PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

The B.Sc. Information Technology Graduates of the Sourashtra College will:

PEO 1	be trained to become successful professionals in Industry, Government sectors, Academia and Consultancy firms.
PEO 2	continuously acquire knowledge, theoretical and applied related to core areas of Information Technology and apply them in all fields.
PEO 3	gain multidisciplinary knowledge through real–time projects and internship training to meet industry needs.
PEO 4	get a substantial understanding on the concepts in the key areas of Information Technology and its applications.
PEO 5	be trained to collaborate in diverse team environment to make positive contribution in the IT field.

UNDERGRADUATE (UG) PROGRAMME OUTCOMES (POs)

Undergraduate (B.A., **B.Sc.,** B.Com., B.C.A., B.B.A., etc.,) is a 3–year degree programmewith6 semesters consisting the following Programme Outcomes (POs) under various criteria Including critical thinking, problem solving, effective communication, societal/citizenship/ethic credibility, sustainable growth and employable abilities.

PO 1	**Critical Thinking**: Intellectual exploration of knowledge towards actions in clear and rational manner by understanding the logical connections between ideas and decisions.
PO 2	**Problem Solving:** Understanding the task/ problem followed by planning and narrow execution strategy that effectively provides the solution.
PO 3	**Effective Communication:** Knowledge dissemination by oral and verbal mechanisms to the various components of our society
PO 4	**Societal/ Citizenship/ Ethical Credibility**: Realization of various value systems/ moral dimensions and demonstrate the empathetic social concern as well as equity in all the decisions, executions and actions
PO 5	Environmental Concern and Sustainable Growth: Understanding the emerging environmental challenges and provide the possible contribution in sustainable development that integrates environment, economy and employment
PO 6	**Skill Development and Employable Abilities**: Adequate training in relevant skill sector and creating employable abilities among the under graduates.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

On completion of **B.Sc. Information Technology Programme,** the students are expected to

PSO 1	develop as professionally competent citizens by applying the scientific knowledge of Computer Science with the ability to think clearly, rationally and creatively to support in evolving solutions to the social/public/scientific issues with responsible democratic participation
PSO 2	enterprise resourcefulness to identify, plan, formulate, design and evaluate solutions for complex computing problems that address the specific needs with appropriate consideration for Societal, Cultural, Environmental and Industrial domains.
PSO 3	develop holistically to ignite the lateral thinking ability in problem solving, acquisition of new skills, open–minded and organized way of facing problems with self–awareness and evolving analytical solutions
PSO 4	create and initiate innovations effectively and communicate efficiently with the computing community and society at large to bridge the gap between computing industry and academia
PSO 5	understand, assess and commit to professional and ethical principles, norms and responsibilities of the cyber world through Digital Literacy, and the ability for work efficacy as a part of a team and engage effectively with diverse stakeholders
PSO 6	embark on new ventures and initiatives with critical thinking and desire for more continuous learning focusing on life skills.

SOURASHTRA COLLEGE, MADURAI – 625004

(An Autonomous Institution Re-accredited with 'A' grade by NAAC)

B.Sc. INFORMATION TECHNOLOGY – SYLLABUS

(Under CBCS based on OBE)

(For the students admitted from the academic year 2024 – 2025 onwards)

B.Sc. INFORMATION TECHNOLOGY
COURSE STRUCTURE – III SEMESTER

S. No.	Course Code	Part	Course Title	Hrs. / Week	Exam (Hrs.)	CA	SE	Total Marks	Credits
1	24UACT31	I	**Tamil** – பொதுத் தமிழ் – III	6	3	25	75	100	3
	24UACH31		**Hindi** – General Hindi – III						
	24UACS31		**Sanskrit** – Drama Grammar and History of Sanskrit Literature						
2	24UACE31	II	**English** – General English – III	6	3	25	75	100	3
3	24UITC31	III	**Core – 5:** Relational Database Management System	5	3	25	75	100	5
4	24UITCP3		**Core – 6: Lab:** Relational Database Management System	5	3	40	60	100	5
5	24UITA31		**Elective/Allied – 3:** Optimization Technique	4	3	25	75	100	3
6	24UITSP2	IV	**SEC: Lab:** Web Designing	2	3	40	60	100	2
7	24UITN31		**SEC: NME:** Office Automation	2	3	25	75	100	2
			TOTAL	30					23

IV – SEMESTER

S. No.	Course Code	Part	Course Title	Hrs. / Week	Exam (Hrs.)	CA	SE	Total Marks	Credits
1	24UACT41	I	**Tamil** – பொதுத் தமிழ் – IV	6	3	25	75	100	3
	24UACH41		**Hindi** – General Hindi – IV						
	24UACS41		**Sanskrit** – Alankara, Didactic & Modern Literature and Translation						
2	24UACE41	II	**English** – General English – IV	6	3	25	75	100	3
3	24UITC41	III	**Core – 7:** Java Programing and Data Structures	5	3	25	75	100	5
4	24UITCP4		**Core – 8: Lab:** Java Programing and Data Structures	5	3	40	60	100	5
5	24UITA41		**Elective/Allied – 4:** Numerical Methods	4	3	25	75	100	3
6	24UITSP3	IV	**SEC: Lab:** Office Automation	2	3	40	60	100	2
7	24UITN41		**SEC: NME:** Introduction to HTML	2	3	25	75	100	2
8		V	Extension Activity	–	–	–	–	100	1
			TOTAL	**30**					**24**

Passed in the BoS Meeting held on 27/02/2025 **Signature of the Chairman**

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B.Sc. INFORMATION TECHNOLOGY – SYLLABUS

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(For the students admitted from the academic year 2024 – 2025 onwards)

500

COURSE STRUCTURE – III SEMESTER

S. No.	Course Code	Part	Course Title	Hrs. / Week	Exam (Hrs.)	CA	SE	Total Marks	Credits
1	24UACT31	I	**Tamil** – பொதுத் தமிழ் – III	6	3	25	75	100	3
	24UACH31		**Hindi** – General Hindi – III						
	24UACS31		**Sanskrit** – Drama Grammar and History of Sanskrit Literature						
2	24UACE31	II	**English** – General English – III	6	3	25	75	100	3
3	24UITC31	III	**Core – 5:** Relational Database Management System	5	3	25	75	100	5
4	24UITCP3		**Core – 6: Lab:** Relational Database Management System	5	3	40	60	100	5
5	24UITA31		**Elective/Allied – 3:** Optimization Technique	4	3	25	75	100	3
6	24UITSP2	IV	**SEC: Lab:** Web Designing	2	3	40	60	100	2
7	24UITN31		**SEC: NME:** Office Automation	2	3	25	75	100	2
			TOTAL	30					23

CA – Class Assessment (Internal)

SE – Summative Examination

SEC – Skill Enhancement Course

NME – Non –Major Elective

T – Theory

P – Practical

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SOURASHTRA COLLEGE, MADURAI – 625004

(An Autonomous Institution Re-accredited with 'A' grade by NAAC)

B.Sc. INFORMATION TECHNOLOGY – SYLLABUS

(Under CBCS based on OBE)

(For the students admitted from the academic year 2024 – 2025 onwards)

501

COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
24UITC31	RELATIONAL DATABASE MANAGEMENT SYSTEM	CORE – 5	5	-	5

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
II	III	25	75	100

Curriculum Design and Development	Employability		✓	Skill Oriented		✓	Entrepreneurship				✓
	National		Local		Regional		Global				✓
Curriculum Enrichment	Professional Ethics	✓	Gender		Environment and Sustainability	✓	Human Values		Other Values		✓

COURSE DESCRIPTION:

This course helps to provide fundamental concepts of Database Management System for the database architecture which enhances the user to analyze datanormalization, Integrity Constraints and PL/SQL.

COURSE OBJECTIVES:

To make the students

- understand the basic DBMS models and architecture.
- learn how to query and normalize the database.
- study the data base design, transaction Processing and Management and Security Issues

COURSE OUTCOMES (COs):

After the completion of the course, the students will be able to

No.	Course Outcomes	Knowledge Level (According to Bloom's Taxonomy)
CO 1	outline the fundamental RDBMS concepts and PL/SQL	Upto K3
CO 2	apply database operations, mapping, normalization, SQL and PL/SQL	Upto K3
CO 3	analyze the requirements to implement relational database concepts	Upto K3
CO 4	evaluate the database based on various models and normalization.	Upto K3
CO 5	design and construct normalized tables and manipulate it effectively using SQL and PL/SQL database objects	Upto K3

K1– KNOWLEDGE (REMEMBERING), K2–UNDERSTANDING, K3–APPLYING

Passed in the BoS Meeting held on 27/02/2025 **Signature of the Chairman**

RELATIONAL DATABASE MANAGEMENT SYSTEM

UNIT – I: INTRODUCTION TO DATABASES

Introduction – Characteristics of the Database – Overview of database and Architectures: Data Models, Schemas, and Instances – Three–schema Architecture and Data Independence – Database languages & Interfaces – Database System Environment– Centralized & Client Server Architecture for DBMS – Classification of DBMS

UNIT – II: BASIC RELATIONAL MODEL

Relational Model Concepts – Relational Model Constraints and Relational Database Schemas – Update Operations, Transactions, Dealing with Constraint Violations – Formal Relational Languages: Unary Relational Operations: SELECT and PROJECT

UNIT – III: CONCEPTUAL DATA MODELING USING THE ER MODEL

Using High–Level Conceptual Data Models for Database Design – An example DB application – Entity Types, Entity Sets, Attributes, and Keys – Relationship Types, Relationship sets, Roles, and Structural Constraints – Weak entity types – Example– Mapping a Conceptual Design into Logical Design: Relational Database Design using ER– Relational Mapping

UNIT – IV: FUNCTIONAL DEPENDENCIES AND NORMALIZATION FOR RELATIONAL DATABASE

Functional Dependencies – Definition of Functional Dependency – Normal Forms based on Primary Keys – Normalization of Relations – First Normal Form – Second Normal Form – Third Normal Form – BCNF– Fourth Normal Form– Fifth Normal Form

UNIT – V: SQL

The Relational Database Standard: Data definition, Constraints, and schema changes in SQL – Basic Queries in SQL – More complex SQL Queries – Insert, delete and update statements in SQL.

PL/SQL: Introduction to PL/SQL – More on PL/SQL – Error Handling in PL/SQL – Oracle_s Named Exception Handlers – Stored Procedures and Functions.

TEXT BOOKS:

1. Ramez Elmasri, Shamkant B. Navathe. ***Database Systems***, Pearson Education, New Delhi, Sixth edition,2014
2. ***Database Management System*** – Mathews Leon and Alex Leon – Tata McGraw Hill Education.
3. Ivan Bayross, *SQL*, ***PL/SQL–The Programming Language of Oracle*, BPB** Publications, New Delhi, Second Revised Edition, (2003 Reprint)

REFERENCE BOOKS:

Abraham Silberschatz, Henry F.Korth, S.Sudarshan. ***Database System Concepts*,** Tata McGraw Hill Publication, 4th Edition,2001

DIGITAL TOOLS:

http://srikanthtechnologies.com/books/orabook/ch1.pdf
http://www.tutorialspoint.com/sql/sql–rdbms–concepts.htm
http://ecomputernotes.com/database–system/rdbms

Mapping of CO with PSO

CO.PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	2	2	3	3	3
CO 2	3	3	2	3	3	3
CO 3	3	3	3	3	3	2
CO 4	3	3	2	3	3	3
CO 5	3	3	2	3	3	2

3. Advanced Application 2. Intermediate Development 1. Introductory Level

Passed in the BoS Meeting held on 27/02/2025 **Signature of the Chairman**

SOURASHTRA COLLEGE, MADURAI – 625004

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B.Sc. INFORMATION TECHNOLOGY – SYLLABUS

(Under CBCS based on OBE)

(For the students admitted from the academic year 2024 – 2025 onwards)

503

COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
24UITCP3	LAB: RELATIONAL DATABASE MANAGEMENT SYSTEM	CORE – 6 LAB	–	5	5

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
II	III	40	60	100

Curriculum Design and Development	Employability	✓	Skill Oriented	✓	Entrepreneurship	✓					
	National		Local		Regional		Global	✓			
Curriculum Enrichment	Professional Ethics	✓	Gender		Environment and Sustainability	✓	Human Values		Other Values	✓	

COURSE DESCRIPTION:

This course provide to learn about Table Creation, Deletion, Insertion, Updation, Selection using DDL,DML and TML Commands, Queries, Sub–Queries, Multi–Queries and implementing cursors, triggers in PL/SQL.

COURSE OBJECTIVES:

- To implement the DDL,DML,TML Commands in Queries (Simple and Join)
- To make the students understand the knowledge about Constraints
- To make the students understand the knowledge about PL/SQL programming skills.

COURSE OUTCOMES (COs):

After the completion of the course, the students will be able to

No.	Course Outcomes	Knowledge Level (According to Bloom's Taxonomy)
CO 1	choose appropriate SQL queries and PL/SQL blocks for the database.	Upto K3
CO 2	implement SQL and PL/SQL blocks for the given problem effectively.	Upto K3
CO 3	analyze the requirements to implement relational database concepts	Upto K3
CO 4	evaluate the database based on various models and normalization.	Upto K3
CO 5	design and construct normalized tables and manipulate it effectively using SQL and PL/SQL database objects	Upto K3

K1– KNOWLEDGE (REMEMBERING), K2–UNDERSTANDING, K3–APPLYING

LAB: RELATIONAL DATABASE MANAGEMENT SYSTEM

SQL:

1. DDL Commands
2. DML Commands
3. DCL Commands
4. SQL Built–in functions
5. Using Sub Queries

PL/SQL:

6. Simple programs using PL/SQL
7. Procedures
8. User–defined functions
9. Exception Handling
10. Triggers

Mapping of CO with PSO

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	2	2	3	3	3
CO 2	3	3	2	3	3	3
CO 3	3	3	3	3	3	2
CO 4	3	3	2	3	3	3
CO 5	3	3	2	3	3	2

3. Advanced Application 2. Intermediate Development 1. Introductory Level

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505

COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
24UITA31	OPTIMIZATION TECHNIQUES	ELECTIVE/ ALLIED – 3	4	-	3

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
II	III	25	75	100

Curriculum Design and Development	Employability		✓	Skill Oriented		✓	Entrepreneurship			✓	
	National		Local		Regional		Global			✓	
Curriculum Enrichment	Professional Ethics	✓	Gender		Environment and Sustainability	✓	Human Values		Other Values	✓	

COURSE DESCRIPTION:

This course helps to understand the basic principles of Operations Research, Mathematical formulation, Graphicalsolution of LPP,Simplex Method Algorithm,Solving Transportation Problem and Assignment Problem.

COURSE OBJECTIVES:

To solve application problems like travelling salesman problem, graphicalmethod,least cost method, vogel'sapproximation method using various tech.

COURSE OUTCOMES (COs):

After the completion of the course, the students will be able to

No.	Course Outcomes	Knowledge Level (According to Bloom's Taxonomy)
CO 1	summarize various algorithms and rules used in solving OR problems.	Upto K3
CO 2	solve all problems of Linear Programming, Transportation, Assignment and Network scheduling	Upto K3
CO 3	analyze various problems for infeasibility, degeneracy, unboundedness and alternate solutions	Upto K3
CO 4	find the best suitable method for obtaining optimal solution to Linear Programming, Transportation, Assignment problems.	Upto K3
CO 5	formulate the real world decision making problems into mathematical models.	Upto K3

K1– KNOWLEDGE (REMEMBERING), K2–UNDERSTANDING, K3–APPLYING

Passed in the BoS Meeting held on 27/02/2025 **Signature of the Chairman**

OPTIMIZATION TECHNIQUES

UNIT – I: RESOURCE MANAGEMENT TECHNIQUE

Introduction – Scope of O.R – Role of Operation Research in business and Management – Role of O.R in engineering – Classification of Models – Characteristics of good model – Principles of modeling – General methods for solving O.R models – main phases of OR – Limitation.

UNIT – II: LINEAR PROGRAMMING FORMULATION AND GRAPHICAL METHOD

Introduction – requirements for employing LLP Technique – Mathematical formulation of LLP – Graphical method of the solution of a LLP – Some more cases – Advantage of LP – Limitation of L.P.

UNIT – III: GENERAL LPP AND SIMPLEX METHOD

General LPP – Canonical and Standard forms of LPP – The Simplex method –Artifical Variable Technique – The Big M – Method – Two Phase Method.

UNIT – IV: TRANSPORTATION MODEL

Mathematical formulation of a Transportation problem – Methods of finding Initial Basic Feasible Solution – MODI method (Test for optimal solution) – Degeneracy of Transportation problem – unbalanced Transportation Problem – Maximization case in Transportation Problem.

UNIT – V: ASSIGNMENT PROBLEM

Introduction – Mathematical Formulation of Assignment problem – Assignment Algorithm – Unbalanced Assignment models – Maximization case in Assignment problem – Restriction in Assignments – Travelling Salesmen Problem

TEXT BOOK:

Resource Management Technique (2013): Prof. V. Sundaresan, K.S.,Ganapathy K.Subramanian, K. Ganesan. A.R. Publications – Chennai.

Unit	Chapter	Sections	Unit	Chapter	Sections
I	1	1.1 to 1.8	IV	4	7.1 to 7.5
II	2	2.1 to 2.8	V	5	8.1 to 8.9
III	3	3.1 to 3.22			

Note: In each unit (I – V) only work out problems

REFERENCE BOOKS:

1. J..K. Sharma(2017), ***—Operations Research Theory and Applications***, Lakshmi Publications, Sixth Edition
2. G. Srinivasan (2017), ***—Operations Research***, PHI Learning Private Limited, Third Edition.

DIGITAL TOOLS:

Web resources from NDL Library, E–content from open–source libraries

Mapping of CO with PSO

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	2	2	1	1	1
CO 2	3	3	2	1	2	1
CO 3	3	3	2	1	1	2
CO 4	3	3	2	1	1	2
CO 5	3	3	2	1	1	2

3. Advanced Application 2. Intermediate Development 1. Introductory Level

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B.Sc. INFORMATION TECHNOLOGY – SYLLABUS

(Under CBCS based on OBE)

(For the students admitted from the academic year 2024 – 2025 onwards)

507

COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
24UITSP2	LAB: WEB DESIGNING	SEC LAB	-	2	2

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
II	III	40	60	100

Curriculum Design and Development	Employability		✓	Skill Oriented		✓	Entrepreneurship			✓
	National		Local		Regional		Global			✓
Curriculum Enrichment	Professional Ethics	✓	Gender		Environment and Sustainability	✓	Human Values		Other Values	✓

COURSE DESCRIPTION:

This course helps us to provide the basic implementation and design to create a web page using various tags and its attributes.

COURSE OBJECTIVES:

To make the students

- understand the various tags
- understand about the attributes of the tags
- understand to design a web page creation

COURSE OUTCOMES (COs):

After the completion of the course, the students will be able to

No.	Course Outcomes	Knowledge Level (According to Bloom's Taxonomy)
CO 1	under the basic concepts of HTML	Upto K3
CO 2	learn the various tags and its attributes	Upto K3
CO 3	usage and implementation of ordered list and un order list	Upto K3
CO 4	how to use various types of character formatting	Upto K3
CO 5	designing the back ground of a web page.	Upto K3

K1– KNOWLEDGE (REMEMBERING), K2–UNDERSTANDING, K3–APPLYING

LAB: WEB DESIGNING

PROGRAM LIST

1. Design a page with suitable background color and text color using Font Tag.
2. Create a HTML Document with given details and aligned with proper alignment attributes of Paragraph tag.
3. Write HTML code to design a page containing some text in a paragraph by giving suitable heading style.
4. Create a page to show different character formatting (B, I, U, SUB, SUP) tags.
5. Write HTML code to create a Web Page that contains an Image at its centre.
6. Create a web page with an appropriate image towards the left hand side of the page, when user clicks on the image another web page should open.
7. Create web Pages using Anchor tag with its attributes for external links
8. Write a HTML code to create a web page with pink color background and display moving message in red color
9. Create a web page, showing an ordered list of all second semester courses.
10. Create a HTML document containing a nested list showing a content page of any book.

Mapping of CO with PSO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	3	3	3	3
CO2	3	3	2	3	3	3
CO3	2	3	3	3	3	3
CO4	3	3	3	3	3	2
CO5	3	3	3	2	3	2

3. Advanced Application 2. Intermediate Development 1. Introductory Level

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509

COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
24UITN31	OFFICE AUTOMATION	SEC NME	2	–	2

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
II	III	25	75	100

Curriculum Design and Development	Employability		✓	Skill Oriented		✓	Entrepreneurship				✓
	National		Local		Regional		Global				✓
Curriculum Enrichment	Professional Ethics	✓	Gender		Environment and Sustainability	✓	Human Values		Other Values		✓

COURSE DESCRIPTION:

This course helps to understand the basic parts of a computer , word processing , spread sheet , database concept and power point.

COURSE OBJECTIVES:

To make the students

- understand the basics of computer systems and its components.
- understand and apply the basic concepts of a word processing package
- understand and apply the basic concepts of electronic spreadsheet software
- understand and apply the basic concepts of database management system.
- understand and create a presentation using PowerPoint tool.

COURSE OUTCOMES (COs):

After the completion of the course, the students will be able to

No.	Course Outcomes	Knowledge Level (According to Bloom's Taxonomy)
CO 1	possess the knowledge on the basics of computers and its components.	Upto K3
CO 2	gain knowledge on creating documents, spreadsheet and presentation.	Upto K3
CO 3	learn the concepts of database and implement the query in database.	Upto K3
CO 4	demonstrate the understanding of different automation tools.	Upto K3
CO 5	utilize the automation tools for documentation, calculation and presentation purpose.	Upto K3

K1– KNOWLEDGE (REMEMBERING), K2–UNDERSTANDING, K3–APPLYING

OFFICE AUTOMATION

UNIT – I: INTRODUCTORY CONCEPTS

Memory unit– CPU–Input Devices: Key board, Mouse and Scanner. Output devices: Monitor, Printer. Introduction to Operating systems & its features: DOS– UNIX–Windows. Introduction to Programming Languages.

UNIT – II: WORD PROCESSING

Open, Save and close word document; Editing text – tools, formatting, bullets; Spell Checker – Document formatting – Paragraph alignment, indentation, headers and footers, numbering; printing–Preview, options, merge.

UNIT – III: SPREADSHEETS

Excel–opening, entering text and data, formatting, navigating; Formulas–entering, handling and copying ; charts – creating, formatting and printing, analysis tables, preparation of financial statements, introduction to data analytics.

UNIT – IV: DATABASE CONCEPTS

The concept of data base management system; Data field, records, and files, Sorting and indexing data; Searching records. Designing queries, and reports; Linking of data files; Understanding Programming environment in DBMS; Developing menu drive applications in query language(MS–Access).

UNIT – V: POWER POINT

Introduction to Power point – Features – Understanding slide typecasting & viewing slides – creating slide shows. Applying special object – including objects & pictures – Slide transition–Animation effects, audio inclusion, timers.

TEXT BOOK:

Peter Norton,**—*Introduction to Computers***–Tata McGraw–Hill.

REFERENCE BOOK:

Jennifer Ackerman Kettel, Guy Hat–Davis, Curt Simmons, **—*Microsoft 2003***, Tata McGraw Hill.

DIGITAL TOOLS:

1. https://www.udemy.com/course/office–automation–certificate–course/
2. https://www.javatpoint.com/automation–tools

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	2	3	2	1	1	2
CO2	2	2	3	1	1	3
CO3	1	3	3	1	2	3
CO4	1	1	3	1	2	2
CO5	1	1	1	2	1	2

3. Advanced Application 2. Intermediate Development 1. Introductory Level

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511

COURSE STRUCTURE – IV SEMESTER

S. No.	Course Code	Part	Course Title	Hrs. / Week	Exam (Hrs.)	CA	SE	Total Marks	Credits
1	24UACT41	I	**Tamil** – பொதுத் தமிழ் – IV	6	3	25	75	100	3
	24UACH41		**Hindi** – General Hindi – IV						
	24UACS41		**Sanskrit** – Alankara, Didactic & Modern Literature and Translation						
2	24UACE41	II	**English** – General English – IV	6	3	25	75	100	3
3	24UITC41	III	**Core – 7:** Java Programing and Data Structures	5	3	25	75	100	5
4	24UITCP4		**Core – 8: Lab:** Java Programing and Data Structures	5	3	40	60	100	5
5	24UITA41		**Elective/Allied – 4:** Numerical Methods	4	3	25	75	100	3
6	24UITSP3	IV	**SEC: Lab:** Office Automation	2	3	40	60	100	2
7	24UITN41		**SEC: NME:** Introduction to HTML	2	3	25	75	100	2
8		V	Extension Activity	–	–	–	–	100	1
			TOTAL	**30**					**24**

***All students will do internship after IV Semester. The evaluation will be done in the beginning of V Semester and marks will be included in the V Semester mark sheet.**

CA – Class Assessment (Internal)

SE – Summative Examination

SEC – Skill Enhancement Course

NME – Non –Major Elective

T – Theory

P – Practical

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B.Sc. INFORMATION TECHNOLOGY – SYLLABUS

(Under CBCS based on OBE)

(For the students admitted from the academic year 2024 – 2025 onwards)

512

COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
24UITC41	JAVA PROGRAMMING AND DATA STRUCTURES	CORE – 7	5	-	5

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
II	IV	25	75	100

Curriculum Design and Development	Employability		✓	Skill Oriented		✓	Entrepreneurship				✓
	National		Local		Regional		Global				✓
Curriculum Enrichment	Professional Ethics	✓	Gender		Environment and Sustainability	✓	Human Values		Other Values		✓

COURSE DESCRIPTION:

This course helps to provide the fundamental knowledge of Java programming language
which enhances the user to write the internet programming.

COURSE OBJECTIVES:

To make the students

- understand the programming knowledge in Java.
- understand about the concepts of Class and Methods.
- understand about the Inheritance, Multithreading and JDBC Connectivity.

COURSE OUTCOMES (COs):

After the completion of the course, the students will be able to

No.	Course Outcomes	Knowledge Level (According to Bloom's Taxonomy)
CO 1	outline the basic terminologies of OOP, programming language techniques, JDBC and Internet programming concepts	Upto K3
CO 2	solve problems using basic constructs, mechanisms, techniques and technologies of Java	Upto K3
CO 3	analyse and explain the behavior of simple programs involving different techniques such as Inheritance, Packages, Interfaces, Exception Handling and Thread and technologies such as JDBC and Servlets	Upto K3
CO 4	assess various problem–solving strategies involved in Java to develop a high–level application. Design GUI based JDBC applications and able to develop Servlets using suitable OOP concepts and techniques	Upto K3
CO 5	understand the basic terminologies of Data Structures, Stack, Queues and Linked List and their implementation	Upto K3

K1– KNOWLEDGE (REMEMBERING), K2–UNDERSTANDING, K3–APPLYING

Passed in the BoS Meeting held on 27/02/2025 **Signature of the Chairman**

JAVA PROGRAMMING AND DATA STRUCTURES

UNIT– I:

Introduction–Object Oriented Paradigm–Concepts of Object–Oriented Programming–Benefits of OOP–Evolution: Java History– Java Features–Differs from C and C++–Overview of Java Language: Java Program–Structure–Tokens–JavaStatements–JavaVirtualMachine–CommandLineArguments

UNIT– II:

Constants, Variables and Data Types–Operators and Expressions–Decision making and Branching–Looping– Arrays – Strings – Collection Interfaces and classes

UNIT– III:

Classes objects and methods: Introduction – Defining a class – Method Declaration – Constructors – Method Overloading – Static Members – Nesting of methods – Inheritance –Overriding– Final variables and methods– Abstract methods and classes

UNIT– IV:

Multiple Inheritances: Defining Interfaces–Extending Interfaces–Implementing Interfaces – Packages: Creating Packages – Accessing Packages – Using a Package – Managing Errors and Exceptions– Multithreaded Programming. Layout Managers –JDBC – Java Servlet: – Servlet Environment Role – Servlet API –Servlet Life Cycle–Layout Managers –JDBC – Java Servlet: – Servlet Environment Role – Context–HTTP Support–HTML–to–Servlet Communication.

UNIT– V:

Data types – Abstract data types (ADT) –Definition of data structure – types of data structures –: **Stack:** Introduction – ADT stack – Implementation of Stack –**Queues**: Introduction – Implementation of Basic operations on Array based. **Linked List**: Introduction – Memory allocation – Benefits and limitations – Types – Basic operations of Singly Linked List – Insertion – Print – Deletion

TEXT BOOKS:

1. Ellis Horowitz ,Sartaj Sahni, Second Edition , ***—Fundamentals of Data Structures,*** Universities Press.
2. Chitra, Rajan –***Data Structures*** – Vijay Nicole Publishers
3. E Balagurusamy(2010), ***—Programming with Java***‖, Tata Mc Graw Hill Edition India PrivateLtd, 4th Edition.
4. C Xavier, ***Java Programming – A Practical Approach***, Tata Mc Graw Hill Edition Private Ltd

REFERENCE BOOKS:

1. P. Naughton and H. Schildt (1999), ***—Java2 The Complete Reference***, TMH, 3rd Edition
2. Jaison Hunder & William Crawford(2002), Java Servlet Programming, O'Reilly
3. Jim Keogh (2002), ***—J2EE: The Complete Reference***, Tata McGraw Hill Edition

DIGITAL TOOLS:

http://javabeginnerstutorial.com/core–java/
http://www.tutorialspoint.com/java/
http://beginnersbook.com/java–tutorial–for–beginners–with–examples/
http://www.homeandlearn.co.uk/java/java.html
http://www.journaldev.com/1877/servlet–tutorial–java(UnitIV:ServletAPI)
http://www.tutorialspoint.com/data_structures_algorithms/data_structures_basics.html (Unit –V)
http://www.studytonight.com/data–structures/introduction–to–data–structures (Unit – V)

Mapping of CO with PSO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	2	2
CO2	2	3	2	2	2	2
CO3	2	3	3	3	2	2
CO4	2	3	2	2	2	2
CO5	3	3	2	2	2	2

3. Advanced Application 2. Intermediate Development 1. Introductory Level

SOURASHTRA COLLEGE, MADURAI – 625004

(An Autonomous Institution Re-accredited with 'A' grade by NAAC)

B.Sc. INFORMATION TECHNOLOGY – SYLLABUS

(Under CBCS based on OBE)

(For the students admitted from the academic year 2024 – 2025 onwards)

515

COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
24UITCP4	LAB: JAVA PROGRAMMING AND DATA STRUCTURES	CORE – 8	-	5	5

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
II	IV	40	60	100

Curriculum Design and Development	Employability		✓	Skill Oriented		✓	Entrepreneurship				✓
	National		Local		Regional		Global				✓
Curriculum Enrichment	Professional Ethics	✓	Gender		Environment and Sustainability	✓	Human Values		Other Values		✓

COURSE DESCRIPTION:

This course provide to practice the data structure operation and also able to understand programming skills in java programming

COURSE OBJECTIVES:

To help the students

- identify and explain the way of solving the simple problems.
- organize and manipulate the data with the help of fundamental data structures
- impart hands on experience with java programming

COURSE OUTCOMES (COs):

After the completion of the course, the students will be able to

No.	Course Outcomes	Knowledge Level (According to Bloom's Taxonomy)
CO 1	identify and explain the way of solving the simple problems	Upto K3
CO 2	use appropriate software development environment to write, compile and execute object–oriented Java programs	Upto K3
CO 3	analyze and identify necessary mechanisms of Java needed to solve real–world problem	Upto K3
CO 4	test for defects and validate a Java program with different inputs	Upto K3
CO 5	design, develop and compile Core Java , GUI , JDBC and servlet applications that utilize OOP and data structure concepts	Upto K3

K1– KNOWLEDGE (REMEMBERING), K2–UNDERSTANDING, K3–APPLYING

LAB: JAVA PROGRAMMING AND DATA STRUCTURES PROGRAMS LIST:

1. Basic Programs
2. Arrays
3. Strings
4. Array List, Hash Set and Vector collection classes
5. Classes and Objects
6. Interfaces
7. Inheritance
8. Packages
9. Exception Handling
10. Threads
11. Linked List
12. Stacks
13. Queue
14. Sorting
15. Binary Tree Representation
16. Working with Database using JDBC
17. Web application using Servlet

Mapping of CO with PSO

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	2	2
CO2	2	3	2	2	2	2
CO3	2	3	3	3	2	2
CO4	2	3	2	2	2	2
CO5	3	3	2	2	2	2

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COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
24UITA41	NUMERICAL METHODS	ELECTIVE/ ALLIED – 4	4	-	3

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
II	IV	25	75	100

Curriculum Design and Development	Employability		✓	Skill Oriented		✓	Entrepreneurship				✓
	National		Local		Regional		Global				✓
Curriculum Enrichment	Professional Ethics	✓	Gender		Environment and Sustainability		Human Values		Other Values		✓

COURSE DESCRIPTION:

To course help to solve various application problems like iteration method, newton Raphson method, trapezoidal rule etc. in computers

COURSE OBJECTIVES:

To make the students

- understand inculcate various mathematical methods such as Iteration method
- understand the implementation of Newton Raphson, Gauss Elimination, Gauss Seidel methods.
- understand about Interpolation, Lagrange's Interpolation, Numerical differentiation and Integration, Euler's method, Taylor Series and Runge–Kutta Method.

COURSE OUTCOMES (COs):

After the completion of the course, the students will be able to

No.	Course Outcomes	Knowledge Level (According to Bloom's Taxonomy)
CO 1	know how to solve various problems on numerical methods	Upto K3
CO 2	use approximation to solve problems	Upto K3
CO 3	apply differentiation and integration concepts	Upto K3
CO 4	apply direct methods for solving linear systems	Upto K3
CO 5	use numerical solution of ordinary differential equations	Upto K3

K1– KNOWLEDGE (REMEMBERING), K2–UNDERSTANDING, K3–APPLYING

NUMERICAL METHODS

UNIT– I: FUNDAMENTALS OF ALGEBRAIC EQUATION

Solution of algebraic and transcendental equations–Bisection method – Fixed point iteration method – Newton Raphson method .

UNIT – II: ITERATIVE, INTERPOLATION AND APPROXIMATION

linear system of equations – Gauss elimination method – Gauss Jordan method.–Iterative methods – Gauss Jacobi and Gauss Seidel – Eigen values of a matrix by Power method and Jacobi's method for symmetric matrices.

UNIT – III: INTERPOLATION WITH EQUAL INTERVAL

Interpolation with unequal intervals – Lagrange's interpolation – Newton's divided difference interpolation –Difference operators and relations. –Interpolation with equal intervals – Newton's forward and backward difference formulae

UNIT – IV: NUMERICAL DIFFERENTIATION AND INTEGRATION

Approximation of derivatives using interpolation polynomials – Numerical integration using Trapezoidal, Simpson's 1/3 rule

UNIT – V: INITIAL VALUE PROBLEMS FOR ORDINARY DIFFERENTIAL EQUATIONS:

Single step methods – Taylor's series method – Euler's method – Modified Euler's method – RungeKutta method for solving(first, second , Third and 4^{th}) order equations – Multi step methods

TEXT BOOK:

Numerical Methods, Second Edition, S. Arumugam, A. Thangapandi Issac, A. Somasundaram, SCITECH publications, 2009

REFERENCE BOOKS:

1. Mathews J.H. ***Numerical Method for Maths, Science and Engineering***; PHI, New Delhi, 2001.
2. Iqbal H. Khan & Q. Hassan ***Numerical Methods for Engineers and Scientist***– Galgotia Publications (P) Ltd., New Delhi – 1997
3. M.K. Jain, S.R.K. Iyengar & R.K. Jain –***Numerical Methods for Scientific and Engineering Computation***– New Age International(P) Ltd., New Delhi – 1996.

DIGITAL TOOLS:

Web resources from NDL Library, E–content from open–source libraries

Mapping of CO with PSO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	2	2
CO2	2	3	2	2	2	2
CO3	2	3	3	3	2	2
CO4	2	3	2	2	2	2
CO5	3	3	2	2	2	2

3. Advanced Application 2. Intermediate Development 1. Introductory Level

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COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
24UITSP3	LAB: OFFICE AUTOMATION	SEC LAB	-	2	2

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
II	IV	40	60	100

Curriculum Design and Development	Employability		✓	Skill Oriented		✓	Entrepreneurship			✓	
	National		Local		Regional		Global			✓	
Curriculum Enrichment	Professional Ethics	✓	Gender		Environment and Sustainability	✓	Human Values		Other Values	✓	

COURSE DESCRIPTION:

This course helps to learn the basic practical knowledge in Documentation, spreadsheet and power point presentation.

COURSE OBJECTIVES:

To make the students

- understand the concept of Document Preparation using MS–WORD
- understand the concept of designing worksheet using MS–EXCEL
- understand the concept of designing slides using MS–POWERPOINT

COURSE OUTCOMES (COs):

After the completion of the course, the students will be able to

No.	Course Outcomes	Knowledge Level (According to Bloom's Taxonomy)
CO 1	understand the concept of text manipulation, numbering and bullet.	Upto K3
CO 2	understand the usage of footer and head in word processor.	Upto K3
CO 3	learn about basic of excel or work sheet use of formulae and built–in function.	Upto K3
CO 4	develop the power point presentation in effective manner	Upto K3
CO 5	use wizards to develop presentations	Upto K3

K1– KNOWLEDGE (REMEMBERING), K2–UNDERSTANDING, K3–APPLYING

LAB: OFFICE AUTOMATION

PROGRAMS LIST:

MS – WORD

1. Text Manipulations
2. Usage of Numbering, Bullets, Footer and Headers
3. Usage of Spell check, and Find & Replace
4. Text formatting
5. Picture insertion and alignment
6. Creation of documents, using templates
7. Creation of templates
8. Mail Merge Concepts
9. Copying Text & Pictures from Excel

MS – EXCEL

1. Cell Editing
2. Table Formatting
3. Usage of Formulae and Built–in Functions
4. Data Sorting
5. Data Filtering
6. Worksheet Preparation
7. Implementing charts
8. Usage of Auto Formatting

MS – POWER POINT

1. Inserting Clip arts and Pictures
2. Frame movements of the above
3. Insertion of new slides
4. Preparation of Organization Charts
5. Presentation using Wizards
6. Usage of design templates

Mapping of CO with PSO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	2	2	2	2
CO2	3	2	2	1	2	2
CO3	3	2	2	1	1	2
CO4	2	2	2	3	2	1
CO5	2	2	2	3	2	1

3. Advanced Application 2. Intermediate Development 1. Introductory Level

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B.Sc. INFORMATION TECHNOLOGY – SYLLABUS

(Under CBCS based on OBE)

(For the students admitted from the academic year 2024 – 2025 onwards)

521

COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
24UITN41	INTRODUCTION TO HTML	SEC NME	2	-	2

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
II	IV	25	75	100

Curriculum Design and Development	Employability		✓	Skill Oriented		✓	Entrepreneurship			✓	
	National		Local		Regional		Global			✓	
Curriculum Enrichment	Professional Ethics	✓	Gender		Environment and Sustainability	✓	Human Values		Other Values	✓	

COURSE DESCRIPTION:

This course is able to Understand and gain the knowledge about TAGS used in HTML.

COURSE OBJECTIVES:

To make the students

- insert a graphic within a web page
- create a link within a web page
- create a table within a web page
- insert heading levels within a web page
- insert ordered and unordered lists within a web page

COURSE OUTCOMES (COs):

After the completion of the course, the students will be able to

No.	Course Outcomes	Knowledge Level (According to Bloom's Taxonomy)
CO 1	know the basic concept in HTML Concept of resources in HTML	Upto K3
CO 2	know Design concept, concept of Meta Data and understand the concept of save the files	Upto K3
CO 3	understand the page formatting	Upto K3
CO 4	create links, know the concept of creating link to email address	Upto K3
CO 5	know Concept of adding images and understand the table creation	Upto K3

K1– KNOWLEDGE (REMEMBERING), K2–UNDERSTANDING, K3–APPLYING

INTRODUCTION TO HTML

UNIT – I: INTRODUCTION

Web Basics: What is Internet – Web browsers – What is Web page – HTML Basics: Understand in tags.

UNIT – II: TAGS FOR DOCUMENT STRUCTURE (HTML, HEAD, BODY TAG). BLOCK LEVEL TEXT ELEMENTS

Headings paragraph (<p> tag) – Font style elements:(bold, italic, font, small, strong, strike, big tags)

UNIT – III: LISTS

Types of lists: Ordered, Unordered– Nesting Lists– Other tags: Marquee, HR, BR– Using Images – Creating Hyperlinks.

UNIT – IV: TABLES

Creating basic Table, Table elements, Caption–Table and cell alignment – Row span, Colspan –Cell padding.

UNIT – V: FRAMES

Frameset–Targeted Links–No frame–Forms: Input, Text area, Select, Option.

TEXT BOOKS:

1. ***Mastering HTML5 and CSS3 Made Easy***‖, Teach U Comp Inc., 2014
2. Thomas Michaud, ***Foundations of Web Design: Introduction to HTML & CSS***

DIGITAL TOOLS:

https://www.teachucomp.com/samples/html/5/manuals/Mastering–HTML5– CSS3.pdf
https://www.w3schools.com/html/default.asp

Mapping of CO with PSO

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	3	3	3	3
CO2	3	3	2	3	3	3
CO3	2	3	3	3	3	3
CO4	3	3	3	3	3	2
CO5	3	3	3	2	3	2

3. Advanced Application 2. Intermediate Development 1. Introductory Level