SARVAJANIK UNIVERSITY

INCLUSIVE | INTEGRATED | INNOVATIVE

Faculty of Science

Shree Ramkrishna Institute of Computer Education & Applied Sciences, Surat

B. Sc. Computer Science
and
B. Sc. Computer Science Honors

Bachelor of Science Computer Science and Bachelor of Science Computer Science Honors 2023-24

Introduction:

The B.Sc. Computer Science program is aimed at students having background of science stream and interest in pursuing study and career in the field of Computer Science. The BSc. Computer Science programme is designed to give you a strong foundation in Computer Science and specialized knowledge of topics such as Data Science, Artificial Intelligence, Web and Mobile Application Development, Computer Graphics etc. The programme aims at empowering student to take up industrial practice as well as for research and real world problem solving.

The courses are structured into three levels. The first level covers computer programming and database concepts. You will learn how computers work as well as the mathematics that underpins computer science. The second level deepens your programming as well as web application development skills and your understanding of how to develop substantial software projects. In the third level, you'll also begin to learn specialized topics such as Graphics Programming and Data Science. You'll have the opportunity to study specialized modules depending on your specialist pathway and bring your knowledge and skills together with a final individual project — developing your own software. You'll master in-demand computing skills, solve complex problems, and hone your innovation and creativity. The hands-on project-based approach will help develop the technical and transferable skills needed for a fulfilling career in your field.

With a BSc. Computer Science degree the student will be qualified to:

- Build and maintain reliable software to address the sophisticated demands of today's market
- Develop innovative and creative approaches to problem solving
- Work independently with confidence

Compete for roles at the cutting-edge of the tech sector, including application programmer, mobile app developer, web developer and systems analyst.

Credit Structure: (Annexture-1)

COURSE GROUP WISE CREDIT AT UNDERGRADUATE PROGRAM

Subject group	B. Sc. CS (3 years)	B.Sc. CS Hons. (4 years)
Major	60	92
Minor	24	32
SEC	9	9
Multidisciplinary	9	9
AEC	8	8
VAC	6	6
Summer Internship	4	4
	120	160

Semester wise course group wise credit allocation for Under Graduate Programme

Semester	Major			Minor		SEC		AEC		Mutidiciplinary		Value Added		Total
	No. of Courses	Credit		No. of Courses	Credit	No. of Course	Credit	No. of Courses	Credit	No. of Courses	Credit	No. of Courses	Credit	
		Th.	Pr.		Th.		Th.		Th.		Th.		Th.	
1	1	4	2	1	4	1	3	1	2	1	3	1	2	20
2	1	4	2	1	4	1	3	1	2	1	3	1	2	20
3	1	4	2	1	4	1	3	1	2	1	3	1	2	20
4	3	12	2	1	4	-		1	2					20
5	2	8	4	1	4	IntSp	4							20
6	IntSp	16		1	4									20
Total	**8**	**60**			**24**		**13**		**8**		**9**		**6**	**120**
7	3	12	4	1	4									20
8	3	12	4	1	4									20
Total	**14**	**92**			**32**		**13**		**8**		**9**	**S**	**6**	**160**

Evaluation Scheme for Semester 1 and 2:

Semester	Subject group	Internal Evaluation				External	Grand Total
		CCE	Attend.	Assign.	Total Int.		
1	Major -1	40	10	20	70	30	100
	Minor -1	40	10	20	70	30	100
	SEC -1	40	10	20	70	30	100
	Practical-1	30	10	30	70	30	100
	Multidisciplinary-1	40	10	20	70	30	100
	Ability Enhancement Course-1	40	10	20	70	30	100
	Value Added Course-1	40	10	20	70	30	100
				Total	**490**	**210**	**700**
2	Major -2	40	10	20	70	30	100
	Minor -2	40	10	20	70	30	100
	SEC -2	40	10	20	70	30	100
	Practical-2	30	10	30	70	30	100
	Multidisciplinary-2	40	10	20	70	30	100
	Ability Enhancement Course-2	40	10	20	70	30	100
	Value Added Course-2	40	10	20	70	30	100
				Total	**490**	**210**	**700**

Name of Program	**Bachelor of Science Computer Science**
Abbreviation	B.Sc. IT
Duration	3 Years (Regular)
Objective of Program	The objective of the program is to impart knowledge of fundamentals and / or latest theories, concepts, methods, techniques and tools related to various areas of computer applications and information technology and specifically in the area of Mobile based, cloud based, web based application development, software engineering, data management.
Program Outcome	At the successful completion of the program, students will be able to start their career in the IT and software industry.

Name of Program	**Bachelor of Science Computer Science (Honors)**
Abbreviation	B.Sc. IT (Honors)
Duration	4 Years (Regular)
Objective of Program	The objective of the program is to impart knowledge of fundamentals and / or latest theories, concepts, methods, techniques and tools related to various areas of computer applications and information technology and specifically in the area of Mobile based, cloud based, web based application development, software engineering, data management.
Program Outcome	At the successful completion of the program, students will be able to start their career in the IT and software industry.

Major1: Structured Programming Methodology

Course Code	
Course Title	**Structured Programming Methodology**
Credit	4
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	--
Purpose of Course	The aim of this course is to introduce to the students the rudiments of programming using java language. Students will become familiar with problem solving techniques and algorithm development.
Course Objective	• To Gain knowledge about Programming languages, programming methodology. • To Gain knowledge about basic Java language syntax and semantics to write Java programs and use concepts such as variables, conditional and iterative execution methods etc. • To understand how to work with Arrays and Strings.
Pre-requisite	NIL
Course Out come	At the end of the course, student is expected to have understanding about the concepts of Programming languages, programming basics, Functions, Strings and Arrays, etc.
Course Content	**Unit 1 Introduction to programming** **04 hr** 1.1 What is program? 1.2 Levels of programming languages 1.3 Programming methodologies – structured and object-oriented 1.4 Java History 1.5 Features of Java **Unit 2 Introduction to program design** **08 hr** 2.1 What is a Flowchart? 2.2 Flowchart symbols and its usage 2.3 What is an Algorithm? 2.4 Characteristics of good algorithm **Unit 3 Getting started with structured programming** **06 hr** 3.1 Basic structure of program in java 3.2 Variables, Datatypes, Keywords, Constants, Comments 3.3 Printing output 3.4 String literal 3.5 Operators 3.5.1 Arithmetic Operators 3.5.2 Unary Operators 3.5.3 Relational Operators 3.5.4 Assignment Operators

	3.5.5 Conditional Operators 3.6 Type casting **Unit 4 Control structures** 4.1 Looping statements 4.1.1 while Loop 4.1.2 do-while Loop 4.1.3 for Loop 4.2 Various forms of if Statement 4.2.1 If, else if, nested if 4.2.2 Switch statement 4.2.3 Break and Continue Statements **Unit 5 Introducing Functions** 5.1 Inbuilt functions 5.2 User defined functions 5.2.1 Function declaration, definition and function calling 5.2.2 Passing parameter to functions 5.2.3 Returning values from functions **Unit 6 Strings** 6.1 String class 6.2 Inbuilt String methods 6.3 Operations on String without using inbuilt functions 6.4 Concept of Substring **Unit 7 Arrays** 7.1 Creating and accessing an array, array literal 7.2 Single Dimensional array 7.3 Multi-Dimensional array 7.4 Operations on Arrays 7.5 Passing array to the function **Unit 8 Overview of Language Processors and Types of Errors** 8.1 Concepts of Compiler / Interpreter /Assembler/ Symbol table 8.2 Java environment JVM, JRE, JIT, J2SE, J2EE, J2ME 8.3 Byte code 8.4 Steps of java program execution 8.5 Types of errors 8.5.1 Syntax errors 8.5.2 Semantic errors 8.5.3 Runtime errors	**10 hr** **10 hr** **06 hr** **10 hr** **06 hr**

Reference Books	1.The Complete Reference Java2 Herbert Schildt TMH, New Delhi 2.Mastering JAVA2 John Zukowski BPB 3. Teach Yourself Java2 platform in 21 days Lamey & Cadenhead Teach Media 3.Java in Nut shell - O'Relly Publication 4.Java Language Reference - O'Relly Publication
Teaching Methodology	Discussion, Independent Study, Seminars and Assignment
Evaluation Method	70% Internal assessment is based on class attendance, participation, class test, quiz, assignment, seminar, internal examination etc. 30% assessment is based on semester end written examination

Minor-1 : Fundamentals of Database Management System

Course Code	
Course Title	**Fundamentals of DBMS**
Credit	3+1
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	-
Purpose of Course	This course imparts the knowledge of database systems, Entities and Relationship model, SQL (DDL, DML and DCL).
Course Objective	To introduce the concept of database systems, modelling of data and to make use of SQL base queries to retrieve and store data efficiently
Pre-requisite	NIL
Course Out come	• Students will able to differentiate between database approach and conventional file processing system. • Understand database concepts . • Design an entity-relationship model based on user requirements. • Use SQL statements to store, modify and retrieve data from one or more tables.

Course Content	**Unit 1 Introduction to DBMS** **05 hr** 1.1 Fundamental concepts - data, information ,database, DBMS. table, row, field 1.2 Need of Information - Business, Research, Governance 1.3 Requirement of DBMS 1.4 Levels of Abstraction in DBMS 1.5 Database User and Administrator **Unit 2 Database Architecture and Relational Model Design** **08 hr** 2. l Database Architecture - Centralized database, Client- server, Parallel database, Distributed database 2.2 E.F. Codd' rule 2.3 Keys - Super key candidate key primary key 2.4 Structure of relational database 2.5 Basic concept and symbols used in E-R notation 2.6 Mapping cardinalities 2.7 Types of attributes 2.8 Design E-R Diagram. **Unit 3 Normalization** **08 hr** 3.1 Functional Dependency 3.2 Anomalies of DBMS 3.3 Normal Form : INF, 2NF. 3NF BCNF

	Unit 4 DDL , DML statement and Indexing **10 hr** 4.1 Schema-based operation : Table Creation, Table structure modification and removal 4.2 Data types , Domain and Referential integrity Constraints 4.3 Data Manipulation : Retrieving the data using SQL Queries 4.4 Operators: IN , BETWEEN, LIKE, Relational , Arithmetic and Logical Operators **Unit 5 Advanced SQL Queries** **06 hr** 5.1 Numeric, String and Date function 5.2 Aggregate Functions 5.3 Sorting and Grouping the data **Unit 6 Data from multiple tables** **08 hr** 6.1.Joins: Inner, Outer, Self 6.2 Sub-queries with IN,NOT IN, EXIST, NOT EXIST, ANY, ALL
Reference Book	1. Silberschatz. Korth , Sudarshan ,Database System Concepts. McGraw-Hill computer science series 2. C J Date, An introduction to Database Systems, Addition-We ley 3. Nile h shah. Database System using Oracle, PHJ. 4. Ramez Elmasri & Shamkant B. Navathe Fundamentals of Database Systems , Addison-Wesley 5. Hector Gracia-Molina Jeffrey D. Ullman and Jennifer Widom, Database System Implementation. Pearson. 6. Ivan Bayros , SQL, PL/SQL, BPB Publ ication 7. Scott Urman Oracle9i PL/SQL programming McGraw-Hill
Teaching Methodology	Discussion, Independent Study, Seminars and Assignment Group projects or case study.
Evaluation Method	70% Internal assessment is based on class attendance, participation, class test, quiz, assignment, seminar, internal examination etc. 30% assessment is based on end semester written examination

SEC-1 Computer Organization and Software Development

Course Code	
Course Title	**Computer Organization and Software Development**
Credit	2+1
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	
Purpose of Course	The purpose of course is to make students aware with the basic understanding of computer and it's working along with networking and software development process
Course Objective	To provide fundamental knowledge of computer organization, operating system and its processes, networking ,internet and software development process.
Pre-requisite	Basic understanding of computer.
Course Out come	After completion of this course, the student will get knowledge of computer internal structure, memories, various operating systems and basic idea for software development process.
Course Content	**Unit 1 Computer Organisation** **08 hr** 1.1. Personal Computer, Workstation, Server, Mainframe, Super Computer, Embedded System 1.2. Basic building blocks – CPU, interconnection Bus, Input-Output 1.3. Internal architecture of processor – Register, ALU, Control Unit, Program Counter, Stack Pointer 1.4. Inter connection Bus structure – Data Bus, Address Bus, Control Bus 1.5. Processor , I/O Device Controllers, Multiprocessor system , Processor Operations – Instruction cycle, Instruction fetch, Instruction decode, instruction execute, Program flow control, Processor clock, Machine cycle and T-state, interrupts and interrupt service routine **Unit 2 Overview of Operating System & Memory** **08 hr** 2.1. Introduction of Operating System , Purpose of Operating System ,Types of Operating System. 2.2. Fundamentals of Memory Management & Processing System**:** 2.2.1. Types of Memory (Primary memory, secondary memory, Virtual Memory) , 2.2.2. Overview of Memory management: addressing, allocation, garbage collection, free memory list 2.3. Boolean algebra, Number System - Conversion of Numbers, Binary addition & subtraction, ASCII and ANSI character code **Unit 3 Fundamentals of Computer Networking & Internet** **07 hr** 3.1. Need for Computer Networking, Applications of Network 3.2. Types of Networks – LAN, MAN, WAN, Internet, Intranet 3.3. Overview of Internet, Intranet and types ,World Wide Web (WWW), 3.3.1. Basic of Website, WebPages(static and dynamic); Hyper Text,

	Applications of Internet **Unit 4 Basic of Software & Software engineering** **07 hr** 4.1. Types of Software 4.2. Software development life cycle 4.3. Software engineering practice – communication, planning, modelling, constructions, deployment 4.4. Software application architectures – Desktop applications, client-server/Web application, cloud application 4.5. Software Quality attributes= FURPS 4.6. Various programming methodologies – Structured, object oriented, event driven, pair programming, extreme programming
Reference Book	1. Computer Architecture: K M Hebbar 2. Computer System Architecture: M. Morris Mano 3. Introduction to computers: 4th Edition – Peter Norton 4. Fundamentals of Computers: V. Rajaraman 5. Computer Architecture and Organization- A Journey Through Evolution: P. Chakraborty 6. Computer Architecture and Organization: Subrata Ghosal
Teaching Methodology	• Class lectures and discussion, independent study and assignment • Expert lectures , seminar ,group projects and/or case study(wherever applicable)
Evaluation Method	70% Internal assessment is based on class attendance and participation, unit test, quiz, assignment, seminar, group project/case study evaluation, internal examination etc. 30% external assessment is based on end semester written examination/viva.

Practical-1

Course Code	
Course Title	**Practical-1**
Course Type	Practical
Credit	4
Teaching per Week	8 Hours
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	---
Purpose of Course	The purpose of course is to make students aware with practical implementation of concept learnt in theory subjects.
Course Objective	To provide Fundamental knowledge of practical implementation based on Major, Minor, SEC subject.
Pre-requisite	---
Course Out come	Student should be able to demonstrate skills mentioned in Major-1, Minor-1, SEC-1 practically.
Teaching Methodology	Demonstration of laboratory work and Practical assignments are provided
Evaluation Method	70% Internal assessment is based on class attendance, participation, class test, quiz, assignment, seminar, internal examination etc. 30% assessment is based on semester end written examination

Faculty of Science

Shree Ramkrishna Institute of Computer Education & Applied Sciences, Surat

B.Sc. Computer Science

SEMESTER- 2

Major-2: Object Oriented Programming Methodology

Course Code	**Major-2**
Course Title	**Object Oriented Programming Methodology**
Credit	4
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	
Purpose of Course	To teach object oriented programming concepts through programming using Java as the computer Programming language.
Course Objective	• To learn inheritance, package and interfaces. • Identify exception handling methods. • Develop multithreading, object-oriented programs. • To learn Collection Framework • To Understand how to work with Strings and operations in Java
Pre-requisite	Programming basics
Course Out come	At the end of the course, student is expected to have clear concepts about the OOP concepts, Inheritance, Interfaces, Packages and Multithreading in Java.
Course Content	**Unit 1 Introduction to Object oriented programming in java 10 hr** 1.1 Object oriented programming 1.2 Structured vs object-oriented programming 1.3 Object oriented programming languages 1.4 Overview of object-oriented programming features – data hiding, abstraction, encapsulation, inheritance, polymorphism 1.5 Classes and objects 1.6 Class attributes/variables 1.7 Class methods 1.8 Calling class methods • Calling user defined class methods without parameters • Calling user defined class methods with primitive datatype parameters • Calling user defined class methods with object as parameters 1.9 Access modifiers and its usage for data hiding **Unit 2 Object - construction, accessibility and clean-up 08 hr** 2.1 Constructor and its types 2.1.1 Default constructor 2.1.2 Parameterized constructor 2.1.3 Copy constructor 2.2 Garbage collection in java 2.3 new() and finalize() methods 2.4 static keyword – static variables and methods 2.5 this keyword 2.6 Array of objects

	Unit 3 Exception handling in java **06 hr** 3.1 Need of exception handling 3.2 Types of exceptions 3.3 Try… catch block 3.4 Finally clause 3.5 Throw clause 3.6 Throws clause **Unit 4 Inheritance** **14 hr** 4.1 Importance of inheritance in object-oriented programming 4.2 Types of inheritance 4.2.1 Single 4.1.4 Multilevel 4.1.5 Hierarchical 4.1.6 Multiple (using interface) 4.1.7 Hybrid 4.3 Use of super keyword 4.4 Order of calling constructors **Unit 5 Polymorphism** **06 hr** 5.1 Method overloading 5.2 Method overriding and dynamic binding 5.3 Using Final keyword to prevent overring and inheritance **Unit 6 Abstraction** **04 hr** 6.1 Need of abstraction 6.2 Abstract class 6.3 Abstract class vs interface **Unit 7 Encapsulation and packages in java** **06 hr** 7.1 Significance of Encapsulation 7.2 What is a package? 7.3 Importance of package 7.4 Creating and accessing package in java 7.5 Adding classes to package 7.6 Inbuilt packages – Java.util, Java.lang, Java.io **Unit 8 Inner class in java** **06 hr** 8.1 Inner classes – need and advantages 8.2 Accessing members of outer class within inner class 8.3 Difference between nested class and inner class 8.4 Types of nested classes
Reference Book	1.The Complete Reference Java2 Herbert Schildt TMH, New Delhi 2. Mastering JAVA2 John Zukowski BPB 3. Teach Yourself Java2 platform in 21 days Lamey & Cadenhead Teach

	Media 4 Java in Nut shell - O'Relly Publication 5 Java Language Reference - O'Relly Publication
Teaching Methodology	Discussion, Independent Study, Seminars and Assignment
Evaluation Method	70% Internal assessment is based on class attendance, participation, class test, quiz, assignment, seminar, internal examination etc. 30% assessment is based on end semester written examination

Minor-2 : Emerging Technologies in Computing

Course Code	
Course Title	**Emerging Technologies in Computing**
Credit	3+1
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	-
Purpose of Course	The aim of this course is to introduce to the students about the emerging technologies and upcoming areas of computer science and information technology. Students will become familiar with special branches of the field which are future specialization areas of their learning.
Course Objective	• To Gain understanding about special branches of the IT field. • To Gain knowledge AI, Data Science, Information and Cyber Security and Web Mobile technologies. • To Understand application areas and future prospects of same brances.
Pre-requisite	NIL
Course Out come	At the end of the course, student is expected to have understanding about the introductory ideas of AI, Data Science, Information and Cyber Security and Web Mobile technologies as fields of IT.
Course Content	**Unit 1 Artificial Intelligence** **08 hr** 1.1 Intelligence, Types, Human vs. Machine Intelligence 1.2 Introduction to Artificial Intelligence, Definitions 1.3 Reasoning, Learning,Problem Solving, Perception, Linguistic Intelligence 1.4 Application Areas of AI 1.5 Introduction to Machine Learning and Neural Networks 1.7 Robotics, Conversational AI - Bots, Responsible AI 1.8 Autonomous AI and Robotics **Unit 2 Data Science** **07 hr** 2.1 Data and Databases as Opportunities 2.2 Types of Data, Sources of Data and Big Data 2.3 Insights from Data 2.4 What is Data Science 2.5 Idea of Data Science Process 2.6 What is Data Analytics, Type of Analytics 2.7 Application Areas and Future Prospects **Unit 3 Web Application Development** **08 hr** 3.1 Computer Program, Computer Application and Software 3.2. Type of Computer Application and Softwares 3.3 Windows and Web Application Development 3.4 Working of Web, 2,3 and N-Tier Application, Client Server, Distributed and Cloud Computing 3.5 Client Side Scripting Languages 3.5 Server Side Technologies

	3.6 Opportunities, Application Areas and Job Profiles **Unit 4 Mobile Application Development** **07 hr** 4.1 Web and Mobile Applications, Differentiation 4.2 Mobile Application Fundamentals - Cross platform development, Responsive Web Programming, Overview Mobile Development Architecture 4.3 Mobile Application Technologies - Android, Flutter, IOS, Xamrine, React Native, Dart 4.4 Compatible Databases -sqlite, firebase, nosql databases 4.5 Smart Device Computing 4.6 Application Areas and Job Profiles **Unit 5 Information Security** **08 hr** 5.1 Information in Computer Networks, Software and Devices 5.2 Data Security mindset 5.3 Data confidentiality and availability, Privacy, Authentication and Authorization 5.4 Network Security Concepts - Common threats, E-Mail security, Authentication, Firewalls, Cryptography 5.5 Common well known security approaches 5.6 Application Areas and Job Profiles **Unit 6 Cyber Security** **07 hr** 6.1 Introduction & defining the Cyber Security 6.2 Frauds in IT, Banking, Mobile network, telecommunications 6.3 Cyber Crime and Frauds 6.4 Ethical and unethical hacking, Application Areas of Cyber Security 6.5 Careers in Cyber Security
Reference Book	1. Emerging Technologies in Computing -Theory, Practice, and Advances - Pramod Kumar, Anuradha Tomar, R. Sharmila 2. Emerging Technologies in Computing - 3. Introduction to Artificial Intelligence by Rajendra Akerkar, PHI, ISBN : 978- 81-203-2864-8 4. Introducing Data Science - Big data, machine learning, and more, using Python tools 5. A Complete Overview On: Web-development Ayush Mauryavanshi (Author) 6. Developing inclusive Mobile Apps - Building Apps for IOS and Android by Rob Whitaker, Apress 7. Cyber security, Nina Godbole, Sunit Belapure, Wiley 8. Introduction to computer security by Matt Bishop 9. Cryptography and network security by William Stalling
Teaching Methodology	Discussion, Independent Study, Seminars and Assignment
Evaluation Method	70% Internal assessment is based on class attendance, participation, class test, quiz, assignment, seminar, internal examination etc. 30% assessment is based on end semester written examination

SEC- 2: Web Designing

Course Code	
Course Title	**SEC- 2: Web Designing**
Credit	2+1
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	-
Purpose of Course	The course gives students an idea about client server architecture and how to design basic web page design and to make students capable of developing effective and interactive web client part of web applications.
Course Objective	• To provide fundamental knowledge of Web page design with HTML5, CS, Javascript, and jQuery
Pr-requisite	-
Course Out come	After completion of this subject, student will be able to ➢ The student will be capable of designing effective and interactive web pages using HTML5, CS, Javascript, and jQuery. ➢ Design various web application.
Course Description:	It is a Web application development platform for designing effective and interactive web applications.
Course Content	**Unit 1 Web designing Fundamentals** **05 hr** 1.1 Overview of Client & Server architecture 1.2 Website Basics - WebPages(static and dynamic) 1.3 Web browser, Web Servers; Web Hosting, Web Portal, Domain name server **Unit 2 Basic Web page designing with HTML 5** **10 hr** 2.1 HTML Structure 2.2 Basic HTML Tags – Formatting, Table, Headings 2.3 Other Tags – Ordered Lists, Unordered Lists, Links 2.4 Tables and Frame, Form Tags 2.5 HTML 5- standard and custom attributes, events 2.6 Web Form 2.0, Web storage, Web SQL 2.7 SVG, Canvas, Embedding and Playing Audio & Video **Unit 3 Cascade Style Sheets** **07 hr** 3.1 Introduction to CSS and Its types 3.2 Common Tasks with CSS-styling fonts, margins, links With Background related tags, Border related tags, Font related tags, Margin related tags, Text related tags, Page

	related tags, List related tags, Colour tag, Layer tag, Size and location related properties, 3.3 Assigning classes **Unit 4 JavaScript** **08 hr** 4.1 Structure of JavaScript 4.2 Data Types and Variables in JavaScript 4.3 Operators : Arithmetic Operator, Assignment Operator, Comparison Operator, Logical Operator, Conditional Operator in JavaScript 4.4 Control Structure : If…Else, While, Do…While, For and Functions in JavaScript 4.5 Handling events in JavaScript-Windows event, Event object
Reference Books	1. HTML5 Black Book: Covers CSS3, Javascript, XML, XHTML, Ajax, PHP and Jquery, Dreamtech Press 2. WEB TECHNOLOGIES: HTML, JAVASCRIPT, PHP, JAVA, JSP, ASP.NET, XML AND AJAX, BLACK BOOK: HTML, Javascript, PHP, Java, Jsp, XML and Ajax, Black Book, Dreamtech Press 3. HTML5 and CSS3 made Simple, Ivan Byross, BPB 4. Pro HTML5 and CSS3 Design Patterns, Dionysios Synodinos, Michael Bowers and Victor Sumner, Pearson 5. HTML5 In easy steps, Mike McGrath, McGrawHill 6. Programming in HTML5 with JavaSript and CSS3 Training Guide, Johnson G, PHI 7. JavaScript in easy Steps, Mike McGrath, McGrawHill. 8. jQuery, jQuery UI and jQuery Mobile, Adriaan de Jonge, Pearson 9. Jquery and Jquery UI, Jay Balchand, Pearson 10. Jquery in Action, Dreamtech Press
Teaching Methodology	Discussion, Independent Study, Seminars and Assignment
Evaluation Method	70% Internal assessment is based on class attendance, participation, class test, quiz, assignment, seminar, internal examination etc. 30% assessment is based on end semester written examination

Practical-2

Course Code	
Course Title	**Practical-2**
Course Type	Practical
Credit	4
Teaching per Week	8 Hours
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	---
Purpose of Course	The purpose of course is to make students aware with practical implementation of concept learnt in theory subjects.
Course Objective	To provide Fundamental knowledge of practical implementation based on Major, Minor and Skill based subject
Pre-requisite	---
Course Out come	Student should be able to demonstrate skills mentioned in Major-2, Minor-2 and SEC-2 practically.
Teaching Methodology	Demonstration of laboratory work and Practical assignments are provided
Evaluation Method	70% Internal assessment is based on class attendance, participation, class test, quiz, assignment, seminar, internal examination etc. 30% assessment is based on semester end written examination

Sarvajanik University

Faculty of Science

B.Sc. (Hons)

Faculty: Science	Department: All
Program: B.Sc. (Hons)	Type: Value Added Course (VAC)
Subject: Indian Knowledge System (Foundation)	Credits: 2
Semester: 1	

Unit 1: Foundational Literature of Indian Civilisation (08 hours)

- The Vedic Corpus
- Caturdaśa vidyāsthāna-s: 14 branches of learning in ancient India- purāṇa, nyāya, mīmāṁsā, dharmaśāstra, six vedānga-s: (śikṣā, vyākaraṇa, nirukta, chanda, jyotiṣa, kalpa) and four Veda-s- rgveda, yajurveda, sāmaveda and atharvaveda; introductory information on them
- Upaveda-s and Upaniṣads: introductory information on them
- śāstra-s and some introductory information on them
- 18 purāṇa-s: Their names and five general characteristics
- The Itihasas: Ramayana and Mahabharata (Learnings from them in brief)

Unit 2: Indian Philosophical System (07 hours)

- Four Purusartha: Dharma, artha, kama and moksha (Definitions and Meaning)
- Astika and Nastika Darshan
- Tarkashastra
- Hetu-lakṣaṇa and hetvabhāsa lakṣaṇa (Cause and Fallacies)
- Paṃca adhikaraṇa System-viṣaya, saṃśaya, pūrvapakṣa, uttarapakṣa and saṃgati
- The purpose of knowledge: Para Vidya and Apara Vidya

Unit 3: Indian Mathematics and Astronomy (08 hours)

- Important texts on Indian Mathematics
- Development of numbers, fractions, decimals, algebra, trigonometry and calculus
- Further continuity of Indian Mathematics: Kerala school and Ramanujan, their influence
- Important texts on Indian Astronomy
- Observations and records on the movement of celestial bodies, equinoxes, solctices, eclipses
- Planetary model of Aryabhata and its revision by Nilkantha
- Further continuity of Indian astronomy by Jaisingh, Sankaravarman, Chandrasekhara Samanta.

Sarvajanik University

Faculty of Science

B.Sc. (Hons)

Unit 4: Indian Sciences (07 hours)

- Important Texts of Ayurveda
- Basic concepts of Ayurveda
- Surgical practices, inoculation, current revival of Ayurveda and Yoga
- Indian agriculture as mentioned by the Greek historians and later travelers
- The Ery system of south India
- Indian attitude towards agriculture based on Walker
- Indian texts which refer to metallurgy
- Mining and manufacture in India of Zinc, Iron, Copper, Gold, etc., from ancient times

References:

1. Sivananda S. All about hinduism. Sivananda literature research institute; 1988.
2. Dharampal G. Essential Writings of Dharampal. Publications Division Ministry of Information & Broadcasting; 2017 Nov 3.
3. Bajaj J, Śrīnivāsa MD. Sanatana Bharat, jagrita Bharat= Timeless India, resurgent India: a celebration of the land and people of India. (No Title).

Sarvajanik University

Faculty of Science

B.Sc. (Hons)

Faculty: Science	**Department:** All
Program: B. Sc. (Hons)	**Type:** Ability Enhancement Course
Subject: MIL Gujarati-1	**Credits:** 2
Semester: 1	

Unit 1: ગુજરાતી સાહિત્ય

- ગુજરાતી સાહિત્યનો ઈતિહાસ
- ગુજરાતી સાહિત્યના નોંધપાત્ર લેખકો અને કવિઓનો પરિચય

Unit 2: ગુજરાતી વ્યાકરણ

- રૂઢીપ્રયોગોના અર્થ અને તેનો વાક્યપ્રયોગ
- કહેવતોનો અર્થ
- સમાસનો વિગ્રહ કરી તેની ઓળખ
- છંદ ઓળખાવો
- અલંકાર ઓળખાવો

Unit 3: ગુજરાતી વ્યાકરણ

- શબ્દસમૂહ માટે એક શબ્દ
- જોડણી શુદ્ધિ
- લેખન શુદ્ધિ / ભાષા શુદ્ધિ
- સંધિ જોડો કે છોડો
- વાક્યરચનાના અંગો / વાક્યના પ્રકાર / વાક્ય પરિવર્તન

Unit 4: સંક્ષેપીકરણ અને સમીક્ષા

- ગદ્યખંડમાંથી આશરે ૧/૩ ભાગમાં સંક્ષેપ
- ગદ્યખંડના આધારે પૂછેલા પ્રશ્નોના જવાબ

Sarvajanik University

Faculty of Science

B.Sc. (Hons)