



BUDDHA INSTITUTE OF TECHNOLOGY

DEPARTMENT OF APPLIED SCIENCE & HUMANITIES-II

ACADEMIC YEAR 2025-26 (EVEN Semester)

LESSON PLAN

| | | | |
|--|-------------------------|---|-------------------------------------|
| Semester: 2 nd | Section: A (CSE) | Course Code: BCS201(PPS) | Contact Hours /week: 6 |
| Course name: B. Tech | | | # of credits: 3 |
| Teacher's name: Mr. Shyam Mohan Singh | | | Designation: Asst. Professor |
| Sessional Marks: 30 | | End Semester Examination Marks: 70 | University Exam Hours: 3 |

Prerequisites if any:

Basic Knowledge of components of computer

Content delivery methods:

Chalk & Board, Book

COURSE SYLLABUS (as prescribed by University / Board)

| Module No | UNIT Contents | Hours | COs |
|-----------|---|-------|-----|
| 1 | <p>Introduction to Components of a Computer System: Memory, Processor, I/O Devices, Storage, Operating System, Concept of Assembler, Compiler, Interpreter, Loader and Linker.</p> <p>Idea of Algorithm: Representation of Algorithm, Flowchart, Pseudo Code with Examples, From Algorithms to Programs, Source Code.</p> <p>Programming Basics: Structure of C Program, Writing and Executing the First C Program, Syntax and Logical Errors in Compilation, Object and Executable Code. Components of C Language. Standard I/O in C , Fundamental Data types, Variables and Memory Locations, Storage Classes.</p> | 8 | C01 |
| 2 | <p>Arithmetic Expressions and Precedence : Operators and Expression Using Numeric and Relational Operators, Mixed Operands, Type Conversion, Logical Operators, Bit Operations, Assignment Operator, Operator precedence and Associativity.</p> <p>Conditional Branching: Applying if and Switch Statements, Nesting if and Else and Switch.</p> | 8 | C02 |
| 3 | <p>Iteration and Loops: Use of While, do While and for Loops, Multiple Loop Variables, Use of Break , Goto and Continue Statements.</p> <p>Arrays: Array Notation and Representation, Manipulating Array Elements, using Multi Dimensional Arrays. Character Arrays and Strings, Structure, union, Enumerated Data types, Array of Structures, Passing Arrays to Functions</p> | 8 | C03 |
| 4 | <p>Functions: Introduction, Types of Functions, Functions with Array, Passing Parameters to Functions, Call by Value, Call by Reference, Recursive Functions.</p> <p>Basic of searching and Sorting Algorithms: Searching & Sorting Algorithms (Linear Search , Binary search , Bubble Sort, Insertion and Selection Sort)</p> | 8 | C04 |
| 5 | <p>Pointers: Introduction, Declaration, Applications, Introduction to Dynamic Memory Allocation (Malloc, Calloc, Realloc, Free), String and String functions , Use of Pointers in Self-Referential Structures, Notion of Linked List (No Implementation)</p> <p>File Handling: File I/O Functions, Standard C Preprocessors, Defining and Calling Macros and Command-Line Arguments.</p> | 8 | C05 |

COURSE OUTCOMES: At the end of the Course, the Student will be able to:

| | |
|------------|--|
| CO1 | Describe fundamental concepts of computer system and algorithms for arithmetic and logical problems. |
| CO2 | Solve various types of problems using operator and conditional branching. |
| CO3 | Implement iteration and loops problems like pattern and program related to array and matrix operations. |
| CO4 | Solve problems using modular programming (function and recursion) and problems related to searching and sorting. |
| CO5 | Solve problems related to pointer, dynamic memory allocation and file handling. |

Mapping of CO v/s PO:

| COs | P01 | P02 | P03 | P04 | P05 | P06 | P07 | P08 | P09 | P010 | P011 | P012 |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|
| BCS101(1) | 3 | 2 | - | - | - | - | - | - | - | - | - | 3 |
| BCS101 (2) | 3 | 2 | - | - | - | - | - | - | - | - | - | 3 |
| BCS101 (3) | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 3 |
| BCS101 (4) | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 3 |
| BCS101 (5) | 3 | 3 | 3 | - | - | - | - | - | - | - | - | 3 |
| Avg. Sum | 3 | 2.6 | 3 | - | - | - | - | - | - | - | - | 3 |

Correlation levels: 1-Slight (Low) 2-Moderate (Medium) 3-Substantial (High)

| | |
|----------------------------|-----------------------|
| Gap in the syllabus | Basics of programming |
|----------------------------|-----------------------|

| | |
|---|------------------------------------|
| Topics to be covered beyond syllabus | Linked List implementation concept |
|---|------------------------------------|

LESSON PLAN

| Lecture | Module | Scheduled | | | | Conducted | | | |
|---------|--------|---|-------------|-------------|------|-----------|------|-----------------|--------------|
| | | Topic | *RBT Levels | C O Mapping | Date | Topic | Date | No. Of Students | Faculty Sign |
| 1 | I | Introduction to Components of a Computer System: Concept of Memory, processor, I/O Devices & Storage | L2 | CO1 | | | | | |
| 2 | | Concept of Operating system, Concept of assembler | L2 | | | | | | |
| 3 | | Concept of Compiler, interpreter, loader and linker | L2 | | | | | | |
| 4 | | Representation of Algorithm, Flowchart, Pseudo code with examples | L2 | | | | | | |
| 5 | | From algorithm to programs, Source code, Structure of C program, writing and executing the first C program | L2 | | | | | | |
| 6 | | Syntax and logical errors in compilation, object and executable code | L2 | | | | | | |
| 7 | | Tutorial 1 | | | | | | | |
| 8 | | Components of C language, standard I/O in C | L2 | | | | | | |
| 9 | | Fundamental data types | L2 | | | | | | |
| 10 | | Variables and memory locations | L2 | | | | | | |

| | | | | | | | | |
|----|----|---|----|-----|--|--|--|--|
| 11 | | Storage classes (automatic, static) | L2 | | | | | |
| 12 | | Storage classes(extern) | L2 | | | | | |
| 13 | | Storage classes(register) | L2 | | | | | |
| 14 | | Tutorial 2 | | | | | | |
| 15 | II | Arithmetic Expressions and Precedence: Operators and expression using numeric | L3 | CO2 | | | | |
| 16 | | relational operators, type conversion | L3 | | | | | |
| 17 | | logical operators, Bitwise operations | L3 | | | | | |
| 18 | | Assignment operator, Mixed operands, | L3 | | | | | |
| 19 | | Operator precedence and associativity | L3 | | | | | |
| 20 | | Concept of if else statement with example | L3 | | | | | |
| 21 | | Tutorial 3 | | | | | | |
| 22 | | Concept of if else statement with example | L3 | | | | | |
| 23 | | Nested if else statement | L3 | | | | | |
| 24 | | else if ladder | L3 | | | | | |

| | | | | | | | | |
|----|-----|--|----|--|--|--|--|--|
| 25 | | else if ladder | L3 | | | | | |
| 26 | | Switch statement with syntax and examples | L3 | | | | | |
| 27 | | Switch statement with syntax and examples continued | L3 | | | | | |
| 28 | | Tutorial 4 | | | | | | |
| 29 | III | Iteration and Loops: For loop and syntax with programming concepts | L3 | | | | | |
| 30 | | For loop and syntax with programming concepts continued, Programming with for loop | L3 | | | | | |
| 31 | | Nested for loop and syntax | L3 | | | | | |
| 32 | | While loop and its syntax | L3 | | | | | |
| 33 | | Syntax and programming using do while loop | L3 | | | | | |
| 34 | | Use of break and continue statements | L3 | | | | | |
| 35 | | Array notation and representation, manipulating array elements | L3 | | | | | |
| 36 | | Array notation and representation, manipulating array elements | L2 | | | | | |
| 37 | | Array declaration and programming | L3 | | | | | |

| | | | | | | | | |
|----|--|----|-----|--|--|--|--|--|
| 38 | Tutorial 5 | | CO3 | | | | | |
| 39 | Multi-dimensional arrays | L3 | | | | | | |
| 40 | Multi-dimensional array programming | L3 | | | | | | |
| 41 | Multi-dimensional array programming continued | L3 | | | | | | |
| 42 | Character arrays and strings | L3 | | | | | | |
| 43 | Character arrays and strings continued | L3 | | | | | | |
| 44 | Structure and programs | L3 | | | | | | |
| 45 | Structure and programs | L3 | | | | | | |
| 46 | Union v/s structure, enumerated data types | L3 | | | | | | |
| 47 | Array of structures, Passing arrays to functions | L3 | | | | | | |
| 48 | Tutorial 6 | | | | | | | |
| 49 | Functions: Introduction of function and modular programming | L3 | | | | | | |
| 50 | Types of functions, definition of function | L3 | | | | | | |
| 51 | Function related programming | L3 | | | | | | |
| 52 | Parameter passing techniques | L3 | | | | | | |

| | | | | | | | | | |
|----|------------|----------------------------------|----|-----|--|--|--|--|--|
| 53 | IV | Call by value, Call by reference | L3 | CO4 | | | | | |
| 54 | | Recursive functions | L3 | | | | | | |
| 55 | | Functions with array | L3 | | | | | | |
| 56 | | Tutorial 7 | | | | | | | |
| 57 | | Functions with structure | L3 | | | | | | |
| 58 | | Recursive functions | L3 | | | | | | |
| 59 | | Recursive functions | L3 | | | | | | |
| 60 | | Searching and its type | L3 | | | | | | |
| 61 | | Linear Search | L3 | | | | | | |
| 62 | | Binary Search | L3 | | | | | | |
| 63 | | Sorting and its algorithm | L3 | | | | | | |
| 64 | | Bubble sort | L2 | | | | | | |
| 65 | | Insertion sort | L3 | | | | | | |
| 66 | | Selection Sort | L3 | | | | | | |
| 67 | Tutorial 8 | | | | | | | | |

| | | | | | | | | | |
|----|-----------------------------|--|----|-----|--|--|--|--|--|
| 68 | V | Pointers: Pointer introduction, Declaration, Pointer Application | L3 | CO5 | | | | | |
| 69 | | Dynamic memory allocation | L3 | | | | | | |
| 70 | | String and its declaration | L3 | | | | | | |
| 71 | | String functions | L3 | | | | | | |
| 72 | | Use of pointer in self referential structure, Linked list implementation | L3 | | | | | | |
| 73 | | File handling | L3 | | | | | | |
| 74 | | File I/O functions | L3 | | | | | | |
| 75 | | File handling programs | L3 | | | | | | |
| 76 | | Tutorial 9 | | | | | | | |
| 77 | | File handling programs | L3 | | | | | | |
| 78 | | File handling programs | L3 | | | | | | |
| 79 | | Standard C preprocessor | L3 | | | | | | |
| 80 | | Standard C preprocessor | L2 | | | | | | |
| 81 | Defining and calling macros | L2 | | | | | | | |

| | | | | | | | | |
|----|------------------------|----|--|--|--|--|--|--|
| 82 | Command-Line arguments | L3 | | | | | | |
| 83 | Tutorial 10 | | | | | | | |

| Class Test | Syllabus |
|------------|-----------------|
| CT | Lecture 1 to 32 |
| PRE-AKTU | Full Syllabus |

***Revised Bloom's Taxonomy (RBT) Levels:**

L1 – Remembering; L2 – Understanding; L3 – Applying; L4 – Analysing; L5 – Evaluating; L6 - Creating

Literature:

Text Books: (As prescribed by University)

T1.Computer Concepts and Programming in C, E Balaguruswami, McGraw Hill

T2.Computer Concepts and Programming in C by D.S. Yadav and Rajeev Khanna, New Age International Publication

Reference Books: (As prescribed by University)

R1.The C programming by Kernighan Brain W. and Ritchie Dennis M., Pearson Education .

R2.Let Us C By Yashwant P. Kanetkar.

Faculty Sign

HOD's sign