

# Gujarat Technological University

## Master of Computer Applications

### Semester-3 (w. e. f. July, 2018)

**Subject Name: Bridge Course of 2 weeks duration**  
**Teaching Scheme for Bridge Course for 2 Weeks (Semester-3)**

#### Part I

#### **Learning Objectives:**

- Ability to write C Programs for a given problem statement with simple to moderate complexity.
- Ability to do binary arithmetic
- Follow good programming practices:
  - In-line comments
  - Meaningful variable names
  - Use of Functions

**Prerequisites:** Logical Thinking

| <i>Sr#</i> | <i>Topics</i>  | <i>No. of Hours</i> | <i>Remarks</i> |
|------------|--|---------------------|----------------|
| 1          | Introduction, Quick Overview of Computer Hardware, Arithmetic & Logical Operations Done by CPU, Importance of Programming: Use Basic Operations of CPU to Do Complex Tasks. Examples   | 2                   |                |
| 2          | Write C Program for Addition of n Terms<br>(a) $1 + 2 + 3 + \dots + n$<br>(b) $1 + 3 + 5 + \dots + (2*n - 1)$<br>(c) $1^2 + 2^2 + 3^2 + \dots + n^2$<br>(d) $a_1 + a_2 + a_3 + \dots + a_n$<br>(e) $1 + x + x^2 + \dots + x^n$<br>(f) $1 * 2 + 2 * 3 + 3 * 4 + \dots + n * (n + 1)$<br>(g) $1 / (1*2) + 1 / (2*3) + 1 / (3*4) + \dots + 1 / (n*(n+1))$ | 12                  | Th + Lab       |
| 3          | Write C Program to evaluate a Polynomial: 2 Algorithms are Possible<br>$a_0 + a_1 * x + a_2 * x^2 + a_3 * x^3 + \dots + a_n * x^n$   | 2                   | Th + Lab       |
| 4          | Write C Program for Multiplication of n Terms<br>(a) $1 * 2 * 3 * \dots * n$<br>(b) $1 * 3 * 5 * \dots * (2*n - 1)$<br>(c) $a_1 * a_2 * a_3 * \dots * a_n$   | 6                   | Th + Lab       |
| 5          | Write C Programs for the problems listed under Sr#2, 3, & 4 using Functions  | 6                   | Th + Lab       |
| 6          | Write C Programs for the problems listed under Sr#2, 3, & 4 using Recursive Algorithms in Functions  | 10                  | Th + Lab       |
| 7          | (a) Binary Number System; Conversion from One Number System to   | 6                   | Th + Lab       |

|  |  |           |  |
|--|--|-----------|--|
|  | Another; Binary Arithmetic; Importance of Complement and Shift Operations in Binary Arithmetic<br>(b) Write C Program to Binary Number Operations: Complement, Right / Left Shift, Bit-wise AND, OR, and XOR |           |  |
|  |  |           |  |
|  | <b>TOTAL ==&gt;&gt;&gt;</b>  | <b>44</b> |  |

### Type of Problems for C Language

- Count number of letters, words, sentences, and paragraphs in a give text.
- In a given text, replace multiple spaces with one space between successive words.
- In a given text, remove any space before a punctuation mark and keep only one space after the punctuation mark.
- Convert a given integer (given in figures) into words
  - Convert a given amount (including 2 decimal digits for paise) from figures to words.
- Write a program to encrypt a given text using Caesar Cipher.
- Cryptanalysis of an encrypted text known to be encrypted using Caesar Cipher, and recover the original (plain) text.

### Books

1. Brian W. Kernighan & Dennis M. Ritchie, “The C Programming Language”, Pearson (2015), Rs. 209/-

### Accomplishment of Students after Completion of the Bridge Course

- Ability to develop Logic, Algorithm and C Program for a variety of problems
- Sound understanding of and appreciation for the use of function in developing programs
- Learning of good programming practices

## Part II

### Learning Objectives:

- Students will learn about the opportunities, challenges and techniques for developing websites built with the new resources provided by HTML5 and CSS

### Prerequisites: Basics of HTML

| <i>Sr#</i> | <i>Topics</i>  | <i>No. of Hours</i> | <i>Remarks</i> |
|------------|--|---------------------|----------------|
| 1          | <p><b>HTML5</b></p> <p><b>HTML Baiscs:</b> Introduction, Editing HTML5, First HTML5 Example, W3C HTML validation service, Headings, Linking, ImagesSpecial Characters and Horizontal Rules, Lists, Tables, Forms, Internal Linking, meta Elements</p> <p><b>HTML5:</b> New HTML5 input Types, input and datalist EElements and auto complete Attributes, Page Structure Elements</p> | 10                  | Lab            |

|   |   |           |     |
|---|---|-----------|-----|
|   | <p>Write an HTML webpage:~</p> <p>i) Create an HTML file which makes use of various Heading tags.<br/> ii) Create an HTML file which makes use of paragraph and line break.<br/> iii) Create an HTML file which is having following Text Formatting:</p> <ol style="list-style-type: none"> <li>a. Bold</li> <li>b. Strong</li> <li>c. Big</li> <li>d. Italic</li> <li>e. Small</li> <li>f. Subscript</li> <li>g. Superscript</li> <li>h. Underline</li> </ol> <p>iv) Create an HTML file which makes use of different types of links.<br/> v) Create an HTML page which Apply at least 6 different string styles to single text and display them.<br/> vi) Create an HTML file which Creates different types of Menu.<br/> viii) Lists: Create a web page which makes use of Numbered, Letters, Lowercase Letters, Roman Numbers, Lowercase Roman numbers List<br/> ix) Link: Create a web page showing an ordered list of names of the subjects, with nested list if any subject has been selected it should display the content of each subject<br/> xi) List and Tables : Write HTML code to display Restaurant Menu using different types of lists and tables<br/> xii) Create Student Registration form with all form elements.<br/> <b>Case Study: Write HTML code to display your bio-data.</b></p> |           |     |
| 2 | <p><b>Cascading Style Sheets (CSS)</b></p> <p><b>CSS Basics:</b> Introduction, inline Styles, Embedded Style Sheets, Conflicting sheets, Linking External Style Sheets, Positioning Elements, Backgrounds, Element Dimensions, Box Model and Text flow, Media Types and Media Queries, Drop-Down Menus, Optional: User Style Sheets</p>   | 6         | Lab |
|   | <p>Practicals:</p> <p>i) Employ different types of Cascading Style Sheet.<br/> i) inlineii)Internal iii) External<br/> ii) Employ Cascading Style Sheet in HTML tags.<br/> iii) Employ Cascading Style Sheet using class and ID.<br/> iv) Employ Cascading Style Sheet on Text, Text Box, Background color<br/> v) Apply CSS in Case study suggested in HTML section.</p>   |           |     |
|   | <b>TOTAL ===&gt;&gt;&gt;</b>  | <b>16</b> |     |

1. Books:

- i. Paul Deital Harvey Deitel, Abbey Deitel, Internet & World Wide Web: How to Program, 5th Edition, Pearson