SAURASHTRA UNIVERSITY

RAJKOT – INDIA

Accredited Grade A by NAAC (CGPA 3.05)

CURRICULAM

FOR

B.C.A.

Bachelor of Computer Application

(Semester - 1 and Semester - 2)

Effective From June – 2019

Bachelor of Computer Application
(Semester - 1 and Semester - 2)
Saurashtra University
Effective from June – 2019
Bachelor in Computer Application (B.C.A.)
[3 years – Six Semester Full Time Program]

Ordinance, Regulations and Examination Scheme:
Ordinance:

O. 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.

O. 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).

O. 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.

O. 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.

O. 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.

O. 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 from to the University through the principal of the college on or before the date prescribed for the purpose under the relevant ordinances.

O. 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.

O. B.C.A. – 8 : There shall be an examination at the end of each semesters 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.

O.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+

O. B.C.A. – 10: Medium of instruction is English.

O.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 then 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 then two subjects of pen-ultimate semester.

That is a candidate will be permitted to continue his/her study upto 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 14x5=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 12x5=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 four parts like (a), (b), (c) and (d). Part (a) contains four 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 two questions each of two marks and student will attempt any one out of two. Part (c) contains two questions each of three marks and student will attempt any one out of two. Part (d) contains two questions each of five marks and student will attempt any one out of two.

Bachelor of Computer Application
(Semester - 1 and Semester - 2)
Saurashtra University
Effective from June – 2019

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

B.C.A. (Semester – 1)

SR. NO.	COURSE	No. OF LECT./Lab. PER WEEK	CREDIT
1.	CS – 01 TECHNICAL COMMUNICATION SKILL	5	5
2.	CS – 02 PROBLEM SOLVING METHODOLOGIS AND PROGRAMMING IN C	5	5
3.	CS – 03 COMPUTER FUNDAMENTALS AND EMERGING TECHNOLOGY	5	5
4.	CS – 04 NETWORKING & INTERNET ENVIRONMENT	5	5
5.	CS – 05 PRACTICALS-1 (BASED ON CS-04 & PC SOFTWARE)	5	5
6.	CS – 06 PRACTICALS-2 (BASED ON CS-2)	5	5
Total Credits of Semester – 1			30

CS-02: PROBLEM SOLVING METHODOLOGIS AND PROGRAMMING IN C

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

Unit No.	Topic	Detail

1	Introduction of C Language	• Introduction of Computer Languages
		• Introduction of Programming Concept
		• Introduction of C Language (History & Overview)
		• Difference between traditional and modern c.
		• C character set
		• C tokens
		  ▪ Keywords
		  ▪ Constants
		  ▪ Strings
		  ▪ Identifiers and variables
		  ▪ Operators (all 8 operators)
		• Hierarchy of operators
		• Type casting
		• Data types in c
		• PRE-PROCESSORS IN C

	Introduction of Logic Development Tools	• Introduction of Logic. • Necessary Instructions for Developing Logic • Basics of Flow Chart • Dry-run and its Use. • Other Logic development techniques

2	Control Structures	• Selective control structure
		  ▪ If statements
		  ▪ Switch statement
		• Conditional ternary operator
		• Iterative (looping) control statements
		  ▪ For loop
		  ▪ Do...while loop
		  ▪ While loop
		• Nesting of loops
		• Jumping statements
		  ▪ Break statement
		  ▪ Continue statement
		  ▪ Goto statements

3	Library Functions	• Types of library functions
		  ▪ String Function: Strcpy, strncpy, strcat, strncat, strchr, strrchr, strcmp, strncmp, strspn, strcspn, strlen, strpbrk, strstr, strtok
		  ▪ Mathematical Functions: Acos, asin, atan, ceil, cos,

		div, exp, fabs, floor, fmod, log, modf, pow, sin, sqrt ▪ Date & Time Functions: clock, difftime, mktime, time, asctime, ctime, gmtime, localtime, strftime ▪ I/O Formatting Functions: printf, scanf, getc, getchar, gets, putc, putchar, puts, ungetc ▪ Miscellaneous Functions: delay, clrscr, clearer, errno, isalnum, isalpha, iscntrl, isdigit, isgraph, islower, isprint, isspace, isupper, isxdigit, toupper, tolower ▪ Standard Library functions: abs , atof , atol , exit , free, labs , qsort , rand , strtoul , srand ▪ Memory Allocation Functions: malloc , realloc , calloc • Types of user defined functions • Pointers • Function call by value • Function call by reference • Recursion • Storage classes • Passing and returning values

4	Array	• Types of arrays
		  ▪ Single dimensional array
		  ▪ Two dimensional array
		  ▪ Multi-dimensional array
		  ▪ String arrays
		• Use of Arrays in Programming
		• Arrays and Matrices

	Structures	• What is structure • Initializations and declarations • Memory allocation functions • Pointers with structures • Array with structures • Udf with structures • Nested structures • Introduction to union • Difference between Structure & Union
5	Pointers	• Introduction of Pointers • Use of pointers in Dynamic Programming • Pointer to Variables • Pointer to Array • Pointer within Array • Pointer To Structure • Pointers within structure • Pointer to Pointer
	File Handling	• Concept of data files • File handling

		- Use of file handling functions fopen, fclose, fprintf, fscanf, getw, putw, fseek, ftell, rewind ,freopen, remove, rename, feof, ferror, fflush, fgetpos, sprintf, snprintf, vsprintf, vsnprintf, fscanf, vfscanf, setbuf, setvbuf - I/O operations - Command line arguments

Seminar	-	5 Lectures
Expert Talk	-	5 Lectures
Test	-	5 Lectures

Total Lectures 60 + 15 = 75

Reference Books:

1. Programming in ANSI C Author : E. Balaguruswami.
2. Let Us C Author : Yashwant Kanetkar.
3. Working withC Author: Yashwant Kanetkar.
4. Programming in C Schaum Series publication.

CS-03: COMPUTER FUNDAMENTALS AND EMERGING TECHNOLOGY

Objective: To aware basics of computer and emerging technology.

Unit No.	Topics	Details

1	Introduction to Computers	- Basics of Computers
		  - What is Computer?
		  - Characteristics of Computer
		  - Data Processing Cycle (Data $\rightarrow$ Process $\rightarrow$ information)
		- Classification of Computer by Data Processed
		  - Analog, Digital and Hybrid 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, SO, DDR, etc.)
		  - ROM (ROM, PROM, EPROM, EEPROM, etc.)
		- Slots
		  - ISA Slots / PCI Slots / Memory Slots
		- Sockets
		
		- Cables
		  - Serial Cable / Parallel Cable / USB Cable
		- Ports
		  - USB / Serial / Parellel / PS2 / HDMI
		- Power Devices :UPS
		- Graphic Cards
		- Network card, Sound Card

2	**Input Devices**	- Introduction - Types of Input Devices - Keyboard / Mouse / Trackball / Glide - Pad / Game Devices Joystick, etc.) / Light Pen / Touch Screen / Digitizers and Graphic Tablet / 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 - OCR, OMR, MICR, OBR
	Data Storage	- Introduction - Types of Magnetic Storage Devices - Floppy Disk / Hard Disk (SATA, SSD) / 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-Rav Disk etc. - Flash Memory, Cloud Storage(Like Google Drive, OneDrive etc.)
3	**Output Devices**	- Types of Output Devices - CRT Display Units - Monitor - Non CRT display Units - LCD / LED / Plasma Displays - Types of Printers Impact and Non Impact Printers - Plotters - Other Devices - Fascimile(FAX) - OLED (Organic LED) - Headphone - SGD (Speech Generating Device) - COM (Computer Output Microfilm) - Google Glass
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
5	**Emerging Technologies and Virus**	• Different Communication methods ○ GIS / GPS / COMA / GSM • Communication Devices I ○ Cell Phones / Modem / Infrared / Bluetooth / WiFi/LiFi/SLM(Spatial Light Modulator) • Virus ○ Introduction to Virus and related terms ○ Origin and History

		o Types of Virus
		o Problems and Protection from Virus
		• Cloud Computing
		  o What is Cloud Computing?
		  o Characteristic & Service Models(Iaas, Paas, Saas)
		  o Architecture
		  o Security & Privacy

	Important Terms and Acronyms	• ATM • Backup / Restore • Hard Copy / Soft Copy • Bus / Data Bus • Buffer and types / Spooling • Cursor / Pointer / Icon • E-Mail I Attachment • CLiI GUI • Compiler and its types • Drive I Directory (Folder) / File / Path • Menu / Popup Menu / Toolbar • Shutdown / Reboot / Restart • Syntax / Wild Card Characters • Optical Fiber (Fiber Optic) . • Net meeting • Printing Speed (CPS, CPM, LPM, DPI, PPM) • Peripherals

Seminar   -   5 Lectures
Expert Talk   -   5 Lectures
Test   -   5 Lectures

Total Lectures 60 + 15 = 75

Reference Books:
2. Computer Fundamentals – By P.K.Sinha.
3. Fundamental of IT for BCA – By S.Jaiswal.
4. Engineering Physics – By V.K.Gaur.
5. Teach Yourself Assembler – By Goodwin.

Additional Topics (Not to be asked in examination) :
    Student should be aware of followings
- To Format Hard Disk
- Installation of OS, multi-OS and other packages
- Use of DOS commands
- Operating of Accounting Software

CS-04: NETWORKING & INTERNET ENVIRONMENT		
Objective: To understand basic terms of computer networks and Internet , to give knowledge of Scripting languages like HTML, CSS and Java Script		
Unit No.	**Topic**	**Detail**
1	**Introduction to Computer Network**	• 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 • Portal • Domain Name Server
2	**Application of Internet**	• World Wide Web (WWW) • Search Engine • Remote Login • Telnet • Electronic Mail (Email) • E-Commerce and E· Business • E-Governance • Mobile Commerce • Website Basics (WebPages; Hyper Text Transfer Protocol, File Transfer Protocol, Domain Names; URL; Protocol Address; Website[Static, Dynamic, Responsive etc], Web browser, Web Servers; Web Hosting. • Network Security Concepts: Cyber Law, Firewall, Cookies, Hackers and Crackers; • Types of Payment System (Digital Cash, Electronic Cheque, Smart Card, Debit/Credit Card etc)
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,

		• lists types of lists
		• Table in HTML
		• Frame in HTML
		• Forms
		• HTML 5 & Syntax
		  - HTML5 Document Structure (section, article, aside, header, footer, nav, dialog, figure)
		  - Attributes of HTML 5
		  - Web Form (datetime, date, month, week, time, number, range, email, url)
		  - Audio / Video
		  - Canvas

4	**Cascading Style Sheet & CSS 3**	• Introduction to CSS
		• Types of Style Sheets
		• Class & ID Selector
		• CSS Pseudo
		• CSS Font Properties
		• CSS Text Properties
		• CSS Background Properties
		• CSS List Properties
		• CSS Margin Properties
		• CSS Comments
		• CSS 3
		  - Border Property
		  - Background & Gradient Property
		  - Drop Shadow Property
		  - 2D & 3D Transform Property
		  - Transition Property
		  - Box Sizing Property
		  - Position Property
		• Media Query

5	**Java Script**	• Introduction to JavaScript • Variables • JavaScript Operators • Conditional Statements • JavaScript Loops • JavaScript Break and Continue Statements

		• Dialog Boxes
		• JavaScript Arrays
		• JavaScript User Define Function
		• Built in Function (string, Maths, Array, Date)
		• Events (onclick, ondblclick, onmouseover, onmouseout, onkeypress, onkeyup, onfocus, onblur, onload, onchange, onsubmit, onreset)
		• DOM & History Object
		• Form Validation & E-mail Validation

Seminar   – 5 Lectures
Expert Talk   – 5 Lectures
Test   – 5 Lectures
Total Lectures: 60 + 15 = 75

Reference Books:
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.O -Lee Philips.
6. MCSE Networking Essential Training Guides.

CS-05 : PRACTICALS-1 (based On CS – 04 & PC Software)	
Topics	**Marks**
HTML-5, CSS-3, MS – Word, MS – Excel, MS – Power Point, MS-Access and Macromedia Dream weaver	100

CS-06 : PRACTICALS-2 (based On CS – 02)	
Topics	**Marks**
Programming in C Language	100

Note :
- Each session is of 3 hours for the purpose of practical Examination.
- Practical examination may be arranged before or after theory exam

Additional Topics to be taught during the semester – 1 (Not to be asked in examination):
- Case studies of DBMS

B.C.A. (Semester – 2)

SR. NO.	COURSE	No. OF LECT./Lab. PER WEEK	CREDIT
1.	CS – 07 DATA STRUCTURE USING C LANGUAGE	5	5
2.	CS – 08 WEB PROGRAMMING	5	5
3.	CS – 09 COMPUTER ORGANIZATION & ARCHITECTURE	5	5
4.	CS – 10 MATHEMATICAL AND STATISTICAL FOUNDATION OF COMPUTER SCIENCE	5	5
5.	CS – 11 PRACTICALS-1 (BASED ON CS-07)	5	5
6.	CS – 12 PRACTICALS-2 (BASED ON CS-08)	5	5
Total Credits of Semester – 2			30

	CS-07: DATA STRUCTURE USING C LANGUAGE	
Objective: To learn algorithm analysis, data structures, sorting and searching techniques.		
Sr. No.	**Topic**	**Detail**
1	**Algorithm Analysis**	• The analysis of algorithm. • Time and space complexities. • Asymptotic notation. • Classes of algorithm. • Big-Oh Notation • Big-Omega Notation
	Advanced Concepts of C	• Dynamic allocation and de-allocation of memory ▪ function malloc(size) ▪ function calloc(n,size) ▪ function free(block) • Dangling pointer problem. • Enumerated constants

	Graph	Adjacency matrix and adjacency lists
		Graph traversal
		    Depth first search (dfs)
		    Implementation
		    Breadth first search (bfs)
		    Implementation
		• Shortest path problem
		• Minimal spanning tree

2	**Sorting and Searching**	• Bubble sorting • Insertion sorting • Quick sorting • Bucket sorting • Merge sorting • Selection sorting • Shell sorting • Basic searching technique • Index searching • Sequential searching • Binary searching
3	**Introduction To data Structure**	Primitive and simple structures Linear and nonlinear structures file organization.

	Elementary Data Structure	Stack
		    Definition
		    Operations on stack
		    Implementation of stacks using arrays

		Function to insert an element into the stack
		Function to delete an element from the stack
		Function to display the items
		Recursion and stacks
		Evaluation of expressions using stacks
		Postfix expressions
		Prefix expression
		Queue
		Introduction
		Array implementation of queues
		Function to insert an element into the queue
		Function to delete an element from the queue
		Circular queue
		Function to insert an element into the queue
		Function for deletion from circular queue
		Circular queue with array implementation
		Deques
		Priority queues
4	**Linked List & Implementation**	Singly linked lists.
		Insertion of a node at the beginning
		Insertion of a node at the end
		Insertion of a node after a specified node
		Traversing the entire linked list
		Deletion of a node from linked list
		Merging of linked lists
		Reversing of linked list
		Doubly linked list.
		Circular linked list
		Applications of the linked lists
5	**Tree**	Objectives
		Properties of a tree
		Binary trees
		Properties of binary trees
		Implementation
		Traversals of a binary tree
		In order traversal
		Post order traversal
		Preorder traversal
		Binary search trees (bst)
		Insertion in bst
		Deletion of a node
		Search for a key in bst
		• Height balanced tree
		• B-tree Algorithm
		Insertion, Deletion

Seminar   - 5 Lectures
Expert Talk   - 5 Lectures
Test   - 5 Lectures

Total Lectures 60 + 15 = 75

Reference Books:
1. Data Structure through C/C++ Author : Tennaunbuam.
2. Let us C Author : Kanitkar.
3. Pointer in C Author : Kanitkar.
4. Data and File Structure Author : Trembley & Sorrenson.

Additional Topics to be taught during the semester – 2 (Not to be asked in examination):
*   Case studies of data structure

	CS-08: WEB PROGRAMMING	
Objective:		
• To learn web programming		
• Learn to develop web site using PHP		
Unit No.	**Topic**	**Detail**
1	**Web Programming**	• Static and Dynamic Web • Client side & Server Side Scripting • Introduction to other server side languages • Webserver (IIS & Apache) • HTTP & HTTPS protocol • FTP • Web Hosting, Virtual Host, Multi-Homing • Distributed Web Server Overview, • Document Root
	Web Services	JSON • Introduction to JSON • Installation & Configuration • Resource Types • JsonSerializable • JSON Functions : json_decode, json_encode

2	**PHP Basic**	• Introduction to PHP
		• PHP configuration in IIS & Apache Web server
		• Understanding of PHP.INI file
		• Understanding of PHP .htaccess file
		• PHP Variable
		• Static & global variable
		• GET & POST method
		• PHP Operator
		• Conditional Structure & Looping Structure
		• Array
		• User Defined Functions:
		  ▪ argument function
		  ▪ default argument
		  ▪ variable function
		  ▪ return function
		• Variable Length Argument Function
		  ▪ func_num_args
		  ▪ func_get_arg, func_get_args
		• Built in Functions
		  - Variable Functions
		  - String Function

		- Math Function - Date Function - Array Function - Miscellaneous Function - File handling Function

3	**Handling Form, Session Tracking & PHP Components**	• Handling form with GET & POST
		• Cookies
		• Session
		• Server variable
		• PHP Components
		  - PHP GD Library
		  - PHP Regular expression
		  - Uploading file
		  - Sending mail

	AJAX	• What is AJAX • PHP with AJAX • MySql with AJAX • What is JQuery AJAX • JQuery AJAX with PHP
4	**Introduction of SQL**	• Working with MySQL using PhpMyAdmin • SQL DML Statement (Insert, Update, Select, Delete) Command • PHP-MySQLi Connectivity • PHP-MySQLi Functions • mysqli_connect, mysqli_close, mysqli_error, msyqli_errno, mysqli_select_db, mysqli_query, mysqli_fetch_array, mysqli_num_Rows, mysqli_affected_Rows, mysqli_fetch_assoc, mysqli_fetch_field , mysqli_fetch_object, mysqli_fetch_row, mysqli_insert_id, mysqli_num_fields, mysqli_data_seek

5	**jQuery**	• What is jQuery?
		• jQuery Syntax
		• jQuery Selector
		  - Element Selector
		  - Class Selector
		  - id Selector
		• jQuery Events
		  Click, dbclick, keypress, keydown, keyup, submit, change, focus, blur, load, resize, scroll, unlode
		• jQuery Effects
		  hide show, fade, slide

		• jQuery Methods Css, height, width, innerWidth, innerHeight, outerWidth, outerHeight, html, text, append, prepend, after, before, addClass, removeClass, toggleClass, remove, empty

Seminar   - 5 Lectures
Expert Talk   - 5 Lectures
Test   - 5 Lectures
Total Lectures: 60+15=75

Reference Books:

1. Modern PHP: New Features and Good Practices by Josh Lockhart (ORELLY)
2. PHP Cookbook: Solutions & Examples for PHP Programmers by David Sklar and Adam Trachtenberg (ORELLY)
3. Programming PHP by Kevin Tatroe and Peter MacIntyre ORELLY)
4. PHP for the Web: Visual QuickStart Guide (4th Edition) by Larry Ullman (Peachpit Press)

Additional Topics (Not to be asked in examination):
Student should be aware of followings

- Case Study
- Uses and Advantages of CMS
- Wordpress [Introduction & Installation]
- Joomla [Introduction & Installation]
- Magento [Introduction & Installation]

CS-09: COMPUTER ORGANIZATION AND ARCHITECTURE

Objective: To learn how hardware of computer system works

Unit No.	Topic	Detail
1	Digital Logic Circuits	• **Logic Gates** ▪ AND,OR,NOT,NAND,NOR,XOR, Exclusive NOR gates • **Boolean Algebra** ▪ Boolean algebra? ▪ Boolean variable and Boolean function (Analog and Digital Signals) ▪ Truth table ▪ Postulates ▪ Theorem related to postulates ▪ Simplified Boolean function using postulates and draw logical diagram of simplified function ▪ Simplified Boolean function using Karnaugh map method with DON'T CARE condition • **Sequential And Combinational Circuits** ▪ Clock pulses ▪ Combinational circuit, sequential circuit and adder • **Flip Flops** ▪ SR, Clocked SR, D, JK, JK – Master Slave, T • **Universal Gate**
2	Digital Component	• Integrated Circuits ▪ Decoders (2 X 4, 3 X 8) ▪ Encoders (Octal to Binary – 8 X 3) ▪ Multiplexer (4 X 1) ▪ Demultiplexer (1 X 4) • **Register** ▪ Block diagram of register ▪ Parallel register and shift register ▪ Asynchronous 4-bits Binary Counter
3	Data Representation	• Multiplication and division of two binary numbers • Floating point representation • Fixed point representation • Error Detection code – (Parity Bit)
4	Central Processing Unit	• Introduction Of CPU • Major component of CPU • General Register Organization

		■ control word
		■ Accumulator Register
		• **Stack Organization**
		  ■ Register stack
		  ■ Memory stack
		  ■ Polish notation and reverse polish notation
		• **Arithmetic And Logic Unit**
		  ■ Block diagram of ALU
		• **Interrupts**

5	**Input-Output Organization**	• Memory buses • Block diagram and function • Data Bus, Address Bus and Control lines • Input Output Buses • Concept of input output interface • Input Out Processor (IOP) • Direct Memory Access • DMA controller

Students seminar - 5 Lectures
Expert Talk   - 5 Lectures
Students Test   - 5 Lectures
Total Lectures 60 + 15 = 75

Reference Books:
1. Computer System Architecture – By Morris Mano (PHI).
2. Digital Logic And Computer Design – By Morris Mano.
3. Digital Computer Electronics – By Malvino And Leach.

Hands On (Not to be asked in examination):
- Instruction Formats   - Simulator Base Program

Additional Topics to be taught during the semester-2 (Not to be asked in examination):
    Following tools should be used to train students.
• Simulator 8051
• Using Trainer kit

CS-10: MATHEMATICAL AND STATISTICAL FOUNDATION OF COMPUTER SCIENCE

Objective:

- To Aware about basic Mathematics and Statistics
- To develop Reasoning ability and Logical ability
- To develop Arithmetic's ability
- To develop a positive attitude towards learning Mathematics & statistics
- To perform mathematical & statistical operations and manipulations with confidence, speed and accuracy.

Unit No.	Topic	Details
1	Determinants	• Introduction • 2×2 , 3×3 order determinant • Cramer's method for solving linear equation(Two and Three Variables) • Properties of Determinants • Examples
2	Matrices	• Introduction • Different types of matrix(square matrix, column matrix, row matrix, Diagonal matrix, Unit matrix, null matrix) • Transpose of matrix • Addition, subtraction & multiplication of two matrices • Adjoint of a square matrix • Inverse of matrix
3	Co-ordinate Geometry	• Introduction • Quadrants & Axes • Distance between two points in R2(without proof) • Section formula(without proof) • Area of triangle(without proof) • Typical examples
	Set Theory	• Introduction • Method of representation of a set • Operation on sets & its properties(with only Logical proof) • De'Morgan laws with Logical proof • Difference of two sets • Cartesian products(up to two sets) • Typical examples
4	Measures of Central Tendency & Dispersion	• Mean(ungroup data, group data) • Median(ungroup data, group data) • Mode(ungroup data, group data) • Range • Quartiles • Standard Deviation

		• Typical examples
5	**Arithmetic & Geometric progression**	• Sequence
		• Series
		• Arithmetic progression(Definition & Nth term, sum of n terms)
		• Geometric progression
		• (Definition & Nth term, sum of n terms)
		• Harmonic Progression
		• Relation Between AM GM HM (Two Numbers)
		• Typical examples

Student Seminar – 5 Lectures
Expert Talk   – 5 Lectures
Student Test   – 5 Lectures
Total Lectures 60 + 15 = 75

Reference Books:
1. Business Mathematics By Sancheti & Kapoor Sultan & Chand
2. Statistical Method By Gupta Sultan & Chand
3. Discrete Mathematical Structures with Applications to Computer Science By J.P. Tremblay & R. Manohar TMH
4. Business Mathematics   :   V.K. Kapoor
5. Business Mathematics   :   Dr Kachot
6. Fundamentals of Statistics   :   S. C. Gupta

CS-11 : PRACTICAL-1 (based on CS – 07)	
Topics	**Marks**
DATA STRUCTURE USING C LANGUGAE	100

CS-12 : PRACTICAL-2 (based on CS – 08)	
Topics	**Marks**
WEB PROGRAMMING	100

Note :
• Each session is of 3 hours for the purpose of practical Examination.
• Practical examination may be arranged before or after theory exam