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 2014
Purpose of Course	Learn the advanced features of C language that were not covered in earlier semester.
Course Objective	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** 2.1. Multidimensional Character Array 2.2. Passing array to user defined functions (Discuss this topic after discussing the topic of User Defined Functions). **Unit 3. Structure & Union** 3.1. Defining Structure 3.2. Processing Structure 3.3. Array of Structure 3.4. Structure and Pointer 3.5. Passing Structure to a Function 3.6. Self Referential Structure 3.7. Defining Union 3.8. Comparison between Structure and Union **Unit 4. User Defined Functions** 4.1. Definition and Accessing of a Function 4.2. Function Prototype 4.3. Recursive Functions 4.4. Call by Value 4.5. Call by Reference (Discuss this topic after discussing the topic of Pointers) **Unit 5. Pointer** 5.1. Pointer Variable Declaration & Memory Storage 5.2. Address and Value Operators 5.3. Pointer Arithmetic 5.4. Passing pointers to functions 5.5. Pointer to Array 5.5.1. Pointer to One Dimensional Array

	5.5.2. Pointer to Multi-Dimensional Array 5.6. Array of Pointer **Unit 6. File Handling in C** 6.1. Types of Files in C 6.2. Defining, Opening & Closing a File 6.3. Read, Write & Append operations in a File. 6.4. Reading & Writing Records (Structures) to a File 6.5. Random Access of Files 6.5.1. File positions: *ftell()* and *fseek()* 6.5.2. *rewind()* 6.5.3. *fflush()* **Unit 7. Other Features of C** 7.1. Command Line Arguments 7.2. Storage Classes & their use 7.2.1. Automatic Storage Class 7.2.2. Register Storage Class 7.2.3. Static Storage Class 7.2.4. Extern Storage Class 7.3. Enumerated Data Type (*enum*) 7.4. Type Definitions (*typedef*) 7.5. Bitwise Operators 7.5.1. Shift Operators (Right Shift & Left Shift) 7.5.2. The AND Operator & AND Masking 7.5.3. The OR Operator & OR Masking 7.5.4. 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 11. Progamming with ANSI and TURBO C, Ashok Kamthane - Pearson Eduction 12. Progamming in C, Pradip Dey & Manas Ghosh - Oxford
Teaching Methodology	Class Work, Discussion, Self Study, Seminars and/or Assignments
Evaluation Method	30% Internal assessment. 70% External assessment.