

# **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**  
**(Descriptive type) → 50 Marks**
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- Total Marks → 70 Marks**
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- Marks for Internal Examination: **Assignments & Test**  
**→ 30 Marks**
  
  - Credit Of The Course **6 Credits (Theory) ,**  
**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)**

<b>CA-301: NETWORKING &amp; INTERNET ENVIRONMENT</b>		
<b>Objective:</b> 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.		
<b>Unit No.</b>	<b>Topic</b>	<b>Details</b>
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. World Wide Web (WWW), Search Engine, Remote Login, Telnet, FTP, Electronic Mail (Email),E-Commerce and E-Business, E-Governance, Web Hosting. Network Security (Cyber law, Firewall, Cookies, Hackers and Crackers). Types of Payment System (Net Banking, Digital Cash, Electronic Cheque, Debit/Credit Card).
2	Basic of HTML	Fundamental of HTML, Basic Tag and Attributes, The Formatting Tags, The List Tags, Link Tag inserting special characters, Types of List, Table in HTML, Frame in HTML, Forms Introduction to Dreamviewer.
3	Cascading Style Sheet (CSS)	Introduction to CSS, Types of Style Sheets Class & ID Selector, CSS Font Properties CSS Text Properties, CSS Background Properties CSS List Properties, CSS Margin Properties 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 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 object, form validation & email-validation

**Reference Books:**

1. NETWORKING & INTERNET ENVIRONMENT by Bharat & Company.
2. Internet The Complete Reference –Young.
3. World Wide Web Design with Html -C Xavier.
4. Practical Html 4.0 -Lee Philips.
5. MCSE Networking Essential Training Guides.
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 (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

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**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**  
**(Descriptive type) → 50 Marks**
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- Total Marks → 70 Marks**
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**Bachelor of Science (Computer Application) (Semester – 3 and Semester – 4)**  
**Saurashtra University**  
**Effective from June - 2020**

**B.Sc. (C.A.) (Semester – 4)**

<b>CA-401: PROGRAMMING WITH JAVA</b>		
<b>Objective:</b> 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.		
<b>Unit No.</b>	<b>Topic</b>	<b>Details</b>
1	History, Introduction, Language Basics & Classes, Objects and Methods.	<ul style="list-style-type: none"> <li>- History and Features of Java</li> <li>- Java Editions</li> <li>- JDK, JVM and JRE</li> <li>- JDK Tools</li> <li>- Compiling and Executing basic Java Program</li> <li>- Java IDE (Netbeans and Eclipse)</li> <li>- Data Type (Integer, Float, Character, Boolean)</li> <li>- Java Tokens (Keyword, Literal, Identifier, Whitespace, Separators, Comments, Operators)</li> <li>- Operators (Arithmetic, Relational, Boolean Logical, Bitwise Logical, Assignment, Unnary, Shift, Special operators)</li> <li>- Type Casting</li> <li>- Decision Statements (if, switch)</li> <li>- Looping Statements (for, while, do..while)</li> <li>- Jumping Statements (break, continue, return)</li> <li>- Array</li> </ul>
		<ul style="list-style-type: none"> <li>- OOP Concepts (Class, Object, Encapsulation, Inheritance, Polymorphism)</li> <li>- Creating and using Class with members</li> <li>- Constructor, this keyword</li> <li>- Access Specifiers (public, private, protected, default)</li> <li>- garbage collection - finalize() method</li> <li>- static and final keyword</li> <li>- Nested classes and Inner classes</li> <li>- Overloading (Constructor &amp; Method)</li> <li>- VarArgs</li> </ul>
2	Inheritance	<ul style="list-style-type: none"> <li>- the super keyword.</li> <li>- Types of Inheritance (single, Hierarchical, Multilevel)</li> <li>- Method Overriding</li> <li>- Abstract class and methods</li> <li>- Final variable, Final Methods and Final Classes</li> </ul>
	Java Package and Interfaces	<ul style="list-style-type: none"> <li>- Define package, Access Control and Visibility</li> <li>- Creating and Using User Defined package and sub-package</li> <li>- Interfaces define, implement</li> </ul>

	Java's Library Packages and Their Classes	<ul style="list-style-type: none"> <li>- Introduction to Java API Packages and Classes <ul style="list-style-type: none"> <li>o java.lang</li> <li>o java.util</li> <li>o java.io</li> <li>o java.awt</li> <li>o java.awt.event</li> <li>o java.applet</li> </ul> </li> <li>- java.lang Package Classes (Math, Wrapper Classes, Character, Boolean)</li> <li>- java.util Package Classes (Random, Date, Calendar, Vector)</li> </ul>
3	Exception Handling, Threading	<ul style="list-style-type: none"> <li>- Introduction to exception handling</li> <li>- try, catch, throw, throws, finally</li> <li>- Creating our own exception class</li> <li>- Thread and its Life Cycle (Thread States)</li> <li>- Creating Threads - Thread Class, Runnable interface</li> <li>- Synchronization in Multiple Threads (Multithreading)</li> </ul>
	Streams (input and Output) File Handling	<ul style="list-style-type: none"> <li>- Stream and its types (Input, Output, Character, Byte)</li> <li>- File and RandomAccessFile Class</li> <li>- Reading and Writing through Character Stream Classes (FileReader, BufferedReader, FileWriter, BufferedWriter)</li> <li>- Reading and Writing through Byte Stream Classes (InputStream, FileInputStream, OutputStream, FileOutputStream)</li> </ul>
4	Applets	<ul style="list-style-type: none"> <li>- Introduction to Applet, Applet Class</li> <li>- Applet Life Cycle</li> <li>- Implement &amp; Executing Applet with Parameters</li> <li>- Graphics class, The HTML APPLET tag</li> </ul>
	Using AWT Controls, Layout Managers and Menus	<ul style="list-style-type: none"> <li>- AWT Controls – Labels, push button, Check Box, Choice lists and TextArea.</li> <li>- Layout manager – FlowLayout, BorderLayout, CardLayout, GridLayout</li> <li>- Menu Bars and Menu</li> </ul>
5	Event Handling	<ul style="list-style-type: none"> <li>- Introduction to Event Handling</li> <li>- Event Delegation Model</li> <li>- Event Packages <ul style="list-style-type: none"> <li>o AWT Event Package</li> </ul> </li> <li>- Event Classes (ActionEvent, ItemEvent, FocusEvent, MouseEvent, MouseWheelEvent, TextEvent, WindowEvent, etc.)</li> <li>- Listener Interfaces (ActionListener, ItemListener, FocusListener, KeyListener, MouseListener, TextListener, WindowListener, etc.)</li> <li>- Adaptor Classes (FocusAdaptor, KeyAdaptor, MouseAdaptor, MouseMotionAdaptor)</li> </ul>

<b>Reference Books:</b>
<ol style="list-style-type: none"> <li>1. Programming with JAVA – Bharat &amp; Co. [ISBN No. : 978-93-81786-40-6]</li> <li>2. The Complete Reference – Tata McGRAW-HILL By Herbert Schildt</li> <li>3. JAVA2 Black Book</li> <li>4. A Programmer Guide to JAVA Certification By Khalid A. Mughal</li> </ol>

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