



**MOTHER TERESA WOMEN'S UNIVERSITY
KODAIKANAL – 624 102**



DEPARTMENT OF COMPUTER SCIENCE

B.Sc. COMPUTER SCIENCE WITH DATA SCIENCE

Curriculum Framework, Syllabus, and Regulations

(Choice Based Credit System –CBCS)



(For the candidates to be admitted from the Academic Year 2026-2027 onwards)

TABLE OF CONTENTS

S.No.	Contents
1.	About the Programme
2.	Programme Educational Objectives
3.	Programme Outcomes
4.	Programme Specific Outcomes
5.	Aligning Programme Outcomes with the Vision and Mission of Mother Teresa Women's University
6.	Eligibility
7.	General Guidelines for UG Programme
8.	Evaluation Pattern 8.1. Evaluation Pattern 8.2. Internal Assessment 8.3. End Semester Examination 8.4. Written Examination Question Pattern 8.5. Methods of Assessment
9.	Project 9.1. Project Report 9.2. Project Evaluation
10.	Conversion of Marks to Grade Points and Letter Grade (Performance in a Course/Paper)
11.	Attendance
12.	Any Other Information
13.	Academic Documentation
14.	Curriculum Structure for UG Programme

LO1 Disciplinary knowledge: Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate programme of study.

LO2 Communication Skills: Ability to express thoughts and ideas effectively in writing and orally; Communicate with others using appropriate media; confidently share one's views and express herself/himself; demonstrate the ability to listen carefully, read and write analytically, and present complex information in a clear and concise manner to different groups.

LO3 Critical thinking: Capability to apply analytic thought to a body of knowledge; analyse and evaluate evidence, arguments, claims, beliefs on the basis of empirical evidence; identify relevant assumptions or implications; formulate coherent arguments; critically evaluate practices, policies and theories by following scientific approach to knowledge development.

LO4 Problem solving: Capacity to extrapolate from what one has learned and apply their competencies to solve different kinds of non-familiar problems, rather than replicate curriculum content knowledge; and apply one's learning to real life situations.

LO5 Analytical reasoning: Ability to evaluate the reliability and relevance of evidence; identify logical flaws and holes in the arguments of others; analyse and synthesise data from a variety of sources; draw valid conclusions and support them with evidence and examples, and addressing opposing viewpoints.

LO6 Research-related skills: A sense of inquiry and capability for asking relevant/ appropriate questions, problematizing, synthesising and articulating; Ability to recognise cause-and-effect relationships, define problems, formulate hypotheses, test hypotheses, analyse, interpret and draw conclusions from data, establish hypotheses, predict cause-and-effect relationships; ability to plan, execute and report the results of an experiment or investigation.

LO7 Cooperation/Team work: Ability to work effectively and respectfully with diverse teams; facilitate cooperative or coordinated effort on the part of a group, and act together as a group or a team in the interests of a common cause and work efficiently as a member of a team. 8 Learning Outcomes-based Curriculum Framework for Undergraduate Education

LO8 Scientific reasoning: Ability to analyse, interpret and draw conclusions from quantitative/qualitative data; and critically evaluate ideas, evidence and experiences from an open-minded and reasoned perspective. =

LO9 Reflective thinking: Critical sensibility to lived experiences, with self-awareness and reflexivity of both self and society.

LO10 Information/digital literacy: Capability to use ICT in a variety of learning situations, demonstrate ability to access, evaluate, and use a variety of relevant information sources; and use appropriate software for analysis of data.

LO11 Self-directed learning: Ability to work independently, identify appropriate resources required for a project, and manage a project through to completion.

LO12 Multicultural competence: Possess knowledge of the values and beliefs of multiple cultures and a global perspective; and capability to effectively engage in a multicultural society and interact respectfully with diverse groups.

LO13 Moral and ethical awareness/reasoning: Ability to embrace moral/ethical values in conducting one's life, formulate a position/argument about an ethical issue from multiple perspectives, and use ethical practices in all work. Capable of demonstrating the ability to identify ethical issues related to one's work, avoid unethical behaviour such as fabrication, falsification or misrepresentation of data or committing plagiarism, not adhering to intellectual property rights; appreciating environmental and sustainability issues; and adopting objective, unbiased and truthful actions in all aspects of work.

LO14 Leadership readiness/qualities: Capability for mapping out the tasks of a team or an organization, and setting direction, formulating an inspiring vision, building a team who can help achieve the vision, motivating and inspiring team members to engage with that vision, and using management skills to guide people to the right destination, in a smooth and efficient way.

LO15 Lifelong learning: Ability to acquire knowledge and skills, including 'learning how to learn', that are necessary for participating in learning activities throughout life, through self-paced and self-directed learning aimed at personal development, meeting economic, social and cultural objectives, and adapting to changing trades and demands of work place through knowledge/skill development/reskilling

MOTHER TERESA WOMEN'S UNIVERSITY, KODAIKANAL
DEPARTMENT OF COMPUTER SCIENCE
B.SC. DATA SCIENCE

1. About the Department

Computer Science with Data Science is a vast field comprising many topics of Statistics, Mathematics, and IT. A Data Science course syllabus for beginners covers basic and advanced concepts of data analytics, machine learning, statistics, and programming languages like Python or R. It also teaches students how to interpret large datasets and identify patterns to create predictive models. Computer Science with Data Science has come a long way. Data Scientists were once referred to as 'business problem solvers' who knew how to make sense of incoherent data clusters. Fast-forward to the present, Data Scientists are the most important resources for any business looking to thrive in this mad rush. They are now the 'https://www.analytixlabs.co.in/blog/how-to-become-a-data-scientist'.

The course is enabled to include several interdisciplinary areas like: programming languages, algorithms, operating systems, databases, machine learning, data mining, business intelligence, big data, probability and statistics, data optimization, statistical simulation and data analysis, management decision analysis, decision models and predictive analysis. Data Science has gained paramount importance in the computer science domain. The need for scientists who understand data in all its aspects will continue to grow strongly. Students graduating from the program will have significantly more depth and breadth in the broad area of Data Science and receive all the information they need to work with various kinds of data and statistical data. The program is designed so that students have in-depth knowledge of the <https://www.simplilearn.com/building-a-data-driven-future-with-synthetic-data-article> \t "_blank" \o many approaches, aptitudes, methodologies, and instruments needed to deal with corporate data. Students receive instruction in the abilities needed to find the needed solutions and assist in making significant judgments.

This is the primary reason the syllabus of Computer Science with Data Science courses includes concepts that touch base on cloud computing, big data, natural language processing, and data sentiment analysis. The future of Computer Science with Data Science is estimated to bring opportunities in various areas of banking, finance, insurance, entertainment, telecommunication, automobile, etc. A data scientist will help grow an organization by assisting them in making better decisions. Data science has become important due to recent technology disruptions. Most fundamental is Moore's Law which has driven an exponential growth in computing, storage, and communications per rupee over the past 50 years. This rate of growth shows no signs of abating. Consequently, today we have the Internet of Things: a plethora of sensors COsting 10s of rupees or less, a global Internet with almost limitless bandwidth, and enormous storage in global clouds. The present era is full of technological advances in almost all spectrum of life and we are flooded with enormous amount of data. There is an increasing demand of capturing, analyzing, and synthesizing this large amount of data sets in a number of application domains to better understand various

phenomena and to convert the information available in the data into actionable strategies such as new scientific discoveries, business applications, policy making, and healthcare etc.

Data science is the area where applications of various tools and techniques from the disciplines of applied statistics, mathematics and computer science are used to get greater insight and to make better and informed decisions for various purposes by analyzing a large amount of data. Consequently, the study of data science as a discipline has become essential to cater the growing need for professionals and researchers to deal with the future challenges.

2. Programme Educational Objectives (PEOs)

PEO1	Graduates will acquire strong foundations in Computer Science, Data Science, Programming, Database Management, Machine Learning, and related technologies, enabling them to pursue successful careers, higher education, and lifelong learning in a globally competitive environment.
PEO2	Graduates will develop problem-solving, analytical, computational, and research skills to design innovative data-driven solutions for real-world challenges using modern computing tools, emerging technologies, and ethical practices.
PEO3	Graduates will demonstrate professional ethics, leadership qualities, effective communication, teamwork, and social responsibility, contributing to sustainable development and the empowerment of women in society through knowledge and technology.

3. Programme Outcomes (PO)

On completion of **B.Sc. Computer Science (Data Science)** programme, students will be able to

PO1	Apply the fundamental principles of Computer Science, Mathematics, Statistics, and Data Science to analyze and solve computing and data-driven problems.
PO2	Identify, formulate, and analyze real-world problems and develop efficient software, database, and analytical solutions using appropriate programming languages, algorithms, and modern computing tools.
PO3	Utilize data science, machine learning, artificial intelligence, and related technologies to extract meaningful insights, support decision-making, and develop innovative solutions.
PO4	Demonstrate professional ethics, social responsibility, environmental awareness, and a commitment to lifelong learning for adapting to evolving technologies and global challenges.
PO5	Communicate effectively, work collaboratively in multidisciplinary teams, and exhibit leadership and entrepreneurial skills to contribute positively to society and the profession.

4. Programme Specific Outcomes (PSOs):

On completion of B.Sc. Computer Science (Data Science) programme, students will be able to

PSO1	Apply programming concepts, data structures, databases, operating systems, and software engineering principles to design, develop, test, and maintain efficient software applications for diverse computing environments.
PSO2	Utilize statistical techniques, data analytics, machine learning, deep learning, and artificial intelligence tools to analyze data, extract meaningful insights, and develop intelligent solutions for real-world problems.
PSO3	Demonstrate proficiency in modern computing technologies, effective communication, teamwork, ethical practices, and continuous learning to pursue careers, entrepreneurship, higher education, and research in Computer Science and Data Science domains.

5. Alignment of Programme Outcomes with the Vision and Mission of Mother Teresa Women's University

University Vision

“Holistic Empowerment of Women through Education”

Programme Outcome	Contribution to the University Vision
PO1: Apply the fundamental principles of Computer Science, Mathematics, Statistics, and Data Science to analyze and solve computing and data-driven problems.	Empowers women with strong theoretical foundations, analytical thinking, and quantitative reasoning skills, enabling them to solve complex problems confidently and contribute effectively to society and industry.
PO2: Identify, formulate, and analyze real-world problems and develop efficient software, database, and analytical solutions using appropriate programming languages, algorithms, and modern computing tools.	Enhances problem-solving ability, creativity, and technical competence, empowering women to design innovative solutions for real-world challenges and achieve professional excellence.
PO3: Utilize data science, machine learning, artificial intelligence, and related technologies to extract meaningful insights, support decision-making, and develop innovative solutions.	Encourages technological empowerment by enabling women to leverage emerging technologies, drive innovation, and contribute to data-driven decision-making in diverse domains.
PO4: Demonstrate professional ethics, social responsibility, environmental awareness, and a commitment to lifelong learning for adapting to evolving technologies and global challenges.	Promotes holistic development by nurturing ethical values, social commitment, environmental consciousness, and continuous learning, thereby preparing women to become responsible global citizens.
PO5: Communicate effectively, work collaboratively in multidisciplinary teams, and exhibit leadership and entrepreneurial skills to contribute positively to society and the profession.	Develops leadership, teamwork, communication, and entrepreneurial abilities, empowering women to become confident professionals, innovators, and leaders in society.

Mapping of Programme Outcomes with University Vision

Vision Components	PO1	PO2	PO3	PO4	PO5
Knowledge Empowerment	√	√	√		
Technical Empowerment		√	√		
Professional & Social Empowerment				√	√
Holistic Development				√	√
Lifelong Learning & Leadership				√	√

University Mission

M1: To promote a society of equal status between women and men.

M2: To empower women through education at all levels.

M3: To impart education of global standards.

Mapping Scale

Value	Level of Correlation
3	High
2	Moderate
1	Low
–	No Correlation

Mission–PO Mapping Matrix

Mission Statements / Pos	PO1	PO2	PO3	PO4	PO5
M1: Promote a society of equal status between women and men	1	2	2	3	3
M2: Empower women through education at all levels	3	3	3	3	3
M3: Impart education of global standards	3	3	3	3	2

6. Eligibility:

Pass in Higher Secondary with Mathematics/ Computer Science / Business Maths / Computer Applications as one of the Subjects. Students, who have not done Mathematics as one of the subjects, should complete the Bridge Course on Mathematics during the I Semester.

7. General Guidelines for UG Programme

- Duration: 3 Years
- Medium of Instruction: English

8. Evaluation (40+60): Evaluation of the candidates shall be through Internal Assessment and External Examination for Theory and Practical.

8.1.Evaluation Pattern

EVALUATION PATTERN		Maximum Marks (Theory & Practical)	Minimum Marks (Theory & Practical)
Internal Evaluation	Continuous Internal Assessment	40 Marks	16 Marks
External Evaluation	End Semester Examination	60 Marks	24 Marks
Total		100 Marks	40 Marks

8.2. Internal Assessment – CIA (40 Marks)

The Continuous Internal Assessment (CIA) for each course includes written test and assignments for a maximum of 40 marks.

Assignment (any type): 10 Marks

Seminar / Presentation: 10 Marks

Test (Best 2 out of 3): 15 Marks

Quiz/MCQ: 5 Marks

8.3. End Semester Examination (Theory): Max. Marks: 60 Time: 3hrs.

Part-A (5x2=10 Marks) - Answer ALL questions - Each Question carries 2marks

Part-B (5x4=20 Marks) - Answer ALL questions - Each question carries 4 Marks -
Either or Type

Part-C (3x 10 = 30 Marks) - Answer ALL questions - Each question carries 10 Marks -
Either or Type

8.4. Written Examination Question Paper Pattern Theory Paper (Bloom's Taxonomy based)

Intended Learning Skills	Maximum 60 Marks Passing Minimum: 50% Duration: Three Hours
Memory Recall/Example/ Counter Example / Knowledge about the Concepts/Understanding K1& K2	Part-A (5x2=10Marks)
	Answer ALL questions Each Question carries 2marks One questions from each Unit Question 1to 5
Descriptions/Application / Analysis/Synthesis / Evaluation K3, K4, K5	Part-B (5x4=20Marks) Answer
	ALL questions Each question carries 4 Marks Either - or Type Both parts of each question from the same

	Unit and K Level Question 6 (a) or 6 (b) to Question 10 (a) or 10 (b)
Analysis/Synthesis / Evaluation/Create K4, K5	Part-C (3x 10 = 30 Marks) Answer ALL questions Each question carries 10 Mark From any unit based on weightage Either - or Type Both parts of each question from the same K Level Question 11(a) or 11(b) To Question 13(a) or 13(b)

Sample UG Question Paper Pattern (End Semester Written Examination)

Q. NO	QUESTIONS	K LEVEL	UNIT NO.	COUSE OUTCOME NO.	PROBLEM OR THEORY QUESTION (P/T)
SECTION A ANSWER THE FOLLOWING					(5*2=10)
1.		K1/K2	1	CO1	(P/T)
2.		K1/K2	2	CO1	(P/T)
3.		K1/K2	3	CO1	(P/T)
4.		K1/K2	4	CO1	(P/T)
5.		K1/K2	5	CO1	(P/T)
SECTION B ANSWER THE FOLLOWING					(5*4=20)
6A		K3	1	CO2	(P/T)
	(OR)				
6B		K3	1	CO2	(P/T)
7A		K3	2	CO2	(P/T)
	(OR)				
7B		K3	2	CO2	(P/T)
8A		K4	3	CO3	(P/T)
	(OR)				
8B		K4	3	CO3	(P/T)
9A		K5	4	CO4	(P/T)
	(OR)				
9B		K5	4	CO4	(P/T)
10A		K5	5	CO4	(P/T)
	(OR)				
10B		K5	5	CO4	(P/T)

SECTION C ANSWER THE FOLLOWING (3*10=30)					
11A		K4	1	CO3	(P/T)
	(OR)				
11B		K4	2	CO3	(P/T)
12A		K4	3	CO3	(P/T)
	(OR)				
12B		K4	4	CO3	(P/T)
13A		K5	5	CO4	(P/T)
	(OR)				
13B		K5	(optional)*	CO4	(P/T)
• From any unit based on weightage					

WEIGHTAGE

Lower Level	- K1, K2 Level	- 10 Marks	- 17%
Intermediate Level	- K3, K4 Level	- 32 Marks	- 53%
Higher Level	- K5, K6 Level	- 18 Marks	- 30%
Total		- 60 marks	- 100%

Internal Written Examination Pattern

Intended Learning Skills	Maximum 30 Marks Passing Minimum: 50% Duration: One and half Hours
Memory Recall/Example/ Counter Example / Knowledge about the Concepts/Understanding K1& K2	Part–A (4x2=08 Marks)
	Answer ALL questions Each Question carries 2marks Internal Test Portion Question 1 to 4
Application / Analysis/Synthesis / Evaluation K3, K4, K5	Part–B (3x4=12 Marks)
	Answer ALL questions Each question carries 4 Marks Either - or Type Both parts of each question from the same K Level / Internal Test Portion Question 5(a) or 5(b) to Question 7 (a) or 7 (b)
Analysis/Synthesis / Evaluation/Create K5	Part-C (1x 10 = 10 Marks)
	Answer ALL questions Each question carries 10 Marks From any unit based on weightage Either - or Type

	Both parts of each question from the same K Level / Internal Test Portion Question 8 (a) or 8 (b)
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Sample Question Paper Pattern (Internal Written Examination)

Q. NO	QUESTIONS	K LEVEL	UNIT NO.	COUSE OUTCOME NO.	PROBLEM OR THEORY QUESTION (P/T)
SECTION A ANSWER THE FOLLOWING (4*2=8)					
1.		K1/K2	Internal Test Portion	CO1	(P/T)
2.		K1/K2		CO1	(P/T)
3.		K1/K2		CO1	(P/T)
4.		K1/K2		CO1	(P/T)
SECTION B ANSWER THE FOLLOWING (3*4=12)					
5A		K3	Internal Test Portion	CO2	(P/T)
	(OR)				
5B		K3		CO2	(P/T)
6A		K4		CO3	(P/T)
	(OR)				
6B		K4		CO3	(P/T)
7A		K5		CO4	(P/T)
	(OR)				
7B		K5		CO4	(P/T)
SECTION C ANSWER THE FOLLOWING (1*10=10)					
8A		K5	Internal Test Portion	CO4	(P/T)
	(OR)				
8B		K5		CO4	(P/T)

WEIGHTAGE

Lower Level	- K1, K2 Level	- 08 Marks	- 27%
Intermediate Level	- K3, K4 Level	- 08 Marks	- 27%
Higher Level	- K5, K6 Level	- 14 Marks	- 46%

Total - 30 marks

- 100%

8.5. Methods of Assessment

METHODS OF ASSESSMENT	
Remembering (K1)	• The lowest level of questions requires students to recall information from the course content • Knowledge questions usually require students to identify information in the textbook.
Understanding (K2)	• Understanding of facts and ideas by comprehending organizing, comparing, translating, interpolating and interpreting in their own words. • The questions go beyond simple recall and require students to combine data together
Application (K3)	• Students have to solve problems by using / applying a concept learned in the classroom. • Students must use their knowledge to determine a exact response
Analyze (K4)	• Analyzing the question is one that asks the students to break down something into its component parts. • Analyzing requires students to identify reasons causes or motives and reach conclusions or generalizations.
Evaluate (K5)	• Evaluation requires an individual to make judgment on something. • Questions to be asked to judge the value of an idea, a character, a work of art, or a solution to a problem. • Students are engaged in decision-making and problem – solving. • Evaluation questions do not have single right answers.
Create (K6)	• The questions of this category challenge students to get engaged in creative and original thinking. • Developing original ideas and problem solving skills

9. Project

9.1. Project Report

A student should select a topic for the Project Work at the end of the fifth semester itself and submit the Project Report at the end of the sixth semester. The Project Report shall not be less than 30 typed pages in Times New Roman font with 1.5 line space.

9.2. Project Evaluation

There is a Viva Voce Examination for Project Work. The Guide and an External Examiner shall evaluate and conduct the Viva Voce Examination. The Project Work carries 100 marks (Internal: 40 Marks; External (Viva): 60 Marks).

10. Conversion of Marks to Grade Points and Letter Grade (Performance in a Course/Paper)

Range of Marks	Grade Points	Letter Grade	Description
90 – 100	9.0 – 10.0	O	Outstanding
80-89	8.0 – 8.9	D+	Excellent
75-79	7.5 – 7.9	D	Distinction
70-74	7.0 – 7.4	A+	Very Good
60-69	6.0 – 6.9	A	Good
50-59	5.0 – 5.9	B	Average
00-49	0.0	U	Re-appear
ABSENT	0.0	AAA	ABSENT

11. Attendance

Students must have earned 75% of attendance in each course for appearing for the examination. Students with 71% to 74% of attendance must apply for condonation in the Prescribed Form with prescribed fee. Students with 65% to 70% of attendance must apply for condonation in the Prescribed Form with the prescribed fee along with the Medical Certificate. Students with attendance less than 65% are not eligible to appear for the examination and they shall re-do the course with the prior permission of the Head of the Department, Principal and the Registrar of the University.

12. Any Other Information

In addition to the above mentioned regulations, any other common regulations pertaining to the UG Programmes are also applicable for this Programme.

13. Academic Documentation

a.	Academic Schedule	q.	Laboratory Experiments related to the Courses
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b.	Students Name List	r.	Internal Question Paper
c.	Time Table	s.	External Question Paper
d.	Syllabus	t.	Sample Home Assignment Answer Sheets
e.	Lesson Plan	u.	Three best, three middle level and three average Answer sheets
f.	Staff Workload	v.	Result Analysis
g.	Course Design (content, Course Outcomes (COs), Delivery method, mapping of COs with Programme Outcomes (POs), Assessment Pattern in terms of Revised Bloom's Taxonomy).	w.	Question Bank Preparation (Semester / Competitive exams-NET, SET, GATE)
h.	Sample CO Assessment Tools	x.	List of mentees and their academic achievements
i.	Faculty Course Assessment Report(FCAR)		
j.	Course Evaluation Sheet		
k.	Teaching Materials (PPT, PDF, Videos, etc)		
l.	Lecture Notes		
m.	Home Assignment Questions		
n.	Tutorial Sheets		
o.	Remedial Class Record, if any		
p.	Projects related to the Course		

14. CURRICULUM STRUCTURE FOR UG PROGRAMME

SEMESTER I							
Component	Course code	List of courses	Credits	No. of Hrs	Internal	External	Marks
Part I	U26TAL101	Language-1–Tamil	3	6	40	60	100
Part II	U26ENL101	Language-2–English	3	6	40	60	100
Part-III	U26DST101	Core-1: Programming in C & C++	4	5	40	60	100
Part-III	U26DSP102	Core-2: Data Structures Lab using C	3	5	40	60	100
Part-III	U26DSA11	Allied-1: Data Structures	3	4	40	60	100
Part- IV	U26DSAE11	Ability Enhancement Course – 1 (Problem Solving Techniques - Programming in C Lab)	2	2	40	60	100
Part- IV	U26DSS101	SEC 1- Computer Applications –(Common Syllabus)	2	2	40	60	100
TOTAL			20	30			700
SEMESTER II							
Component	Course code	List of courses	Credits	No. of Hrs	Internal	External	Marks
Part I	U26TAL202	Language-1–Tamil	3	6	40	60	100
Part II	U26ENL202	Language-2–English	3	6	40	60	100
Part-III	U26DST203	Core-3: Relational Database Management System	4	5	40	60	100

		(RDBMS)					
Part-III	U26DSP204	Core-4: RDBMS Lab using ORACLE	3	5	40	60	100
Part-III	U26DSA22	Allied 2: Digital Logic Fundamentals	3	4	40	60	100
Part- IV	U26VAE201	Value Education	2	2	40	60	100
Part- IV	U26DSNM21 / U26DSS202	Naan Mudhalvan – 1 (College) / Skill Enhancement Course (SEC-2) Soft skills - Web Designing using HTML and CSS (Univ. Dept.)	2	2	40	60	100
TOTAL			20	30			700
SEMESTER III							
Component	Course code	List of courses	Credits	No. of Hrs	Internal	External	Marks
Part I	U26TAL303	Language -1	3	6	40	60	100
Part II	U26ENL303	Language- 2	3	6	40	60	100
Part-III	U26DST305	Core- 5: Java Programming	4	5	40	60	100
Part-III	U26DSP306	Core-6: Java Programming Lab	3	5	40	60	100
Part-III	U26DSA33	Allied 3: Statistical Methods & its Applications	3	4	40	60	100
Part- IV	U26DSNM32 / U26DSS303	Naan Mudhalvan – 2 (College) / Skill Enhancement Course (SEC-3) Subject based- PHP Programming (Univ. Dept.)	2	2	40	60	100
Part- IV	U26EVS301	EVS	2	2	40	60	100
Part- IV	U26DSV301	Value Added Course – 1 (Additional Credit)- Data Analytics using Excel Lab	1*		100		100
TOTAL			20+ 1*	30			800
SEMESTER IV							
Component	Course code	List of courses	Credits	No. of Hrs	Internal	External	Marks
Part I	U26TAL404	Language-1	3	6	40	60	100

Part II	U26ENL404	Language-2	3	6	40	60	100
Part-III	U26DST407	Core-7: Python Programming	4	5	40	60	100
Part-III	U26DSP408	Core -8: Python Programming Lab	3	5	40	60	100
Part- IV	U26DSA44	Allied 4: Operating System	3	4	40	60	100
Part- IV	U26DSNM43 / U26DSS404	Naan Mudhalvan – 3 (College)/ Skill Enhancement Course (SEC-4) – AI tools (Univ. Dept.)	2	2	40	60	100
Part- IV	U26DSN401	Non-Major Elective: Fundamentals of Information Technology	2	2	40	60	100
TOTAL			20	30			700
SEMESTER V							
Component	Course code	List of courses	Credits	No. of Hrs	Internal	External	Marks
Part-III	U26DST509	Core- 9: Machine Learning Techniques	4	6	40	60	100
Part-III	U26DST510	Core- 10: Software Engineering	4	6	40	60	100
Part-III	U26DST511	Core-11: Data Communication and Computer Networks	3	5	40	60	100
Part-III	U26DSP512	Core 12: Machine Learning Techniques Lab	3	5	40	60	100
Part-III	U26DSE51A/ U26DSE51B/ U26DSE51C	Department Specific Elective: A. Numerical Methods/ B. Internet of Things (IoT) Lab/ C. Cloud Computing	3	4	40	60	100
Part-III	U26DSI501	Internship	1	-	40	60	100
Part- IV	U26DMG501	Generic Course I–Disaster Management	2	2			100
Part- IV	U26DSNM54 / U26DSS505	Naan Mudhalvan – 4 (College) / Skill Enhancement Course (SEC-5) Yoga for Human	2	2			100

		Excellence (Univ. Dept.)					
TOTAL			22	30			800
SEMESTER VI							
Component	Course code	List of courses	Credits	No. of Hrs	Internal	External	Marks
Part-III	U26DST613	Core- 13: Data Science and Analytics	4	6	40	60	100
Part-III	U26DST614	Core- 14: Deep Learning	4	6	40	60	100
Part-III	U26DSP615	Core- 15: Data Analytics Using R Lab	3	6	40	60	100
Part-III	U26DSPR61	Core- 16: Project	3	10	40	60	100
Part- IV	U26DSNM65 / U26DSS606	Naan Mudhalvan – 5 (College) / Skill Enhancement Course (SEC-6) Employability Readiness- OpenSource Software Technologies (Univ. Dept.)	2	2	40	60	100
Part- V	U26EAS601	Extension Activity ((NSS/NCC/YRC /RRC/ CLUB ACTIVITIES / SCIENCE FORUM/ PHYSICAL EDUCATION)	2	-	100		100
Part- V	U26DSO601	Online /SWAYAM MOOCs /NPTEL/ Professional Certificate Course Offered (Additional Credit) *	2*	-	100		100
TOTAL			18 +2*	30			700
GRAND TOTAL			120				4400

*** Additional credit papers**

- VAC in the third semester is mandatory.
- Online / SWAYAM/ MOOC / NPTEL course is mandatory. It can be done anytime during the course but will be reflected in the 6th semester only.

*** Extension Activity:**

Extension activity includes participation in NSS/NCC/RRC/ Science Forum/Physical Education

Total Marks: 100 (Purely internal)

Credits: 2

B.Sc. COMPUTER SCIENCE WITH DATA SCIENCE

[illegible]

Question paper Coverage - 80% theory & 20% Problem				
Text book	1. E. Balaguruswamy, (2010), —Programming in ANSI C, Fifth Edition, Tata McGraw Hill Publications 2. E. Balagurusamy, <i>Object Oriented Programming with C++</i>, 8th Edition, McGraw Hill Education, 2023.			
Reference Book	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 3. Robert W. Sebesta, (2012), —Concepts of Programming Languages, Fourth Edition, Addison Wesley (Unit I : Chapter – 1) 4. Herbert Schildt, <i>C++: The Complete Reference</i>, McGraw Hill. 5. Bjarne Stroustrup, <i>Programming: Principles and Practice Using C++</i>, Addison-Wesley.			
E-Reference	1. http://www.tutorialspoint.com/cprogramming/ 2. http://www.cprogramming.com/ 3. http://www.programmingsimplified.com/c-program-examples 4. http://www.programiz.com/c-programming 5. http://www.cs.cf.ac.uk/Dave/C/CE.html 6. http://fresh2refresh.com/c-programming/c-function/			
Course learning outcomes	On successful completion of the course, the students will be able to			
	COs	Course Outcomes	K Level	Learning Outcomes (LO1-LO15)
	CO1	Explain the fundamentals of C programming including variables, operators, control structures, and modular programming concepts.	K1 & K2	LO1
	CO2	Develop structured C programs using functions, arrays, strings, pointers, structures, and file handling to solve computational problems.	K3	LO4
	CO3	Apply object-oriented programming concepts including classes, objects, constructors, inheritance, and polymorphism using C++.	K 4	LO5
	CO4	Design and implement efficient C/C++ programs using appropriate programming paradigms for real-world applications.	K 5	LO11
	CO5	Evaluate, debug, and optimize programs while following coding standards, teamwork, ethics, and lifelong learning practices.	K5 & K6	LO2, LO15
Mapping of COs with Pos	Programme Outcomes		Programme Specific Outcomes	Map ping

& PSOs												Score of COs with POs & PSOs
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO 1	PS O2	PS O3	Mean Score	2.18
	CO1	3	2	1	1	1	1.60	3	1	1	1.67	
	CO2	3	3	1	1	1	1.80	3	2	1	2.00	
	CO3	3	3	2	2	2	2.40	3	2	2	2.33	
	CO4	3	2	2	2	2	2.20	3	2	2	2.33	
	CO5	3	3	2	3	3	2.80	3	2	3	2.67	
	Avg	3.00	2.60	1.60	1.80	1.80	2.16	3.00	1.80	1.80	2.20	
	Overall score for PO					2.16	Overall score for PSO		2.20			
	Strongly Correlating (S)					-	3 Marks					
Moderately Correlating (M)					-	2 Marks						
Weakly Correlating (W)					-	1 Mark						
No Correlation (N)					-	0 Mark						

Teaching–Learning & Assessment Framework

Teaching Methodology

- Interactive lectures combined with **live coding demonstrations** to explain core concepts of C programming.
- **Hands-on lab sessions** to practice program development, compilation, debugging, and execution.
- **Problem-solving discussions** to enhance logical thinking using algorithms, flowcharts, and coding exercises.
- **Flipped classroom approach**, where students review learning materials in advance and engage in coding activities during class.
- **Collaborative learning** through peer coding, group tasks and debugging exercises.

Assessment Types

- **Tests** to evaluate understanding of programming concepts and logic.
- **Assignments** based on coding problems, algorithm design, and debugging tasks.
- **Lab assessments** to test practical programming skills and program execution.
- **Group discussions** on problem-solving approaches and programming techniques.
- **Presentations/Seminars** on advanced topics like recursion, pointers, and file management.

Course Code	U26DSP102	Semester I	Year I	Credits	L	T	P	Hrs
Core	Core – 2 Practical DATA STRUCTURES LAB USING C			3	0	0	5	5
Nature of the Course	Employability							
Learning objectives	LO1: Understand the basic concepts of data structures and implement array operations using C programming. LO2: Develop programs using stack operations and apply them for expression conversion and evaluation. LO3: Implement linked list operations including creation, insertion, and traversal in singly and doubly linked lists. LO4: Apply searching and sorting techniques such as linear search, bubble sort, and selection sort. LO5: Analyze and apply suitable data structures to solve computational problems through practical programming.							
LIST OF PROGRAMS								
1.	Write a program to insert an element at a specific position in an array.							
2.	Implement a program to convert infix expression to postfix using stack.							
3.	Write a program to delete an element from a specific position in an array.							
4.	Find the largest and smallest element in an array.							
5.	Find the sum and average of all elements in an array.							
6.	Write a program to search for an element using linear search.							
7.	Write a program to merge two arrays into a single array.							
8.	Implement a stack using arrays with push, pop, and display operations.							
9.	Create a singly linked list and Insert a node at the beginning, end, and specific position in a singly linked list.							
10.	Write a program to sort an array using bubble sort.							
11.	Write a program to sort an array using selection sort.							
12.	Create a doubly linked list and display its elements forward and backward.							
Question paper Coverage - 100% practical								
Text book	1. Ellis Horowitz, Sartaj Sahni, Susan Anderson Freed, <i>Fundamentals of Data Structures in C</i> , Universities Press.							

	2. E. Horowitz, S. Sahni, S. Rajasekaran, <i>Fundamentals of Computer Algorithms</i> , Universities Press.		
Reference Book	1. Seymour Lipschutz, <i>Data Structures with C</i> , Schaum's Outline Series, Tata McGraw Hill. 2. R. Krishnamoorthy & G. Indirani Kumaravel, <i>Data Structures using C</i> , Tata McGraw Hill. 3. A.K. Sharma, <i>Data Structures using C</i> , Pearson Education India. 4. G. Brassard & P. Bratley, <i>Fundamentals of Algorithms</i> , PHI. 5. A.V. Aho, J.E. Hopcroft, J.D. Ullmann, <i>Design and Analysis of Computer Algorithms</i> , Addison Wesley. 6. Thomas H. Cormen et al., <i>Introduction to Algorithms</i> , MIT Press. 7. Sanjoy Dasgupta et al., <i>Algorithms</i> , Tata McGraw Hill.		
E-Reference	1. http://www.tutorialspoint.com/cprogramming/ 2. http://www.cprogramming.com/ 3. http://www.programmingsimplified.com/c-program-examples 4. http://www.programiz.com/c-programming 5. http://www.cs.cf.ac.uk/Dave/C/CE.html 6. http://fresh2refresh.com/c-programming/c-function/		
Course learning outcomes	On successful completion of the course, the students will be able to		
	COs	Course Outcomes	K Level Learning Outcomes (LO1-LO15)
	CO1	Explain the fundamental concepts of data structures, arrays, and their operations using C programming.	K1&K2 LO1
	CO2	Apply array and stack operations to solve computational problems such as searching, expression conversion, and evaluation.	K3 LO4
	CO3	Develop programs for singly and doubly linked lists to perform insertion, deletion, and traversal operations.	K 4 LO5
	CO4	Analyze and implement searching and sorting algorithms for efficient data processing and independent problem-solving.	K5 LO11
	CO5	Design, document, and evaluate suitable data structure solutions for computational problems while demonstrating effective communication and lifelong learning skills.	K5 & K6 LO2, LO15
	Programme Outcomes	Programme Specific Outcomes	Mapping Score of COs with POs

Mapping of COs with Pos & PSOs												& PSOs
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PS O1	PS O2	PS O3	Mean Score	2.17
	CO1	3	2	1	1	1	1.60	3	1	1	1.67	
	CO2	3	3	2	1	1	2.00	3	1	1	1.67	
	CO3	3	3	2	2	1	2.20	3	2	2	2.33	
	CO4	3	3	2	2	2	2.40	3	2	2	2.33	
	CO5	3	3	2	3	3	2.80	3	2	3	2.67	
	Avg	3.00	2.80	1.80	1.80	1.60	2.20	3.00	1.60	1.80	2.13	
	Overall score for PO					2.20	Overall score for PSO			2.17		
	Strongly Correlating (S)					-	3 Marks					
Moderately Correlating (M)					-	2 Marks						
Weakly Correlating (W)					-	1 Mark						
No Correlation (N)					-	0 Mark						
Teaching–Learning & Assessment Framework												
Teaching Methodology						Assessment Types						
- Interactive sessions combined with demonstration of data structure operations such as arrays, stacks, and linked lists using C programming. Hands-on laboratory practice for program development, compilation, debugging, and execution of data structure algorithms. Problem-solving discussions to enhance logical thinking using algorithms, flowcharts, and step-by-step implementation. Flipped classroom approach, where students review concepts in advance and perform coding tasks during lab sessions. Collaborative learning through peer programming, group activities and debugging exercises. Task-based learning, where each data structure concept is implemented through guided exercises						Lab tests to evaluate practical programming skills and understanding of data structures. Programming assignments based on arrays, stacks, linked lists, searching, and sorting techniques. Lab assessments focusing on program execution, output correctness, and coding efficiency. Group discussions on algorithm design and problem-solving strategies. Presentations/Seminars on concepts like stacks, linked lists, and sorting techniques. Viva voce to assess conceptual clarity and coding logic.						

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	2. Seymour Lipschutz, <i>Data Structures with C</i> , Tata McGraw Hill.											
Reference Book	1. Gregory L. Heileman, <i>Data Structures, Algorithms and Object-Oriented Programming</i> , McGraw Hill. 2. A.V. Aho, J.E. Hopcroft, J.D. Ullman, <i>Data Structures and Algorithms</i> , Addison Wesley. 3. Ellis Horowitz et al., <i>Fundamentals of Computer Algorithms</i> , Galgotia Publications.											
E-Reference	1. https://www.tutorialspoint.com/data_structures_algorithms/index.htm 2. https://www.programiz.com/dsa 3. https://www.geeksforgeeks.org/learn-data-structures-and-algorithms-dsa-tutorial/											
Course learning outcomes	On successful completion of the course, the students will be able to											
	COs	Course Outcomes								K Level	Learning Outcomes (LO1-LO15)	
	CO1	Explain the fundamental concepts of data structures, data types, abstract data types, and array representations.								K1 & K2	LO1	
	CO2	Apply stack and queue operations to solve computational problems including expression evaluation and recursion handling.								K3	LO4	
	CO3	Develop solutions using linked lists and tree data structures for efficient data organization and processing.								K 4	LO5	
	CO4	Analyze graph representations and apply graph traversal and shortest path algorithms for problem solving.								K5	LO11	
	CO5	Design, document, and evaluate suitable data structure and sorting techniques for computational problems while demonstrating effective communication and lifelong learning skills.								K5 & K6	LO2, LO15	
Mapping of COs with Pos & PSOs	Programme Outcomes						Programme Specific Outcomes					Mapping Score of COs with POs & PSOs
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PS O1	P S O 2	PSO3	Mean Score	2.14
	CO1	3	2	1	1	1	1.60	3	1	1	1.67	
	CO2	3	3	1	1	1	1.80	3	1	1	1.67	
	CO3	3	3	2	1	1	2.00	3	2	2	2.33	
	CO4	3	3	2	2	1	2.20	3	3	2	2.67	
	CO5	3	3	2	3	3	2.80	3	2	3	2.67	
	Avg	3.00	2.80	1.60	1.60	1.40	2.08	3.0	1.	1.80	2.20	

							0	80			
	Overall score for PO				2.08	Overall score for PSO		2.20			
	Strongly Correlating (S)				-	3 Marks					
	Moderately Correlating (M)				-	2 Marks					
	Weakly Correlating (W)				-	1 Mark					
	No Correlation (N)				-	0 Mark					
Teaching–Learning & Assessment Framework											
Teaching Methodology						Assessment Type					
- Interactive lectures with algorithm demonstrations - Problem-solving sessions using real-world scenarios - Visualization of data structures (trees, graphs) - Flipped classroom for algorithm understanding - Collaborative learning through discussions and coding tasks						Written Mode: Internal tests, assignments, problem-solving exercises Integrated Mode: Seminars, algorithm presentations, mini-projects, SWOC analysis					

[illegible]

14.	Program to swap two numbers using pointers.			
15.	Program to store and display student details using a structure.			
16.	Program to create a file and write text into it.			
17.	Program to count the number of words, lines, and characters in a file.			
18.	Program to copy content from one file to another.			
Question paper Coverage - 100% practical				
Text book	1. Jeri R. Hanly and Elliot B.Koffman, Problem solving and Program Design in C 7th Edition, Pearson. 2. B.A. Forouzan and R.F. Gilberg C Programming and Data Structures, Cengage Learning, (3rd Edition). 3. E. Balagurusamy, Computer fundamentals and C, 2nd Edition, McGraw-Hill.			
Reference Book	1. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, Prentice Hall of India. 2. Yashavant Kanetkar, Let Us C, 18th Edition, BPB. 3. R.G. Dromey, How to solve it by Computer, Pearson (16th Impression) 4. Programming in C, Stephen G. Kochan, Fourth Edition, Pearson Education. 5. Herbert Schildt, C: The Complete Reference, Mc Graw Hill, 4th Edition. 6. Byron Gottfried, Schaum’s Outline of Programming with C, McGraw-Hill.			
E-Reference	1. http://www.tutorialspoint.com/cprogramming/ 2. http://www.cprogramming.com/ 3. http://www.programmingsimplified.com/c-program-examples 4. http://www.programiz.com/c-programming 5. http://www.cs.cf.ac.uk/Dave/C/CE.html			
Course learning outcomes	On successful completion of the course, the students will be able to			
	COs	Course Outcomes	K Level	Learning Outcomes (LO1- LO15)
	CO1	Explain the basic structure of C programs, variables, data types, operators, and input/output statements used in problem-solving programs.	K1 & K2	LO1
	CO2	Apply decision-making statements, looping constructs, arrays, and strings to develop solutions for computational problems.	K3	LO4
	CO3	Develop modular C programs using functions, recursion, pointers, and structures for practical applications.	K4	LO5
	CO4	Analyze and implement file handling	K5	LO11

		techniques and debugging methods independently for data processing applications.										
	CO5	Design, document, and evaluate C programming solutions while demonstrating effective communication and continuous self-learning abilities.					K5 & K6				LO2, LO15	
Mapping of COs with Pos & PSOs	Programme Outcomes						Programme Specific Outcomes				Mapping Score of COs with POs & PSOs	
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO 1	PSO 2	PSO 3	Mean Score	2.20
	CO1	3	2	1	1	1	1.60	3	1	1	1.67	
	CO2	3	3	2	1	1	2.00	3	2	1	2.00	
	CO3	3	3	2	2	1	2.20	3	2	2	2.33	
	CO4	3	3	2	2	2	2.40	3	2	2	2.33	
	CO5	3	3	2	3	3	2.80	3	2	3	2.67	
	Avg	3.00	2.80	1.80	1.80	1.60	2.20	3.00	1.80	1.80	2.20	
	Overall score for PO					2.20	Overall score for PSO			2.20		
	Strongly Correlating (S)					-	3 Marks					
	Moderately Correlating (M)					-	2 Marks					
Weakly Correlating (W)					-	1 Mark						
No Correlation (N)					-	0 Mark						
Teaching–Learning & Assessment Framework												
Teaching Methodology						Assessment Types						
• Experiential learning through lab practice • Flipped learning for coding practice						• Lab tests • Assignments						

• Blended learning using examples • Participative learning (peer coding) • Demonstration and debugging	• Practical exams • Viva voce • Mini tasks
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Course Code	2 Hrs. / Week	Semester I	Year I	Credits	L	T	P	Hrs
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Skill Enhancement Course (SEC) – 1
Semester- I: Common Course for All UG Programmes
Computer Applications
(Common Paper for all UG Courses)

U26CSS10 1	COMPUTER APPLICATIONS (Practical)				2	
Nature of the Course	Employability / Skill Enhancement					
Learning objectives	LO1: Understand the fundamentals of computers and their role in modern society. LO2: Develop practical skills in using office productivity tools for academic and professional purposes. LO3: Understand the basics of internet technologies, digital communication, and cybersecurity. LO4: Apply spreadsheet tools for data organization, analysis, and visualization. LO5: Explore emerging technologies such as Artificial Intelligence, Cloud Computing, and Data Analytics.					
Units	Course Contents					
I	Computer Fundamentals: Evolution of Computers - Characteristics and Applications of Computers - Input and Output Devices – Hardware and Software - Memory and Storage Devices - Operating Systems and their Functions – Windows Operating Systems – Window Objects – Utilities: Recycle Bin- Calculator- Note pad- Paint – Tool Bar – Menu Bar.					12
II	Office Automation Tools: Introduction to Word Processing – Creating, Editing and Formatting Documents – Ruler Line – Page Layout - Table Manipulation - Mail Merge – Find and Replace – Equation Editor - Word Art - Printing and Sharing Documents.					12
III	Spreadsheet Applications: Introduction to Spreadsheets - Workbook and Worksheet Management - Data Entry and Formatting - Formulas and Functions - Charts and Graphs - Sorting and Filtering - Data Analysis Techniques.					12
IV	Internet and Cyber Security: Internet Concepts and Services - Web Browsers and Search Engines - E-mail Communication - Cloud Computing Basics - Cyber Threats and Risks - Password Security - Safe Online Practices - Digital Ethics and Cyber Laws.					12
V	Emerging Technologies: Artificial Intelligence - Machine Learning Applications - Internet of Things (IoT) - Big Data Analytics - Mobile Computing - Digital Transformation - Applications of Emerging Technologies in Various Domains- Presentation Software - Creating Effective Presentations - Multimedia Features					12
Total Hours						60
Question paper Coverage - 100% Practical						
Text book	1. Introduction to Computers, Peter Norton, McGraw-Hill Education, Latest Edition. 2. Fundamentals of Computers, V. Rajaraman, PHI Learning, Latest Edition.					
Reference Book	1. Fundamentals of Information Technology, Alexis Leon & Mathews Leon, Vikas Publishing House, Latest Edition. 2. Computer Fundamentals, Anita Goel, Pearson Education, Latest Edition.					
E-Reference	https://www.gcfglobal.org https://www.w3schools.com https://nptel.ac.in					

	COs	Course Outcomes At the end of the course, students will be able to	K Level	Learning Outcomes (LO1-LO15)
	CO1	Understand and explain the fundamental concepts of computer systems and information technology.	K1 & K2	LO1
	CO2	Use office productivity tools to create professional documents and presentations.	K3	LO2
	CO3	Apply spreadsheet functions and techniques for data management and analysis.	K3 & K4	LO4
	CO4	Demonstrate safe and responsible use of internet technologies and cybersecurity practices.	K 3	LO3
	CO5	Explain the significance and applications of emerging technologies in various sectors.	K2 & K4	LO5
	CO6	Utilize computer applications effectively to solve academic and workplace problems.	K5 & K6	LO1

LAB LIST

- **Identification of Computer Hardware and Peripheral Devices**
Identify and document the functions of system-unit components, input devices, output devices, memory units, and storage devices.
- **Windows Operating System and File Management**
Create folders and subfolders; copy, move, rename, search, sort, compress, restore, and delete files using Windows File Explorer and Recycle Bin.
- **Windows Accessories and Utility Applications**
Perform basic tasks using Notepad, Calculator, Paint, Snipping Tool, Character Map, and other Windows utilities.
- **Creating and Formatting a Document in MS Word**
Create a document containing headings, paragraphs, lists, borders, shading, headers, footers, page numbers, symbols, and special characters.
- **Page Layout and Advanced Document Formatting**
Design a multi-page document using margins, orientation, page size, columns, section breaks, ruler settings, tabs, indentation, line spacing, and paragraph spacing.
- **Table Creation and Manipulation in MS Word**
Create and format a student mark statement or employee information table using cell merging, splitting, alignment, borders, shading, sorting, and basic calculations.
- **Mail Merge Application**
Prepare personalized appointment letters, invitations, certificates, or notices for multiple recipients using Mail Merge and an external recipient list.
- **Find and Replace, Equation Editor, and WordArt**
Create an academic document containing mathematical equations, WordArt, text boxes, shapes, Find and Replace operations, spelling checks, and page formatting.
- **Workbook and Worksheet Management in MS Excel**
Create a workbook with multiple worksheets; rename, insert, delete, move, copy, hide, protect, and format worksheets.

- **Student Mark Analysis Using Formulas and Functions**
Prepare a student mark sheet and calculate total, average, percentage, grade, result, highest mark, lowest mark, and class rank using formulas and functions.
- **Employee Payroll Preparation Using Spreadsheet Functions**
Create a payroll worksheet and calculate basic pay, allowances, deductions, gross salary, and net salary using arithmetic, logical, and conditional functions.
- **Sorting, Filtering, and Data Analysis in MS Excel**
Create a dataset and perform single-level and multi-level sorting, AutoFilter, custom filtering, conditional formatting, subtotal calculation, and data validation.
- **Charts and Graphical Data Presentation**
Prepare a dataset and generate suitable column, bar, line, pie, and area charts. Add chart titles, legends, labels, axes, and appropriate formatting.
- **Internet, E-mail, Cloud Computing, and Cyber security Practices**
Perform an effective web search using search operators, create and send an e-mail with attachments and CC/BCC and upload and share a file through cloud storage.
- **Creating an Effective Multimedia Presentation**
Create a presentation on an emerging technology such as Artificial Intelligence, Machine Learning, IoT, Big Data, Mobile Computing, or Digital Transformation. Include themes, layouts, SmartArt, tables, charts, images, audio/video, animations, transitions, hyperlinks, speaker notes, and slide-show settings.

Course	U26DST203	Semester II	Year I	Credits	L	T	P	Hr
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Reference	SQLebook/dp/B00LPGBWZ0												
Course learning outcomes	On successful completion of the course, the students will be able to												
	COs	Course Outcomes						K Level		Learning Outcomes (LO1-LO15)			
	CO1	Explain the fundamental concepts of database systems, database architecture, data models, keys, and relational database management systems.						K1 & K2		LO1			
	CO2	Apply relational model concepts, relational algebra operations, and SQL commands to define, manipulate, and manage databases.						K3		LO4			
	CO3	Develop database solutions using advanced SQL and PL/SQL concepts such as procedures, functions, triggers, cursors, views, and indexes.						K4		LO5			
	CO4	Analyze and design efficient database structures using ER modeling, functional dependencies, and normalization techniques.						K5		LO11			
	CO5	Evaluate database transaction processing, concurrency control, recovery mechanisms, security practices, and lifelong learning skills for real-world database applications.						K5 & K6		LO2, LO15			
Mapping of COs with Pos & PSOs	Programme Outcomes							Programme Specific Outcomes			Mapping Score of COs with POs & PSOs		
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PS O1	PSO 2	PS O3	Mean Score	2.52	
	CO1	3	2	1	2	1	1.80	2	1	3	2.00		
	CO2	3	3	2	2	1	2.20	3	2	3	2.67		
	CO3	3	3	3	2	2	2.60	3	3	3	3.00		
	CO4	3	3	3	2	2	2.60	3	3	3	3.00		
	CO5	3	3	3	2	2	2.60	2	3	3	2.67		
	Avg	3.00	2.80	2.40	2.00	1.60	2.36	2.60	2.40	3.00	2.67		
	Overall score for PO						2.36	Overall score for PSO		2.67			
	Strongly Correlating (S)						-	3 Marks					
	Moderately Correlating (M)						-	2 Marks					
Weakly Correlating (W)						-	1 Mark						
No Correlation (N)						-	0 Mark						

Teaching–Learning & Assessment Framework	
Teaching Methodology Experiential learning, Flipped Learning, Blended Learning, Participative Learning	Assessment Types Written Mode • Class Test • Assignment • SQL/PL SQL Exercises • Model Examination Integrated Mode • Seminars/ poster presentations • SWOC analysis

[illegible]

11.	Create Indexes on a table and demonstrate their effect on query performance.		
12.	Use DCL commands : GRANT and REVOKE permissions on a table.		
13.	Write a PL/SQL block to insert records into a table and display a message on success.		
14.	Create a Stored Procedure to update a student’s details based on RollNo.		
15.	Create a PL/SQL Function to calculate the total marks of a student from a marks table.		
16.	Create a Trigger to automatically log changes whenever a student record is updated.		
17.	Demonstrate the use of Cursors to retrieve and display records from a table.		
Question paper Coverage - 100% practical			
Text book	1. Pranab Kumar Das Gupta and P. Radha Krishnan , “Database Management System Oracle SQL and PL/SQL”, Second Edition, 2013, PHI Learning Private Limited.		
Reference Book	1. RamezElmasri and Shamkant B. Navathe , “Fundamentals of Database Systems”, Seventh Edition, Pearson Publications. 2. Abraham Silberschatz, Henry Korth, S. Sudarshan , “Database System Concepts”, Seventh Edition, TMH.		
E-Reference	1. http://www.amazon.in/DATABASE-MANAGEMENT-SYSTEM-ORACLE-SQLbook/dp/B00LPGBWZ0		
Course learning outcomes	On successful completion of the course, the students will be able to		
	COs	Course Outcomes	K Level Learning Outcomes (LO1-LO15)
	CO1	Demonstrate the fundamentals of relational database systems by creating tables, defining attributes, and applying appropriate SQL constraints.	K1 & K2 LO1
	CO2	Apply SQL commands, queries, aggregate functions, and data manipulation operations to retrieve, update, and manage database records.	K3 LO4
	CO3	Develop database solutions using joins, subqueries, indexes, and relational operations for efficient data retrieval and processing.	K4 LO5
	CO4	Analyze and implement database security mechanisms using DCL commands, user privileges, and access control techniques.	K5 LO11
	CO5	Design and evaluate database applications using PL/SQL procedures, functions, triggers, cursors, teamwork, communication, and lifelong learning skills.	K5 & K6 LO2, LO15
	Programme Outcomes	Programme Specific Outcomes	Mapping Score of COs with POs &

Mapping of COs with Pos & PSOs												PSOs
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO 1	PS O2	PS O3	Me an Sco re	2.30
	CO1	3	2	1	1	1	1.60	3	1	2	2.00	
	CO2	3	3	2	1	1	2.00	3	2	2	2.33	
	CO3	3	3	3	2	1	2.40	3	2	3	2.67	
	CO4	3	3	3	2	2	2.60	2	3	3	2.67	
	CO5	3	3	3	3	3	3.00	3	3	3	3.00	
	Avg	3.00	2.80	2.40	1.80	1.60	2.32	3.00	2.00	1.80	2.27	
	Overall score for PO						2.32	Overall score for PSO		2.27		
	Strongly Correlating (S)						-	3 Marks				
Moderately Correlating (M)						-	2 Marks					
Weakly Correlating (W)						-	1 Mark					
No Correlation (N)						-	0 Mark					
Teaching–Learning & Assessment Framework												
Teaching Methodology Experiential learning, Flipped Learning, Blended Learning, Participative Learning							Assessment Types					
							Written Mode					
							• Lab Record • SQL/PLSQL Programming Exercises • Practical Assignments • Model Practical Examination					
							Integrated Mode					
							• Seminars/ poster presentations • SWOC analysis • Viva Voce					

[illegible]

	Register Organization, Stack Organization, Instruction Formats, Addressing Modes – Data Transfer and Manipulation Instructions											
Unit V	Memory Elements: RAM - static RAM - Dynamic RAM - ROM - Magnetic Disk memories - Magnetic tape - Cache Memory.											
Question paper Coverage - 80% theory & 20% Problem												
Text book	1. Donald P. Leach, Albert Paul Malvino and Goutam Saha “Digital Principles and Application”, Seventh Edition, Tata McGraw-Hill Publishing Company Ltd., New Delhi, 2010.											
Reference Book	1. S.Narayanan, S.Viswanathan, “Numerical Analysis”,1994. 2. S.S.Sastry, “Introductory Methods of Numerical Analysis” PHI,1995.											
E-Reference	1. https://www.geeksforgeeks.org/digital-electronics-logic-design-tutorials 2. https://nptel.ac.in/courses/117/106/117106086 3. https://www.tutorialspoint.com/digital-electronics/index.htm 4. https://www.electronics-tutorials.ws/logic/logic_1.html 5. https://www.allaboutcircuits.com/textbook/digital											
Course learning outcomes	On successful completion of the course, the students will be able to											
	COs	Course Outcomes								K Level	Learning Outcomes (LO1-LO15)	
	CO1	Understand number systems, binary codes, logic gates, and their role in digital systems.								K1 & K2	LO1	
	CO2	Apply Boolean algebra laws and Karnaugh maps to simplify logical expressions and solve digital logic problems.								K3	LO4	
	CO3	Analyze and design combinational logic circuits such as adders, subtractors, multiplexers, demultiplexers, encoders, and decoders.								K4	LO5	
	CO4	Evaluate the operation and performance of sequential circuits including flip-flops, registers, instruction formats, and addressing modes.								K5	LO11	
	CO5	Design memory-based digital systems using RAM, ROM, cache memory, and counters for practical computing applications.								K5 & K6	LO2, LO15	
Mapping of COs with Pos & PSOs	Programme Outcomes							Programme Specific Outcomes				Mapping Score of COs with POs & PSOs
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO1	PSO2	PSO3	Mean Score	2.26

							e				e	
	CO1	3	2	1	1	1	1.60	2	2	1	1.67	
	CO2	3	3	2	1	1	2.00	2	3	1	2.00	
	CO3	3	3	3	2	2	2.60	2	3	2	2.33	
	CO4	3	3	3	2	2	2.60	2	3	2	2.33	
	CO5	3	3	3	3	2	2.80	3	3	2	2.67	
	Avg	3.00	2.80	2.40	1.80	1.60	2.32	2.20	2.80	1.60	2.20	
	Overall score for PO						2.32	Overall score for PSO			2.20	
	Strongly Correlating (S)						-	3 Marks				
	Moderately Correlating (M)						-	2 Marks				
	Weakly Correlating (W)						-	1 Mark				
	No Correlation (N)						-	0 Mark				

Teaching–Learning & Assessment Framework

Teaching Methodology

- Experiential Learning (Hands-on problem solving and circuit design)
- Flipped Learning (Pre-class videos on logic gates and K-map)
- Blended Learning (Classroom + digital simulation tools)
- Participative Learning (Group discussion and problem solving)
- Demonstration Method (Circuit and logic design demonstrations)
- Problem-Based Learning (Real-time digital logic problems)

Assessment Types

Written Mode:

- Unit Tests (Theory & Numerical Problems)
- Assignments (Boolean simplification, circuit design)
- Model Examination
- Research-based Reports

Integrated Mode:

- Portfolio (Solved problems and circuit designs)
- Mini Project (Simple digital system design)
- Seminar / Poster Presentation
- SWOC Analysis

Course Code	U26DSS202	Semester II	Year I	Credits	L	T	P	H r s
SEC	SEC-2 – 50% Theory and 50% Practical Web Designing Using HTML and CSS			2	1	0	1	2
Nature of the Course	Employability& skill enhancement							
Learning objectives	LO1: Understand the basic concepts of the Internet, World Wide Web, and the structure of HTML documents. LO2: Learn to create web pages using HTML elements such as headings, lists, links, images, tables, and multimedia elements. LO3: Develop interactive web forms using HTML form elements and understand semantic HTML tags. LO4: Apply CSS to design and style web pages using selectors, properties, and layout concepts. LO5: Understand the basics of JavaScript to add interactivity and simple form validation in web pages.							
Units	Course Contents							
Unit I	HTML: Introduction to Internet and World Wide Web, Web Browsers and Web Servers, Client–Server Architecture, Overview of HTML, Structure of an HTML Document, Basic HTML Tags, Headings, Paragraphs, Line Break, Horizontal Rule, Comments, Text Formatting Tags, Attributes in HTML, Creating and Saving HTML Files – list – font size, face and color – alignment – links – Lists –Hyperlinks – Anchor Tag and Attributes							
Unit II	Images and Multimedia in HTML: Image Tag and Attributes, Tables – Table Structure, Table Attributes. Multimedia Elements – Audio, Video. Graphics: Introduction – How to work efficiently with images in web pages, image maps, GIF animation, adding							

	multimedia, tools for building web page front page			
Unit III	Forms Using HTML: HTML Forms – Form Tag and Attributes – Input Types (text, password, radio, checkbox, email, date, etc.) – Textarea – Select and Option – Buttons – Form Validation Basics – <header>, <footer>, <section>, <article>, <nav>, <aside> – <iframe> and Embedding Content			
Unit IV	CSS: Introduction to CSS – Types of CSS – CSS Syntax and Selectors – Colors in CSS – Background Properties – Text and Font Properties – CSS Comments – Grouping Styles – CSS Box Model – Margin, Border, Padding – Display Properties			
Unit V	JavaScript: Introduction to JavaScript – Features of JavaScript – Including JavaScript in HTML – Variables, Constants, and Data Types – Operators – Expressions – Conditional Statements: if, if-else, switch – Loops: for, while, do-while – Functions: Defining and Calling Functions, Function Arguments – Events: onclick, onmouseover, onmouseout, onload – Simple Form Validation Using JavaScript			
Question paper Coverage - 50% theory & practical 50%				
Text book	1. Pankaj Sharma, “Web Technology”, Sk Kataria & Sons Bangalore, 2011.(UNIT I, II, III &IV).			
Referen ce Book	1. Laura Lemay, Rafe Colburn , Jennifer Kyrnin, “Mastering HTML, CSS & Javascript Web Publishing”, 2016 2. DT Editorial Services (Author), “HTML 5 Black Book (Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP, jQuery)”, Paperback 2016, 2ndEdition.			
E- Referen ce	1. https://www.w3schools.com/html/ https://www.w3schools.com/css/ 2. https://developer.mozilla.org/en-US/docs/Learn/Getting_started_with_the_web/HTML_basics 3. https://developer.mozilla.org/en-US/docs/Learn/Getting_started_with_the_web/CSS_basics 4. https://www.tutorialspoint.com/html/index.htm			
Course learning outcomes	On successful completion of the course, the students will be able to			
	COs	Course Outcomes	K Level	Learning Outcomes (LO1- LO15)
	CO1	Understand the fundamentals of the Internet, World Wide Web, and the structure of HTML documents.	K1 & K2	LO1
	CO2	Apply HTML elements, attributes, forms, multimedia, and semantic tags to develop web pages.	K3	LO4
	CO3	Analyze and implement CSS selectors, properties, layouts, and box models for effective web page design.	K4	LO5
	CO4	Evaluate and develop interactive web pages using CSS design techniques and JavaScript programming constructs.	K5	LO11
	CO5	Create complete responsive websites integrating HTML, CSS, and JavaScript with validation and user interaction features.	K5 & K6	LO2, LO15
Mappin		Programme Outcomes	Programme Specific	Mapping

g of COs with Pos & PSOs								Outcomes				Score of COs with POs & PSOs
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO1	PSO2	PSO3	Mean Score	2.36
	CO1	3	2	1	2	1	1.80	1	1	2	1.33	
	CO2	3	2	3	2	2	2.40	2	2	3	2.33	
	CO3	3	3	3	2	2	2.60	2	2	3	2.33	
	CO4	3	3	3	3	2	2.80	2	2	3	2.33	
	CO5	3	3	3	3	3	3.00	2	3	3	2.67	
	Avg	3.00	2.60	2.60	2.40	2.00	2.52	1.80	2.00	2.80	2.20	
		Overall score for PO						2.52	Overall score for PSO		2.20	
		Strongly Correlating (S)						-	3 Marks			
	Moderately Correlating (M)						-	2 Marks				
	Weakly Correlating (W)						-	1 Mark				
	No Correlation (N)						-	0 Mark				
	Teaching–Learning & Assessment Framework											
	Teaching Methodology • Experiential Learning (Hands-on web page creation using HTML & CSS) • Flipped Learning (Pre-class tutorials on HTML, CSS, JavaScript) • Blended Learning (Classroom + online coding platforms) • Participative Learning (Group activities and peer review) • Demonstration Method (Live web design sessions) • Problem-Based Learning (Designing real-time web pages)						Assessment Types Written Mode: • Unit Tests (Theory & Practical) • Assignments (Web page development) • Model Examination • Research-based Reports Integrated Mode: • Portfolio (Collection of web pages) • Mini Project (Website development) • Seminar / Poster Presentation • SWOC Analysis					

Course Code	U26DST305	Semester III	Year II	Credits	L	T	P	Hrs
Core	Core – 5 Theory JAVA PROGRAMMING			4	5	0	0	5
Nature of the Course	Employability							
Learning objectives	LO1: Understand the basic concepts of Java programming including syntax, data types, operators, control structures, arrays, and strings. LO2: Learn object-oriented programming concepts such as classes, objects, inheritance, polymorphism, packages, and interfaces using Java. LO3: Understand exception handling mechanisms and multithreading concepts for developing robust Java applications. LO4: Learn file handling and input/output stream operations for managing data in Java programs. LO5: Develop graphical user interface applications using AWT and understand event handling in Java.							
Units	Course Contents							
Unit I	Programming in JAVA							

	Object-Oriented Paradigm – Basic Concepts of Object-Oriented Programming – Benefits of Object-Oriented Programming –Application of Object-Oriented Programming. Java Evolution: History – Features – How Java differs from C and C++ – Java and Internet – Java and www –Web Browsers. Overview of Java: simple Java program – Structure – Java Tokens – Statements – Java Virtual Machine.			
Unit II	BRANCHING AND LOOPING Constants, Variables, Data Types - Operators and Expressions – Decision Making and Branching: if, if...else, nested if, switch, ? : Operator - Decision Making and Looping: while, do, for – Jumps in Loops - Labeled Loops – Classes, Objects and Methods.			
Unit III	ARRAYS AND INTERFACES Arrays, Strings and Vectors – Interfaces: Multiple Inheritance – Packages: Putting Classes together – Multithreaded Programming.			
Unit IV	ERROR HANDLING Managing Errors and Exceptions (use of try, catch, finally, throw, and throws)– Applet Programming – Graphics Programming.			
Unit V	MANAGING INPUT / OUTPUT FILES IN JAVA Concepts of Streams- Stream Classes – Byte Stream classes – Character stream classes – Using streams – I/O Classes –Creation of files – Reading / Writing characters- Random Access Files.			
Question paper Coverage - 100% theory				
Text book	1. Programming with Java – A Primer - E. Balagurusamy, 5 th Edition, TMH. 2. Herbert Schildt , Java: The Complete Reference, McGraw Hill Education, Oracle Press 10th Edition, 2018 3. Programming with Java – A Primer - E. Balagurusamy, 3rd Edition, TMH.			
Reference Book	1. The Complete Reference Java 2 - Patrick Naughton & Hebert Schildt, 3rd Edition, TMH 2. Programming with Java – John R. Hubbard, 2nd Edition, TMH.			
E-Reference	1. https://www.w3schools.com/java/java_oop.asp 2. https://www.geeksforgeeks.org/object-oriented-programming-oops-concept-in-java/ 3. https://www.javatpoint.com/java-oops-concepts 4. https://www.coursera.org/learn/object-oriented-java 5. https://docs.oracle.com/javase/tutorial/java/concepts/index.html			
Course learning outcomes	On successful completion of the course, the students will be able to			
	COs	Course Outcomes	K Level	Learning Outcomes (LO1-LO15)
	CO1	Understand the fundamentals of object-oriented programming, Java environment, syntax, tokens, data types, and control structures.	K1&K2	LO1
	CO2	Apply decision-making statements, looping constructs, arrays,	K3	LO4

		strings, and vectors to solve programming problems.											
	CO3	Analyze and implement classes, objects, methods, interfaces, and packages for modular software development.							K4	LO5			
	CO4	Evaluate exception handling, multithreading, applet programming, and graphics programming techniques in Java applications.							K5	LO11			
	CO5	Develop robust Java applications using file handling, stream classes, packages, and multithreading concepts.							K5&K6	LO2, LO15			
Mapping of COs with Pos & PSOs	Programme Outcomes						Programme Specific Outcomes					Mapping Score of COs with POs & PSOs	
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO 1	PSO 2	PSO 3	Mean Score	2.32	
	CO1	3	2	2	1	1	1.80	2	1	1	1.33		
	CO2	3	3	2	2	1	2.20	3	2	1	2.00		
	CO3	3	3	3	2	2	2.60	3	2	2	2.33		
	CO4	3	3	3	2	2	2.60	2	3	2	2.33		
	CO5	3	3	3	3	3	3.00	3	3	3	3.00		
	Avg	3.00	2.80	2.60	2.00	1.80	2.44	2.60	2.20	1.80	2.20		
	Overall score for PO					2.44	Overall score for PSO			2.20			
	Strongly Correlating (S)				-	3 Marks							
Moderately Correlating (M)				-	2 Marks								
Weakly Correlating (W)				-	1 Mark								
No Correlation (N)				-	0 Mark								
Teaching–Learning & Assessment Framework													
Teaching Methodology						Assessment Types							
• Experiential Learning: Hands-on Java programming, debugging, mini projects. • Flipped Learning: Pre-class videos, discussions, code reviews. • Blended Learning: Classroom teaching with online coding platforms, LMS quizzes, NPTEL/SWAYAM resources. • Participative Learning: Group						Written Mode							
						• Class Tests • Assignments • Tutorials • Model Examination							
						Integrated Mode							
						• Seminar / Poster Presentation • SWOC Analysis • Viva Voce							

	LO4: Learn file handling and input/output stream operations for data processing in Java. LO5: Develop graphical user interface applications using AWT and understand event handling in Java.
	LAB EXERCISES
1.	Program to print “Hello, World!” and your name.
2.	Program to declare variables of all primitive data types, initialize them, and display their values.
3.	Program to perform arithmetic, relational, and logical operations using operators.
4.	Program to find the largest of three numbers using if-else.
5.	Program to demonstrate the use of arrays by storing and displaying student marks.
6.	Program to manipulate strings: concatenate, find length, reverse, and compare strings.
7.	Program to define a class Student with attributes and display their details using methods.
8.	Program to create a constructor in a class and initialize object data.
9.	Program to demonstrate single inheritance by creating a superclass and subclass.
10.	Program to handle exceptions using try, catch, finally blocks.
11.	Program to write data to a file using FileOutputStream and read it using FileInputStream .
12.	Program to create a simple applet that displays “Welcome to Java Applets”.
13.	Program to display your name and roll number using an applet.
14.	Program to draw basic shapes (line, rectangle, oval) using Graphics in an applet.
15.	Program to change the background and foreground colors of an applet.
16.	Program to create an applet that takes input from the user using text fields and displays it.
17.	Program to create a simple AWT window with a button and a label.
18.	Program to demonstrate event handling: clicking a button changes the text of a label.
Question paper Coverage - 100% practical	
Text book	1. P. Radha Krishna, Object Oriented Programming through JAVA, Universities Press, 2007 Unit I: Chapter 1 & 2 Unit II: Chapter 3 Unit III: Chapter 5 & 6 Unit IV: Chapter 7 & 8 Unit V: Chapter 10 2. Programming with Java – A Primer - E. Balagurusamy, 3 rd Edition, TMH.
Reference Book	1. Herbert Schildt, The Complete Reference Java, Fifth Edition, Tata McGRAW-Hill, 2008 Web Reference: https://www.programiz.com/java-programming 2. The Complete Reference Java 2 - Patrick Naughton & Hebert Schildt, 3 rd Edition, TMH 3. Programming with Java – John R. Hubbard, 2 nd Edition, TMH. Related Online Contents (MOOC, SWAYAM,NPTEL, Websites etc)
E-Reference	1. https://www.w3schools.com/java/java_oop.asp 2. https://www.geeksforgeeks.org/object-oriented-programming-oops-concept-in-java/ 3. https://www.javatpoint.com/java-oops-concepts

	4. https://www.coursera.org/learn/object-oriented-java 5. https://docs.oracle.com/javase/tutorial/java/concepts/index.html											
Course learning outcomes	On successful completion of the course, the students will be able to											
	COs	Course Outcomes								K Level	Learning Outcomes (LO1-LO15)	
	CO1	Demonstrate the fundamental concepts of Java programming including syntax, data types, operators, control structures, arrays, and strings.								K1 & K2	LO1	
	CO2	Apply object-oriented programming concepts such as classes, objects, inheritance, polymorphism, packages, and interfaces to develop Java applications.								K3	LO4	
	CO3	Develop Java programs using exception handling, multithreading, and file processing techniques to solve programming problems.								K4	LO5	
	CO4	Analyze and implement Java applications using input/output streams, GUI components, and event-driven programming concepts.								K5	LO11	
	CO5	Design and evaluate real-world Java applications using object-oriented principles, GUI development, teamwork, communication, and lifelong learning skills.								K5 & K6	LO2, LO15	
Mapping of COs with Pos & PSOs	Programme Outcomes							Programme Specific Outcomes				Mapping Score of COs with POs & PSOs
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO1	PSO2	PSO3	Mean Score	2.33
	CO1	3	2	1	1	1	1.60	3	1	1	1.67	
	CO2	3	3	2	1	1	2.00	3	2	1	2.00	
	CO3	3	3	3	2	1	2.40	3	2	2	2.33	
	CO4	3	3	3	2	2	2.60	3	3	2	2.67	
	CO5	3	3	3	3	3	3.00	3	3	3	3.00	
	Avg	3.00	2.80	2.40	1.80	1.60	2.32	3.00	2.20	1.80	2.33	
	Overall score for PO						2.32	Overall score for PSO			2.33	
	Strongly Correlating (S)						-	3 Marks				
Moderately Correlating (M)						-	2 Marks					

	Weakly Correlating (W)	-	1 Mark
	No Correlation (N)	-	0 Mark
Teaching–Learning & Assessment Framework			
Teaching Methodology • Experiential Learning • Flipped Learning • Blended Learning • Participative Learning	Assessment Types		
	Written Mode - detailed research based reports • Class Tests • Assignments • Tutorials • Model Examination Integrated Mode seminars/ poster presentations Programming Portfolio Lab Demonstration SWOC analysis Viva Voce		

[illegible]

Learning objectives	LO1: Understand the basic concepts of statistics, types of data, methods of data collection, and graphical representation of data. LO2: Learn measures of central tendency and dispersion to summarize and interpret datasets. LO3: Understand the basic principles of probability and apply probability rules to simple events. LO4: Study probability distributions such as binomial and normal distributions for analyzing random variables. LO5: Understand correlation and regression techniques to analyze relationships between variables.
Units	Course Contents
Unit I	Basics of Statistics and Data: Meaning and Uses of Statistics – Types of Data: Qualitative and Quantitative – Primary and Secondary Data – Methods of Data Collection – Classification and Tabulation of Data – Graphical Representation: Bar Diagram – Pie Chart – Histogram – Measures of Central Tendency: Mean – Median – Mode – Simple Numerical Problems.
Unit II	Measures of Dispersion: Range – Variance– Standard Deviation – Simple Numerical Problems – Interpretation of Spread in Data – Comparison of Two Datasets Using Mean and Standard Deviation.
Unit III	Introduction to Probability: Basic Concepts of Probability – Sample Space and Events – Addition Rule of Probability – Multiplication Rule of Probability – Conditional Probability
Unit IV	Basic Probability Distributions: Random Variable – Binomial Distribution – Normal Distribution – Standard Normal Distribution – Z-Score.
Unit V	Correlation and Introduction to Regression: Meaning of Correlation – Types of Correlation: Positive and Negative – Scatter Diagram – Karl Pearson's Correlation Coefficient– Concept of Line of Best Fit – Simple Linear Regression Equation.
Question paper Coverage - 70% theory and 30% Numerical Problem Solving / Statistical Applications	
Text book	1. S.P. Gupta, Business Statistics, 44th Edition, Sultan Chand & Sons, New Delhi, 2014. 2. S.C. Gupta and V.K. Kapoor, Fundamentals of Mathematical Statistics, 12th Edition, Sultan Chand & Sons, New Delhi, 2020. 3. David M. Levine, David F. Stephan and Kathryn A. Szabat, Statistics for Managers Using Microsoft Excel, 8th Edition, Pearson Education, 2018. 4. Prem S. Mann, Introductory Statistics, 8th Edition, Wiley India, 2017. 5. Sancheti and Kapoor, Statistics: Theory, Methods and Applications, 7th Edition, Sultan Chand & Sons, New Delhi, 2018.
Reference Book	1. S.C. Gupta and V.K. Kapoor, Fundamentals of Mathematical Statistics (Advanced Topics), Sultan Chand & Sons, New Delhi, Latest Edition. 2. Gregory J. Privitera, Basic Statistics: A Primer for the Biomedical Sciences, 2nd Edition, Sage Publications, 2017.
E-Reference	1. https://nptel.ac.in 2. https://swayam.gov.in 3. https://www.coursera.org

	4. https://ocw.mit.edu 5. https://www.khanacademy.org/math/statistics-probability												
Course learning outcomes	On successful completion of the course, the students will be able to												
	COs	Course Outcomes									K Level	Learning Outcomes (LO1-LO15)	
	CO1	Explain the fundamental concepts of statistics, data collection methods, classification, tabulation, and graphical representation of data.									K1 & K2	LO1	
	CO2	Apply measures of central tendency and dispersion to summarize, compare, and interpret datasets.									K3	LO4	
	CO3	Apply probability concepts, probability rules, and probability distributions to solve statistical problems.									K4	LO5	
	CO4	Analyze random variables and statistical data using binomial distribution, normal distribution, and standard scores.									K5	LO11	
	CO5	Evaluate relationships between variables and develop predictive models using correlation and regression techniques for decision-making.									K5 & K6	LO2, LO15	
Mapping of COs with Pos & PSOs	Programme Outcomes							Programme Specific Outcomes				Mapping Score of COs with POs & PSOs	
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO 1	PS O2	PS O3	Mean Score	2.39	
	CO1	3	2	1	2	1	1.80	2	2	2	2.00		
	CO2	3	3	1	2	1	2.00	3	2	2	2.33		
	CO3	3	3	2	2	1	2.20	3	3	2	2.67		
	CO4	3	3	3	2	2	2.60	3	3	2	2.67		
	CO5	3	3	3	2	2	2.60	3	3	3	3.00		
	Avg	3.00	2.80	2.00	2.00	1.40	2.24	2.80	2.60	2.20	2.53		
	Overall score for PO							2.24	Overall score for PSO		2.53		
	Strongly Correlating (S)							-	3 Marks				
Moderately Correlating (M)							-	2 Marks					
Weakly Correlating (W)							-	1 Mark					
No Correlation (N)							-	0 Mark					
Teaching-Learning & Assessment Framework													

Teaching Methodology Experiential learning, Flipped Learning, Blended Learning, Participative Learning	Assessment Type Written Mode • Class Tests • Numerical Problem Solving Assignments • Tutorials • Model Examination Integrated Mode seminars/ poster presentations SWOC analysis
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[illegible]

	Database Connectivity			
Question paper Coverage - 40% theory & 60% practical				
Text book	1. Pankaj Sharma, “Web Technology”, SkKataria&SonsBangalore, 2011. (UNIT I, II, III &IV). 2. Achyut S Godbole&AtulKahate, “Web Technologies”, 2002, 2 nd Edition. (UNIT V:AJAX)			
Refere nce Book	1. Laura Lemay, RafeColburn, Jennifer Kyrnin, “Mastering HTML, CSS &Javascript Web Publishing”,2016. 2. https://www.amazon.in/s/ref%3Ddp_byline_sr_book_1?ie=UTF8&field-author=DT%2BEditorial%2BServices&search-alias=stripbooks (Author), “HTML 5 Black Book (Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP, jQuery)”, Paperback 2016, 2 nd Edition.			
E- Refere nce	1. https://www.php.net/docs.php 2. https://www.w3schools.com/php/ 3. https://www.geeksforgeeks.org/php-tutorials/ 4. https://www.tutorialspoint.com/php/index.htm 5. https://nptel.ac.in			
Course learnin g outcom es	On successful completion of the course, the students will be able to			
	COs	Course Outcomes	K Le vel	Learning Outcomes (LO1- LO15)
	CO1	Explain the fundamental concepts of PHP programming including syntax, variables, data types, constants, operators, and embedding PHP within HTML.	K1 & K2	LO1
	CO2	Apply PHP control structures, functions, arrays, string handling, and form processing techniques to develop structured web programs.	K3	LO4
	CO3	Develop dynamic PHP applications using sessions, cookies, file inclusion, database connectivity, and web integration techniques.	K4	LO5
	CO4	Analyze and implement object-oriented programming concepts, file handling, regular expressions, and error handling mechanisms in PHP applications.	K5	LO11
	CO5	Design and evaluate secure web applications using advanced PHP concepts, database-driven development, teamwork, communication, and lifelong learning skills.	K5 & K6	LO2, LO15
	Programme Outcomes	Programme Specific Outcomes	Mapping Score of COs with POs & PSOs	

Mapping of COs with Pos & PSOs .	COs	PO1	PO 2	PO3	PO4	PO5	Mean Score	PS O1	PS O2	PSO 3	Mean Score	2.24
	CO1	3	2	1	1	1	1.60	3	1	1	1.67	
	CO2	3	3	1	1	1	1.80	3	2	1	2.00	
	CO3	3	3	2	1	1	2.00	3	2	2	2.33	
	CO4	3	3	3	2	2	2.60	3	2	2	2.33	
	CO5	3	3	3	3	3	3.00	3	3	3	3.00	
	Avg	3.00	2.80	2.00	1.60	1.60	2.20	3.00	2.00	1.80	2.27	
	Overall score for PO					2.20	Overall score for PSO		2.27			
	Strongly Correlating (S)					-	3 Marks					
	Moderately Correlating (M)					-	2 Marks					
Weakly Correlating (W)					-	1 Mark						
No Correlation (N)					-	0 Mark						
Teaching–Learning & Assessment Framework												
Teaching Methodology						Assessment Types Written Mode - Class Tests - Coding Assignments - Tutorials - Model Examination Integrated Mode - Seminar / Poster Presentation - SWOC Analysis Hackathon / Coding Challenge Participation						
Experiential learning, Flipped Learning, Blended Learning, Participative Learning												

Course Code	U26DSV301	Semester III	Year II	Credits	L	T	P	Hrs
Value Added Course	Value Added Course – 1 Practical DATA ANALYTICS USING EXCEL LAB			1*	-	-	-	-
Nature of the Course	Skill Enhancement / Employability							
Learning objectives	LO1: Understand the fundamentals of data analytics and spreadsheet-based data management using Excel. LO2: Perform data cleaning, formatting, sorting, filtering, and transformation techniques using Excel tools. LO3: Apply formulas, functions, Pivot Tables, and Pivot Charts for data analysis. LO4: Create effective data visualizations and interactive dashboards for decision-making. LO5: Analyze real-world datasets and generate meaningful insights using Excel analytics techniques.							
	Course Contents							
	LAB EXERCISES:							
1.	Create and format worksheets using Excel.							
2.	Perform Basic Data Operations							
3.	Data Sorting and Filtering							
4.	Data Cleaning and Validation							
5.	Text Functions for Data Transformation							
6.	Logical Functions and Conditional Analysis							
7.	Lookup and Reference Functions							
8.	Statistical Analysis Using Excel Functions							
9.	Conditional Formatting for Data Analysis							
10.	Create and Analyze Pivot Tables							
11.	Develop Pivot Charts							
12.	Create Business Data Visualizations							
13.	Analyze sales performance, customer trends, and product-wise reports.							
14.	Create dashboards using Pivot Tables, Charts, Slicers, and Timelines.							

15.	Analyze a real-world dataset and prepare a comprehensive report with visualizations and insights											
Question paper Coverage - 100% practical												
Text book	Wayne L. Winston, " Microsoft Excel Data Analysis and Business Modeling ", Microsoft Press.											
Reference Books	1. John Walkenbach, " Excel Data Analysis: Your Visual Blueprint for Creating and Analyzing Data ", Wiley Publications. 2. Bill Jelen and Michael Alexander, " Excel 2021 Pivot Table Data Crunching ", Que Publishing. 3. Michael Alexander and Richard Kusleika, " Excel 365 Bible ", Wiley Publications.											
E-Reference s	1. https://learn.microsoft.com/en-us/training/browse/?products=excel&utm_source=chatgpt.com 2. https://support.microsoft.com/excel?utm_source=chatgpt.com 3. https://www.edx.org/learn/data-analysis?utm_source=chatgpt.com 4. https://www.analyticsvidhya.com?utm_source=chatgpt.com											
Course learning outcomes	On successful completion of the course, the students will be able to											
	COs	Course Outcomes						K Level		Learning Outcomes (LO1-LO15)		
	CO1	Explain the fundamentals of Excel, spreadsheet operations, data organization, and data management techniques used in analytics.						K1 & K2		LO1		
	CO2	Apply Excel tools and functions for data cleaning, transformation, sorting, filtering, and data preparation.						K3		LO4		
	CO3	Analyze datasets using formulas, statistical functions, Pivot Tables, and analytical techniques to derive meaningful insights.						K4		LO5		
	CO4	Evaluate and create data visualizations, Pivot Charts, and interactive dashboards for decision-making and reporting.						K5		LO11		
	CO5	Design analytical reports and Excel-based business solutions using real-world datasets while demonstrating communication, teamwork, ethical practices, and lifelong learning skills.						K5 & K6		LO2, LO15		
Mapping of COs with Pos & PSOs .	Programme Outcomes						Programme Specific Outcomes				Mapping Score of COs with POs & PSOs	
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO 1	PS O2	PS O3	Me an Sco	2.45

											re		
	CO1	3	2	1	1	1	1.60	2	1	2	1.67		
	CO2	3	3	2	1	1	2.00	3	2	2	2.33		
	CO3	3	3	3	2	1	2.40	3	3	2	2.67		
	CO4	3	3	3	3	2	2.80	3	3	3	3.00		
	CO5	3	3	3	3	3	3.00	3	3	3	3.00		
	Avg	3.00	2.80	2.40	2.00	1.60	2.36	2.80	2.40	2.40	2.53		
	Overall score for PO						2.36	Overall score for PSO			2.53		
	Strongly Correlating (S)						-	3 Marks					
	Moderately Correlating (M)						-	2 Marks					
Weakly Correlating (W)						-	1 Mark						
No Correlation (N)						-	0 Mark						
Teaching–Learning & Assessment Framework													
Teaching Methodology • Experiential Learning (Hands-on Excel Lab Sessions) • Flipped Learning (Video-based Excel Demonstrations) • Blended Learning (Classroom + Digital Learning Resources) • Participative Learning (Group-based Analytics Activities) • Case Study Based Learning						Assessment Types							
						Continuous Assessment • Practical Assignments • Excel Worksheets • Dashboard Creation Tasks • Class Tests • Mini Project							
						Integrated Assessment • Seminar Presentation • Analytical Report Submission • Viva Voce							

[illegible]

	expressions for pattern matching and manipulation			
Question paper Coverage - 80%theory & 20% Problem				
Text book	1. Josef, J., & Lal, S. P. (2016). <i>Introduction to Computing and Problem Solving with Python</i> . Khanna Book Publishing Co. 2. ReemaThareja, “Python Programming using problem solving approach”, First Edition, 2017, Oxford University Press. 3. Dr. R. NageswaraRao, “Core Python Programming”, First Edition, 2017, Dreamtech Publishers.			
Reference Book	1. VanderPlas, J. (2016). <i>Python Data Science Handbook: Essential Tools for Working with Data</i> . O’Reilly Media. 2. Downey, A. B. (2nd Ed.). <i>Think Python: How to Think Like a Computer Scientist (Updated for Python 3)</i> . Shroff/O’Reilly Publishers. 3. van Rossum, G., & Drake, F. L. (2011). <i>An Introduction to Python (Revised and Updated for Python 3.2)</i> . Network Theory Ltd.			
E-Reference	1. https://www.programiz.com/python-programming 2. https://www.guru99.com/python-tutorials.html 3. https://www.w3schools.com/python/python_intro.asp 4. https://www.geeksforgeeks.org/python-programming-language/ 5. https://en.wikipedia.org/wiki/Python_(programming_language)			
Course learning outcomes	On successful completion of the course, the students will be able to			
	COs	Course Outcomes	K Level	Learning Outcomes (LO1-LO15)
	CO1	Explain the fundamental concepts of Python programming including syntax, variables, data types, operators, and input/output operations.	K1 & K2	LO1
	CO2	Apply conditional statements, looping constructs, and recursion techniques to solve computational problems using Python.	K3	LO4
	CO3	Develop modular Python programs using functions, modules, and packages for efficient problem solving.	K4	LO5
	CO4	Analyze and utilize Python data structures such as lists, tuples, sets, dictionaries, and strings for data manipulation and processing.	K5	LO11
	CO5	Design and implement Python applications using file handling, exception handling, object-oriented programming concepts, and self-learning skills to address real-world problems	K5 & K6	LO2, LO15
Mapping of COs with Pos &	Programme Outcomes	Programme Specific Outcomes	Mapping Score of COs with	

PSOs											POs & PSOs	
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO1	PSO2	PSO3	Mean Score	2.27
	CO1	3	2	1	1	1	1.60	3	1	1	1.67	
	CO2	3	3	2	1	1	2.00	3	2	1	2.00	
	CO3	3	3	2	2	1	2.20	3	2	2	2.33	
	CO4	3	3	3	2	1	2.40	3	3	2	2.67	
	CO5	3	3	3	3	2	2.80	3	3	3	3.00	
	Avg	3.00	2.80	2.20	1.80	1.20	2.20	3.00	2.20	1.80	2.33	
	Overall score for PO						2.20	Overall score for PSO			2.33	
	Strongly Correlating (S)						-	3 Marks				
	Moderately Correlating (M)						-	2 Marks				
	Weakly Correlating (W)						-	1 Mark				
	No Correlation (N)						-	0 Mark				
Teaching–Learning & Assessment Framework												
Teaching Methodology • Experiential Learning (Hands-on Python programming sessions in lab) • Flipped Learning (Coding demonstrations) • Blended Learning (Combination of classroom teaching and online platforms) • Participative Learning (Group discussions and peer coding activities) • Problem-Based Learning (Real-world problem solving using Python) • Collaborative Learning (Team-based coding and peer evaluation) • Self-Directed Learning (Independent practice through coding platforms)						Assessment Types • Unit Tests (Theory & Problem Solving) • Assignments (Program writing, debugging and concept-based exercises) Model Examination						

[illegible]

book	Khanna Book Publishing Co. 2. ReemaThareja, “Python Programming using problem solving approach”, First Edition, 2017, Oxford University Press. 3. Dr. R. NageswaraRao, “Core Python Programming”, First Edition, 2017, Dreamtech Publishers.											
Reference Book	1. VanderPlas, J. (2016). <i>Python Data Science Handbook: Essential Tools for Working with Data</i> . O’Reilly Media. 2. Downey, A. B. (2nd Ed.). <i>Think Python: How to Think Like a Computer Scientist (Updated for Python 3)</i> . Shroff/O’Reilly Publishers. 3. van Rossum, G., & Drake, F. L. (2011). <i>An Introduction to Python (Revised and Updated for Python 3.2)</i> . Network Theory Ltd.											
E-Reference	1. https://www.programiz.com/python-programming 2. https://www.guru99.com/python-tutorials.html 3. https://www.w3schools.com/python/python_intro.asp 4. https://www.geeksforgeeks.org/python-programming-language/ 5. https://en.wikipedia.org/wiki/Python_(programming_language)											
Course learning outcomes	On successful completion of the course, the students will be able to											
	COs	Course Outcomes						K Level	Learning Outcomes (LO1-LO15)			
	CO1	Demonstrate basic Python programming skills using variables, operators, input/output statements, and simple problem-solving techniques.						K1 & K2	LO1			
	CO2	Apply decision-making, looping constructs, and recursion techniques to develop solutions for computational problems.						K3	LO4			
	CO3	Develop modular Python programs using functions and appropriate programming techniques for efficient problem solving.						K4	LO5			
	CO4	Analyze and implement Python data structures such as lists, tuples, dictionaries, and files for data organization and processing.						K5	LO11			
	CO5	Design and evaluate Python applications using object-oriented programming, exception handling, file processing, and self-learning skills to solve real-world problems.						K5 & K6	LO2, LO15			
	Programme Outcomes						Programme Specific Outcomes				Mapping Score of COs with POs & PSOs	
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO1	PSO2	PSO3	Mean Score	
	CO1	3	2	1	1	1	1.60	3	1	1	1.67	
	CO2	3	3	2	1	1	2.00	3	2	1	2.00	

[illegible]

Book	Impletation”, prentice-Hall India Publication. 2. William Stallings, “Operating Systems Internals and Design Principles”, Pearson, 2018, 9th Edition. 3. Operating Systems: A Spiral Approach – Elmasri, Carrick, Levine, TMH Edition 4. Operating System Concepts (2nd Ed) by James L. Peterson, Abraham Silberschatz, Addison – Wesley. 5. Operating Systems Design & implementation Andrew S. Tanenbam, Albert S. Woodhull Pearson.												
E-Reference	1. https://www.guru99.com/operating-system-tutorial.html 2. https://www.mygreatlearning.com/blog/what 3. https://en.wikipedia.org/wiki/Operating_system 4. https://www.geeksforgeeks.org/what-is-an-operating-system/ 5. http://www.cs.kent.edu/~farrell/osf03/oldnotes/2.%20th-edition.pdf												
Course learning outcomes	On successful completion of the course, the students will be able to												
	COs	Course Outcomes						K Level		Learning Outcomes (LO1-LO15)			
	CO1	Explain the fundamental concepts, services, structures, and functions of operating systems including process concepts and threads.						K1 & K2		LO1			
	CO2	Apply process scheduling algorithms, inter-process communication techniques, and synchronization mechanisms to solve operating system problems.						K3		LO4			
	CO3	Analyze synchronization issues and implement appropriate deadlock prevention, avoidance, detection, and recovery techniques.						K4		LO5			
	CO4	Evaluate memory management techniques, virtual memory concepts, and page replacement algorithms for efficient resource utilization.						K5		LO11			
	CO5	Design and evaluate file system management, storage allocation methods, protection mechanisms, teamwork, communication, and lifelong learning skills in operating system environments.						K5 & K6		LO2, LO15			
Mapping of COs with Pos & PSOs	Programme Outcomes							Programme Specific Outcomes				Mapping Score of COs with POs & PSOs	
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PS O1	PSO 2	PSO 3	Mean Score	2.35	

							e						
	CO1	3	2	1	2	1	1.80	3	1	1	1.67		
	CO2	3	3	2	2	1	2.20	3	2	1	2.00		
	CO3	3	3	3	2	2	2.60	3	2	2	2.33		
	CO4	3	3	3	2	2	2.60	3	3	2	2.67		
	CO5	3	3	3	2	2	2.60	3	3	3	3.00		
	Avg	3.00	2.80	2.40	2.00	1.60	2.36	3.00	2.20	1.80	2.33		
	Overall score for PO						2.36	Overall score for PSO			2.33		
	Strongly Correlating (S)						-	3 Marks					
	Moderately Correlating (M)						-	2 Marks					
Weakly Correlating (W)						-	1 Mark						
No Correlation (N)						-	0 Mark						
Teaching–Learning & Assessment Framework													
Teaching Methodology Experiential learning, Flipped Learning, Blended Learning, Participative Learning						Assessment Types							
						Written Mode							
						• Class Tests • Assignments • Model Examination							
						Integrated Mode							
						• Seminars/ poster presentations • SWOC analysis							

Course Code	U26DSS404	Semester IV	Year II	Credits	L	T	P	Hrs
SEC	SEC- 4 Skill Enhancement Course (SEC-4) – AI tools			2	2	0	0	2
Nature of the Course	Skill enhancement							
Learning objectives	LO1: Understand the basic concepts of Artificial Intelligence and AI tools. LO2: Identify and use AI tools for productivity, writing, coding, and research. LO3: Apply AI tools for data analysis, image generation, and automation. LO4: Evaluate ethical issues, privacy, and responsible use of AI technologies. LO5: Develop practical skills in using AI tools for academic and professional tasks.							
Units	Course Contents							
Unit I	Introduction to Artificial Intelligence and AI Tools: Definition and concept of Artificial Intelligence - History and evolution of AI - Types of AI: Narrow AI, General AI, and Super AI - Overview of AI tools and platforms- Applications of AI in education, healthcare, business, and daily life							
Unit II	AI Tools for Content Creation and Communication: AI writing assistants and text generation tools - AI tools for grammar checking and summarization - AI chatbots and conversational AI - AI tools for presentation and document preparation - Applications of AI tools in academic writing							
Unit III	AI Tools for Coding and Data Analysis: Introduction to AI-powered coding assistants - AI tools for programming support and debugging - AI tools for data analysis and visualization - AI in spread sheets and data handling - Practical applications of AI in programming and analytics							
Unit IV	AI Tools for Image, Audio and Video Generation: AI tools for image - generation and editing - AI tools for video creation and editing - AI voice generation and speech recognition tools - AI tools for design and multimedia creation - Applications in marketing, media, and education							
Unit V	Ethics, Security and Future of AI: Ethical issues in Artificial Intelligence - AI bias, fairness, and transparency - Data privacy and security concerns - Responsible use of AI tools - Future trends and career opportunities in AI							
Question paper Coverage - 100% theory								
Text book	1. Stuart Russell and Peter Norvig , <i>Artificial Intelligence: A Modern Approach</i> , Pearson Education. 2. Charu C. Aggarwal , <i>Artificial Intelligence: A Textbook</i> , Springer. 3. AshwathiKarunattuKiran , <i>Applications and Impacts of AI Tools in Education</i> , Magestic Technology Solutions.							
Reference Book	1. Ethan Mollick , <i>Co-Intelligence: Living and Working with AI</i> , Portfolio/Penguin. 2. HanneleNiemi, Roy D. Pea, Yu Lu (Editors) , <i>AI in Learning: Designing the Future</i> , Springer. 3. Wei Wang et al. (Editors) , <i>Artificial Intelligence in Education and Teaching Assessment</i> , Springer.							

	4. ThangavelMurugan, KarthikeyanPeriasamy, A.M. Abirami , <i>Adopting Artificial Intelligence Tools in Higher Education: Teaching and Learning</i> , CRC Press.											
E-Reference	1. https://www.openai.com 2. https://www.ibm.com/artificial-intelligence 3. https://www.microsoft.com/ai 4. https://towardsdatascience.com 5. https://www.coursera.org											
Course learning outcomes	On successful completion of the course, the students will be able to											
	COs	Course Outcomes						K Level		Learning Outcomes (LO1-LO15)		
	CO1	Explain the fundamental concepts, history, types, applications, and basic tools of Artificial Intelligence.						K1 & K2		LO1		
	CO2	Apply AI tools for productivity, content creation, communication, coding assistance, and research-related activities.						K3		LO4		
	CO3	Analyze and utilize AI tools for data analysis, automation, image generation, audio processing, and multimedia creation.						K3		LO5		
	CO4	Evaluate ethical issues, privacy concerns, fairness, transparency, and responsible use of Artificial Intelligence technologies.						K5		LO11		
	CO5	Design and assess AI-assisted solutions for academic and professional applications while demonstrating lifelong learning, communication, and problem-solving skills.						K5 & K6		LO2, LO15		
Mapping of COs	Programme Outcomes							Programme Specific Outcomes				Mapping Score of COs with POs & PSOs
	COs	PO1	P C 2	PO3	PO4	PO5	Mea n Scor e	PS O1	PS O2	PS O3	Mean Score	2.44
	CO1	3	2	1	2	1	1.80	2	2	1	1.67	
	CO2	3	3	2	2	2	2.40	2	3	2	2.33	
	CO3	3	3	3	2	2	2.60	3	3	2	2.67	
	CO4	2	3	3	3	2	2.60	2	2	3	2.33	
	CO5	3	3	3	3	3	3.00	3	3	3	3.00	

with Pos & PSOs	Avg	2.80	2.80	2.40	2.40	2.00	2.48	2.40	2.60	2.20	2.40		
	Overall score for PO					2.48	Overall score for PSO		2.40				
	Strongly Correlating (S)					-	3 Marks						
	Moderately Correlating (M)					-	2 Marks						
	Weakly Correlating (W)					-	1 Mark						
	No Correlation (N)					-	0 Mark						
Teaching Methodology Experiential learning, Flipped Learning, Blended Learning, Participative Learning						Assessment Types							
						Written Mode							
						- Class Tests - Assignments - Model Examination							
						Integrated Mode							
						- Seminar/Poster Presentation - SWOC Analysis							

[illegible]

book	O'Reilly Media, 2016. 2. Ethem Alpaydin, <i>Introduction to Machine Learning</i> , Prentice Hall of India, 2005.											
Reference Book	Ethem Alpaydin, <i>Introduction to Machine Learning</i> , MIT Press, 3rd Edition.											
E-Reference	1. https://www.geeksforgeeks.org/machine-learning/ 2. https://www.tutorialspoint.com/machine_learning/index.htm											
Course learning outcomes	On successful completion of the course, the students will be able to											
	COs	Course Outcomes						K Level		Learning Outcomes (LO1-LO15)		
	CO1	Explain the fundamental concepts, objectives, components of machine learning, and data preparation techniques including data storage, processing, transformation, and sampling.						K1 & K2		LO1		
	CO2	Apply different machine learning paradigms including supervised, unsupervised, and reinforcement learning techniques for solving real-world problems.						K3		LO4		
	CO3	Analyze supervised learning algorithms such as k-Nearest Neighbors, Linear Models, Naïve Bayes, Decision Trees, and Support Vector Machines for classification and regression tasks.						K4		LO5		
	CO4	Evaluate preprocessing methods, scaling techniques, and unsupervised learning approaches for data transformation and feature extraction.						K5		LO11		
	CO5	Design and assess machine learning solutions using dimensionality reduction, clustering techniques, problem-solving abilities, communication skills, and lifelong learning practices.						K5 & K6		LO2, LO15		
Mapping of COs with Pos & PSOs	Programme Outcomes							Programme Specific Outcomes				Mapping Score of COs with POs & PSOs
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PS O1	PS O2	PS O3	Mean Score	2.47
	CO1	3	2	1	1	1	1.60	2	2	1	1.67	
	CO2	3	3	2	2	1	2.20	2	3	2	2.33	
	CO3	3	3	3	2	2	2.60	3	3	2	2.67	
	CO4	3	3	3	2	2	2.60	3	3	3	3.00	
	CO5	3	3	3	3	3	3.00	3	3	3	3.00	

	Avg	3.00	2.80	2.40	2.00	1.80	2.40	2.60	2.80	2.20	2.53	
	Overall score for PO						2.40	Overall score for PSO		2.53		
	Strongly Correlating (S)					-	3 Marks					
	Moderately Correlating (M)					-	2 Marks					
	Weakly Correlating (W)					-	1 Mark					
	No Correlation (N)					-	0 Mark					
Teaching–Learning & Assessment Framework												
Teaching Methodology Experiential learning, Flipped Learning, Blended Learning, Participative Learning						Assessment Types Written Mode - Class Tests Integrated Mode - Seminars - SWOC analysis						

[illegible]

	Software Maintenance-Source Code Metrics.											
Question paper Coverage - 100% theory												
Text book	Richard Fairley, “ Software Engineering Concepts ”, Tata McGraw- Hill, 2 nd Edition. ISBN 0-07-463121-7											
Reference Book	1. Roger S. Pressman,” SoftwareEngineering –A Practitioner’s Approach ”, 6 th Ed., McGraw Hill International, 2005. 2. Ian Sommerville,“ Software Engineering ”,Addition Wesley, Singapore,2002 3. K.K.Agarwal & Yogesh Singh, “ Software Engineering ”, New Age International Publishers, Revised Second Edition, 2005.											
E-Reference	https://www.tutorialspoint.com/software_engineering/index.htm											
Course learning outcomes	On successful completion of the course, the students will be able to											
	COs	Course Outcomes							K Level	Learning Outcomes (LO1-LO15)		
	CO1	Explain the fundamental concepts, principles, quality factors, productivity factors, and managerial issues of software engineering.							K1 & K2	LO1		
	CO2	Apply software project planning, COst estimation techniques, staffing estimation methods, and software requirement specification techniques.							K3	LO4		
	CO3	Analyze software design concepts, modularization criteria, design techniques, and design guidelines for developing quality software systems.							K4	LO5		
	CO4	Evaluate software implementation practices including coding standards, structured programming techniques, and documentation methods.							K5	LO11		
	CO5	Design and assess software testing, quality assurance, maintenance strategies, verification techniques, and lifelong learning skills for software development.							K5 & K6	LO2, LO15		
Mapping of COs with Pos & PSOs .	Programme Outcomes				Programme Specific Outcomes				Mapping Score of COs with POs & PSOs			
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO1	PSO2	PSO3	Mean Score	2.53
	CO1	3	2	1	2	1	1.80	2	1	2	1.67	
	CO2	3	3	2	2	2	2.40	3	2	2	2.33	
	CO3	3	3	3	2	2	2.60	3	3	2	2.67	
	CO4	3	3	3	3	2	2.80	3	3	3	3.00	

	CO5	3	3	3	3	3	3.00	3	3	3	3.00	
	Avg	3.00	2.80	2.40	2.40	2.00	2.52	2.80	2.40	2.40	2.53	
	Overall score for PO				2.52		Overall score for PSO			2.53		
	Strongly Correlating (S)				-		3 Marks					
	Moderately Correlating (M)				-		2 Marks					
	Weakly Correlating (W)				-		1 Mark					
	No Correlation (N)				-		0 Mark					
Teaching–Learning & Assessment Framework												
Teaching Methodology Experiential learning, Flipped Learning, Blended Learning, Participative Learning						Assessment Types Written Mode • Class Tests Integrated Mode • seminars • SWOC analysis						

[illegible]

	Noiseless Channels: Stop- and –Wait – Noisy Channel: Stop-and Wait Automatic Repeat Request-Go-Back –N.			
Unit III	Medium Access and Network Layer: Multiple Access: Random Access – Controlled access- Channelization. Network Layer Logical addressing: IPv4 addresses – IPv6 addresses. Transport Layer: Process to Process delivery: UDP – TCP. Congestion Control – Quality of Service			
Unit IV	Application Layer: Domain Naming System: Name Space - Domain Name Space - Distribution of Name Space - DNS in the INTERNET - Resolution–Remote logging – E-mail – FTP.			
Unit V	Wireless Networks: Wireless Communications – Principles and Fundamentals. WLANs – WPAN- Satellite Networks - Ad-hoc Networks			
Question paper Coverage - 100% theory				
Text book	1. Forouzan, A. Behrouz. (2006), Data Communications & Networking, Fourth Edition, Tata McGraw Hill Education 2. Nicopolitidis, Petros, Mohammad Salameh Obaidat, G. L. Papadimitriou(2018), Wireless Networks, John Wiley & Sons.			
Reference Book	Fred Halsall(1996), Data Communications Computer Networks and Open Systems, Fourth Edition, Addison Wesley.			
E-Reference	1. https://www.tutorialspoint.com/data_communication_computer_network/index.htm 2. https://www.geeksforgeeks.org/data-communication-definition-components-types-channels/			
Course learning outcomes	On successful completion of the course, the students will be able to			
	COs	Course Outcomes	K Level	Learning Outcomes (LO1- LO15)
	CO1	Explain the fundamental concepts of data communication, networking, protocols, standards, OSI model, TCP/IP model, and transmission media.	K1 & K2	LO1
	CO2	Apply data link layer concepts including framing, error detection, error correction, flow control, and ARQ protocols.	K3	LO4
	CO3	Analyze medium access control methods, IPv4 and IPv6 logical addressing, transport layer protocols, and quality of service mechanisms.	K4	LO5
	CO4	Evaluate application layer services including DNS, E-mail, FTP, remote login, and Internet-based communication services.	K5	LO11
	CO5	Design and assess wireless communication solutions, wireless networks, communication technologies, teamwork, communication, and lifelong learning skills.	K5 & K6	LO2, LO15

Mapping of COs with Pos & PSOs	Programme Outcomes						Programme Specific Outcomes				Mapping Score of COs with POs & PSOs	
	COs	PO1	PO 2	PO3	PO4	PO5	Mean Score	PSO 1	PSO 2	PSO 3	Mean Score	2.60
	CO1	3	2	2	2	1	2.00	2	2	3	2.33	
	CO2	3	3	2	2	1	2.20	3	2	3	2.67	
	CO3	3	3	3	2	2	2.60	3	3	3	3.00	
	CO4	3	3	3	3	2	2.80	2	2	3	2.33	
	CO5	3	3	3	3	3	3.00	3	3	3	3.00	
	Avg	3.00	2.80	2.60	2.40	1.80	2.52	2.60	2.40	3.00	2.67	
	Overall score for PO					2.52	Overall score for PSO			2.67		
	Strongly Correlating (S)						- 3 Marks					
Moderately Correlating (M)						- 2 Marks						
Weakly Correlating (W)						- 1 Mark						
No Correlation (N)						- 0 Mark						
Teaching–Learning & Assessment Framework												
Teaching Methodology Experiential learning, Flipped Learning, Blended Learning, Participative Learning						Assessment Types Written Mode • Class Tests Integrated Mode • seminars • SWOC analysis						

Course Code	U26DSP512	Semester V	Year III	Credits	L	T	P	Hours
Core	Core – 12 Practical MACHINE LEARNING TECHNIQUES LAB			3	0	0	3	6
Nature of the Course	Employability							
Learning objectives	LO1: Understand the basic workflow of machine learning including data preprocessing, training, and testing. LO2: Apply fundamental machine learning algorithms using Python libraries. LO3: Develop practical skills in implementing classification, regression, and clustering techniques. LO4: Analyze machine learning model performance using evaluation metrics. LO5: Interpret machine learning results and apply them to simple real-world datasets.							
	Course Contents							
	List of programs:							
1.	Data Loading and Exploration using Pandas							
2.	Data Preprocessing and Cleaning							

3.	Data Visualization for Machine Learning			
4.	Feature Scaling Techniques			
5.	Train–Test Data Splitting			
6.	Linear Regression Model			
7.	Multiple Linear Regression			
8.	K-Nearest Neighbors (KNN) Classification			
9.	Naïve Bayes Classification			
10.	Decision Tree Classification			
11.	Random Forest Classification			
12.	Support Vector Machine (SVM)			
13.	K-Means Clustering			
14.	Model Evaluation Techniques			
Question paper Coverage - 100% practical				
Text book	1. Andreas C. Müller and Sarah Guido, Introduction to Machine Learning with Python, O’Reilly Media, 2016. 2. Ethem Alpaydin, Introduction to Machine Learning, Prentice Hall of India, 2005.			
Reference Book	1. Ethem Alpaydin, Introduction to Machine Learning, MIT Press, 3rd Edition.			
E-Reference	1. https://www.geeksforgeeks.org/machine-learning/ 2. https://www.tutorialspoint.com/machine_learning/index.htm			
Course learning outcomes	On successful completion of the course, the students will be able to			
	COs	Course Outcomes	K Level	Learning Outcomes (LO1-LO15)
	CO1	Explain the fundamental concepts of machine learning workflow, data preprocessing, data visualization, feature scaling, and dataset preparation using Python tools.	K1&K2	LO1
	CO2	Apply machine learning techniques including train-test splitting, linear regression, and multiple linear regression models for predictive analysis.	K3	LO4
	CO3	Analyze and implement classification algorithms such as K-Nearest Neighbors (KNN), Naïve Bayes, and Decision Trees	K4	LO5

		for solving supervised learning problems.											
	CO4	Evaluate the performance of advanced machine learning models including Random Forest, Support Vector Machine (SVM), and model evaluation techniques using appropriate metrics.					K5					LO11	
	CO5	Design and assess machine learning solutions using clustering techniques, real-world datasets, problem-solving skills, communication abilities, teamwork, and lifelong learning practices.					K5 & K6					LO2, LO15	
Mapping of COs with Pos & PSOs .	Programme Outcomes					Programme Specific Outcomes						Mapping Score of COs with POs & PSOs	
	COs	PO1	PO 2	PO3	PO4	PO5	Mean Score	PSO1	PSO2	PSO3	Mean Score	2.57	
	CO1	3	2	1	2	1	1.80	3	2	2	2.33		
	CO2	3	3	2	2	2	2.40	3	3	2	2.67		
	CO3	3	3	3	2	2	2.60	3	3	2	2.67		
	CO4	3	3	3	3	2	2.80	3	3	3	3.00		
	CO5	2	3	2	2	3	2.40	3	3	3	3.00		
	Avg	2.80	2.80	2.20	2.20	2.00	2.40	3.00	2.80	2.40	2.73		
	Overall score for PO						2.40	Overall score for PSO		2.73			
	Strongly Correlating (S)						-	3 Marks					
Moderately Correlating (M)						-	2 Marks						
Weakly Correlating (W)						-	1 Mark						
No Correlation (N)						-	0 Mark						
Teaching–Learning & Assessment Framework													
Teaching Methodology • Experiential Learning: Hands-on lab exercises using real datasets • Flipped Learning: Students prepare concepts before lab sessions • Blended Learning: Combination of theory + coding demonstrations • Participative Learning: Group discussions and mini-projects						Assessment Types Written Mode • Class Tests Integrated Mode • Seminars/ poster presentations • SWOC analysis							

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Course Code	U26DSE51A	Semester V	Year III	Credits	L	T	P	Hrs
Elective	Department Specific Elective – 1A Theory NUMERICAL METHODS			3	3	0	0	3
Nature of the Course	Employability							
Learning objectives	LO1: Understand numerical techniques for solving algebraic and simultaneous linear equations using iterative methods. LO2: Learn finite difference concepts and interpolation techniques for estimating unknown values. LO3: Understand divided difference methods and polynomial interpolation techniques. LO4: Study numerical methods for differentiation and integration to approximate derivatives and integrals. LO5: Learn numerical techniques for solving ordinary differential equations using various approximation methods.							
Units	Course Contents							
Unit I	Iterative methods – Bisection Method – False position method – Newton Raphson method - Solution of Simultaneous Linear Algebraic Equations- Gauss Elimination, Gauss- Jordan, Gauss- Jacobi and Gauss- Seidel iterative methods.							
Unit II	Definition – Forward and backward differences – Newton’s formula for interpolation – Operators – Properties and relationship among them – Missing terms and summation of series.							
Unit III	Divided differences – Newton’s divided difference formula – Lagrange’s interpolation formula – Inverse interpolation.							
Unit IV	Numerical Differentiation and Integration - Trapezoidal and Simpson’s 1/3 rule – Difference equations and Methods of solving.							
Unit V	Taylor’s series – Euler’s method – Modified Euler’s method – Runge Kutta methods – Picard’s method of successive approximation – Predictor and Corrector methods – Milne’s and Adam’s Bashforth Methods.							
Question paper Coverage – 80% problem solving & 20% theory								
Text book	P.Kandasamy, K.Thilagavathy, K.Gunavathi, “Numerical Methods”,S.Chand Company Ltd, Revised edition,2005.							
Reference Book	1. S.Narayanan, S.Viswanathan, “Numerical Analysis”, 1994. 2. S.S.Sastry, “Introductory Methods of Numerical Analysis” PHI, 1995.							
E-Reference	1. S.Narayanan, S.Viswanathan, “Numerical Analysis”, 1994. 2. S.S.Sastry, “Introductory Methods of Numerical Analysis” PHI, 1995.							
Course	On successful completion of the course, the students will be able to							
	COs	Course Outcomes			K Lev el	Learning Outcomes (LO1-LO15)		

learning outcomes	CO1	Explain the fundamental concepts of numerical methods, iterative techniques, and methods for solving algebraic and simultaneous linear equations.	K1 & K2	LO1
	CO2	Apply interpolation techniques, finite difference operators, and numerical methods for estimating unknown values from given data.	K3	LO4
	CO3	Analyze divided difference methods, polynomial interpolation techniques, and inverse interpolation problems for numerical computation.	K4	LO5
	CO4	Evaluate numerical differentiation, numerical integration techniques, and difference equations for solving mathematical problems.	K5	LO11
	CO5	Design and assess solutions for ordinary differential equations using Taylor series, Euler methods, Runge-Kutta methods, predictor-corrector methods, while demonstrating problem-solving, communication, and lifelong learning skills.	K5 & K6	LO2, LO15

Mapping of COs with Pos & PSOs .	Programme Outcomes						Programme Specific Outcomes			Mapping Score of COs with POs & PSOs			
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO1	PSO2	PSO3	Mean Score	2.42	
	CO1	3	2	1	1	1	1.60	2	2	1	1.67		
	CO2	3	3	2	1	1	2.00	3	2	2	2.33		
	CO3	3	3	3	2	1	2.40	3	3	2	2.67		
	CO4	3	3	3	3	2	2.80	3	3	2	2.67		
	CO5	3	3	3	3	3	3.00	3	3	3	3.00		
	Avg	3.00	2.80	2.40	2.00	1.60	2.36	2.80	2.60	2.00	2.47		
	Overall score for PO					2.36	Overall score for PSO		2.47				
	Strongly Correlating (S) - 3 Marks												
Moderately Correlating (M) - 2 Marks													
Weakly Correlating (W) - 1 Mark													
No Correlation (N) - 0 Mark													
Teaching–Learning & Assessment Framework													
Teaching Methodology Experiential learning, Flipped Learning,						Assessment Types Written Mode • Class Tests							

Teaching–Learning & Assessment Framework

Teaching Methodology

Experiential learning,
Flipped Learning,

Assessment Types

Written Mode

- Class Tests

[illegible]

	Moderately Correlating (M)	-	2 Marks
	Weakly Correlating (W)	-	1 Mark
	No Correlation (N)	-	0 Mark
Teaching–Learning & Assessment Framework			
Teaching Methodology • Experiential Learning: Hands-on lab exercises using real datasets • Flipped Learning: Students prepare concepts before lab sessions • Blended Learning: Combination of theory + coding demonstrations • Participative Learning: Group discussions		Assessment Types Written Mode • Class Tests Integrated Mode • Seminars/ poster presentations • SWOC analysis	

[illegible]

	Databases – E-learning Platforms – Cloud-based Business Applications. Emerging Trends: Edge Computing – Serverless Computing – Internet of Things (IoT) and Cloud – Artificial Intelligence in Cloud – Future Scope of Cloud Computing.											
Question paper Coverage - 100% theory												
Text book	1.Rajkumar Buyya, Christian Vecchiola, and S. Thamarai Selvi, Mastering Cloud Computing , McGraw-Hill Education. 2.Thomas Erl, Cloud Computing: Concepts, Technology & Architecture , Pearson.											
Reference Book	Barrie Sosinsky, Cloud Computing Bible , Wiley.											
E-Reference	1. https://docs.oracle.com/en-us/iaas/?utm_source=chatgpt.com 2. https://docs.aws.amazon.com/?utm_source=chatgpt.com 3. https://cloud.google.com/docs?utm_source=chatgpt.com											
Course learning outcomes	On successful completion of the course, the students will be able to											
	COs	Course Outcomes						K Level		Learning Outcomes (LO1-LO15)		
	CO1	Explain the fundamental concepts, characteristics, architecture, advantages, and challenges of cloud computing						K1 & K2		LO1		
	CO2	Apply appropriate cloud service models (IaaS, PaaS, SaaS) and deployment models (Public, Private, Hybrid, Community) for different computing requirements.						K3		LO4		
	CO3	Analyze virtualization techniques, cloud infrastructure components, scalability, elasticity, and resource management in cloud environments.						K4		LO5		
	CO4	Evaluate cloud storage solutions, backup strategies, authentication, authorization, encryption, and security mechanisms used in cloud computing.						K5		LO11		
	CO5	Design suitable cloud-based solutions by integrating cloud applications, emerging technologies, effective communication, problem-solving skills, and lifelong learning practices.						K5 & K6		LO2, LO15		
Mapping of COs with Pos & PSOs	Programme Outcomes							Programme Specific Outcomes				Mapping Score of COs with POs & PSOs
	COs	PO1	PO2	PO3	PO4	PO5	Mean	PSO 1	PS O2	PS O3	Mean Score	

							Score					2.49
	CO1	3	2	1	1	1	1.60	2	2	1	1.67	
	CO2	3	3	2	2	1	2.20	3	2	2	2.33	
	CO3	3	3	3	2	2	2.60	3	3	2	2.67	
	CO4	3	3	3	3	2	2.80	3	3	3	3.00	
	CO5	3	3	3	3	3	3.00	3	3	3	3.00	
	Avg	3.00	2.80	2.40	2.20	1.80	2.44	2.80	2.60	2.20	2.53	
	Overall score for PO						2.44	Overall score for PSO			2.53	
	Strongly Correlating (S)						-	3 Marks				
	Moderately Correlating (M)						-	2 Marks				
	Weakly Correlating (W)						-	1 Mark				
	No Correlation (N)						-	0 Mark				
Teaching–Learning & Assessment Framework												
Teaching Methodology Experiential learning, Flipped Learning, Blended Learning, Participative Learning							Assessment Types Written Mode - Class Tests Integrated Mode - Seminars - SWOC analysis					

Course Code	U26DST613	Semester VI	Year III	Credits	L
Core	Core – 13 Theory DATA SCIENCE AND ANALYTICS			4	3
Nature of the course	Employability				
Learning Objectives	LO1: Understand the fundamentals of data science and data analytics. LO2: Learn techniques for data collection, pre-processing, and visualization. LO3: Apply statistical and analytical methods to extract insights from data LO4: Use data analytics tools and programming languages for data analysis. LO5: Interpret analytical results and support decision-making using data-driven approaches.				
Units	Course Contents				
Unit I	Introduction to Data Science: Definition and importance of data science - Data science lifecycle - Types of data: structured, semi-structured, and unstructured - Data science applications in business, healthcare, finance, and education - Overview of data analytics tools and technologies				
Unit II	Data Collection and Data Preprocessing: Data sources and data acquisition - Data cleaning and handling missing values - Data integration and transformation - Data reduction techniques - Data preprocessing methods				
Unit III	Data Visualization and Exploration: Exploratory Data Analysis (EDA) - Data visualization concepts and techniques - Charts and graphs for data representation - Visualization tools and dashboards - Interpreting data patterns and trends				
Unit IV	Statistical Analysis and Predictive Analytics: Basic statistical concepts: mean, median, variance, standard deviation - Probability concepts in data analysis - Regression and classification techniques - Predictive analytics concepts - Introduction to machine learning in data analytics				
Unit V	Big Data and Applications of Data Analytics: Introduction to big data concepts - Big data				

	technologies and tools - Data analytics in real-world applications - Ethical issues in data analytics - Future trends in data science and analytics			
Question paper Coverage - 100% theory				
Text book	1. Cathy O’Neil and Rachel Schutt, <i>Doing Data Science: Straight Talk from the Frontline</i>, O’Reilly Media. 2. Joel Grus, <i>Data Science from Scratch</i>, O’Reilly Media. 3. Viktor Mayer-Schönberger and Kenneth Cukier, <i>Big Data: A Revolution That Will Transform How We Live, Work, and Think</i>, Houghton Mifflin Harcourt.			
Reference Book	1. Foster Provost and Tom Fawcett, <i>Data Science for Business</i>, O’Reilly Media. 2. Wes McKinney, <i>Python for Data Analysis</i>, O’Reilly Media. 3. Jake VanderPlas, <i>Python Data Science Handbook</i>, O’Reilly Media. 4. Jure Leskovec, Anand Rajaraman, Jeffrey Ullman, <i>Mining of Massive Datasets</i>, Cambridge University Press.			
Reference	• https://www.kaggle.com • https://www.datasciencecentral.com • https://towardsdatascience.com • https://www.coursera.org • https://www.edx.org • https://www.analyticsvidhya.com • https://www.ibm.com/analytics/_new			
Course learning outcomes	On successful completion of the course, the students will be able to			
	COs	Course Outcomes	K Level	Learning Outcomes (LO1-LO15)
	CO1	Explain the fundamental concepts of data science, data analytics, data types, lifecycle, and applications in various domains.	K1&K2	LO1
	CO2	Apply data collection, data preprocessing, cleaning, integration, and transformation techniques for preparing datasets for analysis.	K3	LO4
	CO3	Analyze datasets using statistical methods, probability concepts, and predictive analytics techniques to extract meaningful insights.	K4	LO5
	CO4	Evaluate data patterns and trends using exploratory data analysis, visualization techniques, dashboards, and analytics tools.	K5	LO11

	CO5	Design and evaluate data-driven solutions using big data concepts, ethical practices, communication skills, and lifelong learning for informed decision-making.						K5 & K6			LO2, LO15			
Mapping of COs with Pos & SOs	Programme Outcomes				Programme Specific Outcomes					Mapping Score of COs with POs & PSOs				
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO1	PSO2	PSO3	Mean Score	2.49		
	CO1	3	2	1	2	1	1.80	3	2	1	2.00			
	CO2	3	3	2	2	2	2.40	3	3	2	2.67			
	CO3	3	3	3	2	2	2.60	3	3	2	2.67			
	CO4	2	3	3	3	2	2.60	2	3	3	2.67			
	CO5	2	3	3	3	3	2.80	2	3	3	2.67			
	Avg	2.60	2.80	2.40	2.40	2.00	2.44	2.60	2.80	2.20	2.53			
	Overall score for PO		2.44		Overall score for PSO					2.53				
	Strongly Correlating (S)				- 3 Marks									
Moderately Correlating (M)				- 2 Marks										
Weakly Correlating (W)				- 1 Mark										
No Correlation (N)				- 0 Mark										
Teaching–Learning & Assessment Framework														
Teaching Methodology Experiential learning, Flipped Learning, Blended Learning, Participative Learning								Assessment Types Written Mode Integrated Mode seminars SWOC analysis						

[illegible]

	training deep learning models. LO3: Understand the architecture and applications of Convolutional Neural Networks (CNN) for feature extraction and image processing tasks. LO4: Study Recurrent Neural Networks (RNN) and advanced models such as LSTM for sequence and time-series data analysis. LO5: Understand reinforcement learning concepts including Markov Decision Processes and Q-learning for decision-making problems.			
Units	Course Contents			
Unit I	Introduction to Learning - The Neural Network–Limits of Traditional Computing–Machine Learning–Neuron– FF Neural Networks–Types of Neurons –Soft max output layers			
Unit II	Deep Learning Models - Tensor flow–Variables–Operations–Placeholders–Sessions–Sharing Variables–Graphs– Visualization			
Unit III	CNN - Convolution Neural Network–Feature Selection–Max Pooling–Filters and Feature Maps–Convolution Layer–Applications			
Unit IV	RNN - Recurrent Neural Network–Memory cells–sequence analysis–word 2vec- LSTM—Memory augmented Neural Networks–NTM—Application			
Unit V	Reinforcement Learning - Reinforcement Learning –MDP–Q Learning– Applications			
Question paper Coverage - 100% theory				
Text book	1. Nikhil Budhuma, Nikholus Locasio, “Fundamentals of Deep Learning: Designing next generation Machine Intelligence Algorithm, O’Reily Media, 2017.” 2. Ian Goodfellow, Yoshua Bengio, and Aaron Courville, <i>Deep Learning</i>, MIT Press, 2017.			
Reference Book	1. Josh Patterson and Adam Gibson, <i>Deep Learning: A Practitioner’s Approach</i> , O’Reilly Media.			
E-Reference	1. https://www.tensorflow.org/tutorials 2. https://www.deeplearning.ai			
Course learning outcomes	On successful completion of the course, the students will be able to			
	COs	Course Outcomes	K Level	Learning Outcomes (LO1-LO15)
	CO1	Explain the fundamental concepts of neural networks, neuron models, feed-forward neural networks, softmax layers, and the limitations of traditional computing approaches.	K1 & K2	LO1
	CO2	Apply deep learning frameworks and TensorFlow components such as variables, operations, placeholders, sessions, graphs, and visualization tools for developing deep learning models.	K3	LO4

	CO3	Apply deep learning frameworks and TensorFlow components such as variables, operations, placeholders, sessions, graphs, and visualization tools for developing deep learning models.						K4		LO5			
	CO4	Analyze Convolutional Neural Networks (CNNs), feature extraction techniques, pooling operations, convolution layers, and their applications in pattern recognition and image processing.						K4		LO5			
	CO5	Evaluate Recurrent Neural Networks (RNNs), LSTM architectures, memory-augmented neural networks, and sequence analysis techniques for solving temporal and sequential data problems.						K5		LO11			
Mapping of COs with Pos & PSOs .	Programme Outcomes					Programme Specific Outcomes			Mapping Score of COs with POs & PSOs				2.43
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO1	PSO 2	PSO 3	Mean Score		
	CO1	3	2	1	1	1	1.60	2	2	1	1.67		
	CO2	3	2	2	1	2	2.00	2	3	2	2.33		
	CO3	3	3	3	2	2	2.60	3	3	2	2.67		
	CO4	3	3	2	3	2	2.60	3	3	3	3.00		
	CO5	3	3	3	2	3	2.80	3	3	3	3.00		
	Avg	3.00	2.60	2.20	1.80	2.00	2.32	2.60	2.80	2.20	2.53		
	Overall score for PO				2.32		Overall score for PSO		2.53				
	Strongly Correlating (S)						- 3 Marks						
Moderately Correlating (M)						- 2 Marks							
Weakly Correlating (W)						- 1 Mark							
No Correlation (N)						- 0 Mark							
Teaching–Learning & Assessment Framework													
Teaching Methodology Experiential learning, Flipped Learning, Blended Learning, Participative Learning							Assessment Types Written Mode Class Tests Integrated Mode seminars SWOC analysis						

[illegible]

	LO4: Create effective data visualizations using R libraries. LO5: Implement basic predictive models using R for data analytics.
	LAB EXERCISES: 1. Write an R program to perform basic arithmetic operations and use variables. 2. Write an R program to create and manipulate vectors, matrices, and arrays. 3. Write an R program to create and manipulate lists and data frames. 4. Write an R program to read data from CSV files and display summary statistics. 5. Write an R program to perform data cleaning (handling missing values). 6. Write an R program to perform data transformation and normalization. 7. Write an R program to calculate statistical measures such as mean, median, mode, and standard deviation. 8. Write an R program to perform correlation and covariance analysis. 9. Write an R program to create different types of plots (bar chart, pie chart and histogram). 10. Write an R program to visualize data using box plots and scatter plots. 11. Write an R program to perform Exploratory Data Analysis (EDA) on a dataset. 12. Write an R program to implement linear regression for predictive analysis. 13. Write an R program to implement classification using decision trees. 14. Write an R program to perform clustering using k-means algorithm. 15. Write an R program to create a simple data analytics report using visualization techniques.
Question paper Coverage - 100% practical	
Text book	1. Cathy O'Neil and Rachel Schutt, <i>Doing Data Science: Straight Talk from the Frontline</i>, O'Reilly Media. 2. Joel Grus, <i>Data Science from Scratch</i>, O'Reilly Media. 3. Viktor Mayer-Schönberger and Kenneth Cukier, <i>Big Data: A Revolution That Will Transform How We Live, Work, and Think</i>, Houghton Mifflin Harcourt.
Reference Book	1. Foster Provost and Tom Fawcett, <i>Data Science for Business</i>, O'Reilly Media. 2. Wes McKinney, <i>Python for Data Analysis</i>, O'Reilly Media. 3. Jake VanderPlas, <i>Python Data Science Handbook</i>, O'Reilly Media. 4. Jure Leskovec, Anand Rajaraman, Jeffrey Ullman, <i>Mining of Massive Datasets</i>, Cambridge University Press.
E-Reference	1. https://www.kaggle.com 2. https://www.datasciencecentral.com 3. https://towardsdatascience.com 4. https://www.coursera.org 5. https://www.edx.org 6. https://www.analyticsvidhya.com 7. https://www.ibm.com/analytics/"_new
Course learning	On successful completion of the course, the students will be able to

outcomes	COs	Course Outcomes					K Level		Learning Outcomes (LO1-LO15)			
	CO1	Demonstrate the fundamentals of R programming, data structures, and the R environment for performing basic data operations.					K1&K2		LO1			
	CO2	Apply data preprocessing techniques including data import, cleaning, transformation, normalization, and manipulation using R.					K3		LO4			
	CO3	Analyze datasets using statistical measures, correlation analysis, covariance analysis, and exploratory data analysis techniques.					K4		LO5			
	CO4	Evaluate and create effective visual representations of data using charts, histograms, scatter plots, box plots, and visualization tools in R.					K5		LO11			
	CO5	Design and implement predictive analytics models and data-driven solutions using regression, classification, clustering techniques, teamwork, communication, and lifelong learning skills.					K5 & K6		LO2, LO15			
Mapping of COs with Pos & PSOs .	Programme Outcomes						Programme Specific Outcomes			Mapping Score of COs with POs & PSOs		
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO1	PSO2	PSO 3	Mean Score	2.42
	CO1	3	2	1	1	1	1.60	2	1	1	1.33	
	CO2	3	3	2	2	1	2.20	3	2	2	2.33	
	CO3	3	3	3	2	2	2.60	3	3	2	2.67	
	CO4	3	3	3	3	2	2.80	3	2	3	2.67	
	CO5	3	3	3	3	3	3.00	3	3	3	3.00	
	Avg	3.00	2.80	2.40	2.20	1.80	2.44	2.80	2.20	2.20	2.40	
	Overall score for PO					2.44	Overall score for PSO		2.40			
	Strongly Correlating (S) - 3 Marks											
Moderately Correlating (M) - 2 Marks												
Weakly Correlating (W) - 1 Mark												
No Correlation (N) - 0 Mark												
Teaching–Learning & Assessment Framework												
Teaching Methodology						Assessment Types						

Experiential learning, Flipped Learning, Blended Learning, Participative Learning	Written Mode • Class Tests Integrated Mode • seminars • SWOC analysis
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Teaching–Learning & Assessment Framework	
Teaching Methodology • Experiential Learning (Hands-on MongoDB Lab) • Flipped Learning (Pre-recorded MongoDB demos) • Blended Learning (Class + Online DB tools) • Participative Learning (Group database tasks)	Assessment Types Written Mode • Assignments (MongoDB Queries) • Lab Records • Case-based Problem Solving Integrated Mode • Seminar / Poster Presentation (NoSQL Concepts) • Viva Voce

SYLLABUS FOR COMMON COURSES

Semester-1

Part – 1 Tamil



MOTHER TERESA WOMEN'S UNIVERSITY
KODAIKANAL – 624101



**DEPARTMENT OF -TAMIL STUDIES
PART – I TAMIL
(All UG Courses and Integrated Courses)**

Curriculum Framework, Syllabus, and Regulations

(Syllabus under Choice Based Credit System –CBCS)



**(For the candidates to be admitted from the Academic Year 2026-2027
onwards)**

பொதுத்தமிழ் -1

இக்கால இலக்கியம்

Course Code	U26TAL101	Semester I	Year I	credits	L	T	P	Hrs
Part-1 Tamil	இக்கால இலக்கியம் .			3	y		-	6
Nature of the Course	Employability / Skill enhancement / Entrepreneurship							
Learning objectives	SEMESTER-1 • இக்கால இலக்கியங்களை அறிமுகம் செய்தல், அதன் தோற்றம், வளர்ச்சி, வரலாற்றினை அறியும் திறனைப் பெறுவர். மரபுக்கவிதை, புதுக்கவிதையின் தோற்றம், வளர்ச்சி, வரலாற்றினை அறிதல் . • மரபுக்கவிதை, புதுக்கவிதையின் இலக்கண அமைப்பைப் புரிந்து கொள்வர். சிறுகதையின் தோற்றம், வளர்ச்சி, வரலாற்றினைத் தெரிந்து கொள்வர். சிறுகதையின் இலக்கியச் சிறப்பினை உணர்வர். • தமிழ்ப் புதினம், நாடக, உரைநடை இலக்கியத்தின் தோற்றம், வளர்ச்சி, வரையறை மற்றும் நாடகக்கலையின் சமூகப் பங்களிப்பைப் புரிந்துகொள்ளுவார். தமிழ்ப் புதினம் ,நாடக, உரைநடையின் இலக்கியச் சிறப்புகள் , வகைகளை நினைவு கூர்தல்.							
Units	Course Contents							

Unit - I	மரபுக்கவிதையும் புதுக்கவிதையும்
	மரபுக்கவிதை, புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும் கற்பிக்கப்பட வேண்டும். மரபுக்கவிதை பாரதியார் கவிதைகள் ஞானப் பாடல்கள் (1-25) முழுவதும். பாரதிதாசன் கவிதைகள்- தமிழ் (1-10) பாடல்கள். புதுக்கவிதை வைரமுத்து கவிதை இந்தப் பூக்கள் விற்பனைக்கு அல்ல - ஐந்துபெரிது ஆறுசிறிது. மு.மேத்தா தேசப்பிதாவுக்கு ஒரு தெருப் பாடகனின் அஞ்சலி. சிற்பி பாலசுப்ரமணியம் ஒரு கிராமத்து நதி-ஓடுஓடு சங்கிலி. இரா. மீனாட்சி உதய நகரிலிருந்து - மழையும் நானும். சல்மா - நினைவுத்துயர். அப்துல்ரகுமான் ஹைக்கூ - கண்ணாடி, நிழல், ஊசி. கண்ணாடி 1. உடைந்த பிறகுதான் பல முகம் காட்டுகிறது... கண்ணாடி! 2. என்னை அப்படியே ஏற்றுக்கொள்கிறது... என் கண்ணாடி! 3. பொய்யே சொல்வதில்லை... ஆனால், வலது கைக்கு இடது கை காட்டுகிறது! 4. இருட்டில் முகமிழந்து போகிறது... கண்ணாடி!

	நிழல் 1. வெளிச்சத்தில் என்னைத் தொடர்கிறது... இருட்டில் என்னைக் கைவிடுகிறது! 2. எத்தனை முயன்றும் மிதிக்க முடிவதில்லை... என் நிழலை! 3. சுவரில் படர்கிறது... ஆனால் சுவரை மறைப்பதில்லை! 4. நண்பனைப் போல கூடி வருகிறது... இரவு வந்ததும் ஒளிகிறது! ஊசி 1. காயங்களைச் தைத்து ஆற்றுகிறது... ஆனால் தன் தலையில் ஒரு துளையோடு! 2. துணியை ஊடுருவிச் செல்கிறது... தையலாகிப் பின் தங்குகிறது நூல் மட்டுமே! 3. கிழியக் கிழியத் தைக்கிறது... தியாகத்தின் கூர்மையான அடையாளம்.
Unit - II	சிறுகதை சிறுகதையின் தோற்றமும் வளர்ச்சியும் கற்பிக்கப்பட வேண்டும். புதுமைப்பித்தன்- சாப விமோசனம். ஜெயகாந்தன் - ஒரு பிடி சோறு. இளசை சுந்தரம் - சாதகப் பறவைகள். சூர்ய காந்தன் -வேட்கை. இராஜம் கிருஷ்ணன் - தனிமை. ஆர்.சுடாமணி - அந்நியர்கள். ஆண்டாள் பிரியதர்ஷினி - மாத்திரை.

	உமா மகேஷ்வரி – அரளிவனம்
Unit - III	உரைநடை,நாடக இலக்கியம் உரைநடை, நாடக இலக்கியத்தின் தோற்றமும் வளர்ச்சியும் கற்பிக்கப்பட வேண்டும். ஏ.கே.செட்டியார் – குடகு. அறிஞர் அண்ணா - நீதி தேவன் மயக்கம். பண்டிதமணி மு.கதிரேசன் செட்டியார் – மண்ணியல் சிறுதேர். ஜெயந்தி நாகராஜன் – புராண நாடகங்கள்.
Unit - IV	புதின இலக்கியம் புதின இலக்கியத்தின் தோற்றமும் வளர்ச்சியும் கற்பிக்கப்பட வேண்டும். ஆண்டாள் பிரியதர்ஷினி - தகனம். சு.சமுத்திரம்-வேரில் பழுத்த பலா.
Unit - V	இலக்கணம் மொழி முதல் எழுத்துக்கள் , மொழி இறுதி எழுத்துக்கள் ,வல்லெழுத்து மிகும், மிகாஇடங்கள், உடம்படுமெய்,ஈரொற்று வரும் இடங்கள், ஒரு,ஓர் வரும் இடங்கள், தான்,தாம் வரும் இடங்கள்.
Question paper Coverage - 100% theory	
Text book	• பாரதியார் கவிதைகள்,பூம்புகார் பதிப்பகம் ,சென்னை,2015. • பாரதிதாசன் கவிதைகள், மணிவாசகர் பதிப்பகம், சென்னை,1998. • இந்தப் பூக்கள் விற்பனைக்கு அல்ல ,வைரமுத்து, திருமகள் பதிப்பகம், சென்னை,2009. • மு.மேத்தா கவிதைகள்,திருமகள் நிலையம், சென்னை, 1974. • ஒரு கிராமத்து நதி ,சிற்பி பாலசுப்ரமணியம்,கோலம் வெளியீடு, பொள்ளாச்சி, 1998. • உதய நகரிலிருந்து, இரா.மீனாட்சி,கபிலன் பதிப்பகம், புதுச்சேரி ,2006. • ஒரு மாலையும் இன்னொரு மாலையும் , சல்மா, காலச்சுவடு பதிப்பகம், நாகர்கோவில், 2000. • அப்துல் ரகுமான் கவிதைகள் தொகுப்பு,அப்துல் ரகுமான்,நேஷனல் பப்ளிஷர்ஸ் , சென்னை,1974. • புதுமைப்பித்தன் சிறுகதைகள், காலச்சுவடு பதிப்பகம், நாகர்கோவில்

	2000. • ஒரு பிடி சோறு, ஜெயகாந்தன், தமிழ்ப்பண்ணை பதிப்பகம், சென்னை, 1958. • சாதகப் பறவைகள் , இளசை சுந்தரம், நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை, 2008. • ராஜம் கிருஷ்ணனின் சிறுகதைகள், இராஜம் கிருஷ்ணன், கௌரா பதிப்பகம் சாரதா பதிப்பகம் /, சென்னை, 2016. • வேட்கை, சூர்யகாந்தன் , நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை, 2012. • அந்நியர்கள், ஆர். குடாமணி, காலச்சுவடு பதிப்பகம், சென்னை ,1980. • மாத்திரை, ஆண்டாள் பிரியதர்ஷினி, உயிர்மை பதிப்பகம், சென்னை 2007. • அரளிவனம், உமா மகேஸ்வரி, காலச்சுவடு பதிப்பகம், நாகர்கோவில், 2008. • குடகு, ஏ.கே.செட்டியார், நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை, 2014. • நீதி தேவன் மயக்கம் , அறிஞர் அண்ணா, பூம்புகார் பதிப்பகம், சென்னை, 1947. • மண்ணியல் சிறுதேர், பண்டிதமணி மு. கதிரேசன் செட்டியார், சைவ சித்தாந்த நூற்பதிப்புக் கழகம், சென்னை ,1957. • புராண நாடகங்கள் , ஜெயந்தி நாகராஜன், நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை ,2012. • தகனம் , ஆண்டாள் பிரியதர்ஷினி , நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை, 2022. • வேரில் பழுத்த பலா, சு.சமுத்திரம், அறிவுப் பதிப்பகம், சென்னை, 2022. • தொல்காப்பியம்.ச.வே.சுப்பிரமணியம், மணிவாசகர் பதிப்பகம், சென்னை, 2008.
Reference Book	• புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும், வல்லிக்கண்ணன், பாவை பப்ளிகேஷன்ஸ், சென்னை, இரண்டாம் பதிப்பு, 2020. • புதுக்கவிதை ஒரு புதுப்பார்வை, பாலா, அகரம் பதிப்பகம், ஐந்தாம் பதிப்பு, தஞ்சாவூர், 2011. • தமிழ்ச் சிறுகதை வரலாறு, சி.சு.செல்லப்பா, காலச்சுவடு பதிப்பகம், சென்னை, 1980. • தமிழ்ச் சிறுகதை – நேற்றும் இன்றும், ம.திருமலை, (தொகுப்பாசிரியர்), ஐந்திணைப் பதிப்பகம், சென்னை, 1990.

	• தமிழில் சிறுகதையின் தோற்றமும் வளர்ச்சியும், க.சிவதம்பி,தமிழ்ப் புத்தகாலயம் ,சென்னை1980. • தமிழ்ச் சிறுகதை வரலாறு,எம்.வேதசகாயகுமார்,சித்திரிகா பதிப்பகம், திருவனந்தபுரம் ,1979. • புதிய உரைநடை ,மா.இராமலிங்கம்,தமிழ்ப் புத்தகாலயம்,சென்னை,1980. • நாடகக் கலை, அவ்வை டி.கே.சண்முகம், அவ்வை பதிப்பகம், சென்னை,1972. • புதிய நோக்கில் தமிழ் நாடக வரலாறு, முனைவர் கோ.கருணாகரன், நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை,1988. • மேலை நோக்கில் தமிழ்க் கவிதை,ப.மருதநாயகம்,உலகத்தமிழாராய்ச்சி நிறுவனம், தரமணிவெளியீடு, சென்னை,மறுப்பதிப்பு,2001. • நாவல் கலையியல், இராபாலசுப்பிரமணியன்.,உலகத் தமிழாராய்ச்சி நிறுவனம், தரமணிவெளியீடு, சென்னை, மறுப்பதிப்பு,2004. • நாவலும் வாசிப்பும் ஒரு வரலாற்றுப் பார்வை, இரா.ஆவேங்கடாசலபதி , காலச்சுவடு பதிப்பகம், நாகர்கோவில், மறு பதிப்பு,2012. • தமிழ் நாவல்கள் ஒரு மதிப்பீடு,ந.வானமாமலை, நியூ செஞ்சுரி புக் ஹவுஸ், சென்னை,மறுபதிப்பு, 1970. • தமிழ் நாவல் அடிப்படைகள்,எஸ்.தோத்தாத்ரி, சிவகங்கை அகரம் பதிப்பகம், 1980. • நாடக மேடை நினைவுகள், பம்மல் சம்பந்த முதலியார்,உலகத் தமிழாராய்ச்சி நிறுவனம்,தரமணி வெளியீடு,சென்னை,1988.
E-Reference	• Tamil Heritage Foundation- www.tamilheritage.orghttp://www.tamilheritage.org • Tamil virtual University Library- www.tamilvu.org/ library http://www.virtualvu.org/library • Project Madurai - www.projectmadurai.org. • Chennai Library- www.chennailibrary.com . • Tamil Universal Digital Library- www.ulib.prg . • Tamil E-Books Downloads- tamale books downloads. blogspot.com • Tamil Books on line- books.tamil cube.com • Catalogue of the Tamil books in the Library of British Congress archive.org • Tamil novels on line - books.tamilcube.com

Course learning outcomes	On successful completion of the course, the students will be able to			
	COs	Course Outcomes	K Level	Learning Outcomes (LO1-LO15)
	CO1	இக்கால இலக்கியங்களை அறிதல்.	K1 & K2	LO1
	CO2	இக்கால இலக்கியங்களைப் பயின்று பகுத்து வகை தொகை செய்தல்.	K3	LO4
	CO3	இக்கால இலக்கியங்களில் சிறந்த படைப்புகளைத் திறனாய்தல்	K4	LO5
	CO4	இக்கால இலக்கியங்களைப் பகுத்தாய்ந்து மதிப்பிடல்.	K5	LO11
	CO5	இலக்கிய ஆக்கங்களை ஆய்வு செய்து, தானே புது கவிதை,நாவல்,சிறுகதை,நாடகம் எழுதப் பயிற்சி பெற்றுதல்.	K5 & K6	LO2 LO15 LO3 LO8 LO9

Mapping of Cos with Pos & PSOs	Programme Outcomes						Programme Specific Outcomes			Mapping Score of Cos with POs & PSOs		
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO1	PSO2	PSO3	Mean Score	2.6
	CO1	3	2	2	2	2	2.2	2	2	2	2	
	CO2	3	3	2	2	2	2.4	2	2	2	2	
	CO3	3	3	2	3	3	2.8	3	3	3	3	

	CO4	3	3	2	3	3	2.8	3	3	3	3	
	CO5	3	3	3	3	3	3	3	3	3	3	
	Overall score for PO				2.6	Overall score for PSO		2.6				
	Strongly Correlating (S)						-	3 Marks				
	Moderately Correlating (M)						-	2 Marks				
	Weakly Correlating (W)						-	1 Mark				
	No Correlation (N)						-	0 Mark				
Teaching–Learning & Assessment Framework												
Teaching Methodology Experiential learning, Flipped Learning, Blended Learning, Participative Learning					Assessment Types Written mode – exam, class test, assignment Integrated mode – paper presentation / seminar							

Assignment Topics

1. சமகால இலக்கியத்தில் சமூகமாற்றங்களின் பிரதிபலிப்பு.
2. தமிழ் நவீன கவிதைகளில் பெண்களின் குரல் மற்றும் சுயஅடையாளம் .
3. சமகால சிறுகதைகளில் நகர வாழ்க்கையின் தாக்கம்.
4. மின்னணு காலத்தில் தமிழ் இலக்கியத்தில் மாற்றங்கள்.
5. சமகால இலக்கியத்தில் சுற்றுச்சூழல் விழிப்புணர்வு.

Seminar Topics

1. சமகால தமிழ் நாவல்களில் மனிதஉறவுகள் மற்றும் மதிப்புகள்.

2. சமூக ஊடகங்கள் மற்றும் இக்கால இலக்கிய வளர்ச்சி.
3. சமகால இலக்கியத்தில் இளைஞர்களின் சிந்தனை மற்றும் எதிர்காலம்.
4. சமகால இலக்கியம் மற்றும் பன்முக கலாச்சாரம்.
5. இலக்கியம் மூலம் சமூகவிழிப்புணர்வு உருவாக்கம்.

SEMESTER- II

பொதுத்தமிழ் -2

இடைக்கால இலக்கியம் - முதலாமாண்டு (இரண்டாம் பருவம்-தாள் 2)

[illegible]

Units	Course Contents
Unit - I	மூவர் தேவாரம் பக்தி இலக்கியத்தின் தோற்றமும் வளர்ச்சியும் கற்பிக்கப்பட வேண்டும். 1.கோளறுபதிகம்(1-11 பாடல்கள்)- இரண்டாம் திருமுறை- திருஞானசம்பந்தர். 2.மாசில்வீணையும்(1-10)- ஐந்தாம்திருமுறை- திருநாவுக்கரசர். 3.திருவெண்ணைநல்லூர் பதிகம்-1-10 பாடல்கள்-ஏழாம்திருமுறை - சுந்தரர்.
Unit - II	பக்தி இலக்கியம் 1. சிவபுராணம் முழுவதும் – மாணிக்கவாசகர். 2. பெரியாழ்வார் திருமொழி – திருப்பல்லாண்டு (1 – 12 பாசுரங்கள்) – பெரியாழ்வார். 3. திருப்பாவை முழுவதும் - ஆண்டாள்.
Unit - III	தனிப்பாடல்கள் 1. காளமேகப் புலவரின் தனிப்பாடல்கள் – கடவுள் வாழ்த்து மட்டும். 2. தாயுமானவர் தனிப்பாடல்கள் – பராபரக்கண்ணி. 3. காசிப் புலவர் தனிப்பாடல்கள் – திருப்புகழ் (இசுலாமிய பக்திப் பாடல்கள்). 4. இரட்சணிய மனோகரம் – முதல் 10 பாடல்கள் - எச்.ஏ.கிருஷ்ணபிள்ளை.
Unit - IV	சிறுநிலக்கியம் திருக்கயிலாய ஞான உலா(1-50) கண்ணிகள் கலிங்கத்துப்பரணி –களம் பாடியது. குறவஞ்சி – திருக்குற்றாலக் குறவஞ்சி – வசந்தவல்லியின் காதல் பள்ளு – ஞானப்பள்ளு இலக்கியம் முழுவதும். தூது – நெஞ்சுவிடு தூது முழுவதும்.
Unit - V	சித்தர் இலக்கியம் 5.1 வள்ளலார் பாடல்கள் 1."வாடிய பயிரைக் கண்ட போதெல்லாம் வாடினேன் " 2. "எத்தனையோ பேதமுறாத்தொரு உயிரும் 5.2 திருமூலரின் திருமந்திரம் யாக்கை நிலையாமை - முதல் தந்திரம் (143-167) 25 பாடல்கள்.

Question paper Coverage - 100% theory

Text book	• தேவாரம் (திருமுறை 1-7),சைவ சித்தாந்த நூற்பதிப்புக் கழகம்,சென்னை,1957. • திருவாசகம் (சிவபுராணம் உட்பட)- மாணிக்கவாசகர், சைவ சித்தாந்த நூற்பதிப்புக் கழகம், சென்னை, 1980. • நாலாயிர திவ்ய பிரபந்தம் , ஆழ்வார்கள் (compiled by நாதமுனிகள்), சைவ சித்தாந்த நூற்பதிப்புக் கழகம், சென்னை, 1980. • காளமேகப் புலவர், தனிப்பாடல்கள், புலியூர்க் கேசிகன், மங்கை வெளியீடு, சென்னை,2014. • தாயுமானவர், தனிப்பாடல்கள் திரட்டு,கலைஞன் பதிப்பகம்,சென்னை,2001. • காசிம் புலவர் திருப்புகழ்- தனிப்பாடல்கள் , காசிம் புலவர், ஷாஹீல் ஹமீதியா அச்சயாந்திர சாலைசென்னை, 1953. • இரட்சணிய மனோகரம், எச்.ஏ. கிருஷ்ணபிள்ளை, நாசரேத் பதிப்பகம், நாகர்கோவில், 1890. • திருக்கயிலாய ஞான உலா, சேரமான் பெருமாள் நாயனார்,கௌரா பதிப்பகம், சென்னை,2021. • கலிங்கத்துப்பரணி,புலியூர்க்கேசிகன்,உரை,பாவைபதிப்பகம்,சென்னை,2014. • திருக்குற்றாலக் குறவஞ்சி , திரிகூடராசப்பக் கவிராயர் , சைவ சித்தாந்த நூற்பதிப்புக் கழகம், சென்னை,2000. • ஞானப்பள்ளி, பதிப்பாசிரியர்-பேராசிரியர்.ஆ.சதாசிவம், இலங்கை,1968. • நெஞ்சவிடு தூது , உமாபதி சிவாசாரியார், சைவ சித்தாந்த நூற்பதிப்புக் கழகம், சென்னை,2000. • திருவருட்பா ,இராமலிங்க அடிகள் (வள்ளலார்), சமரச சுத்த சன்மார்க்க சங்கம், வடலூர்/சென்னை,1999. • திருமந்திரம் , திருமூலர், சைவ சித்தாந்த நூற்பதிப்புக் கழகம், சென்னை, 1999.
Reference Book	• தமிழ்ச் சிற்றிலக்கியங்கள், இரா.சந்திரசேகர்,நாம் தமிழர் பதிப்பகம்,சென்னை, 2012 . • ந.வீ.செயுராமன் சிற்றிலக்கியச் செல்வம், மணிவாசகம் பதிப்பகம்,சிதம்பரம். 2010. • மூவர் தேவாரம் சொல்லரசு புலவர்,வீ.சிவஞானம்,விஜயாபதிப்பகம், கோவை,2012. • சிற்றிலக்கியங்களின் தோற்றமும் வளர்ச்சியும்,முத்துச்சண்முகன் மற்றும் நிர்மலா மோகன்,முத்துப் பதிப்பகம்,மதுரை1979. • பக்தி இலக்கிய வரலாறு - முனைவர் த.மேகநாதன் ,காவ்யா பதிப்பகம்,

	சென்னை. 2017. • சித்தர் இலக்கியம்- அண்ணாமலைப் பல்கலைக்கழகப் பதிப்பகம், 1988.			
E-Reference	• Tamil Heritage Foundation- www.tamilheritage.org • Tamil virtual University Library- www.tamilvu.org/ library http://www.virtualvu.org/library • Project Madurai - www.projectmadurai.org . • Chennai Library- www.chennailibrary.com . • Tamil Universal Digital Library- www.ulib.prg . • Tamil E-Books Downloads- tamale books downloads. blogspot.com • Tamil Books on line- books.tamil cube.com • Catalogue of the Tamil books in the Library of British Congress archive.org • Tamil novels on line - books.tamilcube.com			
Course learning outcomes	On successful completion of the course, the students will be able to			
	COs	Course Outcomes	K Level	Learning Outcomes (LO1- LO15)
	CO1	இடைக்கால இலக்கியங்களை அறிதல்.	K1 & K2	LO1
	CO2	மூவர்தேவாரத்தின் படைப்புகளைத் திறனாய்தல்.	K3	LO4
	CO3	இடைக்கால இலக்கியங்களை பயின்று பகுத்து வகை தொகை செய்தல்.	K4	LO5
	CO4	பக்தி இலக்கிய வளர்ச்சியினைப் பகுத்தாய்தல்.	K5	LO11
	CO5	பிற சமய இலக்கியங்களை மதிப்பீடு செய்தல்.	K5 & K6	LO2 LO15 LO3 LO8 LO9

Mapping of Cos with Pos & PSOs	Programme Outcomes					Programme Specific Outcomes						Mapping Score of Cos with POs & PSOs
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO1	PSO2	PSO3	Mean Score	2.6
	CO1	3	2	2	2	2	2.2	2	2	2	2	
	CO2	3	3	2	2	2	2.4	2	2	2	2	
	CO3	3	3	2	3	3	2.8	3	3	3	3	
	CO4	3	3	2	3	3	2.8	3	3	3	3	
	CO5	3	3	3	3	3	3	3	3	3	3	
	Overall score for PO						2.6	Overall score for PSO			2.6	
	Strongly Correlating (S)						-	3 Marks				
Moderately Correlating (M)						-	2 Marks					
Weakly Correlating (W)						-	1 Mark					
No Correlation (N) -						0 Mark						
Teaching–Learning & Assessment Framework												
Teaching Methodology Experiential learning, Flipped Learning, Blended Learning, Participative Learning						Assessment Types Written mode – exam, class test, assignment Integrated mode – paper presentation / seminar						

Assignment Topics

1. இடைக்கால இலக்கியத்தில் சமூகப் பதிவுகள்.
2. இடைக்கால இலக்கியங்களில் பக்தி உணர்வு.
3. சிற்றிலக்கியங்களின் தோற்றமும் வளர்ச்சியும் .

4. இடைக்கால இலக்கியங்களில் அறக்கருத்துகள்.
5. குறவஞ்சி இலக்கியத்தின் தோற்றமும் வளர்ச்சியும்.
6. உலா இலக்கியத்தின் தோற்றமும் வளர்ச்சியும்.
7. பரணி இலக்கியத்தின் தோற்றமும் வளர்ச்சியும்.
8. பள்ளு இலக்கியத்தின் தோற்றமும் வளர்ச்சியும்.
9. தனிப்பாடல்களில் இறைச் செய்திகள்.
10. பக்தி இலக்கியத்தின் தோற்றமும் வளர்ச்சியும்.
11. பக்தி இலக்கியத்தின் இறை உணர்வுகள்.
12. சைவ, வைணவ பக்தி இலக்கியங்களில் ஒப்பாய்வு.
13. சிவபுராணம் கூறும் வாழ்வியல் நெறிகள்.

Seminar Topics

1. இடைக்கால இலக்கியங்களில் தமிழ் மொழி வளர்ச்சி.
2. தமிழ் இலக்கிய வரலாற்றில் சிற்றிலக்கிய வகைகளும்-சிறப்புகளும்.
3. பக்தி இயக்கமும் இடைக்காலத் தமிழ் இலக்கிய வளர்ச்சியும்.
4. மூவர் தேவாரத்தில் சமயச் சிந்தனைகள்.
5. மூவர் தேவாரத்தில் பக்தி.
6. திருப்பாவையில் காணப்படும் பக்தி நெறிகள்.
7. சிவபுராணம் காட்டும் சைவத் தத்துவங்கள் .
8. சித்தர் இலக்கியங்களில் சமூகச் சீர்திருத்தக் கருத்துகள்.
9. வள்ளலார் பாடல் செய்திகள்.
10. திருமூலரின் யாக்கை நிலையாமை கருத்துக்கள்.

பொதுத்தமிழ் -3

Course Code	U26TAL30 3	Semester III	Year II	credits	L	T	P	Hrs
Part-1 Tamil	காப்பிய இலக்கியம்			3	y		-	6
Nature of the Course	Employability / Skill enhancement							
Learning objectives	• காப்பிய இலக்கிய உருவாக்கம்,அதன் வரையறை,வகைகள் ஆகியவற்றை அறிந்து கொள்ளுதல். சிலப்பதிகாரம் பெருங்காப்பிய மரபிற்குள் வருவதை அடையாளம் காண்பதோடு அதனை விளக்கும் திறனைப் பெறுதல். • தமிழ்ப் புராண இலக்கியத்தின் சிறப்பினை உணர்தல்,சைவ சமயக் கருத்துகளை அறியும் திறனைப் பெற்று காப்பிய அறநெறிகளைப் புரிந்துகொள்ளுதல் • மரபான காப்பிய இலக்கியங்களை உள்வாங்கி,பின்னாளில் எழுந்த கிறித்தவ,இசுலாமியக் காப்பியங்களையும் ஒப்பிட்டு அதன் வளர்நிலைகளைப் புரிந்து கொள்ளுதல். புராண,இதிகாச மரபுகளிலிருந்து,புதிய காப்பிய இலக்கிய விதிகளை அறிந்து கொள்ளுதல்.							

Units	Course Contents
Unit - I	இரட்டைக் காப்பியங்கள்
	1.1 சிலப்பதிகாரம் 1.மங்கல வாழ்த்துப் பாடல். 2.மனை அறம் படுத்த காதை. 3.அந்திமாலை சிறப்புச் செய் காதை. 4.இந்திர விழா ஊர் எடுத்த காதை. 1.2 மணிமேகலை முதல் ஐந்து காதைகள்.
Unit - II	சமண ,பௌத்த காப்பியங்கள்
	2.1.சீவகசிந்தாமணி – பூமகள் இலம்பகம், முழுவதும். 2.2 .குண்டலகேசி – யாக்கை நிலையாமை.
Unit - III	கிறித்துவ, இசுலாமிய காப்பியங்கள்
	3.1.தேம்பாவணி – முடிசூட்டுப் படலம் – சூசை பெற்ற ஏழு வரங்கள். 3.2. சீறாப்புராணம் – ஓநாய் பேசிய படலம்.
Unit - IV	கம்பராமாயணம் ,வில்லிபாரதம்
	4.1.கம்பராமாயணம் – கிட்கிந்தா காண்டம் - வாலிவதைப் படலம் (மட்டும்). 4.2. வில்லிபாரதம் – சபா பருவம் முழுவதும்.
Unit - V	புராணக் காப்பியங்கள்
	5.1.பெரியபுராணம் – கண்ணப்பநாயனார் புராணம் முழுவதும் 5.2 .இராவண காவியம் – தாய்மொழிப் படலம்(1-11)பாடல்கள் மட்டும்
Question paper Coverage - 100% theory	
Text book	- சிலப்பதிகாரம், ஞா.மாணிக்கவாசகன், உமாபதிப்பகம், சென்னை, 2000. - மணிமேகலை – ந.மு.வேங்கடசாமி நாட்டார், ராமையா பதிப்பகம், சென்னை. 2000. - சீவகசிந்தாமணி , திருத்தக்கதேவர், சைவ சித்தாந்த நூற்பதிப்புக் கழகம், சென்னை, 2000. - குண்டலகேசி, சைவ சித்தாந்த நூற்பதிப்புக் கழகம், சென்னை, 2000. - தேம்பாவணி, எம்.ஆர்.அடைக்கலசாமி, வர்த்தமானன் பதிப்பகம், சென்னை, 1992. - சீறாப்புராணம் , நாச்சி குளத்தார் உரை , தீர் எம் பதிப்பகம், சென்னை, 1974.

	• கம்பராமாயணம் -அ.ச.ஞானசம்பந்தன்,கம்பன் டிரஸ்ட்,கோவை,2000. • வில்லிபாரதம், சைவ சித்தாந்த நூற்பதிப்புக் கழகம், சென்னை, 2000. • பெரியபுராணம், குமரகுருபரன்பிள்ளை(பதி),சிரீகாசிமடம், திருப்பானந்தாள்,1964. • இராவண காவியம் - புலவர்குழந்தை,திராவிடப்பண்ணைபதிப்பகம்,சென்னை. 2000.			
Reference Book	• தமிழில் காப்பியக் கொள்கை,து.சீனிச்சாமி,தமிழ்ப் பல்கலைக் கழகம்,தஞ்சாவூர்,1985. • காப்பியத் தோற்றமும் வளர்ச்சியும் – காசிராசன்,மதி பதிப்பகம்,மதுரை.2000. • காப்பியத் திறன்- சோம இளவரசு,மணிவாசகர் நூலகம்,சிதம்பரம்.2000. • கிறித்துவ இலக்கிய சிந்தனைகள், கு.இன்னாசி,வளநாடு வெளியீடு, சென்னை 1984. • இஸ்லாமியத் தமிழ் இலக்கிய வரலாறு(தொகுதிஒன்று) ம.முகம்மது உவைஸ்(ம)பீ.மு.அஜ்மல்கான்,மதுரை காமராசர் பல்கலைக்கழகம், மதுரை,1986. • இலக்கிய சிந்தனை, சிற்பி, கோலம் வெளியீடு.பொள்ளாச்சி.1989. • சேக்கிழார் தந்த செல்வம்,அ.ச.ஞானசம்பந்தன்,கங்கை புத்தக நிலையம், சென்னை,முதற் பதிப்பு,1997.			
E-Reference	• Tamil Heritage Foundation- www.tamilheritage.org • Tamil virtual University Library- www.tamilvu.org/library • Project Madurai - www.projectmadurai.org • Chennai Library- www.chennaiLibrary.com • Tamil Universal Digital Library- www.ulib.org • Tamil E-Books Downloads- tamale booksdownloads. blogspot.com • Tamil Books on line- books.tamil cube.com • Catalogue of the Tamil books in the Library of British Congress archive.org • Tamil novels on line - books.tamilcube.com			
Course learning outcomes	On successful completion of the course, the students will be able to			
	COs	Course Outcomes	K Level	Learning Outcomes (LO1-LO15)
	CO1	காப்பிய இலக்கியங்களின் தோற்றம்- வளர்ச்சி பற்றி அறிவர்.	K1 & K2	LO1

	CO2	காப்பிய இலக்கியங்களைப் பயின்று பகுத்து வகை தொகை செய்வர்.	K3	LO4
	CO3	காப்பிய இலக்கியங்களைப் பயின்று ஒப்பீடு செய்வர்.	K4	LO5
	CO4	பிற காப்பிய இலக்கியங்களைப் பகுத்தாய்ந்து மதிப்பிடுவர்.	K5	LO11
	CO5	காப்பியங்களை ஒப்பிட்டு ஆய்வு மேற்கொண்டு தானே புதிய காப்பிய இலக்கியம் உருவாக்கும் சிந்தனை பெறுவர்.	K5 & K6	LO2 LO15 LO3 LO8 LO9

Mapping of Cos with Pos & PSOs	Programme Outcomes							Programme Specific Outcomes				Mapping Score of Cos with POs & PSOs
	CO s	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO1	PSO2	PSO3	Mean Score	2.6
	CO 1	3	2	2	2	2	2.2	2	2	2	2	
	CO 2	3	3	2	2	2	2.4	2	2	2	2	
	CO 3	3	3	2	3	3	2.8	3	3	3	3	
	CO 4	3	3	2	3	3	2.8	3	3	3	3	
	CO 5	3	3	3	3	3	3	3	3	3	3	
	Overall score for PO						2.6	Overall score for PSO			2.6	
	Strongly Correlating (S)							-	3 Marks			
	Moderately Correlating (M)							-	2 Marks			
Weakly Correlating (W)							-	1 Mark				
No Correlation (N)							-	0 Mark				
Teaching–Learning & Assessment Framework												
Teaching Methodology Experiential learning, Flipped Learning, Blended Learning,							Assessment Types Written mode – exam, class test, assignment					

Participative Learning	Integrated mode – paper presentation / seminar
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Assignment Topics

1. தமிழ்க் காப்பியங்களின் தோற்றமும் வளர்ச்சியும்.
2. தமிழ்க் காப்பியங்களில் சமயச் சிந்தனைகள்.
3. தமிழ்க் காப்பியங்களின் இலக்கிய மரபும் தாக்கமும்.
4. சிலப்பதிகாரம்- அந்திமாலைச் சிறப்புசெய் காதைச் செய்திகள்.
5. சிலப்பதிகாரம்- இந்திர விழா ஊர் எடுத்த காதைச் செய்திகள்.
6. விழாவறை காதை காதைச் செய்திகள்.
7. ஊரலர் உரைத்த காதைச் செய்திகள்.
8. மலர்வனம் புக்க காதைச் செய்திகள்.
9. பளிக்கறைப் புக்க காதைச் செய்திகள்.
10. மணிமேகலா தெய்வம் தோன்றிய காதைச் செய்திகள்.
11. சீவகசிந்தாமணி பூமகள் இலம்பகச் செய்திகள்.
12. குண்டலகேசி யாக்கை நிலையாமை செய்திகள்.
13. கம்பராமயணம் வாலிவதைப் படலச் செய்திகள்.
14. வில்லிபாரதம் சபா பருவச் செய்திகள்.
15. கண்ணப்ப நாயனாரின் பக்தி நெறி.
16. இராவண காவியத்தில் இராவணனின் பாத்திரப் படைப்பு.
17. இராவண காவியத்தில் அறநெறிச் சிந்தனைகள்.
18. இராவண காவியத்தின் இலக்கியப் பங்களிப்பு.

Seminar Topics

1. தமிழ்க் காப்பியங்கள் காட்டும் தமிழர் பண்பாடு.
2. மணிமேகலையில் சமயச் சிந்தனைகள்.
3. காப்பியங்களில் நீதி மற்றும் அறநெறி.
4. கம்பராமயணம் வாலிவதைப் படலம் கதைச் செய்திகள்.
5. சீவகசிந்தாமணியில் இல்லறமும் துறவறமும்.
6. சீவகசிந்தாமணியின் காப்பியச் சிறப்புகள்.
7. தேம்பாவணி முடிசூட்டுப் படலத்தின் இலக்கியப் பங்களிப்பு.
8. கண்ணப்ப நாயனாரின் பக்திச் சிறப்பு.
9. இராவண காவியத்தில் வீரரும் தலைமைத்துவமும்.

பொதுத்தமிழ் -4

[illegible]

	வைக்கும் அறக்கருத்துகள்,அற இலக்கியங்களின் இலக்கிய மதிப்புகள் போன்றவற்றை அறிந்துகொள்ளுதல். தமிழர்களின் பண்டைய அறவாழ்வுப் பெருமிதங்களை அறிந்து பின்பற்றும் விருப்பத்தைத் தூண்டுதல்.சமுதாய ஒற்றுமை,சமத்துவம்,மனித மாண்பு ஆகியவற்றை வலியுறுத்தல்.சிந்தனைத் திறன் வளர்ச்சி, நல்ல முடிவுகளை எடுக்க உதவும் நெறிமுறைகளை அறியச் செய்தல்.
Units	Course Contents
Unit - I	சங்க இலக்கியம் 1.1. எட்டுத்தொகை, பத்துப்பாட்டு - குறிஞ்சித் திணை - ஐங்குறுநூறு-205-கபிலர். - முல்லைத் திணை - அகநானூறு-74-மதுரைக் கவுணியன் பூதத்தனார். - மருதத் திணை - நற்றிணை-120- மாங்குடி கிழார். - நெய்தல் திணை - குறுந்தொகை-345-அண்டர் மகன் குறுவழுதி. - பாலைத் திணை - பாலைக்கலி -9-பாலை பாடிய பெருங்கடுங்கோ. 1.2. பத்துப்பாட்டு –முல்லைப்பாட்டு முழுவதும்.
Unit - II	புறப்பாடல்கள் புறநானூறு - ஒளவையார் பாடல்கள்- 91,206,235,392. - பாரி மகளிர் -112. - பேய்மகள் இளவெயினார் -11. - பூதப்பாண்டியன் தேவி பெருங்கோப்பெண்டு – 246. - காக்கை பாடினியார் – 278. - ஒக்கூர் மாசாத்தியார் – 279. - அள்ளூர் நன்முல்லையார் – 306. - காவற்பெண்டு -86.
Unit - III	திருக்குறள் - நாலடியார் – நான்மணிக்கடிகை - இன்னாநாற்பது - திருக்குறள் – அறத்துப்பால்- (அறன் வலியுறுத்தல் – செய்ந்நன்றி அறிதல், நடுவுநிலைமை, ஒழுக்கமுடைமை , அற உடைமை). - நாலடியார், – பொருட்பால் – (கல்வி – 131- 140) குஞ்சியழகும் முதல் அலகுசால் வரை. - நான்மணிக்கடிகை (11-20) கன்றாமை முதல் மனைக்குப்பாழ் வரை - இன்னா நாற்பது (21 – 30) ஈத்தவகையால் முதல் நெடுமரம். வரை

Unit - IV	இனியவை நாற்பது - திரிகடுகம் – சிறுபஞ்ச மூலம் – ஏலாதி ஆசாரக்கோவை – பழமொழி
	• இனியவை நாற்பது (11-20) அதர் சென்று முதல் சலவரைச் சாரா வரை • திரிகடுகம் (11-20) விளியாதான் முதல் ஆசை பிறன்கண் வரை • சிறுபஞ்ச மூலம் (11-20) கோறலும் நஞ்சு முதல் பூவாதுகாய்க்கும் வரை • ஏலாதி (11-20) அவாஅறுக்கல் முதல் மின் நேர் வரை • ஆசாரக்கோவை (11 – 20) உடுத்து அலால் முதல் உண்ணுங்கால் வரை • பழமொழி – (11-20) 1. விதிப்பட்ட நூலுணர்ந்து வேற்றுமை யில்லார். 2. கற்றானும் கற்றார்வாய்க் கேட்டானும் இல்லாதார். 3. கல்லாதான் கண்ட கழிநுட்பம் கற்றார்முன் . 4. கல்லாதான் கண்ட கழிநுட்பம் காட்டரிதல். 5. கல்வியா னாய கழிநுட்பம் கல்லார்முன். 6. கல்லா தவரிடைக் கட்டுரையின் மிக்கதோர். 7. கற்றாற்று வாரைக் கறுப்பித்துக் கல்லாதார் . 8. கேட்பாரை நாடிக் கிளக்கப் படும்பொருட்கண். 9. ஒருவ ருரைப்ப உரைத்தால், அதுகொண். 10. துன்னி இருவர் தொடங்கிய மாற்றத்திற்.
Unit - V	முதுமொழிக் காஞ்சி - களவழி நாற்பது
	5. 1.முதுமொழிக் காஞ்சி -(6-10) இல்லைப் பத்து முதல் தண்டாப் பத்து வரை. 5. 2. களவழி நாற்பது முழுவதும்.
Question paper Coverage - 100% theory	
Text book	• சங்க இலக்கியம் மூலமும் உரையும்- ச.வே. சுப்பிரமணியன்,மணிவாசகர் பதிப்பகம்,சென்னை,2014. • பத்துபாட்டு மூலமும் உரையும்,ச.வே. சுப்பிரமணியன்,மணிவாசகர் பதிப்பகம்,சென்னை,2014 • பதினெண்கீழ்க்கணக்கு நூல்கள், அ.மாணிக்கம், வர்த்தமானன் பதிப்பகம், சென்னை,2007.
Reference Book	• தமிழ் இலக்கிய வரலாறு, மு.வரதராசன்,சாகித்ய அகாடெமி பப்ளிகேஷன், சென்னை.1972. • தமிழ்ச் செவ்வியல் நூல்கள், ச.வே.சுப்பிரமணியன்,மணிவாசகர்

	பதிப்பகம்,சென்னை,2008.		
E-Reference	- Tamil Heritage Foundation- www.tamilheritage.org - Tamil virtual University Library- www.tamilvu.org/library - Project Madurai - www.projectmadurai.org. - Chennai Library- www.chennaiLibrary.com. - Tamil Universal Digital Library- www.ulib.prg. - Tamil E-Books Downloads- tamale booksdownloads. blogspot.com - Tamil Books on line- books.tamil cube.com - Catalogue of the Tamil books in the Library of British Congress archive.org - Tamil novels on line - books.tamilcube.com		
Course learning outcomes	On successful completion of the course, the students will be able to		
	COs	Course Outcomes	K Level Learning Outcomes (LO1-LO15)
	CO1	பழந்தமிழ் இலக்கியங்களின் தோற்றம், வளர்ச்சி மற்றும் இலக்கியப் பின்னணியை அறிதல்.	K1 & K2 LO1
	CO2	சங்க இலக்கியங்களின் அகப்பொருள்,புறப்பொருள் கோட்பாடுகளைப் புரிந்து பழந்தமிழ் இலக்கியக் கருத்துக்களை கல்வி,சமூகம் மற்றும் வாழ்வியல் சூழல்களில் பயன்படுத்தும் திறனைப் பெறுவார்.	K3 LO4
	CO3	பழந்தமிழ் இலக்கியங்களை நவீன இலக்கியங்களுடன் ஒப்பிட்டு பகுத்தறிதல்.	K4 LO5
	CO4	பழந்தமிழ் இலக்கியங்களில் காணப்படும் வாழ்வியல் நெறிகளை மதிப்பீடு செய்தல்.	K5 LO11
	CO5	பழந்தமிழ் இலக்கியம் தொடர்பான ஆய்வு,கருத்தரங்கம், ஒப்படைப்பு மற்றும் படைப்பாக்கப் பயிற்சியினைப் பெறுதல்.	K5 & K6 LO2 LO15 LO3 LO8 LO9

Mapping of Cos	Programme Outcomes	Programme Specific Outcomes	Mapping Score of Cos with POs &
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with Pos & PSOs											PSOs	
	COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO1	PSO3	PSO3	Mean Score	2.6
	CO1	3	2	2	2	2	2.2	2	2	2	2	
	CO2	3	3	2	2	2	2.4	2	2	2	2	
	CO3	3	3	2	3	3	2.8	3	3	3	3	
	CO4	3	3	2	3	3	2.8	3	3	3	3	
	CO5	3	3	3	3	3	3	3	3	3	3	
	Overall score for PO						2.6	Overall score for PSO			2.6	
Strongly Correlating (S)							-	3 Marks				
Moderately Correlating (M)							-	2 Marks				
Weakly Correlating (W)							-	1 Mark				
No Correlation (N)							-	0 Mark				
Teaching–Learning & Assessment Framework												
Teaching Methodology Experiential learning, Flipped Learning, Blended Learning, Participative Learning							Assessment Types Written mode – exam, class test, assignment Integrated mode – paper presentation / seminar					

Assignment Topics

- 1.சங்க இலக்கியத்தின் தோற்றமும் வளர்ச்சியும் .
- 2.எட்டுத்தொகை நூல்களின் இலக்கியச் சிறப்பு.
- 3.பத்துப்பாட்டு நூல்களின் தோற்றமும் வளர்ச்சியும் .
- 4.முல்லைப்பாட்டில் தலைவியின் உணர்வு.
5. திருக்குறள் காட்டும் வாழ்வியல் நெறிகள்.
- 6.பதினெண் கீழ்க்கணக்கு நூல்களில் அறக்கருத்துகள்.
- 7.திரிகடுகம் காட்டும் அறச்சிந்தனைகள்.
- 8.பழமொழி நானூற்றில் மக்களின் வாழ்க்கை அனுபவங்கள்.
9. புறநானூற்றில் ஒளவையார் பாடலின் கருத்துக்களை தொகுக்க.

Seminar Topics

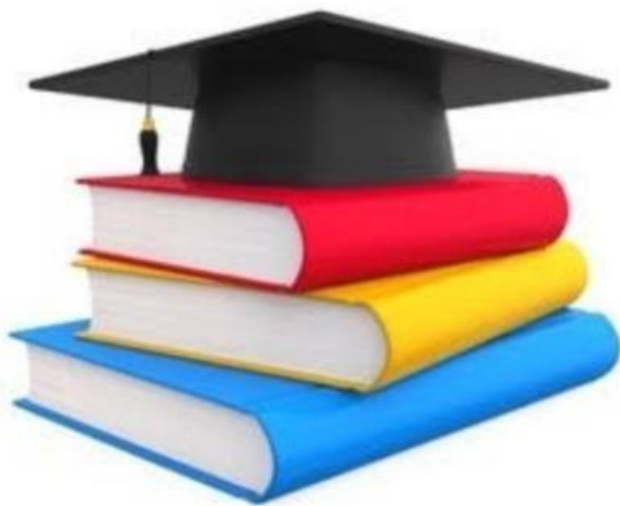
- 1.சங்க இலக்கியத்தில் திணைகளும் தமிழர் வாழ்வியலும்.
- 2.திணைக்கோட்பாடுவழி சங்ககால மக்களின் வாழ்க்கைமுறை.
- 3.முல்லைப்பாட்டில் சங்ககால சமூகப் பண்பாடுகள்.
- 4.திருக்குறளில் அறநெறிச் சிந்தனைகள்.
- 5.பழமொழி நானுற்றில் வாழ்வியல் கூறுகள்.
6. பதினெண் கீழ்க்கணக்கு நூல்களில் நீதிக் கருத்துக்கள்.
7. பதினெண் கீழ்க்கணக்கு நூல்களில் அற இலக்கிய மரபு.

Department of English and Foreign Languages Syllabus

for

Part II English

(University Department and Affiliated Colleges)



Curriculum Framework and Syllabus for 2026-2029



Department of English and Foreign Languages Minutes of the BoS meeting

Date & Time: 25.6.2026, 10.30.am

Meeting Link: meet.google.com/vsu-qqto-yka

The Department of English and Foreign Languages has convened the Board of Studies for the curriculum of UG & P.G Programme in English offered by the Affiliated Colleges, M.A. English Programme offered by the Department of English and Foreign Languages, Mother Teresa Women's University, Kodaikanal Certificate Programme in English (News Reporting and Environmental Journalism), Part II English, Part I French, and Value Based Education for both MTWU & Affiliated Colleges to be offered from the academic year 2026-2027 onwards.

It is resolved that the Board of Studies of the Department of English having reviewed in detail the syllabus placed before it, hereby, confirmed and approved the curriculum framed for the M. A. English literature (University), M. A. English literature (All Affiliated Colleges) UG B. A. English literature (All Affiliated Colleges) Programmes, Part -II English, Part -I French, Certificate Programme and Value Based Education for the Academic Year 2026-2027.

It is further resolved that the said Curriculum have been framed and revised on the basis of the recommendations of Subject experts, Faculty members, Industry representatives, Alumnae and Student feedback, all of whose suggestions have been systematically considered and incorporated, and that the syllabus duly reflect the emerging trends in English Literature and the current requirements of the Society. The syllabus of Part -II English, Part -I French, Certificate Programme and Value Based Education submitted to the board has been approved.

It is further resolved that the aforementioned syllabus stand approved with minor modifications to the curriculum of the M A. English literature (University), M. A. English literature (All Affiliated Colleges) and UG B. A. English literature (All Affiliated Colleges) programmes, by incorporating the regional needs of the area, and that theses syllabus be implemented with effect from the academic year 2026-2027 for next three years.

 25/06/26

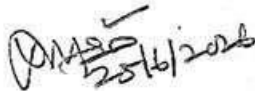
Dr. P. Jeyappriya, Professor and Head, Chair Person, BOS
Department of English and Foreign Languages
Mother Teresa Women's University, Kodaikanal



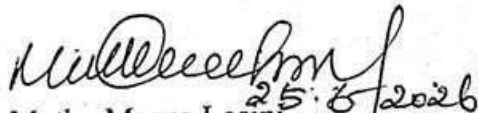
Mr. Lokesh,
Lady Hawk Language Research Foundations,
Gandhipuram,
Coimbatore.

 25/6/2026

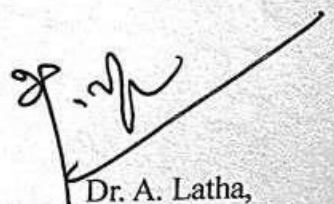
Dr. P. Nagaraj, Professor and Head,
Department of English,
Bharathiar University,
Coimbatore.

 25/6/2026

Dr. Rajaram,
Associate Professor,
Department of English,
M.V.M. Govt. Arts College for Women,
Dindigul.

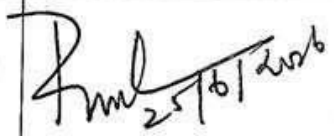
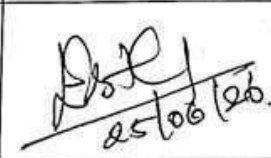
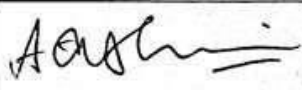
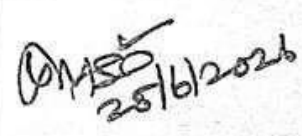
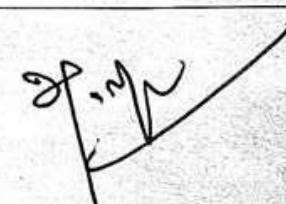
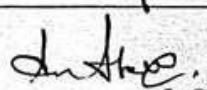
 25.6.2026

Dr. A. Muthu Meena Losini,
Department of English and Foreign Languages
Mother Teresa Women's University,
Kodaikanal



Dr. A. Latha,
Associate Professor,
Department of English
Govt. Arts college for Women,
Nilakottai

MOTHER TERESA WOMEN'S UNIVERSITY, KODAIKANAL
DEPARTMENT OF ENGLISH

S.NO.	BoS Members	Members Present	SIGNATURE
1.	Head of the Department/ CHAIRPERSON	Dr. P. Jeyappriya, Professor and Head, Department of English and Foreign Language Mother Teresa Women's University, Kodaikanal.	 25/06/2020
2.	Subject Expert from other Universities	Dr.P.Nagaraj, Professor and Head, Department of English, Bharathiar University Maruthamalai Road, Coimbatore 641 046	 25/6/2020
3.	One representative from Alumnae	S. Esther Vidhya Kumbar	 25/06/2020
4.	One representative from Industrial field	Mr. LOKESH Lady Hawk Language Research Foundation 289, SMB Toys Complex, 6th Street, Gandhipuram , Coimbatore.	
5.	Department Staff from our University	Dr.A.Muthumeena Losini, Asst.Professor	 25.6.20
6.		Dr.A.Rajalakshmi, Asst.Professor	
7.	One Co-ordinator from each affiliated College where the Respective course is offered	Dr.Rajaram, Associate Professor, Department of English, M.V.M. Government Arts College for Women, Dindigul.	 25/6/2020
8.		Dr.A.Latha, Associate Professor, Govt. Arts College for Women, Nilakottai.	
9.	One Student Representative	K. A. Anu Abano.	 25.6.20.

GENERIC ENGLISH (PART II)

SEMESTER I- IV

Course Code		Semester I	Year I	Credits	L	T	P	Hrs
Core/ Elective	General English I			3				6
Nature of the Course	Employability, Skill Development, Entrepreneurship							
Learning Objectives								
LO1	To introduce students to foundational literary genres, including poetry, prose, drama, and short fiction across varying socio-cultural periods.							
LO2	To cultivate critical thinking, aesthetic appreciation, and interpretive skills through textual analysis of classic and modern literature.							
LO3	To sensitise students to core human values, universal ethics, and ecological awareness embedded within structural texts.							
LO4	To strengthen baseline communicative proficiency by clarifying foundational principles of English grammar and syntax.							
LO5	To enhance workplace readiness and lifelong communication skills by training students to apply active/passive voice and precise tenses.							
UNIT	Course Contents							
I	Poetry William Wordsworth – <i>The World is Too Much With Us</i> W. H. Davies - <i>Leisure</i> John Keats - <i>To Autumn</i> Robert Frost - <i>Stopping by Woods on a Snowy Evening</i> Sarojini Naidu - <i>Coromandel Fishers</i>							
II	Prose Charles Lamb - <i>A Dissertation upon Roast Pig</i> Helen Keller - <i>Three Days to See</i>							
III	Short story R.K.Narayan – <i>A Snake in the Grass</i> Anton Chekov – <i>The Lady with the Dog</i>							
IV	Grammar Parts of Speech a. Noun b. Pronoun c. Verb d. Adjective e. Adverb f. Preposition g. Conjunction h. Interjection Tenses (Simple, Continuous, Perfect and Perfect Continuous Forms) a. Present Tense b. Past Tense c. Future Tense Active and Passive Voice							

V	Writing Reading Comprehension General Essay Writing		
Course Outcomes			
Course Outcomes	On completion of this course, students will be able to		
		K Level	LO
CO1	To introduce students to foundational literary genres including poetry, prose, drama, and short fiction across varying socio-cultural periods.	K1 & K2	LO1
CO2	To cultivate critical thinking, aesthetic appreciation, and interpretive skills through textual analysis of classic and modern literature.	K3	LO4
CO3	To sensitise students to core human values, universal ethics, and ecological awareness embedded within structural texts.	K4	LO5
CO4	To strengthen baseline communicative proficiency by clarifying foundational principles of English grammar and syntax.	K5	LO11
CO5	To enhance workplace readiness and lifelong communication skills by training students to apply active/passive voice and precise tenses.	K5 & K6	LO15
Textbook (Latest Editions)			
1.	<i>Literary Gleam: An Anthology of Prose and Poetry</i> (Standard First-Year UG Foundation Textbook).		
2.	<i>An Introduction to the Study of English Literature</i> by B. Prasad.		
References Books (Latest editions, and the style as given below must be strictly adhered to)			
1.	<i>A Glossary of Literary Terms</i> by M.H. Abrams (Cengage Learning).		
2.	<i>The Pelican Guide to English Literature (Vol. 1–8)</i> , edited by Boris Ford.		
Web Resource			
1.	Poetry Foundation: For authorised, printable versions of Wordsworth, Frost, and Keats.		
2.	Cambridge Dictionary. — <i>Grammar and Language Reference</i> . Cambridge University Press, https://dictionary.cambridge.org/grammar .		
3.	The British Council. — <i>LearnEnglish</i> . British Council, https://learnenglish.britishcouncil.org .		

Mapping of Cos with Pos & PSOs

COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO1	PSO2	PSO3	Mean Score
CO1	3	2	2	2	3	2.4	3	2	2	2.3
CO2	2	3	2	3	2	2.4	2	3	1	2
CO3	2	2	3	1	2	2	2	1	2	1.6
CO4	2	2	2	2	2	2	3	2	3	2.6
CO5	2	2	2	3	2	2.2	2	2	2	2
Overall score for PO						2.2	Overall score for PSO			2.1

Course Code		Semester II	Year I	Credits	L	T	P	Hrs
Core/ Elective	General English II			3				6
Nature of the Course	Employability, Skill Development, Entrepreneurship							
Learning Objectives								
LO1	To introduce students to foundational literary genres, including poetry, prose, drama, and short fiction across varying socio-cultural periods.							
LO2	To cultivate critical thinking, aesthetic appreciation, and interpretive skills through text analysis of classic and modern literature.							
LO3	To sensitise students to core human values, universal ethics, and ecological awareness embedded within structural texts.							
LO4	To strengthen foundational syntactic clarity by training students to identify and construct standard sentence patterns.							
LO5	To enhance workplace readiness and situational fluency through conversational skills, dialogue production, and reporting mechanics.							
UNIT	Course Contents							
I	Poetry Rudyard Kipling - <i>If</i> Walt Whitman – <i>O’Captain, My Captain</i> Langston Hughes – <i>Dreams</i> P.B.Shelley – <i>Ozymandias</i> William Blake – <i>Poison Tree</i>							
II	Prose Malala Yousafzai’s <i>I am Malala(Chapter 1)</i> M.K. Gandhi’s moral and personal growth in <i>The Story of My Experiments with Truth (Chapters 1- 2)</i>							
III	Short story Stephan Leacock - <i>My Financial Career</i> O’ Henry - <i>After 20 Years</i>							
IV	Grammar and Communication Skills Sentence Patterns Direct and Indirect Speech							
V	Writing Letter Writing - Formal Letters - Application for Leave - Letter to the Editor - Complaint Letter - Enquiry Letter - Informal Letters							

Course Outcomes			
Course Outcomes	On completion of this course, students will be able to		
		K Level	LO
CO1	Recall and explain structural, thematic, and stylistic traits belonging to specified literary eras and authors.	K1 & K2	LO1
CO2	Analyse and interpret underlying metaphors, socio-cultural contexts, and philosophical concepts across various genres.	K3	LO4
CO3	Critique and evaluate human actions, ethical choices, and social realities depicted across the literary texts.	K4	LO5
CO4	Apply rules of syntax and speech transformation accurately to modify sentences in spoken and written contexts.	K5	LO11
CO5	Synthesize and produce coherent dialogic exchanges, creative scenarios, and professional reports based on real-world situations.	K5 & K6	LO15
Textbook (Latest Editions)			
1.	Touchstone: An Anthology of Prose and Poetry (Orient BlackSwan).		
2.	Echoes: A Course in Literature and Language (Macmillan Education).		
References Books (Latest editions, and the style as given below must be strictly adhered to)			
1.	A Glossary of Literary Terms by M.H. Abrams and Geoffrey Galt Harpham (Cengage Learning).		
2.	A Remedial English Grammar for Foreign Students by F.T. Wood (Macmillan Publishers).		
Web Resource			
1.	Poetry Foundation: For authorized, printable versions of works by William Wordsworth, Robert Frost, and John Keats.		
2.	Oxford Reference. —English Language and Literature.∥ Oxford University Press, https://www.oxfordreference.com .		
3.	JSTOR. —Language and Literature Collection.∥ ITHAKA, https://www.jstor.org .		

Mapping of Cos with Pos & PSOs

COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO1	PSO2	PSO3	Mean Score
CO1	3	2	2	2	3	2.4	3	2	2	2.3
CO2	2	3	2	3	2	2.4	2	3	1	2
CO3	2	2	3	2	2	2.2	2	2	2	2
CO4	3	3	2	2	2	2.4	3	2	3	2.6
CO5	2	3	2	1	2	2	2	2	2	2
Overall score for PO						2.28	Overall score for PSO			2.18

Course Code		Semester III	Year II	Credits	L	T	P	Hrs
Core/ Elective	General English III			3				6
Nature of the Course	Employability, Skill Development, Entrepreneurship							
Learning Objectives								
LO1	To introduce foundational literary genres including lyrical poetry, reflective prose, social drama, and gothic/realist short fiction across global contexts.							
LO2	To develop analytical skills and aesthetic evaluation by unpacking text metaphors, sensory imagery, and diverse structural narratives.							
LO3	To nurture socio-cultural empathy and moral consciousness by exploring human vulnerabilities, simple life joys, and ethical transformations.							
LO4	To rectify syntactic structural weaknesses through target training in modifiers, non-finite verbs, and common usage errors.							
LO5	To equip students with expressive, real-world communicative output including contextual descriptions, cohesive paragraphing, and personal letters.							
UNIT	Course Contents							
I	Poetry W. B. Yeats - <i>The Lake Isle of Innisfree</i> William Shakespeare – <i>All the World’s a Stage</i> Robert Herrick - <i>To Daffodils</i> Joyce Kilmer - <i>Trees</i> Robert Browning – <i>Incident of the French Camp</i>							
II	Prose Robert Louis Stevenson - <i>Walking Tours</i> Jessie Owen - <i>My Greatest Olympic Prize</i>							
III	Short Stories Isaac Asimov - <i>The Last Question</i> Guy de Maupassant - <i>The Necklace</i>							
IV	Grammar and Communication Skills Degrees of Comparison Gerunds and Infinitives Common Errors in Usage							
V	Writing Writing a Paragraph Dialogue writing Report Writing							

Course Outcomes			
Course Outcomes	On completion of this course, students will be able to		
		K Level	LO
CO1	Recall and interpret core themes, character motivations, and literary imagery used across various global eras and authors.	K1 & K2	LO1
CO2	Deconstruct and examine underlying societal critiques, cultural practices, and existential concepts embedded within texts	K3	LO4
CO3	Critique and evaluate moral actions, financial vanities, and shifting emotional states depicted in diverse literary modes.	K4	LO5
CO4	Detect structural grammar flaws and construct accurate phrases using precise degrees of comparison, gerunds, and infinitives	K5	LO11
CO5	Draft well-structured paragraphs, situational narratives, and informal messages tailored to personal and social contexts.	K5 & K6	LO15
Textbook (Latest Editions)			
1.	<i>Symphony: An Anthology of Prose and Poetry</i> (Orient BlackSwan).		
2.	<i>Fluency in English: A Coursebook for Foundation English</i> (Macmillan Education).		
References Books (Latest editions, and the style as given below must be strictly adhered to)			
1.	<i>A Glossary of Literary Terms</i> by M.H. Abrams and Geoffrey Galt Harpham (Cengage Learning).		
2.	<i>Oxford Guide to English Grammar</i> by John Eastwood (Oxford University Press - Excellent for structural breakdowns of Gerunds vs. Infinitives).		
Web Resource			
1.	Poetry Foundation: For authorized, printable versions of works by W.B. Yeats, William Wordsworth, Robert Herrick, and Langston Hughes.		
2.	Cambridge Dictionary. — <i>Grammar and Language Reference</i> . Cambridge University Press, https://dictionary.cambridge.org/grammar .		
3.	Encyclopaedia Britannica. — <i>English Literature</i> . Encyclopaedia Britannica, https://www.britannica.com/art/English-literature .		
4.	Oxford Reference. — <i>English Language and Literature</i> . Oxford University Press, https://www.oxfordreference.com .		

Mapping of Cos with Pos & PSOs

COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO1	PSO2	PSO3	Mean Score
CO1	3	2	3	2	3	2.6	3	2	2	2.3
CO2	2	3	2	3	2	2.4	2	3	2	2.3
CO3	2	2	3	3	2	2.4	2	2	2	2
CO4	3	1	2	2	2	2	3	2	3	2.6
CO5	2	3	2	3	2	2.4	2	3	1	2
Overall score for PO						2.36	Overall score for PSO			2.24

Course Code		Semester IV	Year II	Credits	L	T	P	Hrs
Core/ Elective	General English IV			3				6
Nature of the Course	Employability, Skill Development, Entrepreneurship							
Learning Objectives								
LO1	To analyze advanced global literary works across poetry, prose, drama, and short fiction, focusing on complex thematic structures and historical contexts							
LO2	To cultivate psychological insight and mature critical evaluation by unpacking text ironies, social behaviors, and motivational narratives							
LO3	To foster advanced professional language mechanics through sentence restructuring, syntax transformation, and reading comprehension.							
LO4	To develop modern workplace documents including formal electronic correspondence and industry-standard resumes or curricula vitae.							
LO5	To train students in corporate verbal skills covering competitive group discussions, recruitment interviews, and public presentation platforms.							
UNIT	Course Contents							
I	Poetry Christina Rossetti - <i>A Birthday</i> Walter de la Mare - <i>Silver</i> Thomas Hardy - <i>The Darkling Thrush</i> Wifred Owen – <i>Strange Meeting</i> Nissim Ezekiel - <i>Night of the Scorpion</i>							
II	Prose Martin Luther King – <i>I Have a Dream</i> A. P. J. Abdul Kalam - <i>The Power of Determination</i>							
III	Short Stories Ruskin Bond – <i>No Room for a Leopard</i> Saki - <i>The Open Window</i>							
IV	Grammar and Communication Skills Transformation of Sentences: Simple, Compound, and Complex Sentences Reading Comprehension							
V	Writing Resume / CV Writing Writing formal Emails Precise Writing							

Course Outcomes			
Course Outcomes	On completion of this course, students will be able to		
		K Level	LO
CO1	Identify and explain stylistic nuances, dramatic techniques, and underlying ironies across global genres	K1 & K2	LO1
CO2	Deconstruct and examine complex sociocultural identities, regional superstitions, and psychological character traits.	K3	LO4
CO3	Critique and evaluate human habits, societal systems, personal resilience models, and ethical dilemmas in literature	K4	LO5
CO4	Analyze syntactic relationships and alter structural data to convert sentences into simple, compound, or complex forms.	K5	LO11
CO5	Design, draft, and perform professional corporate communication tasks including CV creation, business emails, group presentation dynamics, and structured interview strategies.	K5 & K6	LO15
Textbook (Latest Editions)			
1.	Confluence: A Course in Literature and Language (Orient BlackSwan).		
2.	Prism: An Anthology of Prose, Poetry, and Drama (Macmillan Education India).		
References Books (Latest editions, and the style as given below must be strictly adhered to)			
1.	Poetry Foundation: For authorized, printable editions of poems by Christina Rossetti, Walter de la Mare, and Thomas Hardy		
2.	Poetry Foundation: For authorized, printable editions of poems by Christina Rossetti, Walter de la Mare, and Thomas Hardy		
Web Resource			
1.	Poetry Foundation: For authorized, printable editions of poems by Christina Rossetti, Walter de la Mare, and Thomas Hardy.		
2.	Cambridge Dictionary. —Grammar and Language Reference.¶ Cambridge University Press, https://dictionary.cambridge.org/grammar .		
3	Encyclopaedia Britannica. —English Grammar.¶ Encyclopaedia Britannica, https://www.britannica.com/topic/grammar .		

Mapping of Cos with Pos & PSOs

COs	PO1	PO2	PO3	PO4	PO5	Mean Score	PSO1	PSO2	PSO3	Mean Score
CO1	3	2	2	2	2	2.2	3	2	2	2.3
CO2	2	3	2	3	3	2.6	2	3	3	2.6
CO3	2	2	3	3	2	2.4	2	2	2	2
CO4	3	2	2	2	2	2.2	3	2	3	2.6
CO5	3	3	2	2	2	2.4	2	2	2	2
Overall score for PO						2.36	Overall score for PSO			2.3

Value Based Education (for all UG courses)

[illegible]

Reference Book	1. S. Dinesh, <i>Education for Values, Environment and Human Rights</i> , Discovery Publishing House. 2. M.G. Chitkara, <i>Education and Human Values</i> , APH Publishing.			
E-Reference	1. UGC Consortium for Educational Communication (CEC): https://cec.nic.in/ 2. UNESCO Values Education Resource Portal: https://en.unesco.org/			
Course learning outcomes	On successful completion of the course, the students will be able to			
	COs	Course Outcomes	K Level	Learning Outcomes (LO1-LO15)
	CO1	Recall and explain the core foundations of truth, honesty, professional integrity, and academic authenticity.	K1,K2	LO1, LO2
	CO2	Apply empathetic listening, conflict-resolution mechanisms, and mindful self-regulation techniques in daily personal and campus interactions.	K3	LO4, LO7
	CO3	Analyze various sources of emotional triggers, ethical dilemmas, and the behavioral consequences of convenience-based choices.	K4	LO5, LO9
	CO4	Evaluate the social impact of inclusive civic citizenship, corporate/governance transparency, and ethical accountability in modern public life.	K5	LO11, LO12
	CO5	Evaluate biological roles, structural parameters, and dietary variations like Omega-3/Omega-6 fatty acids while addressing ethical concerns in modern biotechnology.	K5, K6	LO2, LO13
	CO6	Formulate and adopt a structured personal plan for lifelong ethical living, utilizing emotional journaling, mindfulness, and value-based professional goals.	K6	LO14, LO15
Teaching–Learning & Assessment Framework				
Teaching Methodology Experiential & Reflective Learning: Regular classroom breathing and pause exercises, guided emotional journaling sessions, and peer-to-peer role-plays simulating emotionally charged situations or ethical dilemmas.		Assessment Types Blended Learning: Reviewing selected case studies on corporate, health, and academic transparency via online open-source educational modules. Interactive Frameworks: Group discussions using Think-Pair-Share methodologies focused on real-world conflict resolution, empathy mapping, and establishing strong campus values.		

Semester III

U26EVS301

ENVIRONMENTAL STUDIES - **(For all UG courses)**

Course Code	U26EVS301	Semester III	Year II	Credits	L	T	P	Hrs
General Course	Environmental Studies			2	2	-	-	2
Nature of the Course	Employability							
Learning objectives	-To understand the scope and interdisciplinary nature of Environmental Studies, including ecosystem concepts, community ecology, and the relationship between humans and the environment. -To acquire knowledge of natural resources, biodiversity, environmental pollution, and their conservation and management for sustainable environmental development. -To develop an understanding of sustainable development, environmental health, pollution prevention, and the importance of environmental ethics and public awareness. -To familiarize students with national and international environmental laws, policies, and conventions that support environmental protection, biodiversity conservation, and sustainable resource							
Units	Course Contents							
Unit I	Multidisciplinary nature of environmental studies The multidisciplinary nature of environmental studies. Definition, Scope and importance. Need for public awareness. Ecosystem: What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chain, food web and ecological succession. Case studies of the following ecosystems: a) Forest ecosystem b) Grassland ecosystem c) Desert ecosystem d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)							
Unit II	Natural Resources: Renewable and Non-renewable Resources : Land Resources and land use change; Land degradation, soil erosion and desertification. Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state). Heating of earth and circulation of air; air mass formation and precipitation. Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.							
Unit III	Biodiversity and Conservation - Levels of biological diversity :genetic, species and ecosystem diversity; Biogeography zones of India; Biodiversity patterns and global biodiversity hot							

	spots. India as a mega-biodiversity nation; Endangered and endemic species of India. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity. Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value. Environmental pollution -Environmental pollution : types, causes, effects and controls; Air, water, soil, chemical and noise pollution. Nuclear hazards and human health risks. Solid waste management: Control measures of urban and industrial waste. Pollution case studies.
Unit IV	Environmental Policies & Practices- Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture. Environment Laws : Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act; International agreements; Montreal and Kyoto protocols and conservation on Biological Diversity (CBD). The Chemical Weapons Convention (CWC). Nature reserves, tribal population and rights, and human, wildlife conflicts in Indian context
Unit V	Human Communities and the Environment - Human population and growth: Impacts on environment, human health and welfares. Carbon foot-print. Resettlement and rehabilitation of project affected persons; case studies. Disaster management: floods, earthquakes, cyclones and landslides. Environmental movements: Chipko, Silent valley, Bishnios of Rajasthan. Environmental ethics: Role of Indian and other religions and cultures in environmental conservation. Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi). Field work- Visit to a local area to document environmental assets-river / forest/ grassland/ hill / mountain
Question paper Coverage - 100% theory	
Reference Book	1.Carson, R. 2002. Silent Spring. Houghton Mifflin Harcourt. 2. Gadgil, M., & Guha, R.1993. This Fissured Land: An Ecological History of India. Univ. of California Press. 3. Gleeson,B. and Low, N. (eds.) 1999. Global Ethics and Environment, London, Routledge.

4. Gleick, P.H. 1993. Water in Crisis. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.
5. Groom, Martha J. Gary K. Meffe, and Carl Ronald carroll. Principles of Conservation Biology. Sunderland: Sinauer Associates, 2006.
6. Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalaya dams. Science, 339: 36-37.
7. McCully, P.1996. Rivers no more: the environmental effects of dams(pp. 29-64). Zed Books.
8. McNeil, John R. 2000. Something New Under the Sun: An Environmental History of the Twentieth Century.
9. Odum, E.P., Odum, h.T. & Andrews, J.1971. Fundamentals of Ecology. Philadelphia: Saunders.
10. Pepper, I.L., Gerba, C.P. & Brusseau, M.L. 2011. Environmental and Pollution Science. Academic Press.
11. Rao, M.N. & Datta, A.K. 1987. Waste Water Treatement. Oxford and IBH Publishing Co. Pvt. Ltd.
12. Raven, P.H., Hassenzahl, D.M. & Berg, L.R. 2012. Environment. 8th edition. John Wiley & Sons.
13. Rosencranz, A., Divan, S., & Noble, M.L. 2001. Environmental law and policy in India. Tripathi 1992. 14. Sengupta, R. 2003. Ecology and economics: An approach to sustainable development. OUP.
15. Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. Ecology, Environmental Science and Conservation. S. Chand Publishing, New Delhi.
16. Sodhi, N.S., Gibson, L. & Raven, P.H. (eds). 2013. Conservation Biology: Voices from the Tropics. John Wiley & Sons.
17. Thapar, V. 1998. Land of the Tiger: A Natural History of the Indian Subcontinent.
18. Warren, C.E. 1971. Biology and Water Pollution Control. WB Saunders.
19. Wilson, E.O. 2006. The Creation: An appeal to save life on earth. New York: Norton.
20. World Commission on environment and Development. 1987. Our Common Future. Oxford University Press.

E-Reference				
Course learning outcomes	On successful completion of the course, the students will be able to			
	COs	Course Outcomes	K L ev el	Learning Outcomes (LO1-LO15)
	CO1	Explain the basic concepts of environmental studies, ecosystems, natural resources, biodiversity, and environmental pollution.	K 1 & K 2	LO1
	CO2	Analyze environmental issues and the impact of human activities on natural resources and ecosystems.	K 4	LO3
	CO3	Evaluate environmental conservation methods, pollution control measures, and environmental laws for sustainable development.	K 5	LO5
	CO4	Apply environmental knowledge to identify environmental problems and suggest suitable solutions through field studies and community participation.	K 3	LO5
	CO5	Demonstrate environmental awareness, ethical responsibility, and sustainable practices for environmental protection.	K 3	LO13,LO14
	CO6	Develop environmental responsibility and participate in environmental conservation and sustainable development activities.	K 6	LO14,LO15
Teaching–Learning & Assessment Framework				
Teaching Methodology Experiential learning, Blended Learning, Participative Learning		Assessment Types Written Mode - Exam, Class test, Assignment Integrated Mode - Paper presentation/ Seminar,		

Semester V

[illegible]

Reference Book	1.Coppola, D. P., <i>Introduction to International Disaster Management</i> , Butterworth-Heinemann. 2.Government of India, <i>National Policy on Disaster Management</i> , NDMA, New Delhi.			
E-Reference	1.NDMA India Portal: https://ndma.gov.in 2. UNDRR Prevention Web: https://www.preventionweb.net			
Course learning outcomes	On successful completion of the course, the students will be able to			
	COs	Course Outcomes	K L ev el	Learning Outcomes (LO1-LO15)
	CO1	Recall and describe basic hazards, classification paradigms, institutional frameworks, and disaster governance roadmaps.	K 1, K 2	LO1
	CO2	Apply geo-technical parameters, first-aid emergency procedures, and CBDRR strategies to mitigate field-level disaster risks.	K 3	LO4
	CO3	Analyze regional vulnerability patterns, geo-climatic data profiles, and the balance between structural and non-structural mitigation measures.	K 4	LO5
	CO4	Evaluate the efficacy of economic instruments, psychosocial support interventions, and the administrative performance of regional civil societies.	K 5	LO11
	CO5	Evaluate environmental and socio-economic vulnerabilities within vulnerable coastal and fragile highland geomorphologies.	K 5, K 6	LO2, LO13
	CO6	Design inclusive community-led response plans and structural framework models for localized disaster risk reductions.	K 6	LO3, LO6
Teaching–Learning & Assessment Framework				

Teaching Methodology

Experiential Learning: Hands-on emergency simulations (triage modeling and mock drills) and participatory mapping of community-based vulnerability paths.

Blended Learning: Real-time analysis of GIS/Geo-Tech tracking tools and exploring spatial vulnerability databases from global DRR portals during dedicated tech laboratory hours.

Interactive Modules: Strategic problem-solving sessions focusing on policy implementation challenges and public administration parameters aligned with civil service competitive standards.

Assessment Types

Written Mode: Multi-hazard spatial mapping assignments, detailed case study evaluations focusing on recent extreme weather anomalies in Tamil Nadu, and structured periodic class examinations.

Oral Mode: Think-pair-share simulations focusing on immediate triage response coordination and panel presentations evaluating the socio-economic impacts of post-disaster recovery efforts.

Integrated Mode: Field-oriented poster presentations on community risk mitigation designs and a comprehensive SWOC analysis reviewing the structural vs non-structural resilience profiles of vulnerable regional coastal boundaries.