UNDER GRADUATE DEGREE PROGRAMME

B.Sc., Computer Science (Artificial Intelligence and Data Science)

Three Years

/

B.Sc., (Hons) Computer Science (Artificial Intelligence and Data Science)

Four Years

CURRICULUM & SYLLABUS

REGULATION 2026

Learning Outcomes Based Curriculum Framework (LOCF)

Effective from the Academic Year 2026- 2027

Department of Advanced Computing and Analytics

School of Computing Sciences

PALLAVARAM, THIRUVANMIYUR, ADYAR

VELS
INSTITUTE OF SCIENCE, TECHNOLOGY & ADVANCED STUDIES (VISTAS)
(Deemed to be University Estd. u/s 3 of the UGC Act, 1956)
PALLAVARAM, THALAMBUR, PERIYAPALAYAM, THIRUVANMIYUR - CHENNAI

DEPARTMENT OF ADVANCED COMPUTING & ANALYTICS

VISION OF THE DEPARTMENT
To emerge as a premier Center of Excellence in in Artificial Intelligence and Cyber Security domains by advancing innovation, impactful research, and industry-aligned education, empowering learners to create intelligent, data-driven solutions for global technological and societal challenges.

MISSION OF THE DEPARTMENT	
M1	To impart quality education in Artificial Intelligence, Cyber Security, and Data Science through a contemporary and industry-focused curriculum.
M2	To promote research, innovation, and problem-solving skills for developing intelligent, secure, and scalable technological solutions.
M3	To equip students with technical competence, ethical values, and professional skills to address emerging cyber threats and AI-driven challenges.
M4	To nurture socially responsible professionals and entrepreneurs capable of contributing to secure and sustainable digital transformation.

PROGRAMME OUTCOMES (PO)	
PO1	**Critical Thinking:** Apply knowledge of Computer Science to identify, analyse, and solve problems effectively in the field of computing.
PO2	**Computing Skills:** Analyze a problem, identify and define the computing requirements appropriate to its solution.
PO3	**Analytical skills:** Ability to design, develop algorithms and provide software solutions to cater the industrial needs.
PO4	**Modern Tool Usage:** Use current techniques, skills, and tools necessary for computing practices.
PO5	**Employability Skills:** Inculcate skills to excel in the fields of Information Technology and its Enabled services, Government and Private sectors, Teaching and Research.
PO6	**Ethics:** Insists ethical responsibilities, human and professional values and make their contribution to the society.
PO7	**Self Directed and Life-long Learning:** Engaged in lifelong learning to equip them to the changing environment and be prepared to take-up mastering programmes.
PO8	**Individual and Team Work:** Function effectively as an individual, and as a member or a leader in diverse team and multidisciplinary settings.
PO9	**Project Management and Finance:** Demonstrate knowledge and understanding of the problem and management principles and apply these to one's own work, as a member and engineering and management principles and apply these to one's own work, as a member.

PROGRAMME EDUCATIONAL OUTCOMES (PEO)	
PEO1	Graduates will apply advanced computational techniques, including Machine Learning, Deep Learning, and Big Data Analytics, to architect scalable solutions that address complex, real-world challenges across diverse industrial sectors.
PEO2	Graduates will function effectively as socially responsible professionals, demonstrating leadership, integrity, and a commitment to AI ethics while managing multidisciplinary projects.
PEO3	Graduates will engage in lifelong learning by staying at the forefront of AI evolution, pursuing advanced research, or obtaining specialized certifications to adapt to the shifting paradigm of "Human-AI Collaboration."
PEO4	Graduates will bridge the gap between data insights and business value, either by launching sustainable tech ventures or by driving data-centric transformation within global organizations.

PROGRAMME SPECIFIC OUTCOMES (PSO)	
PSO1	Ability to apply fundamental knowledge of **mathematics, statistics, and computer science** to design, implement, and analyze complex algorithms. This includes the capacity to evaluate computational complexity and optimize AI-based solutions for real-world engineering problems.
PSO2	Competence in building end-to-end intelligent systems using **Machine Learning, Deep Learning, and Natural Language Processing**. Graduates will be proficient in selecting appropriate architectures and frameworks to develop autonomous agents, predictive models, and cognitive systems.
PSO3	Expertise in managing the **entire data lifecycle**, including data acquisition, cleaning, storage (Big Data), and visualization. This involves applying modern analytical tools to extract meaningful patterns and provide data-driven insights while adhering to ethical standards and data privacy regulations.

CREDIT DISTRIBUTION

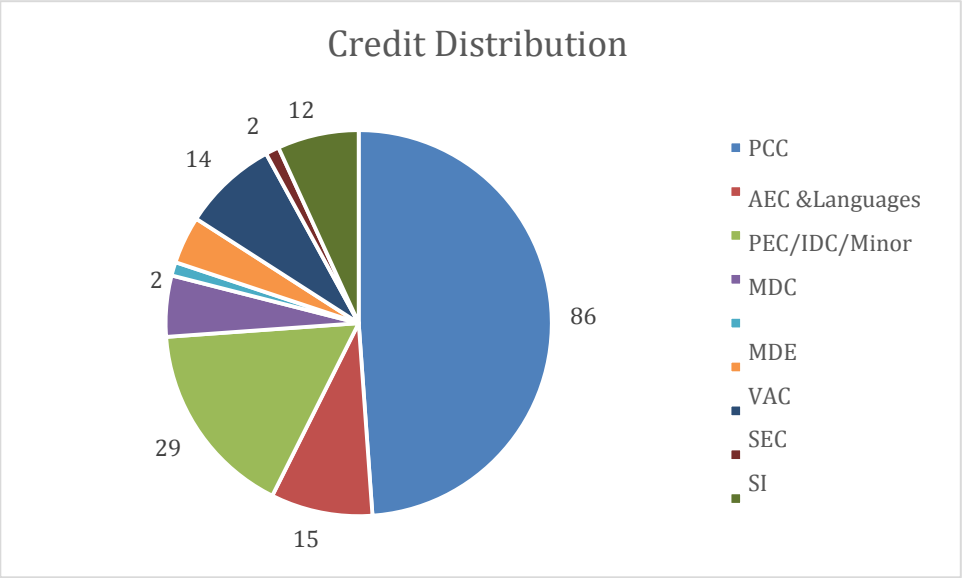
B.Sc., (Hons) Artificial Intelligence & Data Science

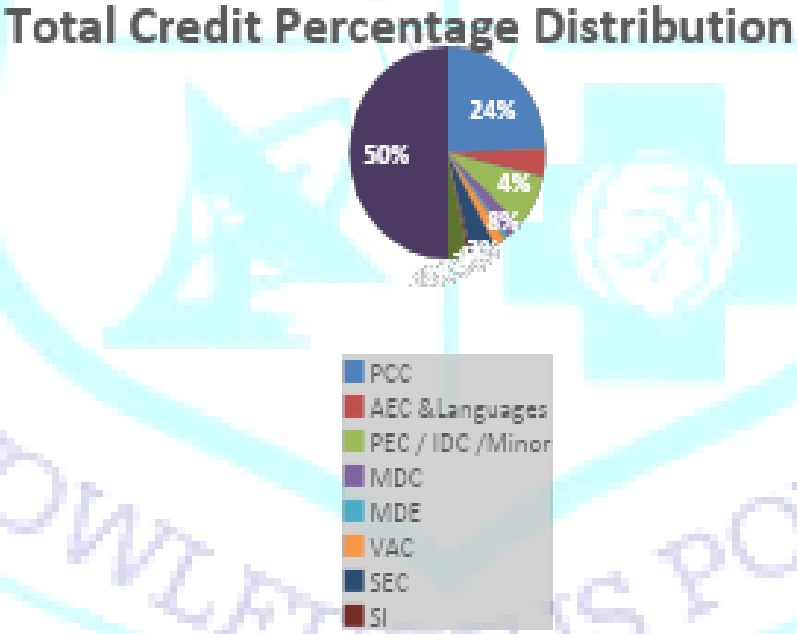
Minimum credits to be earned: 176

B.Sc., Artificial Intelligence & Data Science

Minimum credits to be earned: 132

Component	I Sem	II Sem	III Sem	IV Sem	V Sem	VI Sem	3 Yrs. Total Credits	VII Sem	VIII Sem	4 Yrs Total Credit
PCC	8	8	9	9	12	16	62	12	12	86
AEC & Languages	6	6	3	-	-	-	15	-	-	15
PEC / IDC / Minor	3	3	3	4	4	4	21	4	4	29
MDC	3	3	-	3	-	-	9	-	-	9
MDE	-	-	2	-	-	-	2	-	-	2
VAC	1	2	-	2	2	-	7	-	-	7
SEC	-	-	5	4	2	3	14	-	-	14
SI	-	-	1	-	1	-	2	-	-	2
PRD	-	-	-	-	-	-	-	6	6	12
Total Credits	21	22	23	22	21	23	132	22	22	176


Credit Distribution
12
2
14
2
29
15
86
PCC
AEC &Languages
PEC/IDC/Minor
MDC
MDE
VAC
SEC
SI


Total Credit Percentage Distribution
24%
4%
50%
PCC
AEC &Languages
PEC / IDC /Minor
MDC
MDE
VAC
SEC
SI

ABBREVIATIONS

PCC	**Programme Core Courses**
AEC	**Ability Enhancement Courses**
PEC	**Professional Elective Courses**
IDC	**Interdisciplinary / Minor Courses**
MDC	**Multidisciplinary Courses**
MDE	**Multidisciplinary Elective**
VAC	**Value Added Courses**
SEC	**Skill Enhancement Courses**
SI	**Summer Internship**
PRD	**Project Research Dissertation**

CURRICULUM STRUCTURE

B.Sc., Artificial Intelligence & Data Science Three Years

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BSc., (Hons) Artificial Intelligence & Data Science Four Years

Total number of Credits: 176

	B.Sc., Artificial Intelligence & Data Science (Hons) Minimum Credits to be earned :176 B.Sc., Artificial Intelligence & Data Science Minimum Credits to be earned: 132									
SEMESTER 1										
			Hours/Week					**Maximum Marks**		
LANG 1	25LTAM11/ 25LHIN11/ 25LFRE11	Tamil I / Hindi I / French I/ Indian sign language Basic	3	0	0	3	3	40	60	100
ENG 1	25LENG11	English I	3	0	0	3	3	40	60	100
PCC 1	25CBAD11	Problem solving using C	4	0	0	4	4	40	60	100
PCC 2	25CBAD12	Introduction to Artificial Intelligence	3	0	0	3	3	40	60	100
MDC 1	25BMA001	Applied Mathematics- I	2	1	0	3	3	40	60	100
PEC 1	25DBAD1-	Professional Elective Course - I	3	0	0	3	3	40	60	100
PCC 1 (Lab)	25PBAD11	Practical I – Programming in C Lab	0	0	2	1	1	40	60	100
VAC 1	25DVAC11	Universal Human Values	1	0	0	1	1	40	60	100
SEC 1		Orientation Programme / Industrial Visit	-	-	-	-	-	-	-	-
			19	**1**	**2**	**-**	**21**	**-**	**-**	**-**

CIA - Continuous Internal Assessment **SEE - Semester End Examination**

***L – Lecture, *T- Tutorial, *P- Practical, *SL-Self Learning**

SEMESTER 2										
			Hours/Week					Maximum Marks		
Category	**Code**	**Course**	**L**	**T**	**P**	**SL**	**C**	**CIA**	**SEE**	**Total**
LANG 2	25LTAM21/ 25LHIN21/ 25LFRE21	Tamil II / Hindi II / French II/ Indian sign language Advanced	3	0	0	3	3	40	60	100
ENG 2	25LENG21	English II	3	0	0	3	3	40	60	100
PCC 3	25CBAD21	Python Programming	3	0	0	3	3	40	60	100
PCC 4	25CBAD22	Data base Management System	3	0	0	3	3	40	60	100
MDC 2	25BMA002	Applied Mathematics – II	2	1	0	3	3	40	60	100
PEC 2	25DBAD2-	Professional Elective Course - II	3	0	0	3	3	40	60	100
PCC 3 (Lab)	25PBAD21	Practical II - RDBMS Lab	0	0	2	1	1	40	60	100
PCC 4 (Lab)	25PBAD22	Practical III – Python Programming Lab	0	0	2	1	1	40	60	100
VAC 2	25DVAC21	Communication Skills	0	0	4	2	2	-	100	100
			17	**1**	**8**	**-**	**22**	**-**	**-**	**-**

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SEMESTER 3										
			Hours/Week					Maximum Marks		
Category	Code	Course	L	T	P	SL	C	CIA	SEE	Total
AEC 1	25EVS031	Environmental Studies	3	0	0	3	3	40	60	100
PCC 5	25CBAD31	Programming in Java	4	0	0	4	4	40	60	100
PCC 6	25CBAD32	R Programming	3	0	0	3	3	40	60	100
PEC 3	25DBAD3-	Professional Elective Course - III	3	0	0	3	3	40	60	100
PCC 5 (Lab)	25PBAD31	Practical IV – Programming using Java Lab	0	0	2	1	1	40	60	100
PCC 6 (Lab)	25PBAD32	Practical V – Data Analytics using R lab	0	0	2	1	1	40	60	100
MDE 1		Indian Knowledge System	2	0	0	2	2	40	60	100
SEC2		Industry Oriented Employability Skills	2	0	0	2	2	40	60	100
SEC 3	25SSKU31	Professional Development - I	2	0	0	2	2	40	60	100
SI 1	25IBAD31	Internship I	0	0	2	1	1	-	100	100
SEC 4	25SBAD31	Global Certification	-	-	-	-	1	-	-	100
			19	**-**	**6**	**-**	**23**	**-**	**-**	**-**

CIA - Continuous Internal Assessment **SEE - Semester End Examination**

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SEMESTER 4										
			Hours/Week					Maximum Marks		
Category	**Code**	**Course**	**L**	**T**	**P**	**SL**	**C**	**CIA**	**SEE**	**Total**
MDC 3	25BMA003	Statistics	2	1	0	2	3	40	60	100
PCC 7	25CBAD41	Machine learning	4	0	0	4	4	40	60	100
PCC 8	25CBAD42	Data Visualization	3	0	0	3	3	40	60	100
PEC 4	25DBAD4-	Professional Elective Course –IV	4	0	0	4	4	40	60	100
PCC 7 (Lab)	25PBAD41	Practical VI –Machine learning using R Lab	0	0	2	1	1	40	60	100
PCC 8 (Lab)	25PBAD42	Practical VII – Data Visualization Lab	0	0	2	1	1	40	60	100
SEC 5	25SBAD41	Entrepreneurship Development	1	0	2	2	2	40	60	100
SEC 6		Professional Development - II	2	0	0	2	2	40	60	100
VAC 3	25DVAC41	Yoga Education / NSS / NCC	0	0	4	2	2	-	100	100
SEC 7		In-plant Training/ Industrial Tour/ Summer Term	-	-	-	-	-	-	-	-
			16	**1**	**10**	**-**	**22**	**-**	**-**	**-**

CIA - Continuous Internal Assessment **SEE - Semester End Examination**

***L – Lecture, *T- Tutorial, *P- Practical, *SL-Self Learning**

SEMESTER 5										
			Hours/Week					Maximum Marks		
Category	**Code**	**Course**	**L**	**T**	**P**	**SL**	**C**	**CIA**	**SEE**	**Total**
PCC 9	25CBAD51	Artificial Neural Network	3	0	0	3	3	40	60	100
PCC 1	25CBAD52	Software Engineering	4	0	0	4	4	40	60	100
PCC 11	25CBAD53	Robotic Process Automation	3	0	0	3	3	40	60	100
PEC 5	25DBAD5-	Professional Elective Course – V	4	0	0	4	4	40	60	100
PCC 9 (Lab)	25PBAD51	Practical VIII- Programming with Go	0	0	2	1	1	40	60	100
PCC 10 (Lab)	25PBAD52	Practical IX –RPA tools Lab	0	0	2	1	1	40	60	100
SEC 8	25SBAD51	Professional Development - III	1	0	2	2	2	40	60	100
VAC 4	25DVAC51	Value Education	2	0	0	2	2	40	60	100
SI 2	25IBAD51	Internship II	0	0	2	1	1	-	100	100
SEC 9		Skill Enhancement Training / Student Club Activities/ Institution Innovation Council Activities	-	-	-	-	-	-	-	-
			17	**-**	**8**	**-**	**21**	**-**	**-**	**-**

CIA - Continuous Internal Assessment **SEE - Semester End Examination**

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SEMESTER 6										
			Hours/Week					Maximum Marks		
Category	**Code**	**Course**	**L**	**T**	**P**	**SL**	**C**	**CIA**	**SEE**	**Total**
PCC 12	25CBAD61	Deep learning	3	0	0	3	3	40	60	100
PCC 13	25CBAD62	Python for data science	4	0	0	4	4	40	60	100
PCC 14	25CBAD63	Reinforcement Learning	4	0	0	4	4	40	60	100
PCC 15	25CBAD64	Agentic AI and its tools	4	0	0	4	4	40	60	100
PEC 6	25DBAD6-	Professional Elective Course – VI	4	0	0	4	4	40	60	100
PCC 12 (Lab)	25PBAD61	Practical X – Data Science using Python Lab	0	0	2	1	1	40	60	100
SEC 10	25SBAD61	Mini Project	2	0	0	2	2	-	100	100
SEC 11	25SBAD62	On Job Training / Apprenticeship / Startup	0	0	4	1	1	-	100	100
			21	-	**6**	-	**23**	-	-	-

CIA - Continuous Internal Assessment **SEE - Semester End Examination**

***L – Lecture, *T- Tutorial, *P- Practical, *SL-Self Learning**

SEMESTER 7										
			Hours/Week					Maximum Marks		
Category	Code	Course	L	T	P	SL	C	CIA	SEE	Total
PCC 16	25CBAD71	UI/UX design	3	0	0	3	3	40	60	100
PCC 17	25CBAD72	Internet of Things	4	0	0	4	4	40	60	100
PCC 18	25CBAD73	Large Language Model	4	0	0	4	4	40	60	100
PEC 7	25DBAD7-	Professional Elective Course – VII	4	0	0	4	4	40	60	100
PCC 16 (Lab)	25PBAD71	Practical XI- UI/UX Lab	0	0	2	1	1	40	60	100
PRD 1	25RBAD71	Research Project I	0	0	12	6	6	40	60	100
			15	-	14	-	22	-	-	-

CIA - Continuous Internal Assessment **SEE - Semester End Examination**

***L – Lecture, *T- Tutorial, *P- Practical, *SL-Self Learning**

SEMESTER 8										
			Hours/Week					Maximum Marks		
Category	**Code**	**Course**	**L**	**T**	**P**	**SL**	**C**	**CIA**	**SEE**	**Total**
PCC 19	25CBAD81	Digital Image processing	3	0	0	3	3	40	60	100
PCC 20	25CBAD82	Prompt Engineering	3	0	0	3	3	40	60	100
PCC 21	25CBAD83	Virtual Reality	4	0	0	4	4	40	60	100
PEC 8	25DBAD8-	Professional Elective Course –VIII	4	0	0	4	4	40	60	100
PCC 19 (Lab)	25PBAD81	Practical XII- Image processing lab using OpenCV	0	0	2	1	1	40	60	100
PCC 20 (Lab)	25PBAD82	Practical XIII – Virtual Reality Lab	0	0	2	1	1	40	60	100
PRD 2	25RBAD81	Research Project II	0	0	12	6	6	-	60	100
			14	**-**	**16**	**-**	**22**	**-**	**-**	**-**

CIA - Continuous Internal Assessment **SEE - Semester End Examination**

***L – Lecture, *T- Tutorial, *P- Practical, *SL-Self Learning**

PROGRAMME CORE COURSES

Category	Code	Course	L	T	P	SL	C
PCC 1	25CBAD11	Problem Solving Approaches Using C	4	0	0	4	4
PCC 2	25CBAD12	Introduction to Artificial Intelligence	3	0	0	3	3
PCC 1 (Lab)	25PBAD11	Practical I – Programming in C Lab	0	0	2	1	1
PCC 3	25CBAD21	Python Programming	3	0	0	3	3
PCC 4	25CBAD22	Database Management System	3	0	0	3	3
PCC 3 (Lab)	25PBAD21	Practical II - RDBMS Lab	0	0	2	1	1
PCC 4 (Lab)	25PBAD22	Practical III – Python programming Lab	0	0	2	1	1
PCC 5	25CBAD31	Programming in Java	4	0	0	4	4
PCC 6	25CBAD32	R Programming	3	0	0	3	3
PCC 5 (Lab)	25PBAD31	Practical IV – Programming using Java Lab	0	0	2	1	1
PCC 6 (Lab)	25PBAD32	Practical V – Data Analytics using R lab	0	0	2	1	1
PCC 7	25CBAD41	Machine learning	4	0	0	4	4
PCC 8	25CBAD42	Data Visualization	3	0	0	3	3
PCC 7 (Lab)	25PBAD41	Practical VI –Machine learning using R Lab	0	0	2	1	1
PCC 8 (Lab)	25PBAD42	Practical VII – Data Visualization Lab	0	0	2	1	1
PCC 9	25CBAD51	Artificial Neural Network	3	0	0	3	3
PCC 10	25CBAD52	Software Engineering	4	0	0	4	4
		Robotic Process					

PCC 11	25CBAD53	Automation	3	0	0	3	3
PCC 9 (Lab)	25PBAD51	Practical VIII- Programming with Go	0	0	2	1	1
PCC 10 (Lab)	25PBAD52	Practical IX –RPA tools Lab	0	0	2	1	1
PCC 12	25CBAD61	Deep learning	3	0	0	3	3
PCC 13	25CBAD62	Python for data science	4	0	0	4	4
PCC 14	25CBAD63	Reinforcement Learning	4	0	0	4	4
PCC 15	25CBAD64	Agentic AI and its tools	4	0	0	4	4
PCC 12 (Lab)	25PBAD61	Practical X – Data Science using Python Lab	0	0	2	1	1
PCC 16	25CBAD71	UI/UX design	3	0	0	3	3
PCC 17	25CBAD72	Internet of Things	4	0	0	4	4
PCC 18	25CBAD73	Large Language Model	4	0	0	4	4
PCC 16 (Lab)	25PBAD71	Practical XI- UI/UX Lab	0	0	2	1	1
PCC 19	25CBAD81	Digital Image processing	3	0	0	3	3
PCC 20	25CBAD82	Prompt Engineering	3	0	0	3	3
PCC 21	25CBAD83	Virtual Reality	4	0	0	4	4
PCC 19 (Lab)	25PBAD81	Practical XII- Image processing lab using OpenCV	0	0	2	1	1
PCC 20 (Lab)	25PBAD82	Practical XIII – Virtual Reality Lab	0	0	2	1	1

PROFESSIONAL ELECTIVE COURSES

Category	Code	Course	L	T	P	SL	C
PEC 1	25DBAD11	Fundamentals of data Science	3	0	0	3	3
	25DBAD12	Introduction to Cyber Security					
PEC 2	25DBAD21	Data Structures and Algorithms	4	0	0	4	4
	25DBAD22	Operating system					
PEC 3	25DBAD31	Edge AI	3	0	0	3	3
	25DBAD32	Agile Methodology					
PEC 4	25DBAD41	Natural Language Processing	4	0	0	4	4
	25DBAD42	Data Mining					
PEC 5	25DBAD51	Cloud Computing	4	0	0	4	4
	25DBAD52	Applications of data Science					
PEC 6	25DBAD61	Time Series Analysis	4	0	0	4	4
	25DBAD62	Machine vision system					
PEC 7	25DBAD71	Big Data Analytics	4	0	0	4	4
	25DBAD72	Cognitive Computing					
PEC 8	25DBAD81	Soft Computing Techniques	4	0	0	4	4
	25DBAD82	Design Thinking					

ABILITY ENHANCEMENT COURSES

Category	Code	Course	L	T	P	SL	C
LANG 1	25LTAM11/ 25LHIN11/ 25LFRE11	Tamil-I / Hindi-I/ French-I	3	0	0	3	3
ENG 1	25LENG11	English-I	3	0	0	3	3
LANG 2	25LTAM21/ 25LHIN21/ 25LFRE21	Tamil-II / Hindi-II / French-II	3	0	0	3	3
ENG 2	25LENG21	English-II	3	0	0	3	3

MULTIDISCIPLINARY COURSES

Category	Code	Course	L	T	P	SL	C
MDC 1	25BMA001	Applied Mathematics-I	2	1	0	3	3
MDC 2	25BMA002	Applied Mathematics-II	2	1	0	3	3
MDC 3	25BMA003	Statistics	2	1	0	3	3

ABILITY ENHANCEMENT COMPULSORY COURSES

Category	Code	Course	L	T	P	SL	C
AEC 1	25EVS031	Environmental Studies	3	0	0	3	3

MULTIDISCIPLINARY ELECTIVE

Category	Code	Course	L	T	P	SL	C
MDE 1	25EMDE31	Indian Knowledge System	2	0	0	2	2

VALUE ADDED COURSES

Category	Code	Course	L	T	P	SL	C
VAC 1	25DVAC11	Universal Human Values	1	0	0	1	1
VAC 2	25DVAC21	Communication	2	0	4	2	2

		Skills					
VAC 3	25DVAC41	Yoga Education/ National Service Scheme	0	0	2	1	1
VAC 4	25DVAC51	Value Education	2	0	0	2	2

SKILL ENHANCEMENT COURSES

Category	Code	Course	L	T	P	SL	C
SEC 1	25SSKU11	Orientation Programme / Industrial Visit	-	-	-	-	-
SEC 2		Industry Oriented Employability Skills	2	0	0	2	2
SEC 3		Professional Development – I	2	0	0	2	2
SEC 4	25SBAD31	Global Certification	-	-	-	-	1
SEC 5		Entrepreneurship Development	1	0	2	2	2
SEC 6		Professional Development – II	2	0	0	2	2
SEC 7		In-plant Training/ Industrial Tour/ Summer Term	-	-	-	-	-
SEC 8	25SBAD51	Professional Development – III	1	0	2	2	2
SEC 9	25SBCS52	Skill Enhancement Training / Student Club Activities/ Institution Innovation Council Activities	-	-	-	-	-
SEC 10	25SBCS61	Mini Project	2	0	0	2	2
SEC 11	25SBCS62	On Job Training / Apprenticeship / Startup	0	0	4	1	2

SUMMER INTERNSHIP

Category	Code	Course	L	T	P	SL	C
SI 1	25IBCS31	Internship-I	0	0	2	1	1
SI 2	25IBCS51	Internship-II	0	0	2	1	1

RESEARCH PROJECT

Category	Code	Course	L	T	P	SL	C
PRD 1	25RBCS71	Research Project-I	0	0	12	6	6
PRD 2	25RBCS81	Research Project-II	0	0	12	6	6

SEMESTER I

பாடக் குறியீட்டு எண்: 26LTAM11

பருவம்-1, தமிழ்மொழிப்பாடம்-1, பகுதி-1, தகுதிப்புள்ளி: 3, வாரப் பாட நேரம்: 3.

தமிழ்த்தாள் -1

மொழிவரலாறு – சங்க இலக்கியம் – அற இலக்கியம் – மொழித்திறன்

பாடத்திட்ட நோக்கம்:

மாணவர்களின் தமிழ்மொழித் திறத்தை மேம்படுத்துதல், சங்க இலக்கிய நாட்டத்தை மேம்படுத்துதல், நீதி இலக்கியங்கள் வழி அறக் கருத்துகளை இன்றைய தலைமுறையினர் அறியச் செய்தல், இலக்கிய வடிவங்களான உரைநடை சிறுகதை ஆகியவற்றின் சமூக நிலை குறித்து அறியச் செய்தல், மாணவர்களுக்குத் தமிழைத் தவறின்றி எழுதுவதற்குத் தேவையான பயிற்சி அளித்து அவர்களின் மொழித்திறனை மேம்படுத்துதல், கலைச்சொற்கள் போன்ற தமிழ் மொழியின் வளர் நிலைகளை அறிமுகம் செய்தல் போன்றன இந்தப் பாடத்திட்டத்தின் முக்கிய நோக்கமாகும்.

அலகு- 1: தமிழ் மொழி வரலாறு — 10 மணி நேரம்

மொழிக் குடும்பம் - இந்திய மொழிக்குடும்பங்கள் - இந்திய ஆட்சி மொழிகள் - திராவிட மொழிக்குடும்பங்கள் - திராவிட மொழிகளின் வகைகள் –திராவிட மொழிகளின் சிறப்புகள் - திராவிட மொழிகளின் வழங்கிடங்கள் - திராவிட மொழிகளுள் தமிழின் இடம் - தமிழ்மொழியின் சிறப்புகள் - தமிழ் பிறமொழித் தொடர்புகள்.

அலகு- 2: சங்க இலக்கியங்கள் **9 மணி நேரம்**

புறநானூறு- பாடல் எண்: 195 (பல்சான்றீரே) 192 (யாதும் ஊரே) 188 (படைப்பு பல) குறுந்தொகை- பாடல் எண்: 03 (நிலத்தினும்) 131 (ஆடமை புரையும்) 57(பூவிடைப்படினும்) 202 (நோம் என் நெஞ்சே) 167 (முளிதயிர்)

நெடுநல்வாடை: பாடல் வரிகள் 45 முதல் 72 வரை

அலகு - 3 அற இலக்கியங்கள் **9 மணி நேரம்**

திருக்குறள் அறன் வலியுறுத்தல் (அறம்), நட்பாராய்தல் (பொருள்), குறிப்பறிதல் (இன்பம்),. மூன்று அதிகாரங்கள் முழுமையும்

நாலடியார் - பாடல் எண்: 139 (கல்லாரே ஆயினும்) 248 (நண்ணிலைக்கான்) 216 (கடையாயர்)

ஒளவையார் - மூதுரை- பாடல் எண்- 10 (நெல்லுக்கு இறைத்தநீர்), - பாடல் எண்- 16 (அடக்கமுடையார்)

அலகு - 4 உரைநடை **9 மணி நேரம்**

சிற்பியே உன்னைச் செதுக்குகிறேன் - வைரமுத்து - லட்சியம்,கல்வி, கலை, உறவு, மொழி,சாதனை ஆகிய தலைப்பிலான கட்டுரைகள்

சிறுகதை புதுமைப்பித்தன் - சாபவிமோசனம்

ஜெயகாந்தன் - ஒரு பிடி சோறு

அலகு 5 மொழித்திறன் **8 மணி நேரம்**

பிழை நீக்கி எழுதுதல் - ஒற்றுப்பிழை நீக்கி எழுதுதல் - தொடர்பிழை நீக்கி எழுதுதல் கலைச்சொல்லாக்கம் - தேவைகள் - கலைச்சொற்களின் பண்புகள்

அறிவியல் கலைச்சொற்கள். கடிதம் - வகைகள் - அலுவலகக் கடிதங்கள் - பயிற்சி

மொத்தம்: 45 மணிநேரம்

சுய கற்றல்: 45 மணிநேரம்

பார்வை நூல்கள்

1. திராவிட மொழிகள் (இரண்டு தொகுதிகள்) டாக்டர் ச.அகத்தியலிங்கம் மணிவாசகர் பதிப்பகம் 2021

2. சங்க இலக்கிய உரை என் சி பி எச் சென்னை 2010

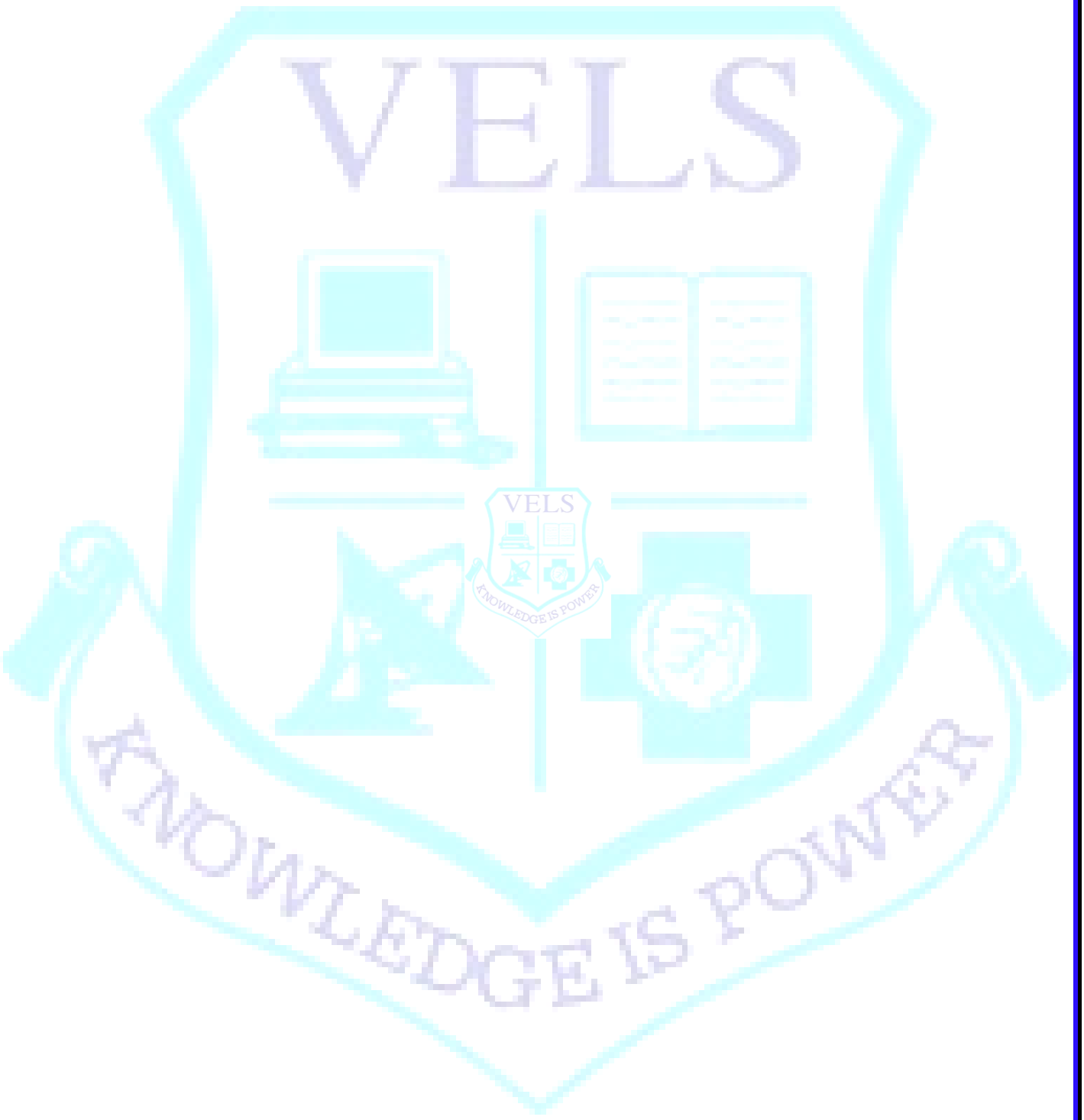
3. திருக்குறள் தெளிவுரை வரதராசன், மு., கழக வெளியீடு, 1994.

4. தவறின்றித் தமிழ் எழுத - மருதூர் அரங்கராசன், ஐந்திணைப் பதிப்பகம், 2003.

5. சிற்பியே உன்னை செதுக்குகிறேன் வைரமுத்து சூர்யா லிட்ரேச்சர் சென்னை 2011

6. **பாடநூல் தேடலுக்கான இணையம்** - https://archive.org/

7. **https://tamildigitallibrary.in/Articles/**


VELS
VELS
KNOWLEDGE IS POWER
KNOWLEDGE IS POWER

25LHIN11 HINDI-I

L	T	P	SL	C
3	0	0	3	3

Subject Code: 26LHIN11/ विषय कोड**: 26LHIN11**

Semester -1, Hindi Language Course-1, Part-1, Credits: 3, Weekly Teaching Hours: 3. Hindi Paper -1 History of Hindi Literature – Various Genres of Prose Literature – Moral Values – Language Proficiency.

सत्र **-1,** हिंदी भाषा पाठ्यक्रम**-1,** भाग**-1,** क्रेडिट अंक**: 3,** साप्ताहिक शिक्षण घंटे**: 3**। हिंदी पेपर **-1**

हिंदी साहित्य का इतिहास **-** गद्य साहित्य की विविध विधाएं **-** नैतिक मूल्य **-** भाषाई दक्षता

COURSE OBJECTIVE:

The main objectives of this course are to improve students' proficiency in the Hindi language, to increase their interest in prose literature, to make the present generation aware of moral values through the moral values depicted in it, to provide knowledge about society as portrayed in literary forms such as prose and short stories, to improve students' language proficiency by giving them the necessary training to write error-free correspondence, and to familiarize them with technical terminology and updated language technology.

पाठ्यक्रम का उद्देश्य**:** इस पाठ्यक्रम के मुख्य उद्देश्य छात्रों की हिंदी भाषा दक्षता में सुधार करना, गद्य साहित्य में उनकी रुचि बढ़ाना, उसमें चित्रित नैतिक मूल्यों के माध्यम से वत मान पीढ़ी को नैतिक मूल्यों से अवगत कराना, गद्य और लघु कथाओं जैसे साहित्यक रूपों में चित्रित सामाज के बारे में जानकारी प्रदान करना, छात्रों को त्रुटिहीन पत्राचार लिखने के लिए आवश्यक प्रशिक्षण देकर उनकी भाषाई दक्षता में सुधार करना और तकनीकी शब्दावली, अद्यतन भाषा प्रौद्योगिकी से प रचित कराना है।

Unit / इकाई **1** **9 hrs/** घंटे

History of Hindi Literature – Periodization – Development of Prose – General Introduction, Short Story – "Lottery" (Munshi Premchand), "One Emotion, Many Languages" (Patriotism and National Integration) – Introduction to various Indian cultures and regions.

हिन्दी साहित्य का इतिहास - काल विभाजन - गद्य विकास - सामान्य प रचय, कहानी - लॉटेरी (मुंशी प्रेमचंद), भाव एक, भाषा अनेक (देश भिक्त और राष्ट्रीय एकता)- विभिन्न भारतीय संस्कृति एवं प्रदेशों के प रचय

Unit / इकाई 2 **9 hrs/ घंटे**

One-Act Play – “Newspaper Advertisement” (Chiranjit) – Development of Language Skills – Functional Hindi – Technical Terms, Designations and Departmental Names, Administrative Phrases.

एकाँकी - अखबारी विज्ञापन (चिरंजीत) - भाषा कौशल विकास - प्रयोजनमूलक हिन्दी - तकनीकी शब्द, पद एवं विभागीय नाम , प्रशासनिक वाक्यांश

Unit /इकाई 3 **9 hrs/ घंटे**

Humorous Satirical Story – “Tum Kab Jaoge, Atithi” (Sharad Joshi) – Functional Hindi – Letter Writing – Different Types of Letters – Formal Letters.

हास्य व्यंग्य कहानी - तुम कब जाओगे, अतिथि (शरद जोशी) - प्रयोजनमूलक हिन्दी - पत्र लेखन - पत्रों के विभिन्न प्रकार - औपचा रक पत्र

Unit /इकाई 4 **9 hrs/ घंटे**

Patriotic Story – “Puraskaar” (Jaishankar Prasad) – Functional Hindi – Letter Writing – Different Types of Letters – Informal Letters.

राष्ट्र भिक्त कहानी - पुरस्कार (जयशंकर प्रसाद) - प्रयोजनमूलक हिन्दी - पत्र लेखन - पत्रों के विभिन्न प्रकार - अनौपचा रक पत्र

Unit / इकाई 5 **9 hrs/ घंटे**

Essay: “The Story of Indian Science” (Gunakar Mule) – India’s Contribution to the World – Functional Hindi – Language Technology – Unicode Hindi Fonts, Inscript Keyboard – e-Library – e-Dictionary – e-Learning – Artificial Intelligence for Practical Use.

निबंध: भारतीय विज्ञान की कहानी (गुणाकार मुले) - विश्व के लिए भारत की देन, प्रयोजनमूलक हिन्दी - भाषा प्रौद्योगिकी – युनिकोड हिन्दी फ़ॉन्ट्स, इनिस्क्रिप्ट कीबोड - ई-पुस्तकालय –ई-शब्दकोश – ई-अध्ययन – व्यावहा रक उपयोग हेतु कृत्रिम बुद्धिमत्ता

Total: 45 Hours/ कुल: 45 घंटे

REFERENCE BOOKS/ संदर्भ ग्रन्थ:

1. Munshi Premchand: *Mansarovar* (Short Story Collection), Vol. 8 Hans Prakashan / Saraswati Press / Prabhat Prakashan (various editions available)
2. *Vyavaharik Hindi,* Publisher: Rajpal & Sons, New Delhi
3. One-Act Play Collection, Lokbharti Prakashan, Prayagraj
4. *Prayojanmoolak Hindi,* Dr. Naresh Mishra / Dr. Kailash Chandra Bhatia,Rajkamal Prakashan / Vani Prakashan
5. *Sharad Joshi Vyangya Rachanavali,* Vol. 1, Rajkamal Prakashan
6. *Prasad Ki Shreshtha Kahaniyan,* Lokbharti Prakashan
7. *Vyavaharik Hindi Aur Patra Lekhan,* Dr. Hardev Bahri, Kitab Mahal, Allahabad
8. Bharatiya Vigyan Ki Kahani – Gunakar Mule, Rajkamal Prakashan
9. *Computer Aur Hindi Bhasha,* Dr. Bholanath Tiwari, Vani Prakashan
10. *Hindi Sahitya Ka Itihas,* Ramchandra Shukla, Nagari Pracharini Sabha, Varanasi

WEBLINKS:

1. https://www.prabhatbooks.com?utm_source=chatgpt.com
2. Rajhttps://vaniprakashan.com/?utm_source=chatgpt.com
3. https://www.rajkamalprakashan.com?utm_source=chatgpt.com
4. https://home.unicode.org/?utm_source=chatgpt.com
5. https://home.unicode.org?utm_source=chatgpt.com

26LFRE11 **FRENCH – I**

FRENCH PAPER I - I SEMESTER

SUB CODE: 26LFRE11

L	T	P	SL	C
3	0	0	3	3

COURSE OBJECTIVES :

The lessons are being chosen:

1) to greet, to express excuse and to introduce oneself
2) to introduce another person
3) to express his/her ideas, opinions and weekend projects
4) to request someone to do something, polite manners
5) to accept, refuse, enquire and indicate the time and date
6) to express himself / herself in positive and negative manner

UNITS:

1) Salut **6 hours**

les nombres, Les jours de la semaine et du mois, La nationalité

2) Enchanté **8 hours**

Les verbes Etre, Avoir, Aller, Regular ER verbes, Present tense.

3) J'Adore **8 hours**

La negation, l'adjectif possessif, le futur proche

4) Tu veux bien **10 hours**

Les articles de finis/indéfinis, Les pronoms après une préposition (avec lui, chez moi), Le passé composé

5) On se voit quand **6 hours**

Les pronoms compléments directs me, te, nous, vous, L'interrogation avec est-ce que, L'heure et la date.

6) Bonne idée **7 hours**

Les articles partitifs, Le masculin et le féminin des adjectifs, Les pronoms compléments directs le, la, les, La négation : ne… pas de.

Total no. of hours – 45 hours

COURSE OUTCOME :

1) The students would be able to greet, to excuse and to introduce himself

2) The students would be able to introduce someone

3) The students would be able to express his ideas, opinions and weekend projects

4) The students would be able to ask someone to do something, polite manner

5) The students would be able to accept, refuse enquire and indicate the time and date

6) The students would be able to express himself in positive and negative manner

TEXT / REFERENCE BOOK:

Prescribed book: LATITUDES 1 (A1/A2) MÉTHODE DE FRANÇAIS - Régine Mérieux and Yves Loiseau

Reference book: SAISON A1 - MÉTHODE DE FRANÇAIS - Marie-Noëlle Cocton, Élodie Heu, Catherine Houssa, Émilie Kasazian

Course Outcomes (COs)

CO Code	Course Outcomes
CO1	Students will be able to greet, excuse and introduce themselves in French.
CO2	Students will be able to introduce another person.
CO3	Students will be able to express ideas, opinions and weekend projects.
CO4	Students will be able to request someone politely and use appropriate expressions.
CO5	Students will be able to accept, refuse, enquire and indicate time and date.
CO6	Students will be able to express themselves using positive and negative forms.

CO–PO Mapping Matrix – Semester I

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	1	3	2	1	2
CO2	3	1	3	2	1	2
CO3	3	2	2	3	2	2
CO4	3	2	3	3	2	2
CO5	3	2	2	3	1	2
CO6	2	2	1	3	1	2

INDIAN SIGN LANGUAGE (BASIC)

L	T	P	SL	C
3	0	0	3	3

Course Objectives

- To understand Deaf culture and recognize the importance of Indian Sign Language (ISL) in ensuring equality, accessibility, and social inclusion.
- To develop basic conversational skills for effective communication with the hearing-impaired community using sign language.
- To acquire the ability to express everyday concepts such as daily routines, needs, food, people, and descriptive elements like color, shape, and size.
- To promote the use of ISL in educational institutions, workplaces, and public services for creating an inclusive environment.
- To encourage continuous practice and skill development in ISL to support and advocate for the hearing-impaired community.

Unit I: Basics of ISL **9**

Alphabets (finger-spelling), numbers, days of the week, colors, and expressions for greetings and wishes.

Unit II: People and Food **9**

Months of the year, common food items, family members, and types of human behavior.

Unit III: Feelings and Festivals **9**

Use of facial expressions in communication; signs related to fruits, vegetables, and major festivals.

Unit IV: Home and Nature **9**

Clothing and cosmetics, natural elements (earth and sky), parts of a house, and identification of animals and birds.

Unit V: Society and Education **9**

Names of states and cities, religions, basic educational terminology, and commonly used school-related items.

Total: 45 hours

Self Learning: 45 hours

TEXT BOOKS

1. *Indian Sign Language Dictionary* – Ramakrishna Mission Vidyalaya, IHRDC, Coimbatore

REFERENCE BOOKS

1. *Sign Language in India: A Linguistic Exploration* – Dr. Sandeep Sharma Jat
2. *The Indian Sign Language* – William P. Clark

COURSE OUTCOMES

CO1: Master the Basics Students will be able to use finger-spelling for the alphabet and communicate numbers, days of the week, and months effectively.

CO2: Develop Vocabulary Students will be able to sign common words related to food items, family members, clothing, and household objects.

CO3: Understand Nature-related Signs Students will be able to identify and sign names of animals, birds, fruits, vegetables, and natural elements such as earth and sky.

CO4: Social Communication Skills Students will be able to express greetings and well-wishes, describe behaviors, and communicate about festivals and religions.

CO5: Apply ISL in Social and Educational Contexts Students will be able to sign names of states and cities, and use commonly used terminology related to education and school environments.

26LENG11 **ENGLISH I**

L	T	P	SL	C
3	0	0	0	3

COURSE OBJECTIVES:

- To develop an understanding of prose, poetry, and short stories.
- To enhance reading comprehension and critical thinking skills.
- To improve accuracy and clarity in language use.
- To build a rich and adequate vocabulary.
- To promote the use of digital tools for communication and presentation skills.

Unit I– Grammar & Vocabulary **09**

- Parts of Speech
- Subject – Verb Agreement
- Tenses
- Prefix and Suffix
- Spot the errors

Unit II- Prose **09**

- A.G. Gardiner – *On the Rule of the Road*
- Helen Keller – Excerpt from *The Story of My Life – Chapter IV*

Listening: Audio summary comprehension

Speaking: Discussion on freedom & learning

Reading: Passage comprehension

Writing: Reflective paragraph writing

Unit III – Poetry **09**

- William Wordsworth – *The Solitary Reaper*
- Rabindranath Tagore – *Where the Mind is Without Fear*

Listening: Infer the central idea of the poem.

Speaking: Sharing personal interpretation of the poem

Reading: Read aloud exercise

Writing: Critical Appreciation

Unit IV- Short stories **09**

- O. Henry – *The Gift of the Magi*
- R.K. Narayan – *An Astrologer's Day*

Listening: Story narration

Speaking: Retell the story

Reading: Silent reading and reflective reading

Writing: Summary & Character analysis

Unit V – One-Act Play **09**

- Douglas Turner Ward-*The Shirt*
- J. M. Synge-*Riders to the Sea*

Listening: Listening to dialogue delivery

Speaking: Role play and enactment

Reading: Character mapping and identification of key ideas

Writing: Dialogue writing & Short critical commentary

Total: 45 hours Self Learning: 45 hours

CO PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	3	1	1	2	1	1	0	1	0	0	0	2	3
CO2	2	2	3	2	3	2	2	1	1	1	0	0	3	2
CO3	3	1	1	2	1	2	2	1	1	1	0	0	3	1
CO4	2	2	1	2	2	1	3	1	1	1	0	0	3	2
CO5	1	1	1	3	1	1	2	3	2	2	0	0	3	1
Average	1.80	1.80	1.40	2.00	-	1.40	-	-	-	-	-	-	2.80	1.80

25CBAD11 **PROBLEM SOLVING USING C**

L	T	P	SL	C
4	0	0	4	4

COURSE OBJECTIVE:

Gain knowledge of C language syntax, semantics, and programming constructs like variables, operators, control statements, and loops and work with arrays, strings, pointers, and structures to solve complex problem

UNIT-1 INTRODUCTION TO C **12**

Introduction to computers, input and output devices, designing efficient programs. Introduction to C, Structure of C program, Files used in a C program, Compilers, Compiling and executing C programs, variables, data types, constants, Input/output statements in C, Operators in C, Type conversion and typecasting.

UNIT-II CONTROL STATEMENTS **12**

Decision control and Looping statements: Introduction to decision control, Conditional branching statements, iterative statements, nested loops, break and continue statements, goto statement

UNIT-III FUNCTION **12**

Functions: Introduction using functions, Function definition, function declaration, function call, return statement, passing parameters to functions, scope of variables, storage classes, recursive function

UNIT-IV ARRAYS AND STRINGS **12**

Arrays: Declaration of arrays, accessing the elements of an array, storing values in arrays, Operations on arrays,Two dimensional arrays, operations on two-dimensional arrays, two-dimensional arrays to functions, multidimensional arrays. .Introduction to strings: Reading strings, writing strings, summary of functions used to read and write characters .Strings: String taxonomy, operations on strings, Miscellaneous string and character functions, arrays of strings.

UNIT-V POINTERS, STRUCTURE & FILE HANDLING 12

Pointers: Understanding the Computers Memory, Introduction to Pointers, Declaring Pointer Variables. Structures: Introduction to structures-File handling-File mode- File operations

Total: 60 hours

Self Learning: 60 hours

COURSE OUTCOME

At the end of the course the student will be able to:

Course Outcome	Description	Bloom's Level
CO1	Elucidate the basic architecture and functionalities of a computer and recognize the hardware components.	**K2**
CO2	Apply programming constructs of C language to solve real-world problems.	**K3**
CO3	Explore user-defined data structures like arrays in implementing solutions to problems such as searching and sorting.	**K3**
CO4	Explore user-defined data structures like structures, unions and pointers in implementing solutions.	**K3**
CO5	Design and develop solutions to problems using modular programming constructs through functions.	**K4**

COs \ POs/PSOs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3
CO1	2	2	-	-	-	-	-	-	-	2	-	-
CO2	3	3	2	2	2	-	-	-	-	3	-	-
CO3	3	3	3	2	2	-	-	-	-	3	-	-
CO4	3	3	3	2	2	-	-	-	-	3	-	-
CO5	3	3	3	2	2	-	2	2	2	3	3	-
AVG	3	3	3	2	2	-	2	2	2	3	3	-

CO PO Mapping

TEXT BOOKS

1. Programming in ANSI C, E.Balagurusamy, McGrawHill Education, 9th Edition, 2023
2. **Problem Solving and Program Design in C,** Jeri R. Hanly, Elliot B. Koffman, Pearson Education, 10th Edition, 2022
3. **C How to Program,** Paul Deitel, Harvey Deitel, Pearson Education, 11th Edition, 2021
4. Let Us C, Yashavant Kanetkar, BPB Publications, 17th Edition, 2023

WEB RESOURCES:

1. www.tutorialteacher.com
2. www.javatpoint.com
3. www.analyticsvidhya.com

25CBAD12 INTRODUCTION TO ARTIFICIAL INTELLIGENCE

L	T	P	SL	C
3	0	0	3	3

COURSE OBJECTIVE:

Gain foundational knowledge of AI concepts, history, and its role in solving real-world problems, Learn supervised, unsupervised, and reinforcement learning techniques and Understand the role of neural networks and deep learning in AI systems.

UNIT-I: Basics of AI **12**

AI problems, foundation of AI and history of AI intelligent agents: Agents and Environments, the concept of rationality, the nature of environments, structure of agents, problem solving agents, problem formulation.

UNIT-II Searching in AI **12**

Searching- Searching for solutions, uniformed search strategies – Breadth first search, depth first Search. Search with partial information (Heuristic search) Hill climbing, A* ,AO* Algorithms, Problem reduction, Game Playing-Adversial search, Games, mini-max algorithm, optimal decisions in multiplayergames, Problem in Game playing, Alpha-Beta pruning, Evaluation functions.

UNIT-III Knowledge Representation **12**

Knowledge representation issues, predicate logic- logic programming, semantic nets- frames and inheritance, constraint propagation, representing knowledge using rules, rules based deduction systems. Reasoning under uncertainty, review of probability, Baye's probabilistic interferences and dempster shafer theory.

UNIT- IV Learning Algorithm **12**

First order logic. Inference in first order logic, propositional vs. first order inference, unification & lifts forward chaining, Backward chaining, Resolution, Learning from observation Inductive

learning, Decision trees, Explanation based learning, Statistical Learning methods , Reinforcement Learning.

UNIT- V Expert Systems **12**

Expert systems:- Introduction, basic concepts, structure of expert systems, the human element in expert systems how expert systems works, problem areas addressed by expert systems, expert systems success factors, types of expert systems, expert systems and the internet interacts web, knowledge engineering, scope of knowledge, difficulties, in knowledge acquisition methods of knowledge acquisition, machine learning, intelligent agents, selecting an appropriate knowledge acquisition method, societal impacts reasoning in artificial intelligence, inference with rules, with frames: model based reasoning, case based reasoning, explanation & meta knowledge inference with uncertainty representing uncertainty.

Total: 60 hours

Self Learning: 60 hours

COURSE OUTCOME

At the end of the course the student will be able to:

Course Outcome	Description	Bloom's Level
CO1	Understand the basics and fundamental concepts of Artificial Intelligence.	**K2**
CO2	Use problem-solving techniques in Artificial Intelligence applications.	**K3**
CO3	Learn and apply knowledge representation techniques in AI.	**K3**
CO4	Analyse the concepts and working principles of Expert Systems.	**K4**
CO5	Understand and apply Machine Learning algorithms.	**K3**

CO PO Mapping

BOOKS FOR STUDY:

1. S. Russel and P. Norvig, "Artificial Intelligence – A Modern Approach", Second Edition, Pearson Education, 2020
2. David Poole, Alan Mackworth, Randy Goebel," Computational Intelligence: a logical approach", Oxford University Press, 2022
3. G. Luger, "Artificial Intelligence: Structures and Strategies for complex problem solving", Fourth Edition, Pearson Educatio, 2021.
4. J. Nilsson, "Artificial Intelligence: A new Synthesis", Elsevier Publishers, 2019.

COs \ POs/PSOs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3
CO1	2	2	-	-	-	-	-	-	-	2	2	
CO2	3	3	3	2	2	-	-	-	-	3	3	2
CO3	3	3	3	2	2	-	-	-	-	3	3	2
CO4	3	3	2	2	2	-	-	-	-	3	2	2
CO5	3	3	3	3	3	-	-	-	2	3	3	3
AVG	3	3	3	2	2	-	-	-	2	3	3	2

WEB RESOURCES:

1. www.nptel.com
2. www.simplilearn.com
3. www.upgrade.com
4. www.medium.com

25BMA001 **APPLIED MATHEMATICS-I**

L	T	P	SL	C
2	1	0	3	3

COURSE OBJECTIVES:

- To learn various concept in matrix
- To apply the concept of Sets to promote critical thinking, problem-solving technique and interdisciplinary connections.
- To analyse the relationships, decisions making and modeling complex systems using Partial Order Relations.

UNIT-IMATRICES & DETERMINANTS: **9**

Matrices: Definition, Types of Matrices, Addition, Subtraction, Scalar Multiplication and Multiplication of Matrices, Adjoint, Inverse, Cramer's Rule, Rank of Matrix Dependence of Vectors**. Determinants:** Definition, Minors, Cofactors, Properties of Determinants

UNIT-II:SETS **9**

Sets: Sets, Subsets, Equal Sets Universal Sets, Finite and Infinite Sets, Operation on Sets, Union, Intersection and Complements of Sets, Cartesian Product, Cardinality of Set, Simple Applications.

UNIT-III: RELATIONS & FUNCTIONS **9**

Relations: Properties of Relations, Equivalence Relation. **Functions:** Partial Order Relation Function: Domain and Range, Onto, Into and One to One Functions, Composite and Inverse Functions,

UNIT-IV: PARTIAL ORDER RELATIONS **9**

Partial Order Sets, Representation of POSETS using Hasse diagram, Chains, Maximal and Minimal Point, GLB, LUB.

UNIT-V: NUMBER SYSTEM AND CONVERSIONS **9**

Number Systems: Binary Numbers, Octal Numbers, Decimal numbers, Hexa Decimal numbers. **Number base conversions**: Octal and Hexa Decimal Numbers - Complements - Signed Binary Numbers - Binary Arithmetic - Binary Codes - Decimal Code

Total: 45 hours Self Learning: 45 hours

COURSE OUTCOMES:

Course Outcome	Description
CO1	Apply the concept of Matrix and solving simultaneous equations
CO2	Understand the ideas of Sets and its applications.
CO3	Identify the relations for various functions.
CO4	Apply the concept of partial order relation for various sets.

CO5	Understand the conversion of various number system.

Textbook

1. Kolman, Busby, Ross and Rehman (2003), Discrete Mathematical Structures for Computer Science, Pearson Education, 5th Edition,

Reference Books

1. D.S. Malik and M.K. Sen(2004), Discrete Mathematical Structures: Theory and Applications, Thomson.
2. Goodaire & Parmenter (2000), Discrete Mathematics & Graph Theory, Pearson Education.
3. Kenneth H. Rosen, (2004), Discrete Mathematics and its Applications, Tata McGraw Hill, 5th Ed.
4. C.L. Liu (1986), Elements of Discrete Mathematics, 2nd Edition, McGraw Hill

Web Links:

1. https://www.geeksforgeeks.org/mathematics-partial-orders-lattices/
2. https://www.ipsgwalior.org/download/number%20system.pdf

25PBAD11 PROGRAMMING IN C LAB

L	T	P	SL	C
0	0	2	1	1

COURSE OBJECTIVES

To introduce students to the basic knowledge of programming fundamentals of C language, to impart writing skill of C programming to the students and solving problems and to impart the concepts like looping, array, functions, pointers, file, structure.

LIST OF PROGRAMS

1. Write a program to calculate simple and compound interest.
2. Write a program to generate Fibonacci series.
3. Write a program to compute grade of students using if else ladder.
4. Write a Program to Check Whether a Number is Prime or not and to check given number is Armstrong number or not.
5. Write a program to find GCD and LCM of two numbers.
6. Write a program for addition of two matrices of any order in C.
7. Write a Program to multiply two 3 X 3 Matrices.
8. Write a program to add, subtract, multiply and divide two integers using user defined type function with return type.
9. Write a program to swap two integers using call by value and call by reference methods of passing arguments to a function.
10. Write a program to copy one array to another using pointer.
11. Write a program to add two distances in feet and inches using structure
12. Write a program to create a file called emp.txt and store information about a person, in terms of his name, age and salary and print their details.

Total: 45 Hours Self Learning:45 Hours

COURSE OUTCOMES:

After completing this lab course, the student will be able to:

Course Outcome	Description	Bloom's Level
CO1	Understand the logic, algorithm and flow chart for a given problem.	**K2**

CO2	Recognize and understand the syntax and construction of C programming code and gain experience of procedural language programming.	**K2**
CO3	Learn the methods of iteration or looping and branching and make use of different data-structures like arrays, pointers, structures and files.	**K3**
CO4	Understand function declaration and definition.	**K2**
CO5	Understand proper use of user defined functions.	**K3**

CO PO Mapping

COs \ POs/PSOs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3
CO1	3	3	–	–	–	–	–	–	–	3	–	–
CO2	3	3	2	2	2	–	–	–	-	3	–	–
CO3	3	3	3	2	2	–	–	–	-	2	-	-
CO4	2	2	2	–	–	–	–	–	-	3	2	–
CO5	3	3	3	2	2	–	2	2	2	3	-	-
AVG	3	3	3	2	2	–	2	2	2	3	2	-

25DVAC11 **UNIVERSAL HUMAN VALUES**

L	T	P	SL	C
1	0	0	1	1

COURSE OBJECTIVES:

The candidates will be able to appreciate the complementarity between the values and skills for sustained happiness and prosperity. To influence the students to approach the life and

profession with a holistic perspective towards a value-based living in a natural way. To highlight plausible implications of holistic understanding of ethical human conduct.

UNIT- I INTRODUCTION TO VALUE EDUCATION 5

Living a fulfilling life. Value education. Skill education. Complementarity of Values and Skills. Development of a holistic perspective. Right understanding, relationship and physical facility. Understanding the happiness and prosperity.

UNIT-II HARMONY AT MULTIPLE LEVELS 5

Human being as co-existence of the self and the human body. Understanding harmony in the self. Harmony in the family and understanding values in human-human relationships. Harmony in the society and understanding universal human order. Harmony in nature and understanding the interconnectedness, self-regulation and mutual fulfillment. Harmony in existencedot and understanding co-existence at various levels.

UNIT-III IMPLICATIONS OF THE RIGHT UNDERSTANDING 5

Ethical human conduct. Implications of value-based living. Right understanding of professional ethics. Humanistic education. Holistic technologies, production systems and management models. Strategies for transition towards value-based life and profession.

Total: 15 Hours Self Learning:15 Hours

COURSE OUTCOMES:

At the end of the course learners will be able to:

CO1: Develop qualities like responsibility and the ability to handle problems with sustainable solutions.

CO2: Appraise human values and the harmony at various levels.

CO3: Perceive a better critical ability.

CO4: Develop qualities pertaining to value-based living.

CO5: Apply what they have learnt to their own self in real life settings.

Text Books:

1. R.R. Gaur, R. Asthana, G.P. Bagaria. (2023). A Foundation Course in Human Values and Professional Ethics. 3rd Revised Edition. Excel Books, New Delhi.

Reference Books:

1. A. Nagaraj, Jeevan Vidya Prakashan, Amar Kantak. Jeevan Vidya (1999), Ek Parichaya
2. Rakesh Gupta. Jeevan Vidya (2008), An Introduction (Introductory Book to Madhyasth

Darshan-Coexistentialism). English Version.

3. A. N. Tripathi (2004), Human Values. First Edition. New Age International Publishers, New Delhi.

SEMESTER II

பாடக் குறியீட்டு எண்: 26LTAM21

பருவம்-1, தமிழ்மொழிப்பாடம்-1, பகுதி-1, தகுதிப்புள்ளி:

L	T	P	SL	C
3	0	0	3	3

3, வாரப் பாட நேரம்: 3.

தமிழ்த்தாள்-2

பாடத்திட்ட நோக்கம்:

மாணவர்களிடம் தமிழரின் நாகரிகம் மற்றும் பண்பாட்டு மரபினை அறிமுகம் செய்தல் தமிழ் இலக்கிய காப்பியச் செழுமையையும் பக்தி இலக்கிய மாண்பையும் உணர்த்துதல், தமிழ்க் கவிதை வளத்தையும் அதன் பொருண்மைகளையும் எடுத்துரைத்தல், ஊடகம்- கணினி- செயற்கை நுண்ணறிவு போன்ற நவீன அறிவுசார் வளர்ச்சி நிலைகளைப் பயன்பாட்டு நோக்கில் பயிற்சியளித்தல், இதன் வாயிலாக மாணவர்களின் ஆளுமைத் திறனை மேம்படுத்தி அவர்களை போட்டித் தேர்வுகளுக்கு தயார் செய்வதும் வேலைவாய்ப்பிற்கான பயிற்சி அளிப்பதும் இந்தப் பாடத்திட்டத்தின் முக்கிய நோக்கமாகும்.

அலகு1:தமிழர் வாழ்வும் பண்பாடும் 9 மணி நேரம்

பண்பாடு – வாழ்வியல் முறை – அகம், புறம் - உணவு முறை - விருந்தோம்பல் - நம்பிக்கைகள் – விழாவும் வழிபாடும் - கலைகள் - கட்டடம் - சிற்பம் - ஓவியம் - இசை – கூத்து – தொழிலும் வணிகமும் – அறிவியல் நோக்கு.

அலகு 2: காப்பியங்கள் 9 மணி நேரம்

1. சிலப்பதிகாரம் – ஆய்ச்சியர் குரவை
2. மணிமேகலை– காதை 19 - உலக அறவி புக்க காதை
3. கம்பராமாயணம் – மந்தரை சூழ்ச்சிப் படலம் (பாடல் எண் தேர்ந்தெடுக்கப்பட்ட 9 பாடல்கள்)

அலகு 3: பக்தி இலக்கியம் 9 மணி நேரம்

திருமூலர் - திருமந்திரம் – மூன்று பாடல்கள்

- ✔ உடம்பார் அழியின் உயிரார் அழிவர் (திருமந்திரம்: 724)
- ✔ மனையுள் இருந்தவர் மாதவர் ஒப்பர் (திருமந்திரம்: 47)
- ✔ மரத்தை மறைத்தது மாமத யானை (திருமந்திரம்: 2290)

தேம்பாவணி - காட்சிப் படலம் முதல் 5 பாடல்கள்

சீறாப்புராணம் - மானுக்கு பிணை நின்ற படலம்

அலகு 4: கவிதை இலக்கியம் 9 மணி நேரம்

பாரதியார் - செந்தமிழ் நாடு- செந்தமிழ் நாடெனும் போதினிலே எனும் கவிதை (பாடல் எண்1.6, 7, 8, 9, 10)

பாரதிதாசன் - இசையமுது- "தூய்மை சேரடா தம்பி" என்று தொடங்கும் பாடல்

கவிக்கோ அப்துல்ரகுமான் - ஆலாபனை- போட்டி எனும் தலைப்பில் அமைந்த கவிதை

நா.முத்துக்குமார் - பட்டாம்பூச்சி விற்பவன்- தூர் எனும் தலைப்பில் அமைந்த கவிதை

இளம்பிறை - நீ எழுத மறுக்கும் எனதழகு - அம்மா எனும் தலைப்பில் அமைந்த கவிதை

அலகு 5: ஊடகத் தமிழ் – கணினித் தமிழ் அறிமுகம் 9 மணி நேரம்

ஊடகத் தமிழ்: இதழியல் - ஊடக வகைகள் - அச்சு ஊடகங்கள் - மின்னணு ஊடகம் - ஊடகங்களில் தமிழ், ஊடகங்களின் மொழி நடை - வானொலி- தொலைக்காட்சி- திரைப்படம்.

கணினித் தமிழ்: கணினியும் தமிழும், தமிழ் மென்பொருள்கள் (Tamil software) - எழுத்துருக்கள் (Fonts) - இணையமும் தமிழ்ப் பயன்பாடும் - மின்னூலகம் (Online e-Library), மின்னகராதி (e-Dictionary), - மின்வழிக் கற்றல் - e Learning - பயன்பாட்டு நோக்கில் செயற்கை நுண்ணறிவு.

Total: 45 hours Self Learning: 45 hours

மொத்தம்; 45 மணிநேரம்

பார்வை நூல்கள்

1.தமிழர் நாகரிகமும் பண்பாடும், டாக்டர் அ. தட்சிணாமூர்த்தி, ஐந்திணைப் பதிப்பகம், 2001.

2.இதழியல் கலை, டாக்டர் மா. பா. குருசாமி, குரு - தேமொழி பதிப்பகம், திண்டுக்கல், 1998.

3.கணிப்பொறியில் தமிழ், த.பிரகாஷ், பெரிகாம், 2011.

4.தமிழ்க் கணினி இணையப் பயன்பாடுகள், முனைவர் துரை. மணிகண்டன், மணிவானதி பதிப்பகம், 2013.

5.அச்சுக் கலை வழிகாட்டி, பாலசுப்பிரமணியன், ஆ. சென்னை: தனசு பதிப்பகம், 1966

6. பாடநூல் தேடலுக்கான இணையம்

http://www.tamilvu.org/courses/nielit/Chapters/Chapter1/11.pdf

25LHIN21 **HINDI-II**

L	T	P	SL	C
3	0	0	3	3

Subject Code: 26LHIN21/ विषय कोड**: 26LHIN21**

Semester -2, Hindi Language Course-2, Part-2, Credits: 3, Weekly Teaching Hours: 3. Hindi Paper -2 History of Language – Ethical Literature (Ancient, Medievial, Modern Era) – Language Skill Development - Language Proficiency.

सत्र **-2,** हिंदी भाषा पाठ्यक्रम**-2,** भाग**-2,** क्रेडिट अंक**: 3,** साप्ताहिक शिक्षण घंटे**: 3**। हिंदी पेपर **-2** भाषा का इतिहास **–** नैतिक साहित्य **(**आदि काल**,** मध्यकालीन**,** आधुनिक युग**) –** भाषा कौशल विकास **–** भाषाई दक्षता।

COURSE OBJECTIVE:

The main objectives of this course is to introduce students to Hindi and Indian civilization and cultural heritage, to make them understand the richness of Hindi and Indian epic literature and the greatness of devotional literature, to explain the richness of Hindi poetry and its themes, to provide practical training in modern intellectual developments such as translation, advertisement, and through this to improve students' personality skills, prepare them for competitive examinations, and provide employment-oriented training are the major objectives of this syllabus.

पाठ्यक्रम का उद्देश्य: इस पाठ्यक्रम के मुख्य उद्देश्य छात्रों को हिन्दी, भारतीय सभ्यता एवं सांस्कृतिक विरासत से परिचित कराना, हिन्दी, भारतीय महाकाव्य साहित्य की समृद्धि तथा भिक्तकालीन साहित्य की महत्ता को समझाना, हिन्दी कविता की समृद्धि और उसके विषयों को स्पष्ट करना, अनुवाद एवं विज्ञापन जैसे आधुनिक बौद्धिक विकासों का व्यावहारिक प्रशिक्षण प्रदान करना तथा इसके माध्यम से विद्यार्थियों के व्यिक्तत्व कौशल का विकास करना, उन्हें प्रतियोगी परीक्षाओं के लिए तैयार करना और रोजगारोन्मुख प्रशिक्षण प्रदान करना है।

Unit / इकाई 1 **9 hrs/ घंटे**

History of Hindi Literature – Ancient, medieval, modern era – General Introduction, Ethical Literature - Thirukkural - 5 couplets (Thiruvalluvar), Bhakti Kal - Ethical Literature - Vemana Pad - 3 (Vemana)

हिन्दी साहित्य का इतिहास :- आदि काल, मध्यकाल, आधुनिक युग - सामान्य परिचय, प्राचीन युग - नैतिक साहित्य - तिरुक्कुरल - 5 दोहे (तिरुवल्लुवर), भिक्त काल - नैतिक साहित्य - वेमना (वेमना) के पद -3

Unit / इकाई 2 **9 hrs/ घंटे**

Bhakti Kal - Ethical Literature - Kabir ke Dohe - 5 (Kabirdas), Bhramargeet ke Pad -1 (सूरदास), Skill Development - Question framing

भिक्त काल - नैतिक साहित्य - कबीर के दोहे- 5 (कबीरदास), - भ्रमरगीत के पद-1 (सूरदास), कौशल विकास - प्रश्न निमा ण

Unit / इकाई 3 **9 hrs/ घंटे**

Bhakti Kal - Vinay ke Pad - 1(Tulsidas), Kambaramayan ke Pad - 2 (Kambar)

भिक्त काल - विनय के पद- 1 (तुलसीदास), कम्ब रामायण के पद -2 (कम्बर)

Unit / इकाई 4 **9 hrs/ घंटे**

Modern Era - Pushpa ki Abhilasha (Makhanlal Chaturvedi), Skill Development - Translation: Meaning, Definition, Exercise

आधुनिक युग - पुष्प की अभिलाषा (माखनलाल चतुर्वेदी), कौशल विकास -अनुवाद :

अथ, प रभाषा, प्रकार एवं अभ्यास

Unit / इकाई 5 **9 hrs/ घंटे**

Modern Era - Beej Vyatha (Gyanendrapathi), Skill Development -Advertisement : Meaning, Definition, Exercise

आधुनिक युग - बीज व्यथा (ज्ञानेंद्रपति), कौशल विकास - 'विज्ञापन लेखन : अथ, प रभाषा, प्रकार एवं अभ्यास

Total: 45 Hours/ कुल: 45 घंटे

REFERENCE BOOKS/ संदभ ग्रन्थ:

1. *Hindi Sahitya Ka Itihas*, Ramchandra Shukla, Nagari Pracharini Sabha, Varanasi
2. Thirukkural, Hindi Translator: M. Govindarajan, Central Institute of Classical Tamil, Chennai https://www.cict.in/?utm_source=chatgpt.com
3. Vemana ki vaani,Hindi Translator: Dr. Suryanarayan Bhanu, Potti Sriramulu Telugu University
4. *Kabir Granthavali* Kabir, Rajkamal Prakashan
5. *Sursagar*, Surdas, Lokbharti Prakashan
6. *Vinay Patrika*, Tulsidas, Gita Press, Gorakhpur
7. Kambaramayan, Bhuvan Vani Trust, Lucknow
8. *Him Tarangini*, Makhanlal Chaturvedi, Bharati Bhandar
9. *Anuvaad Vigyan*, Dr. Bholanath Tiwari, Kitab Mahal
10. *Gyanendra Pati Ki Kavitaayein*,Gyanendra Pati, Rajkamal Prakashan
11. *Prayojanmoolak Hindi*, Dr. Kailash Chandra Bhatia, Vani Prakashan
12. *Vyavaharik Hindi* – Dr. Hardev Bahri – Rajpal & Sons

WEBLINKS:

1. https://www.cict.in?utm_source=chatgpt.com
2. https://vaniprakashan.com?utm_source=chatgpt.com
3. https://www.rajkamalprakashan.com?utm_source=chatgpt.com

4. https://www.gitapress.org?utm_source=chatgpt.com
5. https://www.tamiluniversity.ac.in?utm_source=chatgpt.com

25LFRE21 **FRENCH-II**

L	T	P	SL	C
3	0	0	3	3

FRENCH PAPER II - II SEMESTER

SUB CODE: 26LFRE21

COURSE OBJECTIVES:

The lessons are being chosen:

1) to express his / her where abouts and to ask seek direction
2) to express obligation and restriction
3) to describe a place
4) to narrate and to question
5) to describe someone
6) to express his desire and to speak about the futur

Units:

7) C'est où

L'impératif, Les articles contractés au, à la…, Le passé composé et l'accord du participe passé avec être. **10 hours**

8) N'oubliez pas

Le pronom relatif Qui, que, où, Les pronoms compléments indirects (me, te, lui, leur…) **6 hours**

9) Belle vue sur la mer –

Les adjectifs démonstratifs, Y- pronom complément. **6 hours**

10) Quel beau voyage!

Les verbes pronominaux, En- pronom complément. **8 hours**

11) Oh ! joli

L'imparfait, L'imparfait ou le passé composé. **10 hours**

12) Et après ?

Le futur simple, Le subjonctif présent. **5 hours**

Total no. of hours - 45 hours

COURSE OUTCOME:

1) The students would be able to express his/her where about and to ask direction
2) The students would be able to express obligation and restriction
3) The students would be able to describe a place
4) The students would be able to narrate and to question
5) The students would be able to describe someone
6) The students would be able to express his desire and to speak about the futur

TEXT / REFERENCE BOOK:

Prescribed book: LATITUDES 1 (A1/A2) MÉTHODE DE FRANÇAIS - Régine Mérieux and Yves Loiseau

Reference book: SAISON A1 - MÉTHODE DE FRANÇAIS - Marie-Noëlle Cocton, Élodie Heu, Catherine Houssa, Émilie Kasazian

Course Outcomes (COs)

CO Code	Course Outcomes
CO1	Students will be able to express whereabouts and ask directions.
CO2	Students will be able to express obligation and restriction.
CO3	Students will be able to describe a place.
CO4	Students will be able to narrate and question in French.

CO5	Students will be able to describe a person.
CO6	Students will be able to express desires and speak about the future.

Co–Po Mapping Matrix – Semester Ii

COs / POs	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	3	3	1	2
CO2	2	2	2	3	1	2
CO3	3	2	2	3	2	2
CO4	3	3	2	3	2	2
CO5	3	2	2	3	2	2
CO6	3	2	2	3	2	3

INDIAN SIGN LANGUAGE (ADVANCED)

L	T	P	SL	C
3	0	0	3	3

COURSE OBJECTIVES

- To develop a deeper understanding of Deaf culture and the significance of Indian Sign Language (ISL) in promoting equality and inclusivity in society.
- To enhance conversational skills for effective communication with peers using ISL in everyday situations.
- To strengthen the ability to describe daily routines, personal needs, food items, and physical attributes such as color, shape, and size.
- To encourage the practical application of ISL in educational institutions, workplaces, and public spaces to improve accessibility.
- To motivate continuous learning and active advocacy for the rights and inclusion of the hearing-impaired community.

Unit I: Advanced Basics of ISL **6**

Alphabet (finger-spelling), numbers, days of the week, colors, and expressions for greetings and wishes.

Unit II: People and Food **6**

Months of the year, names of food items, family members, and expressions describing human behavior.

Unit III: Feelings and Festivals **6**

Use of facial expressions in communication; signs related to fruits, vegetables, and major festivals.

Unit IV: Home and Nature **6**

Clothing and cosmetics, natural elements (earth and sky), parts of a house, and identification of animals and birds.

Unit V: Society and Education **6**

Names of states and cities, religions, and commonly used school-related terms and items.

Total Hours: 30

Self Learning:30 Hours

Text Book

1. *Indian Sign Language Dictionary* – Ramakrishna Mission Vidyalaya, IHRDC, Coimbatore

REFERENCE BOOKS

1. *Sign Language in India: A Linguistic Exploration* – Dr. Sandeep Sharma Jat
2. *The Indian Sign Language* – William P. Clark

COURSE OUTCOMES

CO 1: Strengthen Foundational Skills Students will be able to use finger-spelling for the alphabet and accurately sign numbers, days of the week, and months.

CO 2: Improve Everyday Communication Students will be able to use signs for common food items, family members, clothing, and household objects in daily conversations.

CO 3: Expand Knowledge of Nature and Environment Students will be able to identify and sign various animals, birds, fruits, vegetables, and natural elements such as earth and sky.

CO 4: Develop Social Interaction Skills Students will be able to express greetings and well-wishes, describe behaviors, and communicate about festivals and religions.

CO 5: Apply ISL in Social and Educational Contexts Students will be able to sign names of states and cities and use vocabulary related to education and classroom environments effectively.

26LENG21 **ENGLISH II**

L	T	P	SL	C
3	0	0	0	3

COURSE OBJECTIVES:

- To appreciate prose, poetry, drama, and short fiction.
- To enhance reading and interpretative skills.
- To express ideas clearly in speech and writing.
- To use appropriate language structures in communication.
- To develop effective writing skills across formats.

Unit I- Grammar & Composition **09**

- Active & Passive Voice
- Direct & Indirect Speech
- Letter Writing (Formal & Informal)
- Creative Writing – Writing stories
- Hints Developing

Unit II– Prose **09**

- Nadine Gordimer – *Once upon a Time*
- E. V. Lucas – *Bores*

Listening: Note-taking from audio/text recitation

Speaking: Discussion on fear, society, and behaviour

Reading: Skimming, scanning, and interpretation of textual features

Writing: Reflective paragraph writing

Unit III – Poetry **09**

- Robert Frost – *Stopping by Woods on a Snowy Evening*
- Maya Angelou – *Still I Rise*

Listening: Listening and summarizing the poem

Speaking: Explaining poetic lines orally

Reading: Reading and inferring contextual meaning

Writing: Paraphrase of poems

Unit IV - Short stories **09**

- Anton Chekhov – *The Bet*
- O. Henry – *After Twenty Years*

Listening: Story narration and summarizing

Speaking: Character discussion and debate

Reading: Contextual vocabulary identification

Writing: Summary and character sketch

Unit V – One-Act Play **09**

- Langston Hughes - *Soul Gone Home*
- Lucille Fletcher-*Sorry, Wrong Number*

Listening: Dramatic reading and dialogue comprehension

Speaking: Role play and dramatization

Reading: Character and conflict analysis

Writing: Character sketch/dialogue writing

Total: 45 hours Self Learning: 45 hours

COURSE OUTCOMES:

After completing the course, students will be able to:

CO1: Analyze and interpret literary texts across genres.

CO2: Demonstrate effective reading comprehension and information organization.

CO3: Apply accurate language structures in communication.

CO4: Produce clear and well-structured written content.

CO5: Exhibit improved overall communication skills.

TEXT BOOKS:

1. Gordimer, Nadine. “Once upon a Time.” *Jump and Other Stories*. Penguin Books, 1991.
2. Lucas, E. V. “Bores.” *The Best Loved Essays of E. V. Lucas*. Methuen & Co., 1923.
3. Frost, Robert. “Stopping by Woods on a Snowy Evening.” *New Hampshire*. Henry Holt and Company, 1923.
4. Angelou, Maya. “Still I Rise.” *And Still I Rise*. Random House, 1978.
5. Hughes, Langston. *Soul Gone Home*. In *Five Plays by Langston Hughes*. Indiana University Press, 1963.

REFERENCES:

1. Murphy, Raymond. *English Grammar in Use*. Cambridge University Press, 2019.
2. Wren, P. C., and H. Martin. *High School English Grammar and Composition*. Revised ed., S. Chand & Company, 2009.

WEBSITES

1. *British Council LearnEnglish*. British Council, https://learnenglish.britishcouncil.org/.
2. *Poetry Foundation*. Poetry Foundation, https://www.poetryfoundation.org/.

CO PO Mapping

CO / PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO1	1	3	1	1	2	1	1	0	1	0	0	0	2	3
CO2	2	2	3	1	3	2	1	0	1	0	0	0	3	2
CO3	3	1	1	2	1	2	2	1	1	1	0	0	3	1
CO4	2	1	1	2	2	3	2	1	1	1	0	0	3	1
CO5	2	1	2	3	2	2	2	2	2	2	0	0	3	1
Average	2	1.6	1.6	1.8	2	2	1.6	0.8	1.2	0.8	0	0	2.8	1.6

L	T	P	SL	C
3	0	0	3	3

25CBAD21 **PYTHON PROGRAMMING**

OBJECTIVES:

The aim of this course is to help the student to attain the industry identified competency through various teaching learning experiences and to develop general purpose programming language skill using python to solve problems

Unit I: Introduction to Python **9 Hours**

Features of Python-Interactive, Object oriented, Interpreted, platform independent-Python building blocks - Identifiers, Keywords, Indention, Variables, Comments, Python environment setup - Installation and working of IDE, Running Simple Python scripts to display 'welcome' message-Python Data Types: Numbers, String, Tuples, Lists, Dictionary. Declaration and use of data types

Unit II: Python Operators and Control Flow statements **9 Hours**

Basic Operators: Arithmetic, Comparison, Relational, Assignment, Logical, Bitwise, Membership, Identity operators, Python Operator Precedence-Control Flow: Conditional Statements -if, if ... else, nested if- Looping in python - while loop, for loop, nested loops-loop

manipulation using continue, pass, break, else.

Unit III: Data Structures in Python **9 Hours**

List: Defining lists, accessing values in list, deleting values in list, updating lists. Basic List Operations Built in List functions-Tuples: Accessing values in Tuples, deleting values in Tuples, and updating Tuples, Basic Tuple operations. Built in Tuple functions-Sets: Accessing values in Set, deleting values in Set and updating Sets, Basic Set operations, Built in Set function- Dictionaries: Accessing values in Dictionary, deleting values in Dictionary and updating Dictionary, Basic Dictionary operations. Built in Dictionaries functions

Unit IV: Function, modules and packages **9 Hours**

Use of Python built in functions: type/ data conversion functions, math functions etc - User defined functions: Function definition, Function calling, function arguments and parameter passing, Return statement-Scope of Variables: Global variable and Local Variable-Modules: Writing modules, importing modules, importing objects from modules, Python built in modules namespace and Scoping-Python Packages: Introduction, Writing Python packages, Using standard and user defined packages

Unit V: Object Oriented Programming & File Concepts **9 Hours**

Creating Classes and Objects-Constructors-Method Overloading and Overriding—inheritance-polymorphism-I/O Operations: Reading keyboard input, Printing to screen-File Handling: Opening file in different modes, accessing file contents using standard library functions, Reading and writing files, closing a file, Renaming and deleting files, Directories in Python, File and directory related standard functions-Exception Handling: Introduction, Exception handling - 'try: except:' statement, 'raise' statement, User defined exceptions.

Total: 45 Hours

Self Learning: 45 Hours

COURSE OUTCOMES:

At the end of the course, student will be able to:

Course Outcome	Description	Bloom's Level
CO1	Develop Python programs to demonstrate the use of operators.	**K3**
CO2	Perform operations on various data structures in Python.	**K3**
CO3	Develop functions to solve given problems effectively.	**K3**

CO4	Design and implement classes for solving programming problems.	**K4**
CO5	Learn and apply exception handling techniques in Python.	**K2**

CO PO Mapping

COs \ POs/PSOs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3
CO1	2	3	2	2	2	–	–	–	2			2
CO2	3	3	3	2	2	–	–	–	3	2	2	3
CO3	3	3	3	2	2	–		2	3	2	2	3
CO4	3	3	3	3	2	–	2	2	3	3	2	3
CO5	2	3	3	2	2	–	2		2	3	2	2
AVG	**3**	**3**	**3**	**2**	**2**	**–**	**2**	**2**		**3**	**3**	**2**

REFERENCES

1. Rao, K. Nageswara, “Python programming”, Scitech Publications (India) Pvt. Ltd, 2nd Edition, 2023
2. Lutz, Mark. “ Learning Python”, O'Reilly Publication, 5th Edition, 2022.
3. eazley, David, “Python Essential Reference”, Addition Wesley Publication, 4th Edition, 2022
4. Paul, Barry, “Head first Python”, O'Reilly Publication, 2‘d Edition, 2023

WEB RESOURCES:

1. www.tutoria1spoint.com/python/index.htm
2. www.nptel.ac.in/courses/117106113/34
3. www.w3schools.com/python/default.asp
4. www.programiz.com/python-programming

25CBAD22 DATA BASE MANAGEMENT SYSTEM

L	T	P	SL	C
3	0	0	3	3

COURSE OBJECTIVE:

To understand the basic concepts and the applications of database systems, master the basics of SQL and construct queries using SQL, learn the relational database design principles, become familiar with the basic issues of transaction processing and concurrency control and familiar with database storage structures and access technique.

Unit I: Basics of DBMS & Relational Model **9 Hours**

Introduction and applications of DBMS, Purpose of database, View of Data, Database Languages, Database architecture, Database users and DBA- Relational Model-Structure of Relational Databases, Database Schema, Keys, Relational Operations and Relational Algebra

Unit II: ER Model **9 Hours**

Structure of Relational Databases, Database Schema, Keys, Relational Operations and Relational Algebra

Unit III : SQL & PL/SQL **9 Hours**

Introduction to SQL, Data Definition of SQL, Basic structure of SQL queries, Basic SQL operations (rename, string operations, order by, where clause), Set operations, Null values, Aggregate functions, Nested Subqueries, Modification of Database, JOIN expressions, Views, Integrity constraints, Data types and Schemas, Authorization-PL/SQL: Introduction, Cursors, Stored Procedures, Stored Functions, Triggers, Partitioning

Unit IV: Relational Data base design **9 Hours**

First Normal Form, Decomposition, Desirable Properties of Decomposition, Functional Dependencies, Second and Third Normal Form and Boyce-Codd Normal Form

Unit V : Indexing, Hashing & Transaction Control **9 Hours**

Basic concepts of indexing, hash based indexing, tree based indexing. Transaction concepts, properties of transactions, serializability, testing for serializability, Transaction Isolation and Atomicity, Transaction isolation levels, Implementation of isolation levels, Lock based protocols, Deadlock handling, Timestamp based protocols, two- phase locking protocol.

Total: 45 Hours

Self Learning :45 Hours

COURSE OUTCOMES:

At the end of the course, the student will be able to:

Course Outcome	Description	Bloom's Level
CO1	Understand database concepts and query languages.	**K2**
CO2	Understand the Entity Relationship model and relational model.	**K2**
CO3	Design and build database systems and demonstrate competence in	**K4**

	modelling, designing, and implementing a DBMS.	
CO4	Apply PL/SQL programming using basic and advanced concepts of RDBMS.	**K3**
CO5	Understand the concepts of indexing, hashing, and transaction management in DBMS.	**K2**

CO PO Mapping

COs \ POs/PSOs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3
CO1	2	2				–	–	–	-	2	–	–
CO2	3	3	2	2	2	–	–	–	-	3		-
CO3	3	3	3	2	2	–	–	-	-	3		-
CO4	2	2	2			–	–	-	-	2		-
CO5	3	3	3	2	2	–	2	2	-	3	2	-
AVG	3	3	3	2	2	–	2	2	-	3	2	-

TEXT BOOKS:

1. Silberschatz, Korth, Sudarshan, “Database System Concepts”, TMH Publication, 12th Edition,2020
2. Vikram Vaswani .”MySQL(TM): The Complete Reference”, Wiley Publication, 2nd Edition, 2021

3. C. J. Date , “An Introduction to Database Systems” . Adission Wisley Publication, Eighth Edition, 2019
4. G K Gupta, Data base Management Systems, Dreamtech Publication, 3rd Edition, 2022

WEB RESOURCES:

1. www.simplilearn.com
2. www.medium.com
3. www.techtarget.com
4. www.tutorialteacher.com

24BMA002 APPLIED MATHEMATICS-II

L	T	P	SL	C
2	1	0	3	3

COURSE OBJECTIVES:

- To enable professional undergraduate students to understand the importance of Mathematics

- To provide basic knowledge of Discrete Mathematics and Probability.
- The main aim of this course is to help the students to read, classify and then interpret the data given to them and draw conclusions. Students understand the concepts like Logic, tautology and Probability.

UNIT I: FUNDAMENTALS OF LOGIC **9**

Fundamentals of logic: Introduction to logic, propositional logic, logical connectives and truth table, negation conjunction, disjunction.

UNIT II: LOGIC AND TATUOLOGY **9**

Conditional, bi-conditional or double implication, converse, inverse and contra positive, tautology and contradiction.

UNIT 3: PERMUTATIONS AND COMBINATIONS **9**

Introduction -Fundamental Principle of Counting-Permutations: Problems on permutations – Combinations - Problems on combinations, Difference between permutations and combinations.

UNIT 4: BASICS OF PROBABILITY **9**

Basics of probability: Basic Probability- Axioms of Probability- Addition and Multiplication theorem without proof-Conditional Probability-simple problems

UNIT 5: RANDOM VARIABLES **9**

Random variable - Discrete random variables- Mean- Expectations- Variance- Independent random variables- simple problems, Continuous random variables- Mean- Expectations- Variance- simple problems.

Total : 45 Hours Self Learning:45 Hours

TEXT BOOKS:

1. Kenneth H. Rosen, Discrete Mathematics and its Applications, McGraw Hill.
2. R A Johnson And C.B.Gupta., Probability and statistics for engineers (Erwin Miller and John E.Freund), 7th edition, Pearson Education / PHI.

REFERENCE BOOKS:

1. R. P. Grimaldi, (2007)"Discrete and Combinatorial Mathematics", Pearson Education, Fifth Edition.
2. Thomas Koshy, (2005) "Discrete Mathematics with Applications", Academic Press.
3. Birhauser, Berlin,(1999),S.I.Resnick, A Probability Path.

WEB RESOURCES:

1. https://courses.umass.edu/phil110-gmh/text/c01.pdf
2. https://www.cuemath.com/data/permutations-and-combinations/

3. https://www.toppr.com/guides/maths/probability/introduction-to-probability/

COURSE OUTCOMES:

At the end of the course the students will be able to

Course Outcome	Description
CO1	Apply the basic concepts of Mathematical reasoning.
CO2	Understand the types of logic.
CO3	Understand the concept based on permutation and combinations.
CO4	Apply the concepts of Probability.
CO5	Understand the concepts of Random Variables.

L	T	P	SL	C
0	0	2	1	1

25PBAD 21 **RDBMS LAB**

COURSE OBJECTIVE:

To explain basic database concepts, applications, data models, schemas and instances, demonstrate the use of constraints and relational algebra operations. IV. Describe the basics of SQL and construct queries using SQL, emphasize the importance of normalization in databases.

LIST OF PROGRAMS:

1. Design a Database and create required tables. For e.g. Bank, College Database
2. Apply the constraints like Primary Key , Foreign key, NOT NULL to the tables.
3. Implement SQL select statement with various options
4. Write a SQL statement for implementing ALTER,UPDATE and DELETE
5. Write the queries to implement the joins
6. Write the query to implement various aggregate function
7. Write the query to implement the date and time function in SQL
8. Write the query to create the views
9. Perform the queries for triggers
10. Implement the usage of sub query
11. Write a PL/SQL program using stored procedure.
12. Write a PL/SQL program using cursor

Total : 45 Hours Self Learning:45 Hours

COURSE OUTCOME:

At the end of the course, the student will be able to:

Course Outcome	Description	Bloom's Level
CO1	Apply the basic concepts of Database Systems and Applications.	**K3**
CO2	Use SQL fundamentals and construct queries for database creation and interaction.	**K3**
CO3	Design a commercial relational database system using SQL	**K4**
CO4	Analyze and select storage and recovery techniques in database systems.	**K4**
CO5	Design programs using PL/SQL.	**K3**

COs \ POs/PSOs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3
CO1	3	3	2	2	2	–	–	–	-	2		2
CO2	3	3	3	2	2	–	–	–	-	3	2	2
CO3	3	3	3	3	2	–	-	-	3	3	3	2
CO4	3	3	2	2	2	–	–	-	2	2	2	2
CO5	3	3	3	3	2	–	-	-	2	3	3	2
AVG	3	3	3	2	2				2	3	3	2

CO PO Mapping:

25PBAD22 **PYTHON PROGRAMMING LAB**

L	T	P	SL	C
0	0	2	1	1

COURSE OBJECTIVE:

To learn and run python program using IDE and apply the concepts related with the course.

LIST OF PROGRAMS

1. Program to convert the given temperature from Fahrenheit to Celsius and vice versa depending upon user's choice.
2. Program to calculate total marks, percentage and grade of a student. Marks obtained in each of the five subjects are to be input by user. Assign grades according to the following criteria:

   Grade A: Percentage >=80 Grade B: Percentage >=70 and <80

   Grade C: Percentage >=60 and <70 Grade D: Percentage >=40 and <60

   Grade E: Percentage <40
3. Program, to find the area of rectangle, square, circle and triangle by accepting suitable input parameters from user
4. Program to display the first n terms of Fibonacci series.
5. Program to find factorial of the given number using recursive function.
6. Write a Python program to count the number of even and odd numbers from array of N numbers.
7. Python function that accepts a string and calculate the number of upper case letters and lower case letters.
8. Python program to reverse a given string and check whether the give string is palindrome or not.
9. Write a Python program to demonstrate the usage of Method Resolution Order (MRO) in multiple levels of Inheritance
10. Write a Python program to implement method over loading and method overriding.
11. Write a python program using parametrized constructor.
12. Write a Python code to merge two given file contents into a third file

Total: 45 Hours Self Learning:45 Hours

COURSE OUTCOMES:

At the end of the course, the student will be able to:

Course Outcome	Description	Bloom's Level
CO1	Apply comprehensions, different Decision-Making statements and Functions.	**K3**
CO2	Implement various data types like lists, tuples, strings.	**K3**
CO3	Use different File handling operations and Maps.	**K3**
CO4	Apply Object oriented programming in Python types.	**K3**
CO5	Use Exception Handling mechanism in Python	**K3**

CO PO Mapping:

COs \ POs/PSOs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3
CO1	3	3	2	2	2	–	–	–	-	2	2	
CO2	3	3	2	2	2	–	–	–	-	2	2	2
CO3	3	3	3	2	2	–	–	–	-	3	2	2
CO4	3	3	3	3	2	–	–	-	-	3	3	2
CO5	3	3	3	2	2	–	–	–	-	3	2	2
AVG	3	3	2	2	2	–	–	–	-	3	2	2

26DVAC11 **COMMUNICATION SKILLS**

L	T	P	SL	C
2	0	2	0	2

COURSE OBJECTIVES:

- **To improve speaking and presentation skills.**
- **To build reading and writing skills for academic and professional use.**
- **To prepare students for job communication (resume, GD, interview)**

UNIT 1 Fundamentals of Communication & Basic LSRW Skills **09**

- **Listening:** Listening for specific information (MCQs)
- **Speaking:** Self-introduction; talking about likes and dislikes; greetings
- **Reading:** Skimming, scanning, and detailed comprehension
- **Writing:** Formal letters (job application), resume basics, problem–solution writing

Language Lab / Practical:

- Digital literacy: E- resources
- **Practice: Self-introduction, JAM (Just a Minute)**

UNIT 2: Listening & Speaking Strategies in Context **09**

- **Listening:** Conversations, advertisements, small talks, TED talks, summarizing,
- **Speaking:** Impromptu talks, speech writing, mini-presentations, AI-based speaking and Pronunciation tools
- **Reading:** Identifying arguments and main ideas in texts
- **Writing:** Writing Instruction, Checklist Preparation, Paragraph writing,

Language Lab / Practical:

- Blog creation, online quizzes, and Kahoot activities
- Practice: Conversation Drills, Prompting Conversation

UNIT 3: Reading, Technical Writing & Analytical Skills **09**

- **Listening:** Listening to debates/Academic discussions and extracting key points
- **Speaking:** Participating in group discussions, AI for Presentation using prompts
- **Reading:** Extracting specific information; note-making
- **Writing:** Framing open-ended /closed ended questions, sequencing sentences, Report writing, and précis writing

Language Lab / Practical:

- PowerPoint presentations, Slide Share tools
- Practice: Reading comprehension, report writing, statement of purpose

UNIT 4: Critical Thinking & Presentation 09

- **Listening:** Understanding instructions, interpretations & recommendations
- **Speaking:** Formal presentations, public speaking
- **Reading:** Classification and interpretation of information
- **Writing:** Instructions, recommendations, user manuals

Language Lab / Practical:

- Online discussion forums and collaborative tools
- Practice: Book/film review, presentation delivery.

UNIT 5: Professional & Workplace Communication 09

- **Listening:** Workplace communication.
- **Speaking:** Group discussions, interviews, persuasive communication, negotiation
- **Reading:** Professional documents and job-related texts
- **Writing:** Cover letters, resumes, formal emails, Process Descriptions

Language Lab / Practical:

- Digital tools for communication and presentations
- Practice: Mock interviews, GDs

Total: 15 Hours

Self-Learning: 15 Hours

COURSE OUTCOMES

After completing the course, students will be able to:

CO1: demonstrate effective listening and comprehension skills.

CO2: communicate confidently in speaking situations, such as presentations and discussions.

CO3: apply appropriate reading strategies for academic and professional texts.

CO4: produce clear and structured written communication (letters, emails, reports, resumes).

CO5: exhibit employability skills in interviews, group discussions, and workplace communication.

CO PO Mapping

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	1	3	1	2	1	1	0	1	1	0	0	3	1
CO2	1	1	2	3	1	2	2	1	2	3	0	0	3	1
CO3	1	2	2	1	3	1	1	1	1	1	0	0	3	2
CO4	2	1	1	2	2	3	2	1	1	2	0	0	3	1
CO5	1	1	1	3	1	2	2	2	3	3	0	0	3	1
Average	1.2	1.2	1.8	2	1.8	1.8	1.6	1	1.6	2	0	0	3	1.2

TEXT BOOKS

1. Kumar, Sanjay, and Pushp Lata. *Communication Skills*. Pearson Education, 2018.
2. Bovée, Courtland L., and John V. Thill. *Business Communication Today*. 14th ed., Pearson, 2020.
3. Raman, Meenakshi, and Sangeeta Sharma. *Technical Communication: Principles and Practice*. 3rd ed., Oxford University Press, 2015.
4. Kumar, Kulbhushan. *Effective Communication Skills*. Khanna Publishing House, 2018.
5. Mohan, Krishna, and Meera Banerji. *Developing Communication Skills*. 2nd ed., Macmillan Education, 2018.

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1. Sharma, R. C., and Krishna Mohan. *Business Correspondence and Report Writing: A Practical Approach to Business and Technical Communication*. 5th ed., McGraw-Hill Education, 2017.
2. Mitra, Barun K. *Personality Development and Soft Skills*. 2nd ed., Oxford University Press, 2016.
3. Sasikumar, V., P. Kiranmai Dutt, and Geetha Rajeevan. *A Course in Listening and Speaking I*. Cambridge University Press, 2005.
4. Murphy, Raymond. *English Grammar in Use*. 5th ed., Cambridge University Press, 2019.
5. Lewis, Norman. *Word Power Made Easy*. Revised ed., Goyal Publishers & Distributors, *2014.*

WEBSITES

1. Purdue Online Writing Lab. "OWL." *Purdue University*, https://owl.purdue.edu/.
2. TED. "TED Talks." *TED Conferences*, https://www.ted.com/talks.
3. British Council. *Learn English*. British Council ,https://learnenglish.britishcouncil.org/