

Semester	1
Course ^{*1}	Minor
Paper Code	B1CS230111T
Paper Title	COMPUTER FUNDAMENTALS AND DIGITAL DESIGN
No. of Credits ^{*2}	4
Theory / Practical / Composite	THEORY
Minimum No. of preparatory hours per week a student has to devote	5
Number of Modules	2
Syllabus	<p>MODULE 1: (40 marks)</p> <p>1. Introduction to Computer: Different Generations, Functional Units, Basic I/O devices, Storage devices, Bus Structure</p> <p>2. Introduction to Problem Solving: Concept of Data and Information, Basic problem-solving using Flowchart and Algorithm</p> <p>3. Software: Types and Brief Ideas about Each of the Types</p> <p>4. Introduction to Networking: Advantages of Networking; Basic Features, LAN, MAN and WAN; characteristic features. Intranet and Internet; Servers and Clients; Ports; Domain Name System (DNS); WWW, Browsers. Guided and Unguided media. Modem; E-mail, Voice and Video Conferencing.</p> <p>MODULE 2: (40 marks)</p> <p>1. Number Systems and Codes: Weighted and Non-Weighted Codes, Positional Number Systems like Binary, Octal, Decimal and Hexadecimal, Conversion of one number system to another, BCD.</p> <p>2. Binary Arithmetic: Addition and Subtraction</p> <p>3. Logic Gates AND, OR, NOT, NAND, NOR, XOR.</p> <p>4. Boolean expression, Laws of Boolean Algebra, Simplification, Design of simple logic circuits, Sum of Product, Product of Sum, Simplification using Karnaugh Map, Applications</p> <p>5. Combinational circuits – Adder/ Subtractor, Comparator circuit.</p> <p>6. Other Combinational Circuits – Multiplexer, Decoder, Encoder.</p>
Learning Outcomes	1. The student is introduced to a computer system and its various components.

	<p>2. Perform various logical and mathematical operations in different number systems.</p> <p>3. Learn different formats of representing numbers and characters.</p> <p>4. Acquire knowledge about problem solving.</p> <p>5. Learn fundamentals of networking and communications.</p>	
Reading/Reference Lists	<p>1. Computer Fundamental- P.K Sinha, BPB Publications.</p> <p>2. Digital Logic and Computer Design, M Morris Mano, Pearson education India</p> <p>3. Fundamentals of Computers, V. Rajaraman, PHI</p> <p>4. Data Communications and Networking, B Forouzan, Mc Graw Hill</p>	
Evaluation	<p>Theory CIA: 25 Attendance: 5 Semester Exam: 70</p>	
Paper Structure for Theory Semester Exam	5 out of 7 of 14 marks each	