Code No.: MCA 101 **L T C**
Paper: Fundamentals of Information Technology **3 1 4**

INSTRUCTIONS TO PAPER SETTERS:

1. Question No. 1 should be compulsory and cover the entire syllabus. There should be 10 questions of short answer type of 2 marks each, having at least 2 questions from each unit.
2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions to evaluate analytical/technical skills of candidate. However, student may be asked to attempt only 1 question from each unit. Each question should be 10 marks including subparts, if any.

OBJECTIVE: *This course is an introductory course in information technology. Topics include foundations in hardware, software, data and an overview of the use of information technology in organizations. Topics include basics of graphics, systems development, database design and networking. Upon completion of this course the student should be able to:*

- *Describe the major components of information technology applications:*
- *Hardware, computer networks, software, data, processes, and people.*
- *Describe the different components of a computer network.*
- *Demonstrate an understanding of different types of networks.*
- *Define "Software Engineering".*
- *Demonstrate an understanding of the importance of algorithms in the development of IT applications.*
- *Discuss the role of databases in IT applications.*

PRE-REQUISITE:

- None

UNIT – I

Digital Signals and Logic gates, Number systems: Binary, octal and hexadecimal number systems, signed binary number, binary arithmetic, 2's complement arithmetic, Microprocessors: Introduction, System Bus, Architecture and operation of 8085 microprocessor and instruction set.

[No. of Hrs: 10]

UNIT – II

Introduction to software: Software types and Software Development activities (Requirement, Design (algorithm, flowchart, decision table and tree), Coding, Testing, Installation, Maintenance). Low and high level languages, assemblers, compilers, interpreters, linkers. **Introduction to Graphics primitives:** Display Devices: Refresh Cathode Ray Tube, Raster Scan Display, Plasma Display, Liquid Crystal Display, Plotters, Printers, Keyboard, Trackball, Joystick, Mouse, Light Pen, Tablet and Digitizing Camera. External Storage devices.

[No. of Hrs: 12]

UNIT - III

Introduction to Operating system, Different types of operating systems and its working, DOS commands, File Structure and Storage, Introduction to process management: process, threads, scheduling and synchronization. Introduction to Database Management System and its types.

[No. of Hrs: 10]

UNIT – IV

Basic elements of a Communication System, Data transmission media, Digital and Analog Transmission, Network topologies, Network Types (LAN, WAN and MAN), Introduction to Communication protocols, Inter networking tools. **[No. of Hrs: 10]**

TEXT BOOKS:

1. Alex Leon and Mathews Leon, "Fundamentals of Information Technology", Leon Techworld, 2007.
2. P. K. Sinha and Priti Sinha , "Computer Fundamentals", BPB Publications, 2007.
3. Malvino and Leach, "Digital Principles and Application", TMH, 1999.
4. Ramesh S. Gaonkar, "Microprocessor Architecture Programming and Application with 8085", PHI, 2001.

REFERENCES:

1. Alex Leon and Mathews Leon, "Introduction to Computers", Vikas Publishing House, 2007.
2. Norton Peter, "Introduction to computers", TMH, 4th Ed., 2006.
3. Simon Haykins, "Communication System", John Wiley & Sons, 2006.
4. B. Basaraj, "Digital Fundamentals", Vikas Publications, 1999.
5. V. Rajaraman, "Introduction to Information Technology", PHI, 2006.
6. V. Rajaraman, "Fundamentals of Computers", PHI, 5th Ed., 2006.
7. David Anfinson and Ken Quamme, "IT Essentials PC Hardware and Software Component on Guide", Pearson, 3rd Ed., 2008.