



# SANATAN DHARMA COLLEGE, AMBALA CANTT

College with Potential for Excellence, UGC, New Delhi  
NAAC Accredited Grade "A+" with CGPA 3.51 in 3<sup>rd</sup> cycle  
ISO 9001:2015 & ISO 14001:2015 Certified



## Department of Computer Science Lesson Plan (Session 2022-2023)

Class: BCA Sem: I Sec-A & B Course Code: BCA-116 Nomenclature: Programming in C

Duration: 16 Weeks

Dates: 5 Sep, 2022- 25 Dec, 2022

### SYLLABUS

#### BCA-116 Programming in C

Maximum Marks: 100  
Internal: 20

External: 80  
Time: 3 hours

Minimum Pass Marks: 35

**Note:** Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

#### UNIT-I

Overview of C: History of C, Importance of C, Structure of a C Program.

Elements of C: C character set, identifiers and keywords, Data types, Constants and Variables, Assignment statement, Symbolic constant.

Input/output: Unformatted & formatted I/O function in C, Input functions ( scanf(), getch(), getche(), getchar(), gets() ), Output functions ( printf(), putchar(), puts() ).

#### UNIT-II

Operators & Expression: Arithmetic, relational, logical, bitwise, unary, assignment, conditional operators and special operators. Arithmetic expressions, evaluation of arithmetic expression, type casting and conversion, operator hierarchy & associativity.

Decision making & branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, goto statement.

#### UNIT-III

Decision making & looping: For, while, and do-while loop, jumps in loops, break, continue statement. Functions: Definition, prototype, passing parameters, recursion.

#### UNIT-IV

Storage classes in C: auto, extern, register and static storage class, their scope, storage, & lifetime. Arrays: Definition, types, initialization, processing an array, passing arrays to functions, Strings & arrays.

#### TEXT BOOKS

1. Gottfried, Byron S., Programming with C, Tata McGraw Hill
2. Balagurusamy, E., Programming in ANSI C, Tata McGraw-Hill

#### REFERENCE BOOKS

1. Jeri R. Hanly & Elliot P. Koffman, Problem Solving and Program Design in C, Addison Wesley.
2. Yashwant Kanetkar, Let us C RPR

## Course Outcomes

After the completion of this course, prospective Computer professionals will have the ability to

|       |   |
|-------|---|
| CO-1  | Explain Structure of a C Program.   |
| CO-2  | Explain tokens in C   |
| CO-3  | Explain Data types, Constants and Variables,                                  |
| CO-4  | Design algorithms for simple problems   |
| CO-5  | Design Simple Programs using formatted and unformatted input output functions |
| CO-6  | Write C program for simple applications                                       |
| CO-7  | Differentiate various types of operators                                      |
| CO-8  | Design Programs using arithmetic, logical and bitwise operators               |
| CO-9  | Design applications using control statements                                  |
| CO-10 | Design programs using functions, functions with & without parameters          |
| CO-11 | Apply recursion to solve problems   |
| CO-12 | Explain use and working of storage classes in c                               |
| CO-13 | Design applications using single dimensional and two-dimensional arrays       |
| CO-14 | Design programs using strings.  |



| S.No | Instructional Technique | Assessment Methods (AM) |
|------|-------------------------|-------------------------|
| 1    | Chalk & Talk            | Assignments             |
| 2    | ICT tools               | Quiz                    |
| 3    | Group discussions       | Group Discussions       |
| 4    | Industrial visit        | Oral Tests              |
| 5    | Case studies            | Sessional               |
| 6    | Small Projects          | Presentations           |
| 7    | Workshop                | Seminar                 |
| 8    | Spoken Tutorials        | University Exams        |
| 9    | Flipped Class           |                         |
| 10.  | E-Resources             |                         |

### Detailed Lesson Plan Sec-A

| Week | Date                   | Topic to be Covered  | Instructional Technique | Assessment Method |
|------|------------------------|--|-------------------------|-------------------|
| 1    | 5- Sep-22              | Explain Course Outcomes  | 2-(PPT/Projector)       | ----              |
|      | 6-Sep-22               | Overview of C: History of C, Importance of C                                     | 2(PPT/Projector)        | 1                 |
|      | 7- Sep-22              | Algorithm Development  | 1                       | 1                 |
| 2    | 12-Sep-22              | C character Set, identifiers and keywords  | 1                       | 1,2,3,4           |
|      | 13-Sep-22              | Data types,  | 2-(PPT/Projector)       | 1,2,3,4           |
|      | 14-Sep-22              | Data Types   | 2-(PPT/Projector)       | 1,2,3,4           |
| 3    | 19-Sep-22              | Data Types   | 2-(PPT/Projector)       | 1,2,3,4           |
|      | 20-Sep-22              | Constants and Variables  | 1                       | 1,2,3,4           |
|      | 21-Sep-22              | Formatted Input Function Scanf   | 2-(PPT/Projector)       | 1,2,3,4           |
| 4    | 26-Sept-22             | Holiday  | --                      | ---               |
|      | 27-Sept-22             | Unformatted Input Function getch(), getche(), getchar(), gets()                  | 2-(PPT/Projector)       | 1,2,3,4           |
|      | 28-Sept-22             | Formatted Output function printf()   | 2-(PPT/Projector)       | 1,2,3,4           |
| 5    | 3-Oct-22               | Output functions ( printf(), putchar(), puts() ).                                | 9                       | 1,2,3,4           |
|      | 4-Oct-22               | Operators & Expression: Arithmetic, relational, logical,<br>Assignment-1 for CIE | 2-(PPT/Projector)       | 1,2,3,4           |
|      | 5-Oct-22               | Operators & Expression: bitwise, unary, assignment                               | 2-(PPT/Projector)       | 1,2,3,4           |
| 6    | 10-Oct-22              | Syllabus covered till date   | ---                     | 6                 |
|      | 11-Oct-22              | Conditional operators and special operators.                                     | 9                       | 1,2,3,4,6         |
|      | 12-Oct-22              | Arithmetic expressions, evaluation of arithmetic expression,                     | 8,10,2                  | 1,2,3,4,          |
| 7    | 17-Oct-22              | type casting and conversion,   | 8,10,2                  | 1,2,3,4,          |
|      | 18-Oct-22              | type casting and conversion,   | 6                       | 1,2,3,4           |
|      | 19-Oct-22              | operator hierarchy & associativity.  | 6                       | 1,2,3,4           |
|      | 22-Oct-22 to 26-Oct-22 | Diwali Vaccation   | --                      | --                |
| 8    | 31-Oct-22              | Decision making with IF statement, IF-ELSE                                       | 2-(PPT/Projector)       | 1,2,3,4           |

|           |           |   |                          |                |
|-----------|-----------|---|--------------------------|----------------|
|           |           | statement,  |                          |                |
|           | 1-Nov-22  | <b>Holiday</b>  |                          |                |
|           | 2-Nov-22  | <b>Nested IF statement, ELSE-IF ladder,</b>   | <b>2-(PPT/Projector)</b> | <b>1,2,3,4</b> |
| <b>9</b>  | 7-Nov-22  | <b>switch statement, goto statement<br/>Assignment-2 for CIE</b>  | <b>2-(PPT/Projector)</b> | <b>1,2,3,4</b> |
|           | 8-Nov-22  | <b>Holiday</b>  |                          |                |
|           | 9-Nov-22  | <b>For, while, and do-while loop</b>  | <b>2-(PPT/Projector)</b> | <b>1,2,3,4</b> |
| <b>10</b> | 14-Nov-22 | <b>jumps in loops, break, continue<br/>statement</b>  | <b>2-(PPT/Projector)</b> | <b>1,2,3,4</b> |
|           | 15-Nov-22 | <b>For, while, and do-while loop</b>  | <b>6</b>                 | <b>1,2,3,4</b> |
|           | 16-Nov-22 | <b>For, while, and do-while loop</b>  | <b>6</b>                 | <b>1,2,3,4</b> |
| <b>11</b> | 21-Nov-22 | <b>Sessional for CIE</b>  | <b>--</b>                | <b>5</b>       |
|           | 22-Nov-22 | <b>Functions: Definition, prototype, calling</b>  | <b>2-(PPT/Projector)</b> | <b>1,2,3,4</b> |
|           | 23-Nov-22 | <b>Functions: Definition, prototype, calling</b>  | <b>2-(PPT/Projector)</b> | <b>1,2,3,4</b> |
| <b>12</b> | 28-Nov-22 | <b>Functions: Definition, prototype, calling</b>  | <b>6</b>                 | <b>1,2,3,4</b> |
|           | 29-Nov-22 | <b>passing parameters,</b>  | <b>2-(PPT/Projector)</b> | <b>1,2,3,4</b> |
|           | 30-Nov-22 | <b>passing parameters,</b>  | <b>6</b>                 | <b>1,2,3,4</b> |
| <b>13</b> | 5-Dec-22  | <b>Recursion.</b>   | <b>2-(PPT/Projector)</b> | <b>1,2,3,4</b> |
|           | 6-Dec-22  | <b>Storage classes in C: auto, extern, register and static storage class, their scope, storage, &amp; lifetime.</b> | <b>9,10</b>              | <b>1,2,3,4</b> |
|           | 7-Dec-22  | <b>Storage classes in C: auto, extern, register and static storage class, their scope, storage, &amp; lifetime.</b> | <b>9,10</b>              | <b>1,2,3,4</b> |
| <b>14</b> | 12-Dec-22 | <b>Arrays: Definition, types, initialization,</b>   | <b>2-(PPT/Projector)</b> | <b>1,2,3,4</b> |
|           | 13-Dec-22 | <b>processing an array,</b>   | <b>2-(PPT/Projector)</b> | <b>1,2,3,4</b> |
|           | 14-Dec-22 | <b>processing an array,</b>   | <b>6</b>                 | <b>1,2,3,4</b> |
| <b>15</b> | 19-Dec-22 | <b>processing an array,</b>   | <b>6</b>                 | <b>1,2,3,4</b> |

|           |           |   |                          |                |
|-----------|-----------|---|--------------------------|----------------|
|           | 20-Dec-22 | passing arrays to<br>functions, Strings & arrays. | <b>2-(PPT/Projector)</b> | <b>1,2,3,4</b> |
|           | 21-Dec-22 | passing arrays to<br>functions, Strings & arrays. | <b>6</b>                 | <b>1,2,3,4</b> |
| <b>16</b> | 22-Dec-22 | <b>Revision</b>                                   | --                       | --             |
|           | 23-Dec-22 | <b>Problem Solving Session</b>                    | --                       | --             |

### Detailed Lesson Plan Sec B

| Week | Date                   | Topic to be Covered  | Instructional Technique | Assessment Method |
|------|------------------------|--|-------------------------|-------------------|
| 1    | 8- Sep-22              | Explain Course Outcomes  | 2-(PPT/Projector)       | ----              |
|      | 9- Sep-22              | Overview of C: History of C, Importance of C   | 2(PPT/Projector)        | 1                 |
|      | 10-Sep-22              | Algorithm Development  | 1                       | 1                 |
| 2    | 15-Sep-22              | C character Set, identifiers and keywords  | 1                       | 1,2,3,4           |
|      | 16-Sep-22              | Data types,  | 2-(PPT/Projector)       | 1,2,3,4           |
|      | 17-Sep-22              | Data Types   | 2-(PPT/Projector)       | 1,2,3,4           |
| 3    | 22-Sep-22              | Data Types   | 2-(PPT/Projector)       | 1,2,3,4           |
|      | 23-Sep-22              | Constants and Variables  | 1                       | 1,2,3,4           |
|      | 24-Sep-22              | Formatted Input Function Scanf   | 2-(PPT/Projector)       | 1,2,3,4           |
| 4    | 29-Sept-22             | Holiday  |                         |                   |
|      | 30-Sept-22             | Unformatted Input Function getch(), getche(), getchar(), gets()                      | 2-(PPT/Projector)       | 1,2,3,4           |
|      | 01-OCT-22              | Formatted Output function printf()   | 2-(PPT/Projector)       | 1,2,3,4           |
| 5    | 6-Oct-22               | Output functions ( printf(), putchar(), puts() ).                                    | 9                       | 1,2,3,4           |
|      | 7-Oct-22               | Operators & Expression: Arithmetic, relational, logical,<br><br>Assignment-1 for CIE | 2-(PPT/Projector)       | 1,2,3,4           |
|      | 8-Oct-22               | Operators & Expression: bitwise, unary, assignment                                   | 2-(PPT/Projector)       | 1,2,3,4           |
| 6    | 13-Oct-22              | Holiday  |                         |                   |
|      | 14-Oct-22              | Syllabus covered till date   | ---                     | 6                 |
|      | 15-Oct-22              | Conditional operators and special operators.   | 9                       | 1,2,3,4,6         |
| 7    | 20-Oct-22              | Arithmetic expressions, evaluation of arithmetic expression,                         | 8,10,2                  | 1,2,3,4,          |
|      | 21-Oct-22              | type casting and conversion,   | 8,10,2                  | 1,2,3,4,          |
|      | 22-Oct-22 to 26-Oct-22 | Diwali Vaccation   |                         |                   |
| 8    | 27-Oct-22              | type casting and conversion,   | 6                       | 1,2,3,4           |
|      | 28-Oct-22              | operator hierarchy & associativity.  | 6                       | 1,2,3,4           |
|      | 29-Oct-22              | Decision making with IF statement, IF-ELSE   | 2-(PPT/Projector)       | 1,2,3,4           |

|    |           |  |                   |         |
|----|-----------|--|-------------------|---------|
|    |           | statement,   |                   |         |
| 9  | 3-Nov-22  | Nested IF statement, ELSE-IF ladder,   | 2-(PPT/Projector) | 1,2,3,4 |
|    | 4-Nov-22  | Holiday  |                   |         |
|    | 5-Nov-22  | switch statement, goto statement<br>Assignment-2 for CIE   | 2-(PPT/Projector) | 1,2,3,4 |
| 10 | 10-Nov-22 | For, while, and do-while loop  | 2-(PPT/Projector) | 1,2,3,4 |
|    | 11-Nov-22 | Holiday  |                   |         |
|    | 12-Nov-22 | jumps in loops, break, continue<br>statement   | 2-(PPT/Projector) | 1,2,3,4 |
| 11 | 17-Nov-22 | For, while, and do-while loop  | 6                 | 1,2,3,4 |
|    | 18-Nov-22 | For, while, and do-while loop  | 6                 | 1,2,3,4 |
|    | 19-Nov-22 | Sessional for CIE  | --                | 5       |
| 12 | 24-Nov-22 | Functions: Definition, prototype, calling  | 2-(PPT/Projector) | 1,2,3,4 |
|    | 25-Nov-22 | Functions: Definition, prototype, calling  | 2-(PPT/Projector) | 1,2,3,4 |
|    | 26-Nov-22 | Functions: Definition, prototype, calling  | 6                 | 1,2,3,4 |
| 13 | 1-Dec-22  | passing parameters,  | 2-(PPT/Projector) | 1,2,3,4 |
|    | 2-Dec-22  | passing parameters,  | 6                 | 1,2,3,4 |
|    | 3-Dec-22  | Recursion.   | 2-(PPT/Projector) | 1,2,3,4 |
| 14 | 8-Dec-22  | Storage classes in C: auto, extern, register and static storage class, their scope, storage, & lifetime. | 9,10              | 1,2,3,4 |
|    | 9-Dec-22  | Storage classes in C: auto, extern, register and static storage class, their scope, storage, & lifetime. | 9,10              | 1,2,3,4 |
|    | 10-Dec-22 | Arrays: Definition, types, initialization,   | 2-(PPT/Projector) | 1,2,3,4 |
| 15 | 15-Dec-22 | processing an array,   | 2-(PPT/Projector) | 1,2,3,4 |
|    | 16-Dec-22 | processing an array,   | 6                 | 1,2,3,4 |
|    | 17-Dec-22 | processing an array,   | 6                 | 1,2,3,4 |

|    |           |  |                   |         |
|----|-----------|--|-------------------|---------|
| 16 | 22-Dec-22 | passing arrays to functions, Strings & arrays. | 2-(PPT/Projector) | 1,2,3,4 |
|    | 23-Dec-22 | passing arrays to functions, Strings & arrays. | 6                 | 1,2,3,4 |
|    | 24-Dec-22 | Problem Solving Session<br>Revision            | --                | --      |

|                       | Teacher Incharge | Head of the Department |
|-----------------------|------------------|------------------------|
| <b>Name</b>           | Amandeep Kaur    | Dr. Girdhar Gopal      |
| <b>Sign with Date</b> |                  |                        |



