# SAURASHTRA UNIVERSITY, RAJKOT.

## Syllabus of B.Sc. Semester-1(Computer Application) According to Choice Based Credit System Effective from June – 2019

***(Updated on date:- 06-04-2019 and updation implemented from June - 2019)***

| | |
|---|---|
| • Program: | **B.Sc.** |
| • Semester: | **1** |
| • Subject: | **Computer Application** |
| • Title : | **Computer Fundamentals and Programming in C.** |
| • Paper No : | **CA-101 - Theory** |
| • Marks for External Examination: | **(Short Questions) → 20 Marks**<br>**(Descriptive type) → 50 Marks**<br>**Total Marks → 70 Marks** |
| • Marks for Internal Examination: | **Assignments → 30 Marks or Test** |
| • Credit Of The Course | **4 Credits** |

# B.Sc. SEMESTER - 1

| CA-101: Computer Fundamentals and Programming in C | | |
|---|---|---|
| **Objective:** Through this subject students will learn about computer fundamentals and Emerging Technologies and will learn about the fundamental of C programming language (Procedure Oriented Programming - POP). | | |
| **Unit No.** | **Topic** | **Details** |
| **1** | **Introduction to computers** | • Basic of Computers.<br>o What is Computer?, Characteristics of Computer<br>o Data Processing Cycle (Data → Process → information)<br>• Classification of Computer<br>o Analog, Digital and Hybrid Computers<br>• History and Generations of Computers, Motherboard(PCI,USB, RAM, ROM)<br>• Classification of Computer by Processing Capabilities<br>o Micro, Mini, Mainframe and Super Computers |
| | **Numbering System and Codes** | • Introduction to Binary Codes<br>o Nibble, Bit, Byte , Carry Bit, Parity Bit, Sign Bit<br>o KB/MB/GB/TB etc.<br>• Types of Numbering System<br>o Binary/Octal/Decimal/Hexadecimal<br>• Conversion<br>o Binary to Octal, Decimal and Hexa-Decimal<br>o Decimal to Binary, Octal and Hexa-Decimal<br>o Octal to Binary, Decimal and Hexa-Decimal<br>o Hexa-Decimal to Binary, Octal and Decimal<br>• Binary Arithmetic<br>o Addition, Subtraction, Multiplication, Division<br>• Types of Codes<br>o ASCII, BCD, EBCDIC, Unicode |
| **2** | **Emerging Technologies and Virus** | Different Communication Methods<br>o GIS, GPS, CDMA, GSM<br>• Communication Devices<br>o Cell Phones , Modem, Infrared /Bluetooth/WiFi/LiFi/SLM(Spatial Light Modulator)<br>• Virus<br>o Introduction to Virus and related terms<br>o Origin and History<br>o Types of Virus<br>o Problems and Protection from Virus<br>• Cloud Computing<br>o What is Cloud Computing? |
| | **Important Terms of Computer** | • Drive / Directory (Folder) / File / Path<br>• Hard Copy / Soft Copy<br>• Menu / Popup Menu<br>• Backup & Restore, EMAIL, CLI, GUI, Compiler and Interpreter<br>• Speed (MHz, GHz, CPS, CPM, LPM, DPI, PPM, KBPS, MBPS) |

| | | |
|---|---|---|
| **3** | **Pre-Programming Technique** | • Introduction to Programming Languages<br>o Introduction to Machine level language<br>o Introduction to Assembly language<br>o Introduction to Higher level language<br>o Limitations and Features.<br>• Tools and Techniques of Problem Analysis<br>o Algorithm Development and Flowchart |
| | **Getting Started With 'C' Language** | o History and Basic Structure of C<br>o Executing C program<br>o Character set & C Tokens<br>o Identifiers & Keywords<br>o Data Types<br>o Constants and Variables, scope of variable<br>o Type Casting, Comments<br>o Types of Operators.<br>o Operator Precedence, pre-processors in C. |
| **4** | **Console based I/O and built in functions.** | printf(), scanf(), clrscr(), getch(), getchar(), gets(), puts(), getc(), putc(), putchar(), strcpy(), strcat(), strlen(), strcmp(), sqrt(), pow(), ceil(), floor(), isdigit(), islower(), isupper(), toupper(), tolower(), abs(), free(), exit() |
| | **Decision Making and Looping Structure.** | o if, if…else, nested if, switch<br>o for, while, do….while, nested loop<br>o break, continue, goto statements. |
| **5** | **Array, Pointer, and structure.** | o One, Two – Dimensional Array<br>o Initialization and working with Array<br>o Introduction to Pointer, Use of pointers<br>o Introduction to Structure and Use of structure |
| | **UDF** | o Types of User Defined Functions.<br>o Function call by reference and call by value<br>o Recursion<br>o Nesting functions. |

Notes:

- There shall be **SIX** periods of 55 minutes per week for Computer Application- **CA-101 Theory.**
- There shall be one question paper of 70 marks & $2\frac{1}{2}$ hours for Computer Application- **CA-101 Theory.**

## Format of Question Paper

- There shall be FIVE questions from each unit of 14 marks each.
- Each Question will be of the following form.

| | | | |
|---|---|---|---|
| Question | (A) | Answer any four out of four (Short answer type question) | 4 Marks |
| | (B) | Answer any one out of two | 2 Marks |
| | (C) | Answer any one out of two | 3 Marks |
| | (D) | Answer any one out of two | 5 Marks |
| | | **TOTAL** | **14 MARKS** |

**Reference Books:**


(1) Computer Fundamentals – By P.K. Sinha.
(2) Programming in ANSI C Author – E. Balagurusamy
(3) Teach yourself assembler - By Goodwin.
(4) Let Us C Author: Yashwant Kanetkar.

# SAURASHTRA UNIVERSITY, RAJKOT.

## Syllabus of B.Sc. Semester-1(Computer Application)
## According to Choice Based Credit System
## Effective from June – 2019

***(Updated on date:- 06-04-2019***
***and updation implemented from June - 2019)***

| | |
|---|---|
| • Programme: | **B.Sc.** |
| • Semester: | **1** |
| • Subject: | **Computer Application** |
| • Paper No: | **CA-101 - Practical** |
| • Title of Course: | **Computer Application Practical** |
| • Total Marks of External Practical Examination: | **35 Marks** |
| • Total Marks of Internal Practical Examination: | **15 Marks**<br>**Continuous internal assessment of practical work** |
| • Total Marks of Practical Examination: | **External → 35 Marks**<br>**Internal → 15 Marks**<br>**Total → 50 Marks** |
| • Credit Of The Course | **3 Credits** |

# SAURASHTRA UNIVERSITY RAJKOT.

## Syllabus of B.Sc. Semester-2 (Computer Application) According to Choice Based Credit System Effective from June – 2019

***(Updated on date:- 06-04-2019 and updation implemented from June - 2019)***

| | |
|---|---|
| • Program: | **B.Sc.** |
| • Semester: | **2** |
| • Subject | Computer Application |
| • Title: | Advanced C and Object Oriented Programming using C++. |
| • Paper No: | **CA-201- Theory** |
| • Marks for External Examination: | **(Short Questions) → 20 Marks**<br>**(Descriptive type) → 50 Marks**<br>**Total Marks → 70 Marks** |
| • Marks for Internal Examination: | **Assignments → 30 Marks or Test** |
| • Credit Of The Course | **4 Credits** |

# B.Sc. SEMESTER - 2

| **CA-201** Advanced C and Object Oriented Programming using C++. | | |
|---|---|---|
| **Objective:** Through this subject students will learn about data structure using searching and sorting, stack, queue, and linked list. And also learn about Object Oriented Programming using C++. | | |
| **Unit No.** | **Topic** | **Details** |
| **1** | **Introduction to Data Structure.** | Introduction, Linear and Non-Linear data structure.<br>Searching Techniques (Linear Search, Binary Search).<br>Sorting Techniques (Bubble sort, Selection sort).<br>Introduction of prefix, infix and postfix expressions. |
| | **Stacks, Queues and Linked List** | Operation and Implementation of Stack Using Array Representation).<br>Operation and Implementation of Simple and Circular Queue (PUSH, POP).<br>Implementation of Singly Linked List. |
| **2** | **Introduction to C++** | Basic concept of Object Oriented Programming.<br>Benefits and Applications of OOP.<br>History and Introduction to C++, C++ input and output, structure of C++ program, keywords of C++, Data types and Basic functionality of C++, Operators in C++, , Scope Resolution operator, Default Arguments, Inline Functions, function overloading. |
| | **Classes and Objects.** | Specifying a Class and Objects in C++, Defining member functions, static data members and static member functions, Array of objects, friendly functions. |
| **3.** | **Constructor and destructor** | Characteristic of constructor, Types of constructor (default, parameterized and copy constructors).<br>Destructor, characteristic of destructor. |
| | **Inheritance** | Introduction of inheritance, Defining derived classes, Single inheritance, visibility of inherited members, multilevel inheritance, multiple inheritance, virtual base classes, and abstract class. |
| **4** | **Polymorphism and Operator Overloading** | Introduction to polymorphism, virtual functions,<br>Introduction of Operator overloading,<br>Defining Operator Overloading, Overloading Unary Operators.<br>Rules for Overloading Operators. |
| | **Managing Console I/O operations** | C++ Streams, Stream Classes, put() and get() functions, getline() and write() functions, formatted console I/O operations, width(), precision(), fill(), formatting flags in setf(), setw(), setprecision(), setiosflags() |
| **5** | **Working with files** | Introduction, classes for file stream operations, opening and closing files, working with single file, opening file using open(), reading from two files simultaneously, file modes. |
| | **Exception handling** | Introduction of exception handling, Exception handling mechanism, Multiple catch statements, specifying exceptions. |

Notes:

- There shall be **SIX** periods of 55 minutes per week for Computer Application - **CA-201 Theory.**
- There shall be one question paper of 70 marks & $2\frac{1}{2}$ hours for Computer Application- **CA-201 Theory.**

## Format of Question Paper

- There shall be FIVE questions from each unit of 14 marks each.
- Each Question will be of the following form.

| | | | |
|---|---|---|---|
| Question. | (A) | Answer any four out of four (Short answer type question) | 4 Marks |
| | (B) | Answer any one out of two | 2 Marks |
| | (C) | Answer any one out of two | 3 Marks |
| | (D) | Answer any one out of two | 5 Marks |
| | | **TOTAL** | **14 MARKS** |

**Reference Books:**


1 BjarneStroustrup, "The C++ Programming Language", 4th Edition, Addison-Wesley , 2013.
2 Stanley B. Lippman, JoseeLajoie, Barbara E. Moo, "C++ Primer", Published by Addison-Wesley, 5th Edition, 2012
3 Adam Drozdek, "Data Structures and algorithm in C++", Third Edition, Cengage Learning, 2012.
4 Data Structure through C/C++ Author : Tennaunbuam.
5 “Data Structure Using C” by A K Sharma
6 “Data Structures and Program Design in C” by Kruse Robert L

# SAURASHTRA UNIVERSITY, RAJKOT.

## Syllabus of B.Sc. Semester-2(Computer Application)
## According to Choice Based Credit System
## Effective from June – 2019

***(Updated on date:- 06-04-2019***
***and updation implemented from June - 2019)***

| | |
|---|---|
| • Programme: | **B.Sc.** |
| • Semester: | **2** |
| • Subject: | **Computer Application** |
| • Paper No: | **CA-201 - Practical** |
| • Title of Course: | **Computer Application Practical** |
| • Total Marks of External Practical Examination: | **35 Marks** |
| • Total Marks of Internal Practical Examination: | **15 Marks**<br>**Continuous internal assessment of practical work** |
| • Total Marks of Practical Examination: | **External → 35 Marks**<br>**Internal → 15 Marks**<br>**Total → 50 Marks** |
| • Credit Of The Course | **3 Credits** |

# SAURASHTRA UNIVERSITY

## RAJKOT – INDIA

Accredited Grade A by NAAC (CGPA 3.05)

## CURRICULAM

## FOR

## B.Sc. (C.A.)

## Bachelor of Science (Computer Application )

## (Semester 3 and Semester 4)

## Effective From June – 2020

| | |
|---|---|
| • Program: | **B.Sc.** |
| • Semester: | **3** |
| • Subject: | **Computer Application** |
| • Paper No: | **CA-301** |
| • Title : | **CA-301: NETWORKING & INTERNET ENVIRONMENT** |
| • Marks for External Examination: | **(Short Questions) → 20 Marks**<br>**(Descriptive type) → 50 Marks**<br>_____<br>**Total Marks → 70 Marks** |
| • Marks for Internal Examination: | **Assignments & Test**<br>**→ 30 Marks** |
| • Credit Of The Course | **6 Credits (Theory) ,**<br>**3 Credits (Practical)** |
| • Lecture / Practical | **6 Lecture per week, 2 Practical Per week.** |

## Bachelor of Science (Computer Application) (Semester – 3 and Semester – 4)
## Saurashtra University
## Effective from June - 2020

## B.Sc. (C.A.) (Semester – 3)

| CA-301: NETWORKING & INTERNET ENVIRONMENT | | |
|---|---|---|
| **Objective:** Through this subject student will learn about the fundamental of Networking and will learn in detail about Internet, HTML, CSS, Dreamviewer tool, and JavaScript language. | | |
| **Unit No.** | **Topic** | **Details** |
| 1 | Introduction to Network and Application of Internet | Computer Network, Type of Computer Network ,Network Topology,OSI Reference Model,TCP/IP Internet Terminology,ISP (Internet Service Provider) Intranet,VSAT (very small aperture terminal),URL, Portal, Domain Name Server.<br>World Wide Web (WWW), Search Engine, Remote Login, Telnet, FTP, Electronic Mail (Email),E-Commerce and E-Business, E-Governance, Web Hosting.<br>Network Security (Cyber law, Firewall, Cookies, Hackers and Crackers).<br>Types of Payment System (Net Banking, Digital Cash, Electronic Cheque, Debit/Credit Card). |
| 2 | Basic of HTML | Fundamental of HTML, Basic Tag and Attributes,<br>The Formatting Tags, The List Tags, Link Tag<br>inserting special characters, Types of List, Table in HTML, Frame in HTML, Forms<br>Introduction to Dreamviewer. |
| 3 | Cascading Style Sheet (CSS) | Introduction to CSS, Types of Style Sheets<br>Class & ID Selector, CSS Font Properties<br>CSS Text Properties, CSS Background Properties<br>CSS List Properties, CSS Margin Properties<br>CSS Border Properties. |
| 4 | Advance HTML 5 | HTML 5 & Syntax, HTML Document Structure (section, article, aside, header, footer, nav, dialog, figure), Attributes of HTML 5, Web Form 2.0 (date & time, date, month, week, time, number, email, color), Audio/Video, Canvas. |
| | CSS 3 | CSS 3(border property, background & gradient property, Drop Shadow property, 2D & 3D Transform property), Media Query. |
| 5 | Java Script | Introduction to JavaScript<br>Variables ,JavaScript Operators ,Conditional Statements ,JavaScript Loops, JavaScript Break and Continue Statements, Dialog Boxes, JavaScript Arrays,<br>JavaScript User Define Function, Built in Function (string, maths, array, date), Events ( onclick, ondblclick, onmouseover, onmouseout, onkeypress, onkeyup, onfocus, onblur, onload, onchange, onsubmit, onreset)<br>DOM object, form validation & email-validation |

| **Reference Books:** |
|---|
| 1. NETWORKING & INTERNET ENVIRONMENT by Bharat & Company.<br>2. Internet The Complete Reference –Young.<br>3. World Wide Web Design with Html -C Xavier.<br>4. Practical Html 4.O -Lee Philips.<br>5. MCSE Networking Essential Training Guides.<br>6. Java Script: The Complete Reference - Book by Fritz Schneider and Thomas Powell |

## Notes:

- There shall be **SIX** periods of 55 minutes per week for CA-301 **Theory.**
- There shall be one question paper of 70 marks , time- $2\frac{1}{2}$ CA-301 **Theory**

### Format of Question Paper

- There shall be FIVE questions from each unit of 14 marks each.
- Each Question will be of the following form.

| | | | |
|---|---|---|---|
| Question | (A) | Answer any four out of four<br>(Short answer type question) | 4 Marks |
| | (B) | Answer any one out of two | 2 Marks |
| | (C) | Answer any one out of two | 3 Marks |
| | (D) | Answer any one out of two | 5 Marks |
| | | **TOTAL** | **14 MARKS** |

| | |
|---|---|
| • Program: | **B.Sc.** |
| • Semester: | **4** |
| • Subject: | **Computer Application** |
| • Paper No: | **CA-401** |
| • Title : | **CA-401 PROGRAMMING WITH JAVA** |
| • Marks for External Examination: | **(Short Questions) → 20 Marks**<br>**(Descriptive type) → 50 Marks**<br>_____<br>**Total Marks → 70 Marks** |
| • Marks for Internal Examination: | **Assignments & Test**<br>**→ 30 Marks** |
| • Credit Of The Course | **6 Credits (Theory) ,**<br>**3 Credits (Practical)** |
| • Lecture / Practical | **6 Lecture per week, 2 Practical Per week.** |

## Bachelor of Science (Computer Application) (Semester – 3 and Semester – 4)
## Saurashtra University
## Effective from June - 2020

## B.Sc. (C.A.) (Semester – 4)

| CA-401: PROGRAMMING WITH JAVA | | |
|---|---|---|
| **Objective:** Through this subject students will learn about core java concept with class, object, inheritance, packages, exception handling and threading, streams, applet and layout managers, event handling. | | |
| **Unit No.** | **Topic** | **Details** |
| 1 | History, Introduction, Language Basics & Classes, Objects and Methods. | - History and Features of Java<br>- Java Editions<br>- JDK, JVM and JRE<br>- JDK Tools<br>- Compiling and Executing basic Java Program<br>- Java IDE (Netbeans and Eclipse)<br>- Data Type (Integer, Float, Character, Boolean)<br>- Java Tokens (Keyword, Literal, Identifier, Whitespace, Separators, Comments, Operators)<br>- Operators (Arithmetic, Relational, Boolean Logical, Bitwise Logical, Assignment, Unnary, Shift, Special operators)<br>- Type Casting<br>- Decision Statements (if, switch)<br>- Looping Statements (for, while, do..while)<br>- Jumping Statements (break, continue, return)<br>- Array |
| | | - OOP Concepts (Class, Object, Encapsulation, Inheritance, Polymorphism)<br>- Creating and using Class with members<br>- Constructor, this keyword<br>- Access Specifiers (public, private, protected, default<br>- garbage collection - finalize() method<br>- static and final keyword<br>- Nested classes and Inner classes<br>- Overloading (Constructor & Method)<br>- VarArgs |
| 2 | Inheritance | - the super keyword.<br>- Types of Inheritance (single, Hierarchical, Multilevel)<br>- Method Overriding<br>- Abstract class and methods<br>- Final variable, Final Methods and Final Classes |
| | Java Package and Interfaces | - Define package, Access Control and Visibility<br>- Creating and Using User Defined package and sub-package<br>- Interfaces define, implement |

| | | |
|---|---|---|
| | Java's Library Packages and Their Classes | - Introduction to Java API Packages and Classes<br>o java.lang o java.util o java.io o java.awt<br>o java.awt.event o java.applet<br>- java.lang Package Classes (Math, Wrapper Classes, Character, Boolean)<br>- java.util Package Classes (Random, Date, Calendar, Vector) |
| 3 | Exception Handling, Threading | - Introduction to exception handling<br>- try, catch, throw, throws, finally<br>- Creating our own exception class<br>- Thread and its Life Cycle (Thread States)<br>- Creating Threads - Thread Class, Runnable interface<br>- Synchronization in Multiple Threads (Multithreading) |
| | Streams (input and Output) File Handling | - Stream and its types (Input, Output, Character, Byte)<br>- File and RandomAccessFile Class<br>- Reading and Writing through Character Stream Classes (FileReader, BufferedReader, FileWriter, BufferedWriter)<br>- Reading and Writing through Byte Stream Classes (InputStream, FileInputStream, OutputStream, FileOutputStream) |
| 4 | Applets | - Introduction to Applet, Applet Class<br>- Applet Life Cycle<br>- Implement & Executing Applet with Parameters<br>- Graphics class, The HTML APPLET tag |
| | Using AWT Controls, Layout Managers and Menus | - AWT Controls – Labels, push button, Check Box, Choice lists and TextArea.<br>- Layout manager – FlowLayout, BorderLayout CardLayout, GridLayout<br>- Menu Bars and Menu |
| 5 | Event Handling | - Introduction to Event Handling<br>- Event Delegation Model<br>- Event Packages<br>o AWT Event Package<br>- Event Classes (ActionEvent, ItemEvent, FocusEvent, MouseEvent, MouseWheelEvent, TextEvent, WindowEvent, etc.)<br>- Listener Interfaces (ActionListener, ItemListener, FocusListener, KeyListener, MouseListener, TextListener, WindowListener, etc.)<br>- Adaptor Classes (FocusAdaptor, KeyAdaptor, MouseAdaptor, MouseMotionAdaptor) |

**Reference Books:**

1. Programming with JAVA – Bharat & Co. [ISBN No. : 978-93-81786-40-6]
2. The Complete Reference – Tata McGRAW-HILL By Herbert Schildt
3. JAVA2 Black Book
4. A Programmer Guide to JAVA Certification By Khalid A. Mughal

## Notes:

- There shall be **SIX** periods of 55 minutes per week for CA-401 **Theory.**
- There shall be one question paper of 70 marks ,time- $2\frac{1}{2}$ CA-401 **Theory**

### Format of Question Paper

- There shall be FIVE questions from each unit of 14 marks each.
- Each Question will be of the following form.

| | | | |
|---|---|---|---|
| Question | (A) | Answer any four out of four | 4 Marks |
| | | (Short answer type question) | |
| | (B) | Answer any one out of two | 2 Marks |
| | (C) | Answer any one out of two | 3 Marks |
| | (D) | Answer any one out of two | 5 Marks |
| | | **TOTAL** | **14 MARKS** |

Accredited Grade "A" by NAAC
(3rd Cycle)

**SAURASHTRA UNIVERSITY**
**Academic Section**
University Campus, University Road, Rajkot – 360005
Phone No.: (0281) 2578501 Ext. No. 202 & 304 / FAX No.: (0281) 2576347
E-mail Id: academic@sauuni.ac.in, cmkanabar@sauuni.ac.in

નં.એકે/બીએસ/ ૪૦૭ /૨૦૨૧

તા ૨૭-૬-૨૦૨૧

કોમ્પ્યુટર એપ્લીકેશન

પરિપત્ર:-

આથી સૌરાષ્ટ્ર યુનિવર્સિટીની **વિજ્ઞાન વિદ્યાશાખા** હેઠળની સર્વે સંલગ્ન કોલેજોના આચાર્યશ્રીઓને સવિનય જણાવવાનું કે, ડીનશ્રી, વિજ્ઞાન વિદ્યાશાખાએ અધિકાર મંડળોની બહાલીની અપેક્ષાએ **બી.એસ.સી. કોમ્પ્યુટર એપ્લીકેશનનો સેમેસ્ટર '૫ અને ૬'નો** સુધારેલ અભ્યાસક્રમ જુન-૨૦૨૧થી અમલમાં આવે તે રીતે મંજુર કરવા માન. કુલપતિશ્રીને ભલામણ કરેલ. તદઅન્વયે ઉક્ત **બી.એસ.સી. કોમ્પ્યુટર એપ્લીકેશન** વિષયનો **સેમેસ્ટર '૫ અને ૬'નો** સુધારેલ અભ્યાસક્રમ અધિકાર મંડળોની બહાલીની અપેક્ષાએ જુન-૨૦૨૧થી અમલમાં આવે તે રીતે માન.કુલપતિશ્રીએ મંજુર કરેલ છે. જેથી સર્વે સંબંધિતોને તેનો તે મુજબ અમલ કરવા વિનંતી.

(ઉક્ત અભ્યાસક્રમ સૌરાષ્ટ્ર યુનિવર્સિટીની **website:- saurashtrauniversity.edu →student →ug syllabus** પર ઉપલબ્ધ છે.)

સહી/-
(ડૉ. જે. એચ. સોની)
I/C. કુલસચિવ

બિડાણ :- ઉક્ત અભ્યાસક્રમ (સોફ્ટ કોપી)

પ્રતિ,

(૧) વિજ્ઞાન વિદ્યાશાખા હેઠળની સર્વે સંલગ્ન કોલેજોના આચાર્યશ્રીઓ તરફ...

<u>નકલ જાણ અર્થે સાદર રવાના:-</u>

૧. માન. કુલપતિશ્રી/ માન. ઉપકુલપતિશ્રી/કુલસચિવશ્રીના અંગત સચિવશ્રી

<u>નકલ રવાના (યોગ્ય કાર્યવાહી અર્થે) :-</u>

૧. ડીનશ્રી, વિજ્ઞાન વિદ્યાશાખા
૨. પરીક્ષા નિયામકશ્રી (ઈ-મેઈલનાં માધ્યમથી)
૩. પી.જી.ટી.આર.વિભાગ
૪. ડાયરેક્ટરશ્રી, કોમ્પ્યુટર સેન્ટર(વેબસાઈટ ઉપર પ્રસિધ્ધ કરવા અર્થે)

# SAURASHTRA UNIVERSITY
# RAJKOT

# COMPUTER APPLICATION

## Syllabus of B.Sc. Semester-5 & 6

## According to Choice Based Credit System

## Effective from June – 2021

# Syllabus of B.Sc. Semester-5
# According to Choice Based Credit System
# Effective from June – 2021

- **Program:** **B.Sc.**
- **Semester:** **5**
- **Subject:** **Computer Application**
- **Course codes:** **501 -Theory**
  **502 -Theory**
  **503 -Theory**
  **501 - Practical**
  **502 - Practical**
  **503 - Practical**
  **1 Project**
- **Total Credit Of The Semester 5:** **30 Credit**

# B. Sc. COMPUTER APPLICATION SEMESTER: V

- **The Course Design of B. Sc. Sem.- V (Computer Application) according to choice based credit system (CBCS) comprising of Paper Number, Paper Name, No. of theory lectures per week, No. of practical lectures per week , total marks of the each paper are as follows :**

| SR.NO. | SUBJECT | NO. OF THEORY LECTURE PER WEEK | NO. OF PRACTICAL LECTURE PER WEEK | TOTAL MARKS | Credit Of Each Paper. |
|---|---|---|---|---|---|
| 1 | **PAPER 501 (Theory)**<br>**RDBMS Using Oracle** | 6 | - | 70(External)+ 30 (Internal) = 100 Marks | 6 |
| 2 | **PAPER 502 (Theory)**<br>**Web Programming Using PHP** | 6 | - | 70(External)+ 30 (Internal) = 100 Marks | 6 |
| 3 | **PAPER 503 (Theory)**<br>**Software Engineering and Linux** | 6 | - | 70(External)+ 30 (Internal) = 100 Marks | 6 |
| 4 | **PAPER 501 (Practical)** | - | 6 | 35(External)+ 15(Internal) = 50 Marks | 3 |
| 5 | **PAPER 502 (Practical)** | - | 6 | 35(External)+ 15(Internal) = 50 Marks | 3 |
| 6 | **PAPER 503 (Practical)** | | 6 | 35(External)+ 15(Internal) = 50 Marks | 3 |
| 7 | **Project Work & Viva** | • 1 Guidance Lecture. for a group of 1/2/3 students / week.<br>• Evaluation of project will be in SIXTH semester | | The title of the project work to be decided and data will be collected in this semester | 3 |
| | | | **Total credit of the semester V** | | **30** |

**Marks Distribution of Each Paper**
**for**
**Theory and Practical ( for SEMESTER-V )**

| | |
|---|---|
| • **Total Marks of Each Theory Paper [External Examination]** | **70 Marks** |
| • **Total Marks of Each Theory Paper [Internal Examination]** | **10 Marks Assignments +**<br>**10 Marks QUIZ / test +**<br>**10 Marks Internal exam. =**<br>**30 Total Marks** |
| • **Total Marks of Each Practical Paper [External Examination]** | **35 Marks** |
| • **Total Marks of Each Practical Paper [Internal Examination]** | **15 Marks**<br>**[Continuous internal assessment of practical work ]** |

## Format of Question Paper

- There shall be one question paper of **70 marks & $2\frac{1}{2}$ hours** for each Computer Theory Paper**.**
- There shall be FIVE questions from each unit of 14 marks each.
- Each Question will be of the following form.

| | | | |
|---|---|---|---|
| Question | (A) | Answer any four out of four (Short answer type question) | 4 Marks |
| | (B) | Answer any one out of two | 2 Marks |
| | (C) | Answer any one out of two | 3 Marks |
| | (D) | Answer any one out of two | 5 Marks |
| | | **TOTAL** | **14 MARKS** |

## -: Project Work:-

- There will be a project on any programming language in Computer.
- The project will be assigned in the teams (groups) of at least one and at most three students.
- There will be one lecture per week to guide and motivate for each group of students.
- Topic of the project may be selected based on the following
  1. Demand of software required to cater the need of industries and the society as a whole.
  2. New topic not taught up to final semester.
  3. The topic may be an extension of topic covered in any of the topics/subject taught up to sixth semester.
  4. Innovative teaching methodology of computer may also be selected as a topic of the project work.
  5. Every project or even model must be submitted with proper documentation and attached CD about the concept and the model.

- **During the fifth semester students will be**
  1. Introduced and assigned title of the project,
  2. Teams will be formed for the same.
  3. Each group will study, search reference, collect data and work-out details for their topic of project-work.

- **During the sixth semester**
  1. Students will finalize, document, submit and get the project work certified in their names.
  2. The project work must be submitted by the student in the fourteenth week of the sixth semester.
  3. Only on the submission of project dissertation the student will be issued hall ticket for the end semester theory and practical examination.
  4. The dissertation may be typed or hand-written and be limited to 40 to 70 pages of A4 size.
  5. Project work shall be evaluated by an external and one internal examiner which will be followed by presentation of the work and viva-voce.
  6. Students will be required to undergo verification, evaluation and viva of the project-work they have done.
  7. Certified documentation of the project-work done by each group is mandatory. The certified documentation should be produced while appearing for viva and evaluation of project during final examination of sixth semester.
- The project work will be evaluated for 100 marks of which **60% marks** will be allotted for the **dissertation** and **40% for the presentation** and **viva-voce**
- **The Evaluation of the project work will be done at the end of the sixth semester. For the Evaluation of the project work there shall be three hours duration at the end of the sixth semester. There shall be batch of 15 students for project and viva.**

**B.Sc. Computer Application**
**SEMESTER - 5**
**Computer Application PAPER 501 (Theory)**
**RDBMS Using Oracle**

| CA-501 RDBMS USING ORACLE | | | | |
|---|---|---|---|---|
| **Objective:** Through this subject students will learn about the concept of RDBMS(Relational Database Management System) and oracle database. | | | | |
| **Unit No** | **Topic** | **Details** | **Marks Weight** | **Min Lec.** |
| **1** | DBMS Overview, SQL, SQL*plus | • Introduction to DBMS<br>• Introduction to RDBMS<br>• Dr. E. F. Code Rules<br>• Importance of E.R.Diagram in Relational DBMS<br>• Normalization<br>• Introduction to SQL<br>• SQL Commands and Data Types<br>• Introduction to SQL*PLUS<br>• SQL*PLUS formatting commands<br>• Operator and Expression<br>• SQL v/s SQL*Plus | 14 | 10 |
| **2** | Managing Tables and Data | • Creating , Altering & Dropping tables<br>• Data Manipulation Command like Insert, update, delete<br>• Different type of constraints and applying of constrains<br>• SELECT statement with WHERE, GROUP BY and HAVING, ORDER BY, DISTINCT, Special operator eg. IN, ANY, ALL, BETWEEN, EXISTS, LIKE<br>• Join (Inner join ,outer join, self join)<br>• Subquery, Minus, Intersect, Union<br>• Built in functions<br>• Numeric Function<br>• Character Function<br>• Date Function<br>• Aggregate function | 14 | 15 |
| **3** | Other ORACLE Database Objects, | • View<br>• Sequence<br>• Synonyms, | 14 | 10 |

| | | | | |
|---|---|---|---|---|
| | Data Control & Transaction control commands | • Database Links<br>• Index, Cluster,<br>• Creating user & role<br>• Grant, Revoke command<br>• What is transaction?<br>• Starting and Ending of Transaction<br>• Commit, Rollback, Savepoint | | |
| **4** | Introduction to PL/SQL blocks | • SQL v/s PL/SQL<br>• PL/SQL Block Structure<br>• Language construct of PL/SQL<br>• (Variables, Basic and Composite Data type, Conditions looping etc.)<br>• %TYPE and %ROWTYPE<br>• Using Cursor(Implicit, Explicit)<br>• Exception Handling | 14 | 15 |
| **5** | Advanced PL/SQL | • Creating and Using Procedure<br>• Functions<br>• Package<br>• Triggers<br>• Creating Objects,<br>• Object in Database-Table<br>• PL/SQL Tables, Nested Tables, varrays | 14 | 10 |
| | Total | | 70 | 60 |

**Reference Books:**

1. RDBMS Using Oracle – Bharat & Co. [ISBN No. : 978-93-81786-38-3]
2. SQL,PL/SQL The programming - Lang. of Oracle Ivan Bayross - BPB
3. Using Oracle 8i - Page, Hughes - QUE & PHI Publications
4. Oracle 8I The Complete Reference - George Koch, Kevin Loney - Oracle Press and Tata MacGraw-Hill

**B.Sc. Computer Application**
**SEMESTER - 5**
**Computer Application PAPER 502 (Theory)**
**Web Programming using PHP**

## CA-502 Web Programming using PHP

**Objective**:

- To learn web programming
- Learn to develop web site using PHP

| Unit No | Topic | Details | Marks Weight | Min Lec. |
|---|---|---|---|---|
| 1 | Web Programming & Web Services | • Static and Dynamic Web<br>• Client side & Server Side Scripting<br>• Introduction to other server side languages<br>• Webserver (IIS & Apache)<br>• HTTP & HTTPS, FTP protocol<br>• Web Hosting, Virtual Host, Multi-Homing<br>• Distributed Web Server Overview,<br>• Document Root<br>• XML and JSON<br>• Introduction to JSON<br>• JSON Functions : json_decode, json_encode | 14 | 10 |
| 2 | PHP Basic | • Introduction to PHP<br>• PHP configuration in IIS & Apache Web server<br>• PHP Variable<br>• Static & global variable<br>• GET & POST method<br>• PHP Operator<br>• Conditional Structure & Looping Structure<br>• Array<br>• User Defined Functions:<br>o argument function<br>o default argument<br>o variable function<br>o return function<br>• Variable Length Argument Function( func_num_args,func_get_arg, func_get_args)<br>• Variable Functions ( isset, unset,print_r)<br>• String Function(Chr, ord, strtolower, strtoupper, strlen, ltrim, rtrim, trim, substr, strcmp, strcasecmp,strpos, strrpos, strstr, stristr, str_replace, strrev,explode, implode, join, substr_count, ucfirst, ucwords) | 14 | 15 |

| | | | | |
|---|---|---|---|---|
| | | • Math Function (Abs, ceil, floor, round, fmod, min, max, pow, sqrt, rand, cos)<br>• Date Function (Date, time, mktime, date_add, date_format, gmdate, localtime)<br>• Array Function (Count, list, in_array, sort, arsort, array_merge, array_reverse, array_diff, array_slice, array_unique,array_keys,array_key_exists, array_search)<br>• Miscellaneous Function (define, constant, include,require, header, die, exit)<br>• File handling Function (fopen, fread, fwrite, fclose, move_uploaded_file) | | |
| 3 | Handling Form, Session Tracking & PHP Components & AJAX | • Handling form with GET & POST<br>• Cookies<br>• Session<br>• Server variable<br>• PHP Components<br>- PHP GD Library<br>- PHP Regular expression<br>- Uploading file<br>- Sending mail using mail()<br>- Sending mail using smtp()<br>• What is AJAX<br>• PHP with AJAX<br>• How AJAX works with PHP,Working with AJAX as background process | 14 | 10 |
| 4 | Introduction of SQL | • Working with MySQL using PhpMyAdmin<br>• SQL DML Statement (Insert, Update, Select, Delete) Command<br>• PHP-MySQL Connectivity<br>• PHP-MySQL Functions (mysql_connect, mysql_close,mysql_error, msyql_errno, mysql_select_db, mysql_query, mysql_fetch_array, mysql_num_Rows, mysql_affected_Rows, mysql_fetch_assoc, mysql_fetch_field,mysql_fetch_object,mysql_fetch_row, mysql_insert_id, mysql_num_fields) | 14 | 15 |
| 5 | jQuery | • What is jQuery?<br>• jQuery Syntax<br>• jQuery Selector<br>- Element Selector | 14 | 10 |

| | | | | |
|---|---|---|---|---|
| | | - Class Selector<br>- id Selector<br>• jQuery Events( Click, dblclick, keypress, keydown, keyup, submit, change, focus, blur, load, resize, scroll)<br>• jQuery Effects( hide, show, fade, slide) | | |
| Total | | | 70 | 60 |

**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)

**B.Sc. Computer Application**
**SEMESTER - 5**
**Computer Application PAPER 503 (Theory)**
**Software Engineering and Linux**

| CA-503 Software Engineering and Linux | | | | |
|---|---|---|---|---|
| **Objective:** Through this subject students will learn about the concept of Software Engineering and Linux command and shell scripting language. | | | | |
| **Unit No** | **Topic** | **Details** | **Marks Weight** | **Min Lec.** |
| **1** | System Analysis & Design | • Definitions: System, Subsystem, Business System, Information System (Definitions only)<br>• Systems Analyst and Role<br>• SDLC<br>• Fact – finding techniques(Interview, Questionnaire, Record review and observation)<br>• Tools for Documenting Procedures and Decisions<br>Decision Trees and Decision Tables<br>• Data Flow analysis Tool<br>• DFD (Context and 1st Level) and Data Dictionary<br>• UML Diagrams (Use Case Diagram, Activity diagram, Class Diagram, Sequence Diagram) | 14 | 10 |
| **2** | Software Development Life Cycle Models & Concepts of Quality Assurance | • Waterfall Model<br>• Agile Model<br>• V-Model<br>• Spiral Model<br>• Prototyping Model<br>• Introduction to QA<br>Software Quality Model – SEI CMM, ISO 9126, Six Sigma, McCall's Quality Factor | 14 | 15 |
| **3** | Software Project Management Plan & Software Testing | • Software Cost Estimation – COCOMO Model and Delphi Cost Model<br>• Scheduling – PERT chart, Activity Network Diagram<br>• Software Risk Management<br>• Software Quality Plan<br>• Validation & Verification<br>• Software Testing<br>• Software Faults and Failure, Test Case, Test Script | 14 | 10 |

| | | | | |
|---|---|---|---|---|
| | | • Testing Methods (Black Box and White Box)<br>• Levels of Testing Process<br>• Unit Testing, Integration Testing, System Testing, Load Testing, Performance Testing, Usability Testing and Storage Testing.<br>• SRS (Software Requirement Specification) with IEEE Format. | | |
| **4** | Operating System with Linux and Shell Command | • Meaning of OS<br>• Functions of OS<br>• Types of OS<br>• Freeware and Shareware<br>• History of Linux<br>• Unix Architecture<br>• Unix Features<br>• KDE and GNOME<br>• Types Of Shell ( C, Bourn, Korn )<br>• Unix File System<br>• Types of Files<br>• Shell Commands<br>passwd, who, ls, pwd, cat , cd, mv, cp, ln, rm, rmdir, mkdir, umask, chmod, chown, chgrp, find, more, less, head, tail, wc, touch, grep, cut, paste, join, sort, uniq, cmp, comm, diff, bc, tee, script, cal, date, wall, mtod, write, mail, news, ps, nice, kill, at, batch, cron, crontab, mount command<br>• Piping and Redirection<br>• Text Editing with vi Editor<br>• Modes in vi and Basic command | 14 | 15 |
| **5** | Shell Programming | • Shell Keywords<br>• Shell Variables<br>• System variables and User variable<br>• Positional parameters<br>• Decision Statements<br>• Test command<br>• Operators in shell scripting<br>• Looping Statements<br>• Case structure<br>• Various shell script examples | 14 | 10 |
| | Total | | 70 | 60 |

# Syllabus of B.Sc. Semester-6
# According to Choice Based Credit System
# Effective from June – 2021

- **Program:** **B.Sc.**
- **Semester:** **6**
- **Subject:** **Computer Application**
- **Course codes:** **601 -Theory**
  **602 -Theory**
  **603 -Theory**
  **601 - Practical**
  **602 - Practical**
  **603 - Practical**
  **1 Project**
- **Total Credit of The Semester** **30 Credit**

# B. Sc. Computer Application SEMESTER: VI

- **The Course Design of B. Sc. Sem.- VI (Computer Application) according to choice based credit system (CBCS) comprising of Paper Number, Name, No. of theory lectures per week, No. of practical lectures per week , total marks of the course are as follows :**

| SR.NO. | SUBJECT | NO. OF THEORY LECTURE PER WEEK | NO. OF PRACTICAL LECTURE PER WEEK | TOTAL MARKS | Credit Of Each Paper. |
|---|---|---|---|---|---|
| 1 | **PAPER 601 (A) (Theory) Programming with C#** | 6 | - | 70(External)+ 30 (Internal) = 100 Marks | 6 |
| 2 | **PAPER 602 (A) (Theory) Multimedia – Graphic Designing & Image Editing** | 6 | - | 70(External)+ 30 (Internal) = 100 Marks | 6 |
| 3 | **PAPER 603 (A)** (**Theory**) **Content Management System using WordPress** | 6 | - | 70(External)+ 30 (Internal) = 100 Marks | 6 |
| 4 | **PAPER 601 (B) (Practical)** | - | 6 | 35(External)+ 15(Internal) = 50 Marks | 3 |
| 5 | **PAPER 602 (B) (Practical**) | - | 6 | 35(External)+ 15(Internal) = 50 Marks | 3 |
| 6 | **PAPER 603 (B) (Practical)** | - | 6 | 35(External)+ 15(Internal) = 50 Marks | 3 |
| 7 | **Project Work & Viva** | 1 Guidance Lect. For a group of 1 to 3 students / week | Project work to be finalized and certified and evaluated. | **60Marks (Dissertation) + 40 Marks ( Viva ) = 100 Marks** | 3 |
| | | | | **Total credit of the semester five** | **30** |

**Marks Distribution of Each Paper**
**for**
**Theory and Practical ( for SEMESTER-VI )**

| | |
|---|---|
| • **Total Marks of Each Theory Paper [External Examination]** | **70 Marks** |
| • **Total Marks of Each Theory Paper [Internal Examination]** | **10 Marks Assignments +**<br>**10 Marks QUIZ / test +**<br>**10 Marks Internal exam. =**<br>**30 Total Marks** |
| • **Total Marks of Each Practical Paper [External Examination]** | **35 Marks** |
| • **Total Marks of Each Practical Paper [Internal Examination]** | **15 Marks**<br>**[Continuous internal assessment of practical work ]** |

## Format of Question Paper

- There shall be one question paper of **70 marks & $2\frac{1}{2}$ hours** for each Computer Application Theory Paper**.**
- There shall be FIVE questions from each unit of 14 marks each.
- Each Question will be of the following form.

| | | | |
|---|---|---|---|
| Question | (A) | Answer any four out of four (Short answer type question) | 4 Marks |
| | (B) | Answer any one out of two | 2 Marks |
| | (C) | Answer any one out of two | 3 Marks |
| | (D) | Answer any one out of two | 5 Marks |
| | | **TOTAL** | **14 MARKS** |

**B.Sc. Computer Application**
**SEMESTER - 6**
**Computer Application PAPER 601 (Theory)**
**Programming with C#**

| CA-601 Programming with C# | | | | |
|---|---|---|---|---|
| **Objective:** Through this subject students will learn about the concept of modern, object-oriented programming language using c#.net | | | | |
| **Unit No** | **Topic** | **Details** | **Marks Weight** | **Min Lec.** |
| 1 | **.NET Framework and Visual Studio IDE & Language Basics** | • Introduction to .NET Framework<br>• Features / Advantages<br>• CLR, CTS and CLS<br>• BCL / FCL / Namespaces<br>• Assembly and MetaData<br>• JIT and types<br>• Managed Code and Unmanaged Code<br>• Introduction to .NET Framework and IDE versions<br>• Different components (windows) of IDE<br>• Types of Projects in IDE (Console, Windows, Web, Setup, etc.)<br>• Data Types (Value Type & Reference Type)<br>• Boxing and UnBoxing<br>• Operators (Arithmetic, Relational, Bitwise, etc.)<br>• Arrays (One Dimensional, Rectangular, Jagged)<br>• Decisions (If types and switch case)<br>• Loops (for, while, do..while, foreach) | 14 | 10 |
| 2 | **Class and Inheritance & Property, Indexer, Pointers, Delegates, Event, Collections** | • Concept of Class, Object,<br>• Encapsulation, Inheritance, Polymorphism<br>• Creating Class and Objects Methods with “ref” and “out” parameters<br>• Static and Non-Static Members<br>• Constructors Overloading Constructor,<br>• Method and Operator<br>• Inheritance<br>• Sealed Class & Abstract Class | 14 | 15 |

| | | | | |
|---|---|---|---|---|
| | | • Overriding Methods<br>• Interface inheritance<br>• Creating and using Property<br>• Creating and using Indexer<br>• Creating and using Pointers (unsafe concept)<br>• Creating and using Delegates (Single / Multicasting)<br>• Creating and using Events with Event Delegate<br>• Collections (ArrayList, HashTable, Stack, Queue, SortedList) and their differences | | |
| **3** | **Windows Programming** | • Creating windows Application<br>• MessageBox class with all types of Show() method<br>• Basic Introduction to Form and properties<br>• Concept of adding various Events with event parameters<br>• Different Windows Controls<br>- Button<br>- Label<br>- TextBox<br>- RadioButton<br>- CheckBox<br>- ComboBox<br>- ListBox<br>- PictureBox<br>- ScrollBar<br>- TreeView<br>- Menu (MenuStrip, ContextMenuStrip)<br>- ToopStrip<br>- Timer<br>- Panel and GroupBox<br>• Dialog Boxes (ColorDialog, FontDialog, SaveFileDialog and OpenFileDialog)<br>• MDI Concept with MDI Notepad Concept of Inheriting Form. | 14 | 10 |
| **4** | **Database Programming with ADO.NET** | • Concept of Connected and<br>• Disconnected Architecture<br>• Data Providers in ADO.NET<br>• Connection Object<br>• Connected Architecture<br>• Command | 14 | 15 |

| | | | | |
|---|---|---|---|---|
| | | • DataReader<br>• Disconnected Architecture<br>- DataAdapter<br>- DataSet<br>- DataTable<br>- DataRow<br>- DataColumn<br>- DataRelation<br>- DataView<br>• Data Binding<br>• GridView Programming | | |
| 5 | **User Controls (Components), Crystal Reports, Setup Project** | • Creating User Control with<br>- Property<br>- Method<br>- Event<br>• Using User Control in Windows<br>• Projects as component<br>• Creating Crystal Reports Types of Reports<br>• Report Sections Formula, Special Fiend and Summary in Report<br>• Types of Setup Projects<br>• Creating Setup Project<br>- File System Editor<br>- User Interface Editor<br>- Launch Conditions Editor | 14 | 10 |
| | Total | | 70 | 60 |

**Reference Books:**

1. Programming with C# – Bharat & Co. [ISBN No. : 978-93-81786-41-3]
2. C#.NET Programming Black Book - steven holzner –dreamtech publications
3. Introduction to .NET framework - Wrox publication
4. Microsoft ADO. Net - Rebecca M. Riordan, Microsoft Press

**B.Sc. Computer Application**
**SEMESTER - 6**
**Computer Application PAPER 602 (Theory)**
**Multimedia – Graphic Designing & Image Editing**

## CA-602 Multimedia – Graphic Designing & Image Editing

**Objective:** Through this subject students will learn about the concept of Image editing and designing.

| Unit No | Topic | Details | Marks Weight | Min Lec. |
|---|---|---|---|---|
| 1 | **Starting with Photoshop** | • About Photoshop<br>• Navigating Photoshop<br>• Menus and panels<br>• Opening new files<br>• Opening existing files<br>• Exploring the Toolbox<br>• The New CS4 Applications Bar & the Options Bar<br>• Exploring Panels & Menus<br>• Creating & Viewing a New Document<br>• Customizing the Interface<br>• Setting Preferences | 14 | 10 |
| 2 | **Working with Basic Tools** | • Selecting with the Elliptical Marquee Tool<br>• Using the Magic Wand & Free Transform Tool<br>• Selecting with the Regular & Polygonal Lasso Tools<br>• Combining Selections<br>• Using the Magnetic Lasso Tool<br>• Using the Quick Selection Tool & Refine Edge<br>• Modifying Selections<br>• Understanding the Background Layer<br>• Creating, Selecting, Linking & Deleting Layers<br>• Locking & Merging Layers<br>• Copying Layers, Using Perspective & Layer Styles<br>• Filling & Grouping Layers<br>• Introduction to Blending Modes<br>• Blending Modes, Opacity & Fill<br>• Creating & Modifying Text | 14 | 15 |

| | | | | |
|---|---|---|---|---|
| | | • Using the Brush Tool<br>• Using the Pencil & Eraser Tools<br>• The Red Eye Tool<br>• The Clone Stamp Tool<br>• The Patch Tool & the Healing Brush Tool<br>• The Spot Healing Brush Tool<br>• The Color Replacement Tool<br>• The Toning & Focus Tools<br>• Painting with History | | |
| **3** | **Working with special effects** | • Getting Started with Photoshop Filters<br>• Smart Filters<br>• Creating Text Effects<br>• Applying Gradients to Text<br>• Understanding Paths & the Pen Tool<br>• Creating Straight & Curved Paths<br>• Creating Combo Paths<br>• Creating a Clipping Path<br>• Blending Menu | 14 | 10 |
| **4** | **Introduction of CorelDraw & Page Layout** | • Introduction-Getting Started-Creating A New File - Title Bar-Menu Bar-Work Area-Printable Page-Property Bar-Page Counter Bar-Colour Palette-Toolbox-Status Bar-Drawing Figures-Lines-Ellipse-Circles-Rectangle-Square-Polygon-Saving-Closing-Opening-Views-Normal View-Preview-Wire Frame View-Draft View-Zoom-View Manager-Creating a View.<br>• Changing the Page Size-Changing the Layout-Applying Styles-Applying Bitmaps to the Background - Changing the Background-Adding a Page Frame-Moving Between Pages. | 14 | 15 |
| **5** | **Designing Effects** | • Introduction - Toolbox-Selecting an Object-Resizing an Object-Moving an Object-Changing the Shape-Combining Two Objects-Skewing-Welding the Objects-Blending-Curve Lines-Straight | 14 | 10 |

| | | | | |
|---|---|---|---|---|
| | | Lines-Continuing a Line-View Mode-Changing-Media Tool-Rotating An Object-Grouping-Fill Tool Fly Out-Filling-Spray Mode.<br>• Introduction-Text Tool-Entering Artistic Text-Entering Paragraph Text-Converting Text-Formatting Text-Changing the Font Size-Arranging Objects-Ordering The Objects-Changing the Font-Bullets-Decorating the Text-Webdings-Text Editor-Opening-Changing the Alignment-Type Style-Spell Checking-Grammar-Searching Synonyms-Find-Replace-Editing-Kerning-Formatting Characters.<br>• Bitmap Images-Vector Image-Resizing-Rotating-Skewing-Moving-Cropping-Importing Images-Adding Special Effects-Converting to Bitmap-Exporting Images. | | |
| Total | | | 70 | 60 |

**Reference Books:**

1. Adobe Photoshop CS-4
2. CorelDraw X7 The officially Guide

**B.Sc. Computer Application**
**SEMESTER - 6**
**Computer Application PAPER 603 (Theory)**
**Content Management System using WordPress**

## CA-603 Content Management System using WordPress

**Objective:** Through this subject students will learn about the concept of CMS and creating websites using wordpress

| Unit No | Topic | Details | Marks Weight | Min Lec. |
|---|---|---|---|---|
| 1 | **OOP** | • Concept of OOP<br>- Class<br>- Property<br>- Visibility<br>- Constructor, Destructor<br>- Inheritance<br>- Scope resolution operator(::)<br>- Auto loading class<br>- Class Constant<br>• Concept of OOP<br>• MySql database handling using oop | 14 | 10 |
| 2 | **Introduction, Installation & configuration** | • What is Content Management System?<br>• Introduction of Wordpress<br>• Features of wordpress & advantages, disadvantages of wordpress<br>• Installation of wordpress<br>• Wordpress directory & file structure<br>• Dashboard overview<br>• How to add, update, delete pages, category, posting, tags<br>• Add new media files & attached to page or post<br>• User roles & capabilities<br>• Settings(General, reading, writing, media, permalinks)<br>• Updating wordpress (One-click & Manual)<br>• Database structure | 14 | 15 |
| 3 | **Themes, Widgets, Plug-in** | • What is theme?<br>• How to install & activate themes<br>• Introduction of common wordpress themes., template files. | 14 | 10 |

| | | | | |
|---|---|---|---|---|
| | | • What is widget & widget areas?<br>• Widget Management<br>1. Available widget(Archives, Calendar, Categories, custom menu, meta, pages, recent comments, Recent post, RSS, Search, tag clouds, text)<br>2. Inactive slidebar(not used)<br>3. Inactive widgets<br>• What is Plugin?<br>• How to install & active plugin.<br>• Usefull plugin & websites.<br>1. Seo yoast<br>2. Contact form 7<br>3. Woocommerce<br>4. WP supercache<br>5. Regenerate thumbnails<br>6. Advanced custom field. | | |
| **4** | **Theme Development** | • Anatomy of themes: header.php, footer.php,sidebar.php<br>• Template Files: (style.css, index.php, page.php, home.php, archive.php, single.php, comments.php, search.php, attachment.php, 404.php, category.php, tag.php, author.php, date.php)<br>• Loops(have_post(),the_post())<br>• Template tags.<br>• 1. General tags(wp_head, get_header, get_footer, get_sidebar, get_search_form,bloginfo,wp_title, single_post_title, wp_footer, comment_template,add_theme_support, body_class() )<br>• 2. Author Tags(the_author,get_ the_author, the_author_link, get_the_author_link, the_author_meta )<br>• 3. Category Tags(category_description,single_tag_titles,the_category)<br>• 4. Link Tags(the_permalink,get_permalink, home_url, site_url,get_site_url)<br>• 5. Post Tags(the_content, the_excerpt, the_id, the_tags, the_title, get_the_titles,the_date, get_the_date, the_time, next_post_link, previous_post_link) | 14 | 15 |

| | | | | |
|---|---|---|---|---|
| | | • Function.php file | | |
| **5** | **Advanced Development** | Advanced functions<br>- Add_actions()<br>- Add_filter()<br>- Add_shotcode()<br>- Register_nav_menu()<br><br>Custom post types<br>- Register_post_types<br>- Register taxonomy()<br><br>Widget Area<br>- Register sidebar()<br>- Dynamic sidebar() | 14 | 10 |
| Total | | | 70 | 60 |

**Reference Books:**

1. Build your own wordpress website.
2. Teach yourself visually wordpress paperback-By George plumly
3. Wordpress for beginners 2017- By Dr. Andy Williams.