Course 204: Advanced C Programming

Course Code	204
Course Title	Advanced C Programming
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation etc.)
Review / Revision	June 2017
Purpose of Course	Learn the advanced features of C language that were not covered in earlier semester.
Course Objective	The objective of this course is to introduce to students the advanced topics of C language.
Pre-requisite	Fundamental knowledge of computer programming using 'C' language.
Course Out come	The students will be able to develop program using advanced features of C.
Course Content	**Unit 1. Pre-processor Directives** 1.1. Macro Definitions (#define, #undef) 1.2. File Inclusion (#include) 1.3. Conditional Compilation (#ifdef, #ifndef, #if, #endif, #else, #elif) **Unit 2. Arrays, Structure & Union** 2.1. Multidimensional Character Array 2.2. Defining Structure 2.3. Processing Structure 2.4. Array of Structure 2.5. Self-Referential Structure 2.6. Defining Union 2.7. Comparison between Structure and Union **Unit 3. User Defined Functions & Pointers** 3.1. User Defined Functions 3.1.1.Definition and Accessing of a Function 3.1.2.Function Prototype 3.1.3.Recursive Function 3.1.4.Call by Value 3.1.5.Passing array to user-defined functions 3.2. Pointers in C 3.2.1.Pointer Variable Declaration & Memory Storage 3.2.2.Address and Value Operators 3.2.3.Pointer Arithmetic 3.2.4.Pointer to Array 3.2.4.1. Pointer to One Dimensional Array 3.2.4.2. Pointer to Multi-Dimensional Array 3.3. Array of Pointer 3.4. Passing pointers to functions 3.5. Call by Reference 3.6. Structure and Pointer 3.7. Passing structure to a function **Unit 4. File Handling in C** 4.1. Types of Files in C 4.2. Defining, Opening & Closing a File 4.3. Read, Write & Append operations in a File.

	4.4. Reading & Writing Records (Structures) to a File 4.5. Random Access of Files 4.5.1.File positions: *ftell()* and *fseek()* 4.5.2.*rewind()* 4.5.3.*fflush()* **Unit 5. Other Features of C** 5.1. Command Line Arguments 5.2. Storage Classes & their use 5.2.1.Automatic Storage Class 5.2.2.Register Storage Class 5.2.3.Static Storage Class 5.2.4.Extern Storage Class 5.3. Enumerated Data Type (*enum*) 5.4. Type Definitions (*typedef*) 5.5. Bitwise Operators 5.5.1.Shift Operators (Right Shift & Left Shift) 5.5.2.The AND Operator & AND Masking 5.5.3.The OR Operator & OR Masking 5.5.4.The XOR Operator & XOR Masking
Reference Books	1. Programming in C, Balaguruswami - TMH 2. C Programming Language, Kernigham & Ritchie - TMH 3. The spirit of C, Cooper H & Mullish H - Jaico Pub. 4. Programming in C, Stephan Kochan - CBS 5. Mastering Turbo C, Kelly & Bootle - BPB 6. C Language Programming, Byron Gottfried -TMH 7. Mastering Turbo C, Stan Kelly – BPB 8. Let us C, Yashwant Kanetkar - BPB Publication 9. Magnifying C, Arpita Gopal - PHI 10. Problem Solving with C, Somashekara - PHI
Teaching Methodology	Class Work, Discussion, Self-Study, Seminars and/or Assignments
Evaluation Method	30% Internal assessment. 70% External assessment.