

## Course 104: Computer Programming & Programming Methodology

Course Code	104
Course Title	Computer Programming & Programming Methodology
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	Computer programming (often shortened to programming) is a process that leads from an original formulation of a computing problem to executable computer programs. Programming involves activities such as analysis, developing, understanding, generating algorithms, verification of requirements of algorithms including their correctness, and implementation (commonly referred to as coding) of algorithms in a target programming language.
Course Objective	The object of this course is to introduce students the rudiments of computer programming and programming methodology using C language.
Pre-requisite	None
Course outcome	The students will be able to formulate a computing problem to executable computer program using C language.
Course Content	<p><b>Unit 1. Introduction</b></p> <ol style="list-style-type: none"> <li>1.1 Algorithm and Flowchart</li> <li>1.2 Structured Programming</li> <li>1.3 Concepts of Compiler, Interpreter, Editor, Debugging &amp; Testing</li> <li>1.4 Character Set</li> <li>1.5 Identifiers, Key words, Data types</li> <li>1.6 Constants and Variables – Needs &amp; Definition</li> </ol> <p><b>Unit 2. Expression &amp; Operators</b></p> <ol style="list-style-type: none"> <li>2.1 Operators <ol style="list-style-type: none"> <li>2.1.1 Arithmetic Operators</li> <li>2.1.2 Unary Operators</li> <li>2.1.3 Relational Operators</li> <li>2.1.4 Logical Operators</li> <li>2.1.5 Assignment Operators</li> <li>2.1.6 Conditional Operator</li> </ol> </li> <li>2.2 Expression <ol style="list-style-type: none"> <li>2.2.1 Arithmetic expression</li> <li>2.2.2 Boolean expression</li> </ol> </li> <li>2.3 Evaluation &amp; Assignment of Expression</li> </ol> <p><b>Unit 3. Input/Output Statements &amp; Built-in Functions</b></p> <ol style="list-style-type: none"> <li>3.1. Formatted I/O statements (like <i>scanf</i>, <i>printf</i>)</li> <li>3.2. Unformatted I/O statements (like <i>getchar()</i>, <i>getch()</i>, <i>getche()</i>, <i>putchar()</i>)</li> <li>3.3. Mathematical Functions</li> <li>3.4. String Functions</li> <li>3.5. Conversion Functions</li> </ol> <p><b>Unit 4. Control Statements</b></p> <ol style="list-style-type: none"> <li>4.1. <i>if</i> statement <ol style="list-style-type: none"> <li>4.1.1. Simple <i>if</i> statement</li> <li>4.1.2. <i>if...else</i> statement</li> </ol> </li> </ol>

	<p>4.1.3. Nested <i>if</i> statement</p> <p>4.2. <i>while</i> loop</p> <p>4.3. <i>do...while</i> loop</p> <p>4.4. <i>for</i> loop</p> <p>4.5. <i>break</i> and <i>continue</i> statements</p> <p>4.6. <i>switch</i> statement</p> <p><b>Unit 5. Arrays</b></p> <p>5.1. One Dimensional Arrays</p> <p>5.2. Sorting using One Dimensional Arrays</p> <p>5.3. Concept of Two Dimensional Arrays</p> <p>5.4. String- Array of characters</p> <p>5.5. String Manipulation</p>
Reference Books	<ol style="list-style-type: none"> <li>1. Programming in C, Balaguruswami – TMH</li> <li>2. C: How to Program, Deitel &amp; Deitel - PHI</li> <li>3. C Programming Language, Kernigham &amp; Ritchie - TMH</li> <li>4. Programming in C, Stephan Kochan - CBS</li> <li>5. Mastering Turbo C, Kelly &amp; Bootle - BPB</li> <li>6. C Language Programming – Byron Gottfried - TMH</li> <li>7. Let us C, Yashwant Kanetkar - BPB Publication</li> <li>8. Magnifying C, Arpita Gopal - PHI</li> <li>9. Problem Solving with C, Somashekara - PHI</li> <li>10. Programming in C, Pradip Dey &amp; Manas Ghosh - Oxford</li> </ol>
Teaching Methodology	Class Work, Discussion, Self-Study, Seminars and/or Assignments
Evaluation Method	30% Internal assessment. 70% External assessment.