



MAHARAJA KRISHNAKUMARSINHJI BHAVNAGAR UNIVERSITY
NAAC Accreditation Grade B
(With effect from Academic Year: 2016-17)

BACHELOR OF COMPUTER APPLICATIONS (B.C.A.)
Structure for B.C.A. – CBCS Programme

Semester-I (FY)

COURSE NO.	COURSE TYPE	SUBJECT	CREDIT
BCA-EC-101	ELECTIVE	Environmental Science - I	02
BCA-FC-101	FOUNDATION	Introduction to English Language and Literature - I	02
BCA-CC-101	CORE	Fundamental of Computer Organization	03
BCA-CC-102	CORE	Introduction to Programming (C Language)	03
BCA-CC-103	CORE	RDBMS-I	03
BCA-CC-104	CORE	Mathematics	03
BCA-CC-105	CORE	Practical (Based on BCA-CC-102 & BCA-CC-103)	12
TOTAL			28

Internal Continuous Evaluation:

1. There will be Internal Continuous Evaluation in Theory papers of Core Course.
2. There will be 30 marks for Assignments in Course No: BCA-CC-101, BCA-CC-102, BCA-CC-103, BCA-CC-104



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B.C.A.	Course: Environmental Science - I	Course No: BCA-EC-101
Semester: 01	Type of Course: Elective Course	
Marking Scheme: External Examination: 100 + Internal Examination: 00 = 100 Marks		
Credits: 02	Theory Sessions per Week: 02	Teaching Hours: 30 Hours

Unit	Detailed Syllabus	Teaching Hours	Marks/Weight
Unit-1	Natural resources	06	20
	<ul style="list-style-type: none"> – Introduction – Types of natural resources – a. Renewable b. non renewable resources – Natural resources and associated problems. – Renewable resources -1 : Forest <ul style="list-style-type: none"> Forest types in India Deforestation Forest functions Threats to the forest in India 		
Unit-2	Renewable resources-2: Water	06	20
	<ul style="list-style-type: none"> – Over-utilization and pollution of surface and Undergroundwater. – Effect of Global climate change on water management. – Water for agriculture and power generation. – Sustainable water management. 		
Unit-3	Renewable resources- 3: Energy	06	20
	<ul style="list-style-type: none"> – Hydroelectric power, Solar energy – Biomass energy, Wind power – Tidal and wave power – Nuclear power – Energy conservation 		
Unit-4	Ecosystem	06	20
	<ul style="list-style-type: none"> – Producers consumers and decomposers – Foodchain food webs and ecological pyramids – Forest ecosystem – Desert ecosystem – Aquatic ecosystem – Fresh water and Marine ecosystem 		
Unit-5	Biodiversity	06	20
	<ul style="list-style-type: none"> – Value of biodiversity – Consumptive use value – Productive use value – Social value – Ethical and moral values – Aesthetic value – Option value – India as a mega diversity nation – Threats to biodiversity 		



B.C.A.	Course: Fundamental of Computer Organization	Course No: BCA-CC-101
Semester: 01	Type of Course: Core Course	
Marking Scheme: External Examination: 70 + Internal Examination: 30 = 100 Marks		
Credits: 03	Theory Sessions per Week: 03	Teaching Hours: 45 Hours

Unit	Detailed Syllabus	Teaching Hours	Marks/Weight
Unit-1	Basics of Computer	09	14
	Introduction: Block diagram of a computer, characteristics of computer Generation of computer: First, Second, Third, Fourth and Fifth Classification of Computer system: Mini Computers, Micro Computers, Mainframe computer, super computer. Uses and Application of Computer Basics of Windows: Desk top, file, folder, icon, Windows explorer, and Control panel, Recycle bin, etc.		
Unit-2	Input/ Output Devices and port	09	14
	Input Devices: Key board, mouse, and touch panel. Display Devices: LCD and LED Monitors, Touch Screens Printer and Scanner: Dot matrix, Line, Drum, Ink Jet, Laser, scanner. Port: Parallel Port, Serial Port, USB Port and SCSI Port		
Unit-3	Data Representation and Number Systems	09	14
	Representation: Representation of Number, Binary, Octal, Hexadecimal number and its arithmetic. Representation of Integers, Representation of Fractions, <small>Binary arithmetic</small> Representation of Character, Characters codes (ASCII, EBCDIC, UNICODE) Binary addition and subtraction. Binary Multiplication and Division with the help of long-hand method. Conversion of Numbers: Conversation of number in Decimal, Binary, Octal, Hexadecimal.		
Unit-4	Introduction to Storage Devices	09	14
	Magnetic storage & Hard Disk, Optical storage technology, CDs, DVDs. Flash memory, Memory stick (pen drive)		
Unit-5	Processors, Memory and Computer buses	09	14
	CPU organization: Registers, ALU, and Control Unit, execution of instruction Primary Memory: RAM, ROM, Types of RAM and ROM Cache Memory : L1 cache and L2 cache Introduction to buses, Read and write cycle, introduction to FSB, PCI Bus and USB.		

Reference Books

1. Tanenbaum A. S.: Structured Computer Organization, Prentice-Hall of India Pvt. Ltd.
2. V. RajaRaman: Fundamentals of Computers
3. Alexis Leon, Mathews Leon: Information Technology



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B.C.A.	Course: Introduction to Programming (C Language)	Course No: BCA-CC-102
Semester: 01	Type of Course: Core Course	
Marking Scheme: External Examination: 70 + Internal Examination: 30 = 100 Marks		
Credits: 03	Theory Sessions per Week: 03	Teaching Hours: 45 Hours

Unit	Detailed Syllabus	Teaching Hours	Marks/Weight
Unit-1	Programming Language Fundamentals	09	14
	Flowchart and Algorithm Introduction to programming language and types of programming language Concept of Editor, Compiler, Interpreter, Translator, Assembler Getting started with C:History, Structure of C program, Compilations & linking C program Character Set, Keywords, Identifier, Data Type, Variable and Constant		
Unit-2	Programming Constructs	09	14
	Formatted Input and output statements Operators Decision making and Branching (If, if-else, switch etc) Looping construct (While loop, Do..While loop, For loop etc) Break, Continue, go to and exit		
Unit-3	Array and sorting searching technique	09	14
	Introduction of array Declaration and initialization of 1-D and 2-D arrays Programming using 1-D and 2-D Array Sorting method(selection, bubble), Searching method (linear, Binary)		
Unit-4	Character, String Handling and Built-in Function	09	14
	Declaration and initialization of string and character data Character and string operation in Function: math s, input output function etc Character and String handling Function Built-		
Unit-5	Functions	09	14
	Concept of modular programming Elements of function, Type of Function Declaration, Calling, and Defining a function. Passing Array and string as function argument		
Reference Books			
1. Balaguruswamy: TMH.			
2. Let Us C By Yasvant Kanitkar			
3. Mulish Cooper : The Spirit of C, Jaico Pub. House, 19th Edition-1999			



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B.C.A.	Course: RDBMS-I	Course No: BCA-CC-103
Semester: 01	Type of Course: Core Course	
Marking Scheme: External Examination: 70 + Internal Examination: 30 = 100 Marks		
Credits: 03	Theory Sessions per Week: 03	Teaching Hours: 45 Hours

Unit	Detailed Syllabus	Teaching Hours	Marks/Weight
Unit 1	Introduction to database	09	14
	Basic concepts Data, Information, Database, DBMS Overview of RDBMS Tables, records (rows) & fields (columns) Applications of RDBMS. Theoretical concepts Entity, attribute, Tuple, Domain Set, Dr. Codd's rules Relationship between entities, E-R Diagrams, Normalization		
Unit 2	Basic elements of database in open office	09	14
	Creating a table, various data types, other properties of field Creating form and report using single table Modifying form and report layout		
Unit 3	Detailed look on Queries in open office	09	14
	Select queries By Design and SQL statement on single table Select queries based on multiple tables (rigorous practical exercises to be covered) Insert, Update & Delete queries Design, SQL statements, execution, How they differ from select query Advanced query building Automating Tasks using Macro		
Unit 4	Electronics Spreadsheet as database in open office	09	14
	Introduction to spreadsheet : Opening Spreadsheet, Menus - main menu, Toolbars, Spread sheet addressing - Rows, Columns & Cells, Referring Cells & Selecting Cells Entering the data in tabular form, inserting / deleting of rows and columns Using formula in columns Database operations: Sorting, Filtering, Consolidation, and Subtotal.		
Unit 5	Importing & Exporting Data in open office	09	14
	Importing Data from text file, XML file, Spreadsheet file Exporting Data to text file, XML file, Spreadsheet file Managing Database Taking Backups & Repair Database		
Reference / Text-Books / Additional Reading :			
1. Desai Bipin C: Introduction to database Systems, West Publishing Co.			
2. A conceptual guide to open office.org R. Gabriel Gurely			



B.C.A.	Course: Mathematics	Course No: BCA-CC-104
Semester: 01	Type of Course: Core Course	
Marking Scheme: External Examination: 70 + Internal Examination: 30 = 100 Marks		
Credits: 03	Theory Sessions per Week: 03	Teaching Hours: 45 Hours

Unit	Detailed Syllabus	Teaching Hours	Marks/Weight
Unit-1	Sets and Functions	09	14
	<p>Sets Introduction to s theory, Methods of represent tion of a set, examples.</p> <p>Functions Function Definition, Domain, Range, One-to-One function, onto function. Composite function and Inverse of a function.</p>		
Unit-2	Permutation & Combination	09	14
	<p>Permutation Meaning of permutation, Formula of permutation, Permutation of n-different things, Permutation of similar things, Permutation of repeated things, Circular Permutation</p> <p>Combination Combination: Meaning of Combination, Formula of Combination.</p>		
Unit-3	Vectors	09	14
	Definition of Vector, Addition and Subtraction of Vectors, Magnitude of a Vector, Unit Vectors, Dot Product and Cross Product.		
Unit-4	Matrices	09	14
	Definition of a Matrix, Equal matrices, Diagonal element of a matrix, Row matrix, Column Matrix, Symmetric Matrix, Skew-Symmetric Matrix, Orthogonal Matrix, Diagonal Matrix, Identity Matrix. Operation on a Matrix (Addition, Subtraction and Multiplication), Inverse of a Matrix.		
Unit-5	Graph Theory	09	14
	<p>Introduction to Graph, Graph Definition, Vertices, Edges, Loops, Parallel Edges, Simple Graph, Finite Graph, Adjacent vertices, Incidence between vertex and edge, Degree of a vertex, Isolated Vertex, Pendent Vertex, Null Graph. Isomorphism, Labeled Graph, Unlabeled Graph. Walk, Closed Walk, Open Walk, Simple Path, Circuit, Connected Graph.</p> <p>Tree Definition, Rooted Tree, Binary tree and its properties, Uses of Binary Tree. Level of a tree.</p> <p>Note: Only Concepts and Simple Examples are included. Theorems are not included.</p>		

Reference Books

1. D. C. Sancheti, V. K. Kapoor: Business Mathematics, Sultan Chand & sons.
2. Lipschutz & Marc Lipson: DISCRETE MATHEMATICS, Tata Mcgraw Hill
3. Narsingh Deo: Graph Theory with application to engineering and computer science, Prentice Hall of India Pvt. Ltd



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B.C.A.	Course: Practical	Course No: BCA-CC-105
Semester: 01	Type of Course: Core Course	
Marking Scheme: External Examination: 100 + Internal Examination: 00 = 100 Marks		
Credits: 12	Practical Sessions per Week: 12	Teaching Hours:180 Hours

Unit	Detailed Syllabus	Marks/ Weight
Unit-1	Practical Problem from BCA-CC-102	50
Unit-2	Practical Problem from BCA-CC-103	50