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 2.5 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 of 12.5 marks, including its subparts, if any.

LEARNING OBJECTIVE:

In this course, the learners will become familiar with components of microprocessor, Operating System, Software Engineering, Database systems and Networking devices.

PRE-REQUISITES:
• Pre-requisite based study material on Fundamentals of IT URL: http://bvicam.in/spec-subject-files/Fundamentals%20of%20IT%20
• MOOC Course on Technical Support Fundamentals (6 Weeks) URL: https://www.mooc-list.com/course/technical-support-fundamentals-coursera

COURSE OUTCOMES (COs):

After completion of this course, the learners will be able to:-

CO1	Explain the fundamentals of number system, logic circuits and microprocessor. (BTL2)
CO2	Understand basics of software, SDLC phases, translators, peripheral devices and graphic primitives. (BTL3)
CO3	Understand the basic functions of Operating Systems and DBMS. (BTL3)
CO4	Explore and demonstrate types of transmission media, communication protocols and Internetworking devices. (BTL2)

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 with8085", PHI, 2001.

REFERENCE BOOKS:

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

PRACTICAL:

Course Code: MCA-151 **L P C**
Paper: Fundamentals of Information Technology **0 2 1**

LEARNING OBJECTIVE:

In this course, which is based upon the above theory course, the working skill of learners in operating system, software engineering design tools and software & hardware will be developed.

COURSE OUTCOMES (COs):

After completion of the Practical Course, the learners will be able to:-

CO1	Design logic circuits based on boolean expressions and basic micro-operations. (BTL6)
CO2	Develop effective communication, data analysis and interactive presentations using MS Office tools and problem solving using SSAD tools. (BTL6)
CO3	Use different Operating Systems (Windows and Linux) and databases through SQL commands. (BTL3)
CO4	Work with various types of transmission media and inter-networking devices with their functions. (BTL3)
CO5	Work in teams to assemble and troubleshoot PC. (BTL6)