C. U. SHAH UNIVERSITY,WADHWAN CITY.

Faculty of: **Computer Science**
Course: **Master of Computer Applications**
Semester**: I**
Subject Code**: 5CS01CBC1**
Subject Name: **Bridge Course for Non-CS Students**
Duration: **Three Weeks**

Sr. No	Subject Code	Subject Name	Teaching hours/ Week			Hours	Credit Points	Evaluation Scheme/ Semester								Total
								Theory				Practical				
								Internal Assessment		End Semester Exams		Internal Assessment		End Semester Exams		
			Th	Tu	Pr			Marks	Duration	Marks	Duration	Marks	Duration	Marks	Duration	
1	5CS01CBC1	Bridge Course for Non-CS Students	6		2	8	--	50	2	--	--	50	2	--	--	100

Course Objectives: The main objective of the course is to bridge the gap between subjects studied by the BCA/Bachelor of CSE students and the BA/BSc/BCom students. The students taking this bridge course shall be taught in foundational mathematics, fundamental concepts of computers and C programming language.

Learning Outcomes: After successful completion of this bridge course, the students shall be able to:

Understand basic programming skills in C language and develop simple computer programs in C.

Appreciate the working of computer system and working of its components.

Possess background knowledge of mathematical structures used in computer science and computer applications.

Theory Question Paper Structure:

A candidate is required to attempt five questions in all selecting one question from each unit including the compulsory question.

Q. No	Type of Questions	Marks	
1	Five Short Questions	Each 10 Marks	Compulsory
2	Eight Questions (2 Questions from each Unit of the given syllabus)	Each 05 Marks	With Options

Practical Question Paper Structure:

Q. No	Type of Questions	Marks	
1	Practical definition from Unit I	25 Marks	Compulsory
2	Practical definition from Unit II	25 Marks	Compulsory

Passing Pattern:

To be qualified for the MCA degree, candidates are required to pass the test in the individual theory and laboratory components of the Bridge course (50% marks to be obtained in theory and lab separately) which will be conducted by the programme. *However, the marks obtained, although shown on the final semester grade sheet, will not be added to the CGPI/SGPI.*

Mode of conduct: Self-Study via NPTEL and faculty will conducts practical alongwith doubt solving sessions.

1. **Programming and data structure**
   http://www.nptelvideos.in/2012/11/programming-and-data-structure.html
2. **Computer Fundamentals:**
   http://www.nptelvideos.in/2012/11/computer-organization.html
3. **Discrete Mathematics:**
   http://www.nptelvideos.in/2012/11/discrete-mathematical-structures.html

COURSE CONTENTS

Unit I C & Data Structures (Theory & Practical)
   Elements of C language: C character set, identifiers & keywords, data types: declaration & definition.
   Operators: Arithmetic relational, logical, bitwise, unary, assignment and conditional operators & their hierarchy & associativity, Data input/output.
   Control statements: Sequencing, Selection: if and switch statement; iteration, repetition: for, while, and do-while loop; break, continue, goto statement, Arrays, Structures, Union, String, Pointers, Functions, File Handling, Command Line Arguments, Pre-processor directives.
   Data Structures: Abstract data types, Linear Data Structures: stacks, queues, and their applications. Linked Lists: singly linked list.

Unit II –Computer Fundamentals (Theory & Practical)
   Computer Fundamentals: introduction, characteristics of computers, the evolution of computers, the computer's generations, basic computer organization, storage hierarchy, primary & secondary storage, input-output devices.
   Computer Software: introduction, relationship between hardware and software, types of software, planning the computer program: purpose of program planning, algorithm, flowcharts, decision tables, pseudocodes, application software packages.

Unit III - Mathematics

Foundational Mathematics: Types of numbers and their properties, natural numbers, whole numbers, integers, real numbers, rational numbers, irrational numbers, complex numbers, imaginary numbers. Set theory: Basic concept, set types, set operations, cardinality, and notation.

Group theory: Basic concept, subgroups, group axioms, subgroups, co-sets, normal subgroups, semigroups.

Graph theory: Directed and undirected graphs, chains, circuits, paths, cycles, connectivity, adjacency matrix.

REFERENCE BOOKS:

1. C Programming, Yashwant Kanitkar, Let us C, BPB Publications.
2. Pradeep k. Sinha & Priti Sinha, Computer Fundamentals, BPB Publications
3. Rajaraman V, Fundamentals of Computers, PHI
4. Seymour Lipschutz, Marc Lars Lipson,
5. Discrete mathematics, McGraw-Hill international editions, Schaum's series.