



GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Master of Computer Applications (2 years), 1st Semester
Bridge Course (1 week)

With effective
from academic
year 2020-21

Duration of Bridge Course: 1 Week (30 Hours)

1. Learning Objectives:

- The Bridge Course is aimed at providing the pre-requisites to newly admitted students so as to equip them to grasp the MCA subjects with ease. The pre-requisites are provided in the following three areas:
 - Computer Fundamentals
 - Basics of Mathematics
 - Website Design using HTML and CSS

2. Course Content

a. Part I : Computer Fundamentals (Total Hours : 10)

Sr#	Course Content
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, Boot sequence
2	Basics of Flow Charting & Pseudo Code
3	Introduction to Number System
4	Boolean Algebra and Logic Gates
5	Introduction to Intel 8086 Architecture

b. Part II : Basics of Mathematics (Total Hours : 10)

Sr#	Course Content																																																															
1	Set Theory Daily life examples of sets, such as Tea Sets, Sofa Sets, etc. Introduce other examples of sets.																																																															
2	Sequence Daily life examples of sequence such as “Days of Week”, “Month Names”, etc. Introduce other examples of sequence. Explain the difference between Sets and Sequences.																																																															
3	Matrices Give example of Multiplication Tables of 2 to 10. <table style="margin-left: 20px; border-collapse: collapse;"> <tr><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>4</td><td>6</td><td>8</td><td>10</td><td>12</td><td>14</td><td>16</td><td>18</td><td>20</td></tr> <tr><td>6</td><td>9</td><td>12</td><td>15</td><td>18</td><td>21</td><td>24</td><td>27</td><td>30</td></tr> <tr><td>..</td><td>..</td><td>..</td><td>..</td><td>..</td><td>..</td><td>..</td><td>..</td><td>..</td></tr> <tr><td>..</td><td>..</td><td>..</td><td>..</td><td>..</td><td>..</td><td>..</td><td>..</td><td>..</td></tr> <tr><td>18</td><td>27</td><td>36</td><td>45</td><td>54</td><td>63</td><td>72</td><td>81</td><td>90</td></tr> <tr><td>20</td><td>30</td><td>40</td><td>50</td><td>60</td><td>70</td><td>80</td><td>90</td><td>100</td></tr> </table> <p>.....</p> Introduce the concept of matrices and give a few more examples.	2	3	4	5	6	7	8	9	10	4	6	8	10	12	14	16	18	20	6	9	12	15	18	21	24	27	30	18	27	36	45	54	63	72	81	90	20	30	40	50	60	70	80	90	100
2	3	4	5	6	7	8	9	10																																																								
4	6	8	10	12	14	16	18	20																																																								
6	9	12	15	18	21	24	27	30																																																								
..																																																								
..																																																								
18	27	36	45	54	63	72	81	90																																																								
20	30	40	50	60	70	80	90	100																																																								
4	Logic Give day-to-day examples of simple statements. Through such examples, introduce the concept of symbolic representation of statements. Introduce the concept of Truth value of the statement.																																																															



GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Master of Computer Applications (2 years), 1st Semester
Bridge Course (1 week)

With effective
from academic
year 2020-21

5	Integers Formally introduce Natural Numbers, Integers. Describe factoring of a positive integer. Define Prime numbers and Composite numbers, and methods to find Prime numbers. Given 2 numbers, find their divisors (factors) and thereafter find common divisors. Take 2 or 3 symbols (a, b) or (a, b, c) or else digits such as (1, 2) or (1, 2, 3) and introduce the concept of Permutations and combinations.
6	Relations Using examples of family relations, introduce the concept of relations. Use other examples as well
7	Functions Draw graph of $y = x + 5$ and similar simple functions. Through such examples, introduce the concept of functions
8	Graphs Relations are set of ordered pairs. Draw these ordered pairs as edges and introduce the concept of graph
9	Trees Through Family Tree, Hierarchical Positions in a college (Principal → HoD → Faculty) introduce the concept of Tree. Take examples of hierarchical structure of vehicles (Vehicle → {4-Wheelers, 3-Wheelers, 2-Wheelers}, etc). Through such examples, introduce the concept of Class, Sub-class, Super-class, Objects, etc as well in addition to the concept of Trees

c. **Part III : Website Design using HTML and CSS(Total Hours : 10)**

Sr#	Course Content
1	HTML5 HTML Basics: Introduction, Editing HTML5, First HTML5 Example, W3C HTML validation service, Headings, Linking, Images, Special Characters and Horizontal Rules, Lists, Tables, Forms, Internal Linking, meta Elements HTML5: New HTML5 input Types, input and datalist Elements and auto complete Attributes, Page Structure Elements
2	Cascading Style Sheets (CSS) CSS Basics: 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

Books:

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

Expected outcome:

- Students to develop static website for his/her BIO-Data using learned concepts for HTML5 and CSS.