ABOUT THE DEPARTMENT

The B.Sc. (I.T) Department was started in the year 2000– 2001. Since then, The Department has been successfully functioning with a well– equipped Computer Laboratory with all latest software and highly configured system and a Department Library. The Department has adequate number of rooms to accommodate the students with sufficient and qualified faculty members.

VISION

To produce distinguished Graduates trained in the latest tools and technologies to create excellent professionals in the field of Information Technology.

MISSION

- To provide excellent undergraduate education with advanced technical skills to work in various domains.
- To provide quality education in correlation with industry needs.
- To support technical training activities preparing our students of lifelong learning with professional growth.

GRADUATE ATTRIBUTES

1. **(KB) A knowledge base for Information Technology**: Demonstrated competence in university level mathematics, natural sciences, IT fundamentals, and specialized IT knowledge appropriate to the program.
2. **(PA) Problem analysis**: An ability to use appropriate knowledge and skills to identify, formulate, analyze, and solve complex engineering problems in order to reach substantiated conclusions
3. **(Inv.) Investigation**: An ability to conduct investigations of complex problems by methods that include appropriate experiments, analysis and interpretation of data and synthesis of information in order to reach valid conclusions.
4. **(Des.) Design:** An ability to design solutions for complex, open– ended engineering problems and to design systems, components or processes that meet specified needs with appropriate attention to health and safety risks, applicable standards, and economic, environmental, cultural and societal considerations.
5. **(Tools) Use of IT tools**: An ability to create, select, apply, adapt, and extend appropriate techniques, resources, and modern IT tools to a range of IT activities, from simple to complex, with an understanding of the associated limitations.
6. **(Team) Individual and teamwork**: An ability to work effectively as a member and leader in teams, preferably in a multi– disciplinary setting.
7. **(Comm.) Communication skills**: An ability to communicate complex engineering concepts within the profession and with society at large. Such ability includes reading, writing, speaking and listening, and the ability to comprehend and write effective reports and design documentation, and to give and effectively respond to clear instructions.
8. **(Prof.) Professionalism**: An understanding of the roles and responsibilities of the professional engineer in society, especially the primary role of protection of the public and the public interest.
9. **(Impacts) Impact of engineering on society and the environment**: An ability to analyze social and environmental aspects of engineering activities. Such ability includes an understanding of the interactions that engineering has with the economic, social, health, safety, legal, and cultural aspects of society, the uncertainties in the prediction of such interactions; and the concepts of sustainable design and development and environmental stewardship.
10. **(Ethics) Ethics and equity**: An ability to apply professional ethics, accountability, and equity.
11. **(Econ.) Economics and project management**: An ability to appropriately incorporate economics and business practices including project, risk, and change management into the practice of engineering and to understand their limitations.
12. **(LL) Life– long learning**: An ability to identify and to address their own educational needs in a changing world in ways sufficient to maintain their competence and to allow them to contribute to the advancement of knowledge

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO 1	To prepare the graduates as successful professionals in Industry, Government sectors, Academia and Consultancy firms.
PEO 2	To make the graduates continuously acquire knowledge, theoretical and applied related to core areas of Information Technology and apply them in all fields.
PEO 3	To prepare graduates with the ability to gain multidisciplinary knowledge through real–time projects and internship training to meet industry needs.
PEO 4	To make the students get a substantial understanding on the concepts in the key areas of Information Technology and its applications.
PEO 5	To train the students 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 programme with 6 semesters consisting the following Programme Outcomes (POs) under various criteria including critical thinking, problem solving, effective communication, societal/ citizenship/ ethical 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.

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DISTRIBUTION OF CREDITS (UG PROGRAMME)

Part	Semester	Courses	No. of Courses	Hrs.	Credits	Total Credits
I	I– IV	Language	4	6	3	12
II	I– IV	English	4	6	3	12
III	I– VI	Core	15	5– 6	4– 5	68
	I– VI	Elective and Elective/Allied	8	4– 5	3– 4	24
IV	I– II	SEC (Non Major Elective)	2	2	2	4
	I	Foundation Course FC	1	2	2	2
	I– IV	SEC (Discipline Specific/ Generic)	5	2	2	10
	IV	EVS(Environmental Studies)	1	2	2	2
	V	Value Education	1	2	2	2
	V	Internship	1	–	1	1
V	IV	Extension Activity	1	–	1	1
	V	Soft Skills (Self–Study)	1	0	1	1
	VI	General Knowledge(online) (Self – Study)	1	0	1	1
Additional credit will be given to any Online Course taken in SWAYAM Portal						
		Total				140

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B.Sc. INFORMATION TECHNOLOGY
COURSE STRUCTURE – I SEMESTER

S. No.	Course Code	Part	Course Title	Hrs. / Week	Exam (Hrs.)	CA	SE	Total Marks	Credits
1	25UACT11	I	**Tamil** – பொதுத் தமிழ் – I	6	3	25	75	100	3
	25UACH11		**Hindi** – General Hindi – I						
	25UACS11		**Sanskrit** – Poetry, Grammar and History of Sanskrit Literature						
2	25UACE11	II	**English –** General English – I	6	3	25	75	100	3
3	25UITC11	III	**Core – 1:** Programming in C	5	3	25	75	100	5
4	25UITCP1		**Core – 2: Lab :** Programming in C	5	3	40	60	100	5
5	25UITA11		**Elective/Allied – 1:** Discrete Mathematics	4	3	25	75	100	3
6	25UITN11	IV	**SEC – 1: NME** Office Automation	2	3	25	75	100	2
7	25UITFC1		**Foundation Course :** Fundamental of Computer	2	3	25	75	100	2
			TOTAL	**30**				**700**	**23**

II – SEMESTER

S. No.	Course Code	Part	Course Title	Hrs. / Week	Exam (Hrs.)	CA	SE	Total Marks	Credits
1	25UACT21	I	**Tamil**– பொதுத் தமிழ் – II	6	3	25	75	100	3
	25UACH21		**Hindi** – General Hindi – II						
	25UACS21		**Sanskrit**– Prose, Grammar and History of Sanskrit Literature						
2	25UACE21	II	**English** – General English – II	6	3	25	75	100	3
3	25UITC21	III	**Core – 3:** Object Oriented Programming in C++	5	3	25	75	100	5
4	25UITCP2		**Core – 4: Lab :** Object Oriented Programming in C++	5	3	40	60	100	5
5	25UITA21		**Elective/Allied – 2:** Statistical Methods	4	3	25	75	100	3
6	25UITN21	IV	**SEC – 2: NME** Introduction to HTML	2	3	25	75	100	2
7	25UITS21		**SEC – 3:DS :** Fundamentals of Information Technology	2	3	25	75	100	2
			TOTAL	**30**				**700**	**23**

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

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COURSE STRUCTURE – I SEMESTER

S. No.	Course Code	Part	Course Title	Hrs. / Week	Exam (Hrs.)	CA	SE	Total Marks	Credits
1	25UACT11	I	**Tamil** – பொதுத் தமிழ் – I	6	3	25	75	100	3
	25UACH11		**Hindi** – General Hindi – I						
	25UACS11		**Sanskrit** – Poetry, Grammar and History of Sanskrit Literature						
2	25UACE11	II	**English –** General English – I	6	3	25	75	100	3
3	25UITC11	III	**Core – 1:** Programming in C	5	3	25	75	100	5
4	25UITCP1		**Core – 2: Lab :** Programming in C	5	3	40	60	100	5
5	25UITA11		**Elective/Allied – 1:** Discrete Mathematics	4	3	25	75	100	3
6	25UITN11	IV	**SEC – 1: NME:** Office Automation	2	3	25	75	100	2
7	25UITFC1		**Foundation Course :** Fundamental of Computer	2	3	25	75	100	2
			TOTAL	**30**				**700**	**23**

SEC – Skill Enhancement Course

DS – Discipline/ Subject Specific

CA – Class Assessment (Internal)

SE – Summative Examination

NME – Non –Major Elective

T – Theory

P – Practical

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COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
25UITC11	PROGRAMMING IN C	CORE – 1	5	–	5

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
I	I	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 a programming language and its features which enhances the user to write general purpose application programs.

COURSE OBJECTIVES:

- To familiarize the students with the understanding of code organization.
- To improve the programming skills.
- To learning the basic programming constructs**.**

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 concepts of C programming languages, and its features	**Upto K3**
CO 2	examine the programming methodology	**Upto K3**
CO 3	identify suitable programming constructs for problem solving	**Upto K3**
CO 4	select the appropriate data representation, control structures, functions and concepts based on the problem requirement	**Upto K3**
CO 5	evaluate the program performance by fixing the errors	**Upto K3**

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

PROGRAMMING IN C

UNIT – I: STUDYING CONCEPTS OF PROGRAMMING LANGUAGES

Overview of C: History of C– Importance of C– Basic Structure of C Programs Executing a C Program– Constants, Variables and Data types – Operators and Expressions – Managing Input and Output Operations

UNIT – II: DECISION MAKING AND BRANCHING

Decision Making and Looping – Arrays – Character Arrays and Strings

UNIT – III: USER DEFINED FUNCTIONS

Elements of User Defined Functions Definition of Functions– Return Values and their Types– Function Call Function Declaration– Categories of Functions– Nesting of Functions Recursion

UNIT – IV: STRUCTURES AND UNIONS

Introduction– Defining a Structure– Declaring Structure Variables Accessing Structure Members– Structure Initialization– Arrays of Structures– Arrays within Structures– Unions Size of Structures.

UNIT – V: POINTERS

Understanding Pointers– Accessing the Address of a Variable– Declaring Pointer Variables– Initializing of Pointer Variables Accessing a Variable through its Pointer– Chain of Pointers– Pointer Expressions– Pointer and Scale Factor– Pointer and Arrays– Pointers and Character Strings– Array of Pointers– Pointer as Function Arguments– Functions Returning Pointers– Pointers to Functions– File Management in C

TEXT BOOKS:

1. Robert W. Sebesta, (2012), ***—Concepts of Programming Languages,*** Fourth Edition, Addison Wesley (Unit I : Chapter – 1)
2. E. Balaguruswamy, (2010), ***—Programming in ANSI C***, Fifth Edition, Tata McGraw Hill Publications

REFERENCE BOOKS:

1. Ashok Kamthane, (2009), ***—Programming with ANSI & Turbo C‖,*** Pearson Education.
2. Byron Gottfried, (2010), ***—Programming with C‖, Schaums Outline Series***, Tata McGraw Hill Publications.

DIGITAL TOOLS:

http://www.tutorialspoint.com/cprogramming/
http://www.cprogramming.com/
http://www.programmingsimplified.com/c– program– examples
http://www.programiz.com/c– programming
http://www.cs.cf.ac.uk/Dave/C/CE.html
http://fresh2refresh.com/c– programming/c– function/

Mapping of CO with PSO

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

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

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COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
25UITCP1	LAB: PROGRAMMING IN C	CORE – 2 LAB	–	5	5

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
I	I	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 develop the program using c language and solve the basic and complex problem using various concepts.

COURSE OBJECTIVES:

- The Course aims to provide exposure to problem– solving through C programming
- It aims to train the student to the basic concepts of the C– Programming language
- To help the students apply different concepts of C language to solve problems

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	demonstrate the understanding of syntax and semantics of C programs.	Upto K3
CO 2	identify the problem and solve using C programming techniques.	Upto K3
CO 3	identify suitable programming constructs for problem solving.	Upto K3
CO 4	analyze various concepts of C language to solve the problem in an efficient way.	Upto K3
CO 5	develop a C program for a given problem and test for its correctness	Upto K3

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

LAB: PROGRAMMING IN C

LIST OF PROGRAMS

1. Programs using Input/ Output functions
2. Programs on conditional structures
3. Command Line Arguments
4. Programs using Arrays
5. String Manipulations
6. Programs using Functions
7. Recursive Functions
8. Programs using Pointers
9. Files
10. Programs using Structures & Unions

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	3	3	2	2	2	2
CO3	3	3	3	2	2	2
CO4	3	3	2	2	2	1
CO5	3	3	2	3	2	1

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

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COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
25UITA11	DISCRETE MATHEMATICS	ELECTIVE/ ALLIED	4	-	3

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
I	I	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 provide to understand logic, number theory , mathematical logics and functions.

COURSE OBJECTIVES:

- To teach the mathematical concepts like set theory, logics, number theory, combinatory and relations
- To teach Graphs and Graphs Model
- To teach relations and its applications

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 mathematical concepts like set theory, logics, number theory, combinatory and relations.	Upto K3
CO 2	understand different mathematical logics and functions	Upto K3
CO 3	understand the different form of number theory	Upto K3
CO 4	gain knowledge on set theory.	Upto K3
CO 5	understand Relations and its applications.	Upto K3

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

DISCRETE MATHEMATICS

UNIT – I:

The Foundations: Logic and Proofs: Propositional logic – Applications of Propositional logic – Propositional equivalences – (Exclude Propositional satisfiability, Applications of satisfiability, Solving satisfiability problems, and its related problems) – Predicates and Quantifiers – Rules of inference.

UNIT – II:

Relations: Relations and their properties – Representing relations – Closures of relations – Partial orderings (Theorems statement only; Exclude lexicographic ordering – Exclude Lattices)

UNIT – III:

Counting: The basic of counting – The pigeonhole principle – Permutation and Combinations – Applications of recurrence relations – Solving recurrence relations – Divide and Conquer algorithms and recurrence relations. (All theorems and Results statement only)

UNIT – IV:

Graphs: Graphs and Graphs models, (Excluding Biological networks; Tournaments; all its related examples and problems) – Graph terminology and special types of graphs – Representing graphs and Graph isomorphism – Connectivity (paths – connectedness in undirected graphs – paths and isomorphism – counting paths between vertices) – shortest path problems.

UNIT – V:

Matrices: Introduction – operations – inverse – Rank of a matrix, solution of simultaneous linear equations – Eigen values and Eigen Vectors.

TEXT BOOKS:

1. ***Discrete Mathematics and its Applications***, Seventh Edition, Kenneth.H.Rosen, McGrawHill Publishing Company, 2012.
2. ***Discrete Mathematics,***M.Venkataraman, N.Sridharan and N.Chandrasekaran, The National Publishing Company, 2009.

Unit I: Textbook 1 Chapter 1: Sections: 1.1, 1.2, 1.3, 1.4, 1.6
Unit II: Textbook 1 Chapter 9: Sections: 9.1, 9.3, 9.4, 9.5, 9.6
Unit III: Textbook 1 Chapter 6: Sections: 6.1, 6.2, 6.3 Chapter 8: Sections: 8.1, 8.2, 8.3 (Pages: 527 – 529only)(Exclude algorithms and relations, on page 507 and its related problems)
Unit IV: Textbook 1 Chapter 10: Sections: 10.1, 10.2, 10.3, 10.4, 10.6)
Unit V: Textbook 2 Chapter 6 :Sections :6.1 to 6.5, and 6.7)

REFERENCE BOOKS:

1. ***Modern Algebra*** – S.Arumugam and A. Thangapandi Isaac, Scitech publications 2005.
2. ***Invitation to Graph Theory–*** S.Arumugam and S.Ramachandran, Scitech Publications,2005, Chennai.
3. ***Discrete Mathematical Structures with Applications to Computer Science*** – Tremblay and Manohar, McGraw Hill,1997.

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	1
CO2	3	3	2	2	2	1
CO3	3	3	3	2	2	2
CO4	3	3	2	2	2	2
CO5	3	3	2	3	2	2

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COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
25UITN11	OFFICE AUTOMATION	SEC – 1 NME	2	–	2

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
I	I	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 spread sheet 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:

Spread sheets : 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:

PeterNorton,—***Introduction to Computers***–TataMcGraw– Hill.

REFERENCE BOOK:

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

DIGITAL TOOLS:

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

Mapping of CO with PSO

	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	2
CO3	1	3	3	1	2	2
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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COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
25UITFC1	FUNDAMENTAL OF COMPUTERS	FOUNDATION COURSE	2	-	2

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
I	I	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 concepts in computers software , programming language , examine the equations to solve the problems.

COURSE OBJECTIVES:

- To help them analyze a problem with appropriate problem solving techniques
- To make them understand the main principles of imperative, functional and logic oriented programming languages.

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 Computer fundamentals and various problem solving concepts in Computers	Upto K3
CO 2	describe the basic computer organization, software, computer languages, software development life cycle and the need of structured programming	Upto K3
CO 3	identify the types of computer languages, software, computer problems and examine how to set up expressions and equations to solve the problem	Upto K3
CO 4	inspect most appropriate programming languages, constructs and features to solve the problems in diversified domains	Upto K3
CO 5	discuss the design of modules and functions in structuring the solution and various Organizing tools in problem solving.	Upto K3

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

FUNDAMENTALS OF COMPUTERS

UNIT– I:

Introduction: Characteristics of Computers – Evolution of Computers

Basic Computer Organization: I/O Unit – Storage Unit – Arithmetic Logic Unit – Control Unit – Central Processing Unit.

UNIT– II:

Computer Software: Types of Software – System Architecture

Computer Languages: Machine Language – Assembly Language – High Level Language – Object Oriented Languages

UNIT– III:

Problem Solving Concepts: Problem Solving in Everyday life – Types of Problems– Problem solving with computers– Difficulties with Problem Solving

UNIT– IV:

Problem solving concepts for the computer: Constant Variables – Data Types – Functions – Operators – Expressions and Equations

Organizing the Solution: Analyzing the problem – Algorithm – Flowchart – Pseudo code

UNIT– V:

Programming Structure: Structuring a solution – Modules and their function – Local and Global variables – Parameters – Return values – Sequential Logic Structure – Problem solving with Decision – Problem Solving with Loops

TEXT BOOKS:

1. Pradeep K.Sinha and PritiSinha. ***Computer Fundamentals*****.** Sixth Edition**:** BPB Publications, 2004.
2. E Maureen Sprankle and Jim Hubbard**.** ***Problem Solving and Programming Concept.***Ninth Edition, Prentice Hall, 2009.

REFERENCE BOOKS:

1. R.G. Dromey. ***How to solve it by Computer****.* Prentice Hall International Series in Computer Science, 2007.
2. C. S. V. Murthy. ***Fundamentals of Computers.*** Third Edition, Himalaya PublishingHouse, 2009.

DIGITAL TOOLS:

http://www.tutorialspoint.com/computer_fundamentals/
http://www.comptechdoc.org/basic/basictut/
http://www.homeandlearn.co.uk/
http://www.top– windows– tutorials.com/computer– basics/

Mapping of CO with PSO

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

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

SOURASHTRA COLLEGE, MADURAI – 625004

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B.Sc. INFORMATION TECHNOLOGY – SYLLABUS

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COURSE STRUCTURE – II SEMESTER

S. No.	Course Code	Part	Course Title	Hrs. / Week	Exam (Hrs.)	CA	SE	Total Marks	Credits
1	25UACT21	I	**Tamil**– பொதுத் தமிழ் – II	6	3	25	75	100	3
	25UACH21		**Hindi** – General Hindi – II						
	25UACS21		**Sanskrit**– Prose, Grammar and History of Sanskrit Literature						
2	25UACE21	II	**English** – General English – II	6	3	25	75	100	3
3	25UITC21	III	**Core – 3:** Object Oriented Programming in C++	5	3	25	75	100	5
4	25UITCP2		**Core – 4: Lab :** Object Oriented Programming in C++	5	3	40	60	100	5
5	25UITA21		**Elective/Allied – 2:** Statistical Methods	4	3	25	75	100	3
6	25UITN21	IV	**SEC – 2: NME:** Introduction to HTML	2	3	25	75	100	2
7	25UITS21		**SEC – 3: DS:** Fundamentals of Information Technology	2	3	25	75	100	2
			TOTAL	**30**				**700**	**23**

SEC – Skill Enhancement Course

DS – Discipline/ Subject Specific

CA – Class Assessment (Internal)

SE – Summative Examination

NME – Non –Major Elective

T – Theory

P – Practical

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COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
25UITC21	OBJECT ORIENTED PROGRAMMING IN C++	CORE – 3	5	–	5

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
I	II	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 know the basic concepts of Object Oriented Programming concepts and techniques.

COURSE OBJECTIVES:

To make the students

- learn the fundamentals concepts of OOP's using C++
- know the core concepts of Methods and Function Overloading and Constructors
- reuse the using various Inheritance Techniques

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 C++ programming fundamentals and the concepts of object– oriented programming like object and class, Encapsulation, inheritance and polymorphism	Upto K3
CO 2	classify the control structures, types of constructors, inheritance and different type conversion mechanisms.	Upto K3
CO 3	analyze the importance of object oriented programming features like polymorphism, reusability, generic programming, data abstraction and the usage of exception handling.	Upto K3
CO 4	determine the use of object oriented features such as classes, inheritance and templates to develop C++ programs for complex problems.	Upto K3
CO 5	create a program in C++ by implementing the concepts of object– oriented programming	Upto K3

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

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OBJECT ORIENTED PROGRAMMING USING C++

UNIT – I:

OOP Paradigm – Concepts of OOP – Benefits of OOP – Object Oriented Languages – Applications of OOP – OOP Design: Using UML as a Design Tool Beginning with C++.

UNIT – II:

Tokens, Expressions and Control Structures – Functions in C++ : Function Prototyping – Call by Reference – Return by Reference – Inline Function – Default Arguments – Const Arguments – Recursion – Function Overloading – Classes and Objects

UNIT – III:

Constructors and Destructors: Constructors – Parameterized Constructors – Multiple Constructors – Constructor with default Arguments – Copy Constructors – Dynamic Constructor – Destructors – Operator Overloading and Type Conversions: Operator Overloading – Overloading Unary Operators – Overloading Binary operators – Rules for Operator Overloading – Type Conversions

UNIT – IV:

Inheritance: Introduction – Types of Inheritance – Virtual Base Classes – Abstract Classes – Pointers – Virtual Function – Polymorphism

UNIT – V:

Templates: Class Templates – Function Templates – Overloading of template Function – Exception Handling

TEXT BOOKS:

E. Balaguruswamy, (2013), ***—Object Oriented Programming using C++,*** 6th Edition, Tata McGraw Hill.

REFERENCE BOOKS:

1. BjarneStroustrup, ***—The C++ Programming Language***‖, Fourth Edition, Pearson Education
2. Hilbert Schildt, (2009), ***—C++ – The Complete Reference***, 4th Edition, Tata McGrawHill

NOTE: Latest Edition of Textbooks May be Used

DIGITAL TOOLS:

http:/fahad.cprogramming.blogspot.com/p/c– simple– examples.html
http://www.sitesbay.com/cpp/cpp– polymorphism

Mapping of CO with PSO

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

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COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
25UITCP2	LAB: OBJECT ORIENTED PROGRAMMING IN C++	CORE – 4	–	5	5

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
I	II	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 provides in depth coverage of OOPs principles using C++. Topics include classes, overloading, inheritances, exception handling.

COURSE OBJECTIVES:

To make the students

- learn the fundamentals concepts of OOP's using C++
- know the core concepts of Methods and Function Overloading and Constructors
- reuse the using various Inheritance Techniques

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 fundamentals of C++ programming structure	Upto K3
CO 2	identify the basic features of OOPS such as classes, objects, polymorphism, inheritance	Upto K3
CO 3	analyze the concept of inheritance with the understanding of early and late binding, usage of exception handling, constructors, destructors, generic programming and type conversions	Upto K3
CO 4	determine the use of various data structures such as stacks, queues and lists to solve various computing problems in C++ by incorporating OOPS concepts.	Upto K3
CO 5	develop a program in C++ with the concepts of object oriented programming to solve real– world problems.	Upto K3

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

LAB:OBJECT ORIENTED PROGRAMMING USING C++

PROGRAM LIST

1. Working with Classes and Objects
2. Using Constructors and Destructors
3. Using Function Overloading
4. Using Operator Overloading
5. Using Type Conversions
6. Using Inheritance
7. Using Polymorphism
8. Using Console I/O
9. Using Templates
10. Using Exceptions

Mapping of CO with PSO

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

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COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
25UITA21	STATISTICAL METHODS	ELECTIVE/ ALLIED	4	–	3

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
I	II	25	75	100

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

COURSE DESCRIPTION:

This course dealing with statistical concepts including frequency distribution, central tendencies, Measures of dispersion, Probability and Random variable.

COURSE OBJECTIVES:

- Organizing and summarizing the data, analysing the data and drawing conclusions from it. Assessing the strengths of the conclusions and evaluating their uncertainty
- Define the principal concepts about probability.
- Explain the concept of a random variable and the probability distributions.

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 basic probability axioms and rules and the moments of discrete and continuous random variables as well as be familiarwith common named discrete and continuous random variables.	Upto K3
CO 2	derive the probability density function of transformations of random variables and use these techniques to generate data from various distributions.	Upto K3
CO 3	derive the marginal and conditional distributions of random variables, translate real world problems into probability models	Upto K3
CO 4	analyse the different statistical measures of data	Upto K3
CO 5	test hypothesis of different types	Upto K3

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

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STATISTICAL METHODS

UNIT – I:FREQUENCY DISTRIBUTION

Introduction – Collection of Data – Classification of data – Class Interval and Frequency distribution frequency curve and cumulative frequency curve – Exercise.

UNIT – II:CENTRAL TENTENCIES

Introduction – Measure of Central Tentencies – Arithmetic mean – Partition values (Median, Quartiles, Deciles and Percentiles) – Mode – Geometric Mean and Harmonic Mean – Simple Problem.

UNIT – III:MEASURE OF DISPERSION

Measures of Dispersion — Range, Mean Deviation, Quartile Deviation, Standard Deviation, Coefficient of Variation, Skewness and Kurtosis and their properties.

UNIT – IV:PROBABILITY

Introduction – Probability – Conditional Probability – Bases Theorem (Statement Only) – Simple Problems.

UNIT – V:RANDOM VARIABLE

Introduction – Random Variable – D.R.V and C.R.V Mathematical Expectations –Simple Problems.

TEXT BOOK:

Statistics, Dr.S.Arumugam and A.ThangapandiIssac New Gemma Publishing House, 2013.

REFERENCE BOOKS:

1. ***Statistics,*** Dr. S.Arumugam and A.Thangapandi Issac, New Gamma Publication house, 2002
2. KishorS. Trivedi **–** ***Probability and statistics with reliabilityqueuing and Computer Science Applications –*** Prentice Hall ofIndia (P) Ltd., New Delhi – 1997
3. ***Discrete Mathematics –*** Seymour Lipschutz, Marc Lars Lipson ***Schaum_s Outlines–*** by, 3rd Edition., Tata McGraw Hill, Education Pvt. Ltd., New Delhi. 5th Reprint, 2012

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
CO1	1	2	3	2	1	2
CO2	2	1	3	1	2	2
CO3	2	3	1	2	3	2
CO4	1	1	3	3	2	2
CO5	2	1	3	1	1	2

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

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COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
25UITN21	INTRODUCTION TO HTML	SEC – 2 NME	2	–	2

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
I	II	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:

- 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. Create 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, understand the concept of save the files.	Upto K3
CO 3	understand the page formatting. Concept of list	Upto K3
CO 4	create Links, know the concept of creating link to email address	Upto K3
CO 5	know the 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

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COURSE CODE	COURSE TITLE	CATEGORY	T	P	CREDITS
25UITS21	FUNDAMENTALS OF INFORMATION TECHNOLOGY	SEC – 3 DS	2	–	2

YEAR	SEMESTER	INTERNAL	EXTERNAL	TOTAL
I	II	25	75	100

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

COURSE DESCRIPTION:

This course help to know basic of computer and their operation, data storage, software functionalities and operating system.

COURSE OBJECTIVES

- Understand basic concepts and terminology of information technology
- Have a basic understanding of personal computers and their operation
- Be able to identify data storage and its usage
- Get great knowledge of software and its functionalities

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	learn the basics of computer, Construct the structure of the required things in computer, learn how to use it.	Upto K3
CO 2	develop organizational structure using for the devices present currently under input or output unit	Upto K3
CO 3	know the concept of storing data in computer using two header namely RAM and ROM with different types of ROM with advancement in storage basis.	Upto K3
CO 4	work with different software, Write program in the software and applications of software.	Upto K3
CO 5	use Operating system in information technology which really acts as a interpreter between software and hardware.	Upto K3

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

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FUNDAMENTALS OF INFORMATION TECHNOLOGY

UNIT – I: INTRODUCTION TO COMPUTERS

Introduction, Definition, Characteristics of computer, Evolution of Computer, Block Diagram Of a computer, Generations of Computer, Classification Of Computers, Applications of Computer, Capabilities and limitations of computer

UNIT – II: BASIC COMPUTER ORGANIZATION

Role of I/O devices in a computer system. Input Units: Keyboard, Terminals and its types. Pointing Devices, Scanners and its types, Voice Recognition Systems, Vision Input System, Touch Screen, Output Units: Monitors and its types. Printers: Impact Printers and its types. Non-Impact Printers and its types, Plotters, types of plotters, Sound cards, Speakers.

UNIT – III: STORAGE FUNDAMENTALS

Primary Vs Secondary Storage, Data storage & retrieval methods. Primary Storage: RAM ROM, PROM, EPROM, EEPROM. Secondary Storage: Magnetic Tapes, Magnetic Disks. Cartridge tape, hard disks, Floppy disks Optical Disks, Compact Disks, Zip Drive, Flash Drives

UNIT – IV: SOFTWARE

Software and its needs, Types of S/W. System Software: Operating System, Utility Programs Programming Language: Machine Language, Assembly Language, High Level Language their advantages & disadvantages. Application S/W and its types: Word Processing, Spread Sheets Presentation, Graphics, DBMS s/w

UNIT – V: OPERATING SYSTEM

Functions, Measuring System Performance, Assemblers, Compilers and Interpreters. Batch Processing, Multiprogramming, Multi Tasking, Multiprocessing, Time Sharing, DOS, Windows, Unix/Linux.

TEXT BOOKS:

1. Anoop Mathew, S. Kavitha Murugeshan (2009), **— *Fundamental of Information Technology*,** Majestic Books.
2. Alexis Leon, Mathews Leon, ***Fundamental of Information Technology***, 2nd Edition.
3. S. K Bansal, ***—Fundamental of Information Technology***

REFERENCE BOOKS:

1. BhardwajSushilPuneet Kumar, ***—Fundamental of Information Technology***
2. GG Wilkinson, ***—Fundamentals of Information Technology***, Wiley– Blackwell
3. A Ravichandran, ***—Fundamentals of Information Technology***, Khanna Book Publishing

DIGITAL TOOLS:

https://testbook.com/learn/computer– fundamentals
https://www.tutorialsmate.com/2020/04/computer– fundamentals– tutorial.html
https://www.javatpoint.com/computer– fundamentals– tutorial
https://www.tutorialspoint.com/computer_fundamentals/index.htm

Mapping of CO with PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	3	3	3	3
CO2	3	3	3	3	3	3
CO3	3	3	3	3	3	3
CO4	3	3	3	2	3	2
CO5	3	3	2	3	2	2

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

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