by (Name of Dean/ Principal)

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Higher order Thinking / Creative**
20.00	20.00	35.00	15.00	5.00	5.00

Instructional Method:

1. The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.
2. The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room.
3. Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.
4. Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory

Supplementary Resources:

1. www.mhhe.com/frenzel/ecs3e
2. https://nptel.ac.in/courses/117/102/117102059/
3. https://www.tutorialspoint.com/principles_of_communication/principles_of_communication_introduction.htm

MR. CHANDRASINH DHIRUBHA PARMAR
Digitally signed by (Name of HOD)

DR. RAJENDRASINH BAHADURSINH JADEJA
Digitally signed by (Name of Dean/ Principal)