



Lok Jagruti Kendra University
University with a Difference

Diploma in Information Technology



Course Code: 025040402
Information Communication
Technology

Programme / Branch Name		Diploma in Information Technology				
Course Name	Information Communication Technology			Course Code	025040402	
Course Type	HSSC	BSC	ESC	PCC	OEC	PEC

Legends: HSSC: Humanities and Social Sciences Courses
 ESC: Engineering Science Courses
 OEC: Open Elective Courses

BSC: Basic Science Courses
 PCC: Program Core Courses
 PEC: Program Elective Courses

1. Teaching and Evaluation Scheme

Teaching Hours / Week / Credits				Evaluation Scheme			
L	T	P	Total Credit	CCE	SEE (Th)	SEE (Pr)	TOTAL
3	0	0	3	50	50	-	100

Legends:

L: Lectures T: Tutorial P: Practical
 CCE: Continuous & Comprehensive Evaluation
 SEE (Th): Semester End Evaluation (Theory)
 SEE (Pr): Semester End Evaluation (Practical)

2. Prerequisites

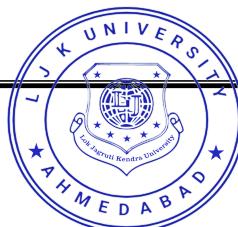
- ✓ Basic Knowledge of Computer Networking
- ✓ Knowledge of Data Communication Technologies

3. Rationale

The purpose of Information Communication Technology is to have a clear understanding for students about how communications and Information Technology are inseparable. This study incorporates the basic concepts and techniques used recently. After going through this course, the student will be able to distinguish between analogue and digital data techniques in communication technologies. They will learn about the traditional communication structure, the various architectures of a wireless network, its modulation, multiplexing and other important parameters. They will also learn the importance of network topologies, computer hardware and regulations applied to each layer of the OSI model.

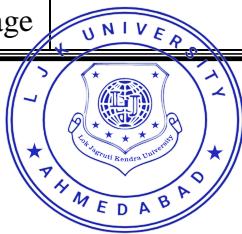
4. Objectives

- ✓ Acknowledging the role of technologies in modern society and the potential of social web.
- ✓ To help students to become a competent and confident user who can use the basic knowledge and skills acquired from ICT to assist them in their daily life communications.
- ✓ Prepare students for the upcoming and enhanced version of telecommunication communication interfaces.
- ✓ Identifying the main differences between operating system and application software.
- ✓ Earning and implementing the rules of ergonomics related with the use of computers and/or similar electronic devices.



5. Contents

Unit No.	Unit Name	Topics	Learning Outcomes	% Weightage	Hours
1	Information Communication Technology Fundamentals	1.1 Introduction to Communication Technologies 1.2 Information Processing Cycle and IT Act 1.3 Various Types of Communication 1.4 Signal Conversion 1.5 ICT Models	<ul style="list-style-type: none"> Students will learn about the origin of communication technologies. How information is processed. Acts approved for an information communication. Types of communicating signals. Different variations of communicating models. 	10	6
2	Physical View of Information Communication	2.1 Introduction to Modulation 2.2 Need of Modulation 2.3 Types of Modulation 2.4 Digital Modulation Techniques 2.5 Types of Digital Modulation 2.6 Multiplexing	<ul style="list-style-type: none"> How physically information travels using modulation techniques. Requirement of using modulation schemes. Different types of digital modulation techniques. A key feature for communication which is multiplexing. 	10	6
3	Wireless Cellular Communication	3.1 Wireless Network Generations 3.2 Advantages, Disadvantages and Applications of Wireless Communication 3.3 Radio Path 3.4 Cell, Cluster and Coverage Area 3.5 Frequency Reuse Principal 3.6 Channel Assignment 3.7 System Parameters to Increase Cell Coverage	<ul style="list-style-type: none"> Wireless network. Different wireless network generations used till now. Basic knowledge of path and cell structure of a wireless communication. Different channels used in the network for communication. Frequency management and interleaving of network nodes. 	25	10

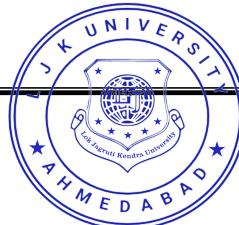


		3.8 Cell Splitting, Sectoring, and Interleaving			
4	Global System for Mobile Communication (GSM)	4.1. GSM Architecture 4.2. Frequency Allocation 4.3. GSM Identifiers 4.4. GSM Entities 4.5. Roaming & Handoff 4.7. Mobile Originated and Mobile Terminated Call 4.8. SMS Features and Architecture 4.9 Operator Centric & Independent Push and Pull SMS	<ul style="list-style-type: none"> • Fundamental technology of wireless communication. • Frequency allocation in GSM. • GSM entities. • Handoff in network. • Roaming facility in GSM. 	30	10
5	General Packet Radio Service (GPRS)	5.1. GPRS 5.2. EDGE 5.3. UMTS 5.4. WCDMA 5.5. TD-SCDMA 5.6. RFID 5.7. Bluetooth	<ul style="list-style-type: none"> • Basic service for wireless communication GPRS. • Various services for communication. • Different types of radio frequency identifiers. • Communication using Bluetooth. 	25	10
Total Hours					42

6. Suggested specification Table for Evaluation Scheme

Unit No.	Unit Name	Distribution of Topics According to Bloom's Taxonomy					
		R %	U %	App %	C %	E %	An %
1	Information Communication Technology Fundamentals	60	30	10	-	-	-
2	Physical View of Information Communication	20	40	30	-	5	5
3	Wireless Cellular Communication	30	50	20	-	-	-
4	Global System for Mobile Communication	30	40	20	-	5	5
5	General Packet Radio Service	40	30	20	-	5	5

Legends: R: Remembering U: Understanding
 App: Applying C: Creating
 E: Evaluating An: Analyzing



7. Text Books

- 1) Data Communication and Networking by Behrouz Forouzan, Latest Edition, Tata McGraw Hill Publication.
- 2) Wireless Communication by T L Singal, Latest Edition, Tata McGraw Hill Publication.
- 3) Mobile Communications by Jochen Schiller, Latest Edition, Addison-Wesley.

8. Reference Books

- 1) Computer Networks by Andrew S. Tanenbaum, Latest Edition, PrenticeHall India.
- 2) Data & Computer Communications by William Stallings, Latest Edition, Pearson Education.
- 3) Mobile Computing Technology, Applications and Service Creation, by Asoke K Telukder, Roopa R Yavagal, Latest Edition, Tata McGraw Hill Publication.

9. Open Sources (Website, Video, Movie)

- 1) <http://uis.unesco.org/en/glossary-term/information-and-communication-technologies-ict>
- 2) <https://www.edx.org/course/information-and-communication-technology-ict>
- 3) <https://nptel.ac.in/courses/117104115>
- 4) <https://nptel.ac.in/courses/117102062>
- 5) https://www.tutorialspoint.com/gsm/gsm_overview.htm
- 6) https://www.tutorialspoint.com/gprs/gprs_overview.htm