SEMESTER- I

COURSE: PROBLEM SOLVING TECHNIQUES USING C LANGUAGE

CODE: 05ABSIT17111 CREDITS: 4

UNIT I - PROGRAMMING BASICS


UNIT II - INPUT AND OUTPUT FUNCTIONS

Managing Input and Output Operation: Formatted and Unformatted I/O Functions-Decision making, branching and looping: Decision Making Statements - if Statement, if–else statement, nesting of if-else statements, else–if ladder, switch statement, operator-Looping - while, do-while, for loop, Nested loop, break, continue, and go to statements.-Functions: Function Definition, prototyping, types of functions, passing arguments to functions- Nested Functions, Recursive functions

UNIT III - ARRAYS & STORAGE CLASSES

Declaring and Initializing, One Dimensional Arrays, Two Dimensional Arrays - Multi-Dimensional Arrays, passing arrays to functions-Strings: Declaring and Initializing strings, Operations on strings, passing strings to functions-Storage Classes - Automatic, External, Static and Register Variables, Structures-Declaring and Initializing, Nested structure Array of Structure, Passing Structures to functions, Unions, typedef, enum, Bit fields

UNIT IV - MEMORY ORGANIZATION WITH FILES


PRACTICAL CREDITS: 02

Part A.1
Exercises 1 – 5
1) Write a Program to find the roots of the given quadratic equation using if-else if statement.
2) Write a menu driven program using switch-case to find:
   (a) Sum of the digits of number
   (b) Factorial of N.
3) Write a program to find \( \cos(x) \) using series
\[
\cos(x) = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \ldots \ldots \frac{x^n}{n!}
\]
4) Write a Program to find whether a given number is prime number are not
5) Write a program to arrange the given set of numbers in ascending and descending order.

Part A.2

Exercises 6 – 10

6) Write a program to find product of two N x M matrices.
7) Write a program to calculate \(^nC_r = \frac{n!}{r!(n-r)!}\) using a function.
8) Write a program to display Fibonacci series using recursive function.
9) Write a program to concatenate two strings using pointers.
10) Write a program to copy content of one file to another file.

Part B.1

A mini project must be developed by the students based on the applications of the concepts covered during theory.

Part B.2

A mini project must be developed by the students based on the applications of the concepts covered during theory.

References:

COURSE: COMPUTER ORGANIZATION & LOGIC DESIGN

CODE: 05ABSIT17112 CREDITS: 04

UNIT I - INTRODUCTION TO NETWORK THEOREMS AND AC FUNDAMENTALS

Ohm’s law, Kirchhoff’s law: KVL, KCL, Mesh/loop analysis.-Delta/star, star/Delta transformation, Need for application of network theorems. Superposition theorem, Thevenin’s theorem, Norton’s theorem, Maximum power transfer Theorem - Reciprocity theorem: Statement, explanation of theorem by considering a simple resisting network, expression for maximum power deliver (PL(max) =Vth2/4Rth) (no derivation), graph of Vs Pl, numerical problems and applications-Reciprocity theorem, Statement, explanation using resistive network with DC source and numerical problems

UNIT II - SEMICONDUCTOR DEVICES

Introduction, atomic structure, energy level, energy band diagram in solids, classification of conductors, insulators, semiconductor-Semiconductor, properties, crystal structure of semiconductor, types – intrinsic and extrinsic semiconductor-Semiconductor devices: PN junction diode, formation of pn junction layer, potential barrier, energy level diagram of pn junction, Biasing of pn junction, behaviour of pn junction under forward and reverse biasing, break down in pn junction, avalanche and zener break down.(K,A,AP)-Diode characteristics; V-I characteristic, forward and reverse bias, diode parameters, bulk resistance, knee voltage, static and dynamic resistance, PIV-application of diode; As a rectifier, as logic gate, as a switch, etc. Rectifier, types, Half wave Full wave. Half wave rectifier

UNIT III - NUMBER SYSTEMS REPRESENTATION

Number Systems: Introduction to number systems – positional and non-positional, Base /Radix. Decimal number system-Definition, digits, radix/base, Binary number system –Bit Byte, Conversions: Binary to Decimal and Decimal to Binary.-Octal number system-Conversion from Octal to Decimal to Octal, Octal to Binary and binary to Octal. Hexadecimal number system –Conversion: Decimal to Hex, Hex to decimal, Hex to Binary, Binary to Hex, Octal to Hex, Hex to Octal-Binary Arithmetic –addition, subtraction, multiplication and division (Integer part). 1’s and 2’s compliment, Subtraction.-Binary code: BCD numbers, 8421 code, 2421 code- examples and applications.-Gray code –Conversions-Gray to binary and Binary to Gray, application of gray code (Mention only). Excess-3 code – self complimenting property and applications.

UNIT IV - COMBINATORIAL LOGIC CIRCUITS

Logic Gates: AND Gate: Definition, symbol truth table, timing diagram, Pin diagram IC 7408. OR Gate: Definition, symbol, truth table, timing diagram IC 7432- NOT Gate: Definition symbol, truth table, timing diagram, Pin diagram IC 7404. NAND Gate: Definition, symbol, truth table, Pin diagram IC 7400.-NOR Gate: Definition, symbol, truth table, timing diagram, Pin diagram IC 7402. Exclusive OR Gate: Definition, symbol, truth table, timing diagram Combinational logic circuits: Definition, applications. Half Adder: Symbol, Logic circuits using XOR and basic gates, Truth table.-Full Adder: Symbol, Logic
circuits using XOR and basic gates, Truth table, Half Subtractor: Symbol, Logic circuits using XOR and basic gates, Truth table.

PRACTICAL

CREDITS: 02

Part A.1

Exercises 1 –5
1. Study of Logic Gates–AND, OR, NOT, NAND, NOR XOR (Using respective ICs
2. Realization of AND, OR and NOT gates using Universal Gates.
5. Design and Realization of 4 bit Adder/Subtractor using IC 7483.

Part A.2

Exercises 6–10
6. Design and Realization of BCD Adder using IC 7483.
7. Realization of J-K flip flop using IC 7400 and 7410.
8. Realization of T and D flip flop using IC 7476.
10. Design and implementation of odd and even parity checker Generator using IC 74180.

PART – B.1

Exercises 11–15
11. Realization of RS flip flop
12. Realization of SISO Shift registers
13. Realization of SIPO Shift registers
14. Design a logic circuit for the given expression. Y= AB+BC+AC
15. Design and Realization of Full Subtractor using logic circuits.

PART – B.2

Exercises 16–20
16. Realization of Multiplexer
17. Design and Realization of Half adder using logic gates.
18. Design and Realization of Half subtractor using logic gates.
19. Design and implementation of 3 bit binary to gray code converter
20. Realization of PISO Shift registers

References:


Bhargava, N N, Kulshreshtha, D C and Gupta, S C: “Basic Electronics and Linear Circuits”, 1989, TMH.

COURSE: INFORMATION SYSTEM AND ITS APPLICATION  
CODE: 05ABSIT17113  
CREDITS: 04

UNIT I - INTRODUCTION TO INFORMATION SYSTEM (IS) 

UNIT II - MANAGEMENT INFORMATION SYSTEM AND SYSTEM DEVELOPMENT 

UNIT III - E-BUSINESS, E-COMMERCE AND ERP 
E-Business: Meaning, E- evolution, value chain, Internet-Web infrastructure for E-business, E-business software and packages-Commerce: Modes of E-commerce, advantage, disadvantages, applications, electronic date, electronic payment system, e-cash, smartcards-ERP: Introduction to ERP system, review of DBMS and Transaction processing concepts-Business processes and Integration across the function, features of ERP system and process of implementation-Introduction to Mark-up languages

UNIT IV - INFORMATION SYSTEM AND SECURITY ISSUES 

References: