

BHAKTA KAVI NARSINH MEHTA UNIVERSITY - JUNAGADH

(Gujarat) INDIA



**CURRICULAM FOR
Bachelor of Computer Application
B.C.A.
(Semester – 1)
Effective From June – 2018**

BHAKTA KAVI NARSINH MEHTA UNIVERSITY

Bachelor of Computer Application

[3 Years - Six Semester Full Time Program]

Ordinance, Regulations and Examination Scheme:

Ordinance:

- **B.C.A.-1:** Candidate for admission to the Bachelor of Computer Application must have passed standard 12th or equivalent examination from Gujarat higher secondary board or any other board.
- **B.C.A.-2:** Candidate seeking admission directly in third semester of Bachelor of Computer Application must have passed Examination of Diploma in Engineering in Computer Engineering (CE) / Computer Science (CS) / Information Technology (IT).
- **B.C.A.-3:** The duration of the course will be of three full time academic years. The examination for the Bachelor of Computer Application course will be divided into six semesters. No candidate will be allowed to join any other course or service simultaneously.
- **B.C.A.-4:** Candidate who have passed an equivalent examination from any other board or examining body and is seeking admission to the B.C.A. course will be required to provide necessary eligibility certificate.
- **B.C.A.-5:** No candidate will be admitted to any semester examination for B.C.A. unless it is certified by the Principal that he has attended the course of study to the satisfaction of the principal of the college.
- **B.C.A.-6:** Candidate desirous of appearing at any semester examination of the B.C.A. course must forward their application in the prescribed form to the University through the principal of the college on or before the date prescribed for the purpose under the relevant ordinances.
- **B.C.A.-7:** No candidate will be permitted to reappear at any semester examination, which he has already passed. The marks of successfully completed paper will be carrying forwarded for the award of class.
- **B.C.A.-8:** There shall be an examination at the end of each semester to be known as first semester examination, second semester examination respectively. At which a student shall appear in that portion of theory papers, practical and viva - voice if any, for which he has kept the semester in accordance with the regulations in this behalf. A candidate whose term is not granted for what so ever reason shall be required to keep attendance for that semester or term when the relevant papers are actually taken at the college.
- **B.C.A.-9:** After successfully passing all the subjects of semester - 1 candidate will be awarded by certificate CCC and after passing all the subjects of Semester - 1 and Semester - 2 candidate will be awarded by CCC+
- **B.C.A.-10:** Medium of instruction is English.
- **B.C.A.-11:** Any candidate can go up to take admission in pre to pen-ultimate semester irrespective of failure in any number of subjects. A Candidate can take admission to pen-ultimate semester if he/she is not failing to more than two subjects. A candidate can take admission to ultimate {final} semester if he/she is clear all semesters before pen-ultimate semester and not failing in more

than two subjects of pen-ultimate semester.

That is a candidate will be permitted to continue his/her study up to the 4th semester examination without passing his/her previous semester examination.

A candidate can take admission to fifth (pen-ultimate) semester if he/she is failing in NOT more than two subjects of previous (1 to 4) semesters.

A candidate can take admission to Sixth (Ultimate Final) Semester if he/she is not failing in more than two subjects of 5th Semester. Provided he/she should have cleared all 1 to 4 semester.

Regulations:

- **R.S.B.C.A. - 1. Standard Of Passing**

The standard of passing the B.C.A. degree examination will be as under:

1. To pass any semester examination of the B.C.A. degree, a candidate must obtain at least 40% marks in the university examination separately in each course of theory and practical.
2. Class will be awarded based on Earned Grade Point, SGPA and CGPA as per rules of University.
3. A result of candidate who has obtained admission directly in Bachelor of Computer Application semester - 3 will be declared by considering his marks of semester 3 to 6 in aggregate and accordingly class will be awarded.

- **R.S.B.C.A. - 2. Marks and credit hours of each course**

Marks of Internal examination, university examination and credit hours will be as under:

1. Total marks of each theory course are 100 (university examination of 70 marks + internal examination of 30 marks).
2. Marks of each unit in the course are equal (i.e. 14 Marks). Total marks of each course are $14 \times 5 = 70$ for university examination.
3. Credit hours (lectures) for each unit in the course are equal (i.e. 12 hours). Total credit hours (lectures) of each course are $12 \times 5 = 60$.
4. Total marks of each practical and project-viva course are 100. No internal examination of marks in practical and project-viva courses.

- **R.S.B.C.A. - 3. Structure of Question Paper**

Question Paper contains 5 questions (each of 14 marks).

Every question will be asked from corresponding unit as specified in the syllabus of each course. (i.e. Question-1 from Unit No.1 and remaining questions from their corresponding units)

Every question is divided in Three parts like (a), (b), (c)

Part (a) contains three objective type questions (not MCQ) like definition, reason, answer in one line, answer in one word etc., each of one marks and no internal option.

Part (b) contains four questions each of three marks and student will attempt any two out of four.

Part (c) contains two questions each of five marks and student will attempt any one out of two.

- **R.S.B.C.A. - 4. Following is the syllabus of each course of B.C.A. Program.**

BHAKTA KAVI NARSINH MEHTA UNIVERSITY**Bachelor of Computer Application**

[3 Years - Six Semester Full Time Program]

Semester – 1

Code	Course Name	No. Of Lectures/ Lab (Per Week)	Credit
CS - 01	Programming In C	5	5
CS - 02	Networking, Internet & Web Page Development	5	5
CS - 03	Comp. Fundamentals & Emerging Tech.	5	5
CS - 04	English Language & Communication Skills	5	5
CS - 05	Practical – 1 (Based On Cs - 01)	5	5
CS - 06	Practical – 2 (Based On Cs - 02 & Pc Software/ Libre Office)	5	5
Total Credits of Semester - 1			30

CS - 01: PROGRAMMING IN C

Objective: To develop basic programming skill, concept of memory management and file concept.

Unit : 1

Introduction of C Language

- Introduction to Programming
- Various Computer Languages
- History & Overview of C Language
- Difference between traditional C and modern C
- C character set
- C tokens
 - Keywords
 - Constants
 - Strings
 - Identifiers and variables
 - Operators
- Operators & Hierarchy of operators
- Data types in c
- Type casting & Type Conversion
- Pre – Processors in C

Introduction of Logic Development Tools

- Introduction of Logic & Basic of Algorithm.
- Basics of Flow Chart
- Dry-run and its Use.
- Other Logic development techniques (Algorithm and Flowchart Based on Programming)

Unit : 2

Branching & Looping

- Decision structure
 - If statements(All Types)
 - Switch statement
 - Conditional ternary operator
- Looping Structures
 - For loop
 - Do...while loop
 - While loop
 - Nesting of loops
- Jumping statements
 - Break statement
 - Continue statement
 - Go to statements

Unit : 3

Library Functions

- Introduction of Library Function
- Brief overview of Header Files (stdio.h, conio.h, math.h, string.h, stdlib.h, ctype.h, graphic.h, process.h, dos.h)
- Types of library functions

String Function: strcpy, strncpy, strcat, strncat, strchr, strcmp, strncmp, strlen, strstr

Mathematical Functions: ceil, div, exp, fabs, floor, fmod, log, pow, sqrt

Date & Time Functions: clock, time, gmtime, localtime

Graphics Functions: initgraph, closegraph, arc, line, circle, ellipse, getx, putx, setcolor, setbkcolor

I/O Formatting Functions: printf, scanf, getc, getchar, gets, putc, putchar, puts

Miscellaneous Functions: delay, clrscr, isalnum, isalpha, isdigit, islower, isprint, isspace, isupper, toupper, tolower

Standard Library functions: abs, atof, atol, exit, free, rand

Memory Allocation Functions: malloc, realloc, calloc

User Define Functions (udf)

- Concept of User Define Function
- Types of user defined functions
- call by value & call by reference
- Nesting & Recursion
- Storage classes

Unit : 4

Array

- Concept of Array
- Types of arrays
 - Single dimensional array
 - Two dimensional array
 - Multi-dimensional array
- String arrays
- Array with functions using UDF
- Use of Arrays in Programming

Structures

- Concept of Structure
- Initializations and declarations
- Array with structures
 - Array of Structure
 - Array Within Structure
- Udf with structures

- Nested structures
- Introduction to union
- Difference between Structure & Union

Unit : 5

Pointers

- Concept of Pointers
- Pointer to Variables
- Pointer to Array
- Pointer within Array
- Pointer To Structure
- Pointers within structure
- Pointer to Pointer
- Use of pointers in Dynamic Programming

File Handling

- Concept of data files
- Importance of file handling
- I/O Operation
- Command line arguments

	Class Room	Seminar	Expert Talk	Test	Total
No. Of Lecture	60	05	05	05	75

Reference Books:

No.	Name	Author / Publication
1	Programming in ANSI C	E. Balagurusami
2	Let Us C	Yashwant Kanetkar.
3	Working with C	Yashwant Kanetkar.
4	Programming in C	Schaum Series publication.

Web site References :

- <https://www.tutorialspoint.com/cprogramming/index.htm>
- <http://www.eskimo.com/~scs/cclass/notes/top.html>
- <http://c-faq.com/>
- <http://www.learn-c.org/>
- https://www.tutorialspoint.com/cprogramming/cprogramming_tutorial.pdf
- <https://www.w3schools.in/c-tutorial/>
- <https://www.javatpoint.com/c-programming-language-tutorial>

CS – 02 : Networking, Internet & Web Page Development

Objective: To understand basic terms of computer networks and Internet, to give knowledge of Scripting languages like HTML, CSS and Java Script

Unit : 1

Introduction to Computer Network

- Basics of Computers
- Computer Network
- Type of Computer Network
- Network Topology
- OSI Reference Model (Introduction)
- TCP/IP
- Internet Terminology
- ISP (Internet Service Provider)
- Intranet
- VSAT (very small aperture terminal)URL

Unit : 2

Application of Internet

- World Wide Web (WWW)
- Types of Search Engine
- Remote Login
- Electronic Mail (Email)
- Concept and use of : E-Commerce, E-Business, E-Governance, Mobile Commerce
- Website Basics (WebPages; Hyper Text Transfer, Domain name server, Protocol, File Transfer Protocol, Domain Names; URL , Protocol Address; Website[Static, Dynamic, Responsive], Web browser, Web Servers; Web Hosting, web portal, domain name server
- Network Security Concepts: Cyber Law, Firewall, Cookies, Hackers and Crackers
- Types of Payment System (Digital Cash, Electronic Cheque, Smart Card, Debit/Credit Card)

Unit : 3

Basic of HTML & Advance HTML 5

- Fundamental of HTML
- Basic Tag and Attribute
- The Formatting Tags
- The List Tags & Link Tag
- inserting special characters,
- adding images and Sound,
- Table & Frame in HTML
- Forms
- HTML 5 Document Structure & Syntax (section, article, aside, header, footer, nav, dialog)
 - Attributes of HTML 5

- Web Form (datetime, date, month, week, time, number, range, email, url)
- Audio / Video

Unit : 4

Cascading Style Sheet & CSS 3

- Introduction to CSS
- Types of Style Sheets
- Class, ID Selector
- CSS Text & Font Properties
- CSS Background Properties
- CSS List Properties
- CSS Margin & Padding Properties
- CSS Comments
- CSS 3
 - Border Property
 - Background & Gradient Property
 - Drop Shadow Property
 - 2D & 3D Transform Property
 - Transition Property

Unit : 5

Java Script

- Introduction to JavaScript
- Variables
- JavaScript Operators
- Conditional Statements
- JavaScript Loops
- JavaScript Break and Continue Statements
- Dialog Boxes
- JavaScript User Define Function & Builtin Function (string, Maths, Array, Date)
- Events (onclick, ondblclick, onmouseover, onmouseout, onkeypress, onkeyup, onfocus, onblur, onload, onchange, onsubmit, onreset)
- Form Validation & E-mail Validation

	Class Room	Seminar	Expert Talk	Test	Total
No. Of Lecture	60	05	05	05	75

Reference Books:

No.	Name	Author / Publication
1	HTML in 10 steps or less	Laurie Ann Ulrich, Robert G. Fuller
2	Internet The Complete Reference	Young.
3	World Wide Web Design with Html	C Xavier.
4	Internet for Every One	Leon.
5	Practical Html 4.0	Lee Philips.
6	Mastering In FrontPage	BPB

Web site References :

- <https://www.javatpoint.com/html-tutorial>
- <https://www.tutorialspoint.com/html/index.htm>
- <https://www.w3schools.com/html/>
- <https://www.csstutorial.net/>

CS – 03 : COMP. FUNDAMENTALS & EMERGING TECH.

Objective: To aware basics of computer and emerging technology

Unit : 1

Introduction of Computers

- Basics of Computers
 - What is Computer?
 - Characteristics of Computer
 - Data Processing Cycle(Data → Process →information)
- Classification of Computer by Data Processed
 - Analog, Digital and Hybrid Computers
- History and Generations of Computers
 - First to Fifth Generation Computers
- Classification of Computer by Processing Capabilities
 - Micro, Mini, Mainframe and Super Computers
- History and Generations of Computers .
 - First to Fifth Generation Computers
- Simple Model of Computer
 - Input Devices
 - CPU (Central Processing Unit)
 - Arithmetic & Logic Unit
 - Control Unit
 - Internal Memory
- Output Devices
- Secondary Storage Devices

Internal/External parts used with Computer Cabinet

- Introduction to Mother board
- Types of Processors .
 - Dual Core, Core 2 Duo, i2, i3, etc ...
- Memory structure and Types of Memory
 - RAM (SRAM, DRAM, DDR.)
 - ROM (ROM, PROM, EPROM, EEPROM,Cache)
- Slots
 - ISA Slots / PCI Slots / Memory Slots/SATA
- Sockets
- Cables
 - Serial Cable / Parallel Cable / USB Cable/HDMI
- Ports
 - USB (2.0 &3.0)/ Serial / Parellel

- Power Devices :UPS
- Graphic Cards
- Network card, Sound Card

Unit : 2

Input Devices

- Introduction
- Types of Input Devices
 - Keyboard / Mouse / Trackball / Glide - Pad / Game Devices Joystick, etc.) / Light Pen / Touch Screen / Mic (Sound Input) / Camera (Photo and Video Input) / POS (Point of Sale) Terminal (Scanners, etc)
 - MIDI (Musical Instrument Digital Interface) Keyboard,
 - Wireless Devices (Keyboard, Mouse, etc)
- Types of Scanners
 - OMR, MICR, OBR

Output Devices

- Introduction
- Types of Output Devices
- Types of Monitors
 - CRT Display Units
 - LCD
 - LED
 - OLED
- Types of Printers
 - Impact (Dot Matrix Printer, Daisy Wheel Printer)
 - Non Impact (Ink Jet Printer, Laser Printer)
- Plotters
- Other Devices
 - Facsimile (FAX)
 - Headphone
 - SGD (Speech Generating Device)
 - COM (Computer Output Microfilm)
 - Google Glass

Unit : 3

Data Storage

- Introduction
- Types of Magnetic Storage Devices
 - Floppy Disk / Hard Disk / Magnetic Tape / Magnetic Disks
- Storage Mechanism of Magnetic Storage Devices
 - Tracks / Sectors / Clusters / Cylinders
- Reading / Writing Data to and from Storage Devices
- Seek Time / Rotational Delay - Latency / Access
- Time / Response Time
- Other Storage Devices
 - USB - Pen Drive / CD / DVD / Blu-Ray Disk. Flash Memory, Cloud Storage (Like Google

Drive, OneDrive)

Unit : 4

Numbering System and Codes

- Introduction to Binary Codes /
 - Nibble / Bit / Byte / Carry Bit / Parity Bit / Sign Bit
 - KB / MB / GB / TB / HB (etc ...)
- Types of Numbering System
 - Binary / Octal/Decimal / Hex-Decimal
- Conversion
 - Binary to Octal, Decimal and Hexa-Decimal
 - Decimal to Binary, Octal and Hexa-Decimal
 - Octal to Binary, Decimal and Hexa-Decimal
 - Hexa-Decimal to Binary, Octal and Decimal
- Binary Arithmetic
 - Addition
 - Subtraction (1's Compliment and 2's Compliment)
 - Division .
 - Multiplication
- Types of Codes
 - ASCII/BCD / EBCDIC / UniCode
- Parity Check
 - Event Parity System / Odd Parity System

Languages, Operating Systems and Software Packages

- Introduction
- Translator (Assembler / Compiler / Interpreter)
- Types of Languages
 - Machine Level Language
 - Assembly Level Language
 - High Level Language (3GL, 4GL, 5GL, etc.)
- Types of Operating Systems
 - Batch Operating System
 - Multi Processing Operating System
 - Time Sharing Operating System
 - Online and Real Time Operating System
- Uses and applications of Software Packages
 - Word Processing Packages
 - Spread Sheet Packages
 - Graphical Packages
 - Database Packages I
 - Presentation Packages
 - Animation / Video / Sound Packages

Unit : 5

Emerging Technologies and Virus

- Different Communication methods
 - GIS / GPS / COMA / GSM/ VOLTE
- Communication Devices
 - Cell Phones / Modem / Infrared / Bluetooth / WiFi / LiFi
- Virus
 - Introduction to Virus and related terms
 - Origin and History
 - Types of Virus
 - Problems and Protection from Virus
- Cloud Computing
 - What is Cloud Computing?
 - Characteristic & Service Models(Iaas, Paas, Saas)
 - Architecture
 - Security & Privacy

	Class Room	Seminar	Expert Talk	Test	Total
No. Of Lecture	60	05	05	05	75

Reference Books:

No.	Name	Author / Publication
1	Computer Fundamentals	By P.K.Sinha
2	Fundamental of IT for BCA	By S.Jaiswal
3	Engineering Physics	By V.K.Gaur
4	Teach Yourself Assembler	By Goodwin.

Web site References :

- <https://www.javatpoint.com/computer-fundamentals-tutorial>
- https://www.tutorialspoint.com/computer_fundamentals/index.htm
- https://www.tutorialspoint.com/computer_fundamentals/computer_fundamentals_tutorial.pdf
- http://www.kvadilabad.org/admin/downloads/1788662251computer_fundamentals_tutorial.pdf

CS – 04 : TECHNICAL COMMUNICATION SKILL

English

Syllabus for B.C.A. Semester: 1

- SUBJECT: English
- Course Title: English Language and Communication Skills
- Course Code:
- Total Teaching Hours: 45
- Time for Semester End Exam: 2:30 Hours for 70 Marks
- Internal Assessment: Assignment/ presentation/MCQ test: 30 Marks
- Credit: 05
- Total Teaching Hours: 75 Hrs.

Learning Objectives:

- To enhance the knowledge of the subject particularly from non-urban areas.
- To make students proficient in English language and subject related terminology.
- To make them able to master in grammar.
- To make them develop the power of understanding the passage critically.

Detailed Syllabus:

Unit	Item	Marks	Hours
I	Text: <i>Text: The Room on the Roof by Ruskin Bond</i>	14	09
II	Basics of Communication: Meaning of communication, Importance of communication, Process of communication, and SevenCs of Communication. Formal and Informal communication, Barriers of Communication and How to Overcome them.	14	09
III	Written Communication: Objectives of written communication, Merits and demerits of written communication, Types of Written Communication. Oral Communication: Principles of effective oral communication, Advantages of oral communication, Disadvantages of oral communication, Types of Oral Communication.	14	09

	<p>Interviews: Meaning & Purpose, Art of interviewing, Types of interview, Its Essential Features.</p> <p>Project Presentations: Advantages & Disadvantages, Executive Summary, Charts, Distribution of time (presentation, questions & answers, summing up), Visual presentation, Guidelines for using visual aids, Electronic media (power- point presentation).</p>		
IV	<p>Grammar: Verbs, adjectives, adverbs, pronouns, tenses, conjunctions, punctuations and prepositions.</p>	14	09
V	<p>Language Skills: How to improve Listening, Speaking, Reading, Writing Skills</p>	14	09
Total Teaching Hours			45

Semester End Examination Pattern

Q.No.	Sub.Q.No.	Type of Question	Instruction	Marks
1	A	One Line Answer Questions/Objective Type Questions(Text)	5 out of 5	05
	B	Short-answer questions (Text)	3 out of 5	09
2	A	One Line Answer Questions/Objective Type Questions(From Unit-2)	5 out of 5	05
	B	Short-answer questions (From Unit-2)	3 out of 5	09
3	A	One Line Answer Questions/Objective Type Questions(From Unit-3)	5 out of 5	05
	B	Short-answer questions (From Unit-3)	3 out of 5	09
4	A	Based on Verbs, adjectives, adverbs, pronouns	7 out of 7	07
	B	Do as directed: Based on tenses, conjunctions, punctuations and prepositions.	7 out of 7	07
5	A	Short answer Questions / Objective Type Questions based on Listening, and Speaking Skills	7 out of 7	07

	B	Short answer Questions/ Objective Type Questions based on Reading and Writing Skills	7 out of 7	07
			Total	70

Reference:

1. Technical Communication: Principles and Practice by Meenakshi Raman & Sangeeta Sharma. OUP
2. Principles and Practice of Business Communication by Rhoda Doctor. Sheath publishers
3. A Communicative Grammar of English by Geoffrey Leech & Jan Svartvik. Routledge Publication
4. Spoken English: A Foundation Course by Kamlesh Sadanand and Susheela Punitha (Part I and Part II)

CS – 05	PRACTICAL – 1 (Based on CS - 01) Programming in C Language	100 Marks
CS – 06	PRACTICAL – 2 (Based on CS – 02 & PC Software) HTML-5, CSS-3, MS - Word, MS - Excel, MS - Power Point, MS-Access and Macromedia Dream weaver	100 Marks
<p>Note :</p> <ul style="list-style-type: none"> ▪ Each session is of 3 hours for the purpose of practical Examination. ▪ Practical examination may be arranged before or after theory exam 		