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| **Course-8 Title: Programming Language** |  |
| Course No.: **CIT 111** 01- Credit : 3 Contact Hours: 3 | Total Marks: 100 |

**11.1 Rationale:**

To become a successful computer professional, one needs to know programming languages to solve programming problems using a high-level programming language.

**11.2 Objectives:**

Students will be

1. able to verify variable names of different data types and expressions.
2. able to apply control statements, functions, arrays, strings, pointers and I/O.
3. able to solve problems using a high-level programming language.

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| **11.3**  **Learning Outcomes** | **11.4**  **Course Content** | **11.5**  **Teaching Strategy/ Learning Experience** | **11.6 Assessment Strategy** |
| * Define and classify computer generations * Identify hardware and software components * Define and Explain operating systems * Convert numbers with different bases | Computer Generations and Classification, Data representation, Hardware Components, Software Components, Operating Systems, Computers and Communications. | Lecture  Exercise  Demonstration | Quiz  Assignment |
| * Identify data types * Verify variable names * Explain operators | Programming concepts; Structured programming language: data types, variables, operators | Lecture  Exercise  Demonstration | Quiz  Assignment  Practical exam |
| * Verify expressions * Apply control structures | type of expressions , control structures | Lecture  Exercise  Demonstration | Quiz  Assignment  Practical exam |
| * Explain functions * Apply functions and recursion * Explain scope rules and storage classes * Distinguish between local and global variables | Functions and program structures: function basics, parameter passing conventions, scope rules and storage classes, recursion | Lecture  Exercise  Demonstration | Quiz  Assignment  Practical exam |
| * Identify header files | Header files; Preprocessor; | Lecture  Exercise  Demonstration | Quiz  Assignment  Practical exam |
| * Apply arrays, strings and pointers * Differentiate among arrays, strings and pointers | Arrays, String and Pointers | Lecture  Exercise  Demonstration | Quiz  Assignment  Practical exam |
| * Explain user defined data types | User defined data type: structures, unions, enumeration; | Lecture  Exercise  Demonstration | Quiz  Assignment  Practical exam |
| * Explain input-output | Input and output: standard input and output, formatted input and output | Lecture  Exercise  Demonstration | Quiz  Assignment  Practical exam |
| * Apply file I/O | file access | Lecture  Exercise  Demonstration | Quiz  Assignment  Practical exam |
| * Apply dynamic memory allocation | Dynamic memory allocation | Lecture  Exercise  Demonstration | Quiz  Assignment  Practical exam |
| * Explain and apply argument list | Variable length argument list; Command line parameters | Lecture  Exercise  Demonstration | Quiz  Assignment  Practical exam |
| * Apply error handling | Error handling | Lecture  Exercise  Demonstration | Quiz  Assignment  Practical exam |
| * Apply graphics routines | Introduction to Graphics routines | Lecture  Exercise  Demonstration | Quiz  Assignment  Practical exam |

**RECOMMENDED BOOKS AND PERIODICALS**

**Text Books**:

1. E.Balagurushamy : “Programming with ANSI C”

2. E.Balagurushamy : “Object-oriented programming with C++”

3. Y. Kanitkar : “Let Us C”

4. H. Schildt : "Teach yourself C".

5. H. Schildt : "C: The Complete Reference".

6. Y. Kanitkar : “Pointers in C”

7. Kernighan & Ritchie : “The C programming language”

**8.** R. G. dromey : "how to solve it by Computer"