Dr. N.G.P. ARTS AND SCIENCE COLLEGE

(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore)
Approved by Government of Tamil Nadu and Accredited by NAAC with 'A++' Grade (3rd Cycle-3.64 CGPA)
Dr. N.G.P. - KalapattiRoad, Coimbatore-641048, Tamil Nadu, India
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REGULATIONS 2025 - 26 for Under Graduate Programme
(Outcome Based Education model with Choice Based Credit System)

Bachelor of Science in Artificial Intelligence and Machine Learning

(For the students admitted during the academic year 2025-26)

Programme: B.Sc. Artificial Intelligence and Machine Learning

Eligibility

Candidates for admission to the first year of the **Bachelor of Science (Artificial Intelligence and Machine Learning)** Degree Programme shall be required to have passed in the Higher Secondary Examinations conducted by the Government of Tamil Nadu in the relevant subjects or an Examination accepted as equivalent thereto by the Academic Council. Subject to such other conditions as may be prescribed there to be permitted to appear and qualify with anyone of the following subjects: Mathematics / Computer Science and wherever the students have not studied Mathematics, the necessary Mathematics knowledge be imparted through Tutorial/Bridge Course.

Programme Educational Objectives

The Curriculum is designed to attain the following learning goals which students shall accomplish by the time of their graduation:

1. To achieve professional skills in IT/ITEs sector
2. Support the growth of economy of a country by starting enterprise with a lifelong learning attitude.
3. To take part in socio-based research activity focused on the advanced areas of AI&ML.

PROGRAMME OUTCOMES

On the successful completion of the programme, the following are the expected outcomes.

PO Number	PO Statement
PO1	Apply the Computer Science principles and paradigms in designing system components and processes to meet the specific industry needs.
PO2	To develop intelligent automated systems by applying analytical and programming skills to resolve real time issues and challenges.
PO3	Exhibit proficiency in AI&ML for providing finite solutions to the industry.
PO4	Build the young minds with research attitude with respect to the needs of the society.
PO5	Employ to adapt for the modern platforms in-terms of employability, entrepreneurship and also to pursue for their higher studies.

B.Sc. Artificial Intelligence and Machine Learning 2025-2026 Scheme
Credit Distribution

Part	Subjects	No. of Papers	Credit	Semester No.
I (12 Credits)	Tamil / Hindi / French/Malayalam	4	4 x 3 = 12	I to IV
II (12 Credits)	English	4	4 x 3 = 12	I to IV
III (108 Credits)	Core (Credits 4)	12	12 x 4 = 48	I to VI
	Core (Credits 3)	2	2 x 3 = 6	III & IV
	Core Practical (Credits 5)	2	2 x 5 = 10	III & IV
	Core Practical (Credits 2)	3	3 x 2 = 6	I to VI
	Inter Departmental Course (IDC)	4	4 x 4 = 16	I to IV
	Discipline Specific Elective (DSE)	3	3 x 4 =12	V & VI
	Skill Enhancement Course (SEC)	4	4 x 2 = 8	III to VI
	Industrial Training	1	1 x 2=2	V
IV (8 Credits)	Environmental Studies (AECC)	1	1 x 2=2	I
	Basic Tamil/Advance Tamil/Human Rights and Women's Rights (AECC)	1	1 x 2=2	II
	Generic Elective (GE)	1	1 x 2=2	V
	Innovation & IPR/ Innovation, IPR & Entrepreneurship (AECC)	1	1 x 2=2	VI
V (2 Credits)	NSS/NCC/YRC/RRC/Yoga/Sports/ Clubs/Health and Wellness	-	2 x 1=2	I & II
TOTAL CREDITS			**142**	

UG CURRICULUM

Programme Name: B.Sc. Artificial Intelligence and Machine Learning - AY 2025-2026

Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
First Semester												
Part– I												
25TLU1TA	Language-I	Tamil–I	4	1	-	5	60	3	25	75	100	3
25TLU1HA		Hindi-I										
25TLU1MA		Malayalam-I										
25TLU1FA		French –I										
Part– II												
25ELU1EA	Language-II	English -I	4	-	1	5	60	3	25	75	100	3
Part– III												
25AIU1CA	Core - I	Problem Solving and Programming in C	4	1	-	5	60	3	25	75	100	4
25AIU1CP	Core Practical - I	C Programming	-	-	4	4	48	3	40	60	100	2
25CYU1CA	Core -II	Digital Logic Design	4	-	-	4	48	3	25	75	100	4
25MTU1ID	IDC -I	Mathematics for Computing - I	4	1	-	5	60	3	25	75	100	4
Part-IV												
25MBU1AA	AECC-I	Environmental Studies	2	-	-	2	24	3	50	-	50	2
Part-V												
25AIU1XA	Extension Activity	NSS/NCC/ YRC/RRC/ Yoga/Sports/ Clubs	-	-	-	-	-	-	50	-	50	1
Total			**22**	**3**	**5**	**30**	**360**	**-**	**-**	**-**	**700**	**23**

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Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
Second Semester												
Part– I												
25TLU2TA	Language-I	Tamil–II	4	1	-	5	60	3	25	75	100	3
25TLU2HA		Hindi-II										
25TLU2MA		Malayalam-II										
25TLU2FA		French –II										
Part– II												
25ELU2EA	Language-II	English -II	4	-	1	5	60	3	25	75	100	3
Part– III												
25CAU2CA	Core -III	Data Structures	4	1	-	5	60	3	25	75	100	4
25CSU2CA	Core -IV	Object Oriented Programming with C++	4	-	-	4	48	3	25	75	100	4
25AIU2CP	Core Practical-II	Data Structures and C++	-	-	4	4	48	3	40	60	100	2
25MTU2ID	IDC -II	Mathematics for Computing - II	4	1	-	5	60	3	25	75	100	4
Part-IV												
25TLU2AA	AECC-II	Basic Tamil	2	-	-	2	24	3	50	-	50	2
25TLU2AB		Advanced Tamil										
25CRU2AA		Human Rights and Women's Rights										
Part-V												
25AIU2XA	Extension Activity	NSS/NCC/ YRC/RRC/ Yoga/Sports/ Clubs /Health and Wellness	-	-	-	-	-	-	50	-	50	1
Total			**22**	**3**	**5**	**30**	**360**	-	-	-	**700**	**23**

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Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
Third Semester												
Part– I												
25TLU3TA	Language - I	Tamil–III	3	1	-	4	48	3	25	75	100	3
25TLU3HA		Hindi-III										
25TLU3MA		Malayalam-III										
25TLU3FA		French –III										
Part– II												
25ELU3EA	Language-II	English -III	3	1	-	4	48	3	25	75	100	3
Part– III												
25DAU3CA	Core - V	Database System Concepts	4	-	-	4	48	3	25	75	100	4
25CYU3CB	Core -VI	Operating Systems Fundamentals	3	-	-	3	36	3	25	75	100	3
25AIU3CM	Core Practical - III	Programming in Java	3	-	4	7	84	3	40	60	100	5
25AIU3SP	SEC Practical -I	SQL – PL/SQL	-	-	4	4	48	3	40	60	100	2
25MTU3ID	IDC -III	Discrete Mathematics	4	-	-	4	48	3	25	75	100	4
Total			**20**	**2**	**08**	**30**	**360**	-	-	-	**700**	**24**

EXTRA CREDIT COURSES

The following are the courses offered under self-study to earn extra credits

Semester III

S. No.	Course Code	Name of the Course
1	25AIUSSA	Social Media Mining
2	25AIUSSB	Generative AI

Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
Fourth Semester												
Part– I												
25TLU4TA	Language - I	Tamil–IV	3	1	-	4	48	3	25	75	100	3
25TLU4HA		Hindi-IV										
25TLU4MA		Malayalam-IV										
25TLU4FA		French –IV										
Part– II												
25ELU4EA	Language-II	English -IV	3	1	-	4	48	3	25	75	100	3
Part– III												
25AIU4CA	Core -VII	Foundations of Artificial Intelligence	4	-	-	4	48	3	25	75	100	4
25DAU4CM	Core Practical - IV	Python for Data Science	3	-	4	7	84	3	40	60	100	5
25AIU4CB	Core - VIII	Design and Analysis of Algorithms	3	-	-	3	36	3	25	75	100	3
25AIU4SP	SEC Practical-II	Artificial Intelligence	-	-	4	4	48	3	40	60	100	2
25BIU4IA	IDC -IV	Digital Banking	4	-	-	4	48	3	25	75	100	4
Total			**20**	**2**	**08**	**30**	**360**	-	-	-	**700**	**24**

Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
Fifth Semester												
Part– III												
25DAU5CA	Core - IX	Computer Networks and Communication	4	1	-	5	60	3	25	75	100	4
25AIU5CA	Core -X	Machine Learning Techniques	4	1	-	5	60	3	25	75	100	4
25AIU5CB	Core -XI	R Programming	4	1	-	5	60	3	25	75	100	4
25AIU5CP	Core Practical - V	Machine Learning	-	-	4	4	48	3	40	60	100	2
25AIU5SP	SEC Practical -III	Data Visualization Techniques	-	-	4	4	48	3	40	60	100	2
25AIU5DA	DSE –I	Human Computer Interaction	4	1	-	5	60	3	25	75	100	4
25AIU5DB		Cloud Computing Services										
25AIU5DC		Software Engineering Principles										
25AIU5TA	IT	Industrial Training	-	-	-	-	-	3	40	60	100	2
Part– IV												
25AIU5GA	GE	AI Essentials	2	-	-	2	24	3	50	-	50	2
Total			**18**	**4**	**8**	**30**	**360**	**-**	**-**	**-**	**750**	**24**

Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
Sixth Semester												
Part– III												
25AIU6CA	Core - XII	Natural Language Processing and Speech Systems	4	-	-	4	48	3	25	75	100	4
25AIU6CB	Core - XIII	Deep Learning Techniques	4	-	-	4	48	3	25	75	100	4
25AIU6CV	Core -XIV	Project and Viva voce	-	-	8	8	96	3	40	60	100	4
25AIU6SP	SEC Practical - IV	Natural Language Processing using Python	-	-	4	4	48	3	40	60	100	2
25AIU6DA	DSE –II	Cybersecurity Essentials	4	-	-	4	48	3	25	75	100	4
25AIU6DB		Internet of Things and Smart Systems										
25AIU6DC		Computer Vision										
25AIU6DD	DSE –III	Fuzzy Logic and Neural Networks	4	-	-	4	48	3	25	75	100	4
25AIU6DE		Principles of Robotics										
25AIU6DF		UI and UX Design										
Part– IV												
25BCU6AA	AECC-III	Innovation, IPR and Entrepreneurship	2	-	-	2	24	3	50	-	50	2
Total			**18**	**-**	**12**	**30**	**360**	**-**	**-**	**-**	**650**	**24**
***Grand total**											**4200**	**142**

*Total Credit should not exceed 142 credits

DISCIPLINE SPECIFIC ELECTIVE

Students shall select the desired course of their choice in the listed elective course during Semesters V & VI

Semester V (Elective I)

List of Elective Courses

S. No.	Course Code	Name of the Course
1	25AIU5DA	Human Computer Interaction
2	25AIU5DB	Cloud Computing Services
3	25AIU5DC	Software Engineering Principles

Semester VI (Elective II)

List of Elective Courses

S. No.	Course Code	Name of the Course
1	25AIU6DA	Cybersecurity Essentials
2	25AIU6DB	Internet of Things and Smart Systems
3	25AIU6DC	Computer Vision

Semester VI (Elective III)
List of Elective Courses

S. No.	Course Code	Name of the Course
1	25AIU6DD	Fuzzy Logic and Neural Networks
2	25AIU6DE	Principles of Robotics
3	25AIU6DF	UI and UX Design

GENERIC ELECTIVE COURSE (GE)

The following are the courses offered under Generic Elective Course

Semester: V (GE)

S. No.	Course Code	Name of the Course
1	25AIU5GA	AI Essentials

EXTRA CREDIT COURSES

The following are the courses offered under self study to earn extra credits:

Semester III

S. No.	Course Code	Name of the Course
1	25AIUSSA	Social Media Mining
2	25AIUSSB	Generative AI

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Semester – I LANGUAGE – I: TAMIL - I							
Semester	**Course Code**	**Course Name**	**Category**	**L**	**T**	**P**	**Credits**
I	25TLU1TA	TAMIL - I	LANGUAGE- I	48	12	-	3

Preamble	மொழிப்பாடங்களின் வாயிலாக தமிழரின் பண்பாடுநாகரீகம், பகுத்தறிவு ஆகியவற்றை அறியச் செய்தல்
	கலை மற்றும் மரபுகளை அறியச் செய்தல்
	மாணவர்களின் படைப்பாக்கத்திறன்களை ஊக்குவித்தல்
Prerequisite	தமிழ் மொழி எழுதி, படிக்கும் திறன்

Course Outcomes (Cos)		
CO. No.	**Course Outcomes (COs) Statement**	**Bloom's Tax anomy Knowledge Level**
CO1	வாழ்க்கைத்திறன்கள் (Life Skills)- மாணவர்களின் செயலாக்கத்திறனை ஊக்குவித்தல்	K2
CO2	மதிப்புக்கல்வி (Attitude and Value education)	K3
CO3	பாடஇணைச்செயல்பாடுகள் (Co-curricular activities)	K3
CO4	சூழலியல் ஆக்கம் (Ecology)	K4
CO5	மொழி அறிவு (Tamil knowledge)	K4

Mapping with Program Outcomes:					
Cos / POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1		✓	✓		✓
CO2	✓			✓	
CO3		✓			✓
CO4			✓		
CO5	✓			✓	✓

25TLU1TA	TAMIL - I

Syllabus

Unit	Content	Hrs	Resources
1	**மறுமலர்ச்சிக் கவிதைகள்** 1. இலக்கிய வரலாறு -மறுமலர்ச்சிக் கவிஞர்களின் தமிழ்ப்பணிகள் 2. பாரததேசம்- பாரதியார் 3. படி - பாரதிதாசன் 4. தமிழரின் பெருமை- நாமக்கல் கவிஞர் 5. தமிழ்க் கொலை புரியாதீர் - புலவர் குழந்தை 6. **திரைத்தமிழ்** அ) 'விஞ்ஞானத்த வளர்க்கப் போறண்டி' எனத் தொடங்கும் பாடல் – உடுமலை நாராயண கவி ஆ) 'சும்மா கிடந்த நிலத்தை' எனத் தொடங்கும் பாடல் – பட்டுக்கோட்டை கல்யாண சுந்தரனார் இ) 'சமரசம் உலாவும் இடமே' எனத் தொடங்கும் பாடல் -மருதகாசி ஈ) 'உன்னை அறிந்தால்' எனத் தொடங்கும் பாடல் -கண்ணதாசன்	13	தமிழ்மொழிப்பாடம் முதற்பருவம் 2025-2026 https://www.youtube.com/watch?v=Up55uhkk9zI
2	**புதுக்கவிதைகள்** 1. இலக்கிய வரலாறு - புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும் 2. கடமையைச் செய் - மீரா 3. ஓடு ஓடு சங்கிலி - சிற்பி பாலசுப்பிரமணியம் 4. ஒப்பிலாத சமுதாயம் - அப்துல் ரகுமான் 5. மரங்கள் - மு.மேத்தா 6. கரிக்கிறது தாய்ப்பால் - ஆரூர் தமிழ்நாடன் 7. ஐந்தாம் வகுப்பு 'அ' பிரிவு - நா. முத்துக்குமார் 8. ஹைகூ கவிதைகள் - 10 கவிதைகள்	13	தமிழ்மொழிப்பாடம் முதற்பருவம் 2025-2026 https://www.youtube.com/watch?v=dX9ZaNJMaco
3	**பெண்ணியம்** 1. தொலைந்து போனேன் - தாமரை 2. நீரில் அலையும் முகம் - அ. வெண்ணிலா 3. தற்காத்தல் - பொன்மணி வைரமுத்து 4. ஏனிந்த வித்தியாசங்கள் ? - மல்லிகா 5. புதையுண்ட வாழ்க்கை - சுகந்தி சுப்ரமணியன்	10	தமிழ்மொழிப்பாடம் முதற்பருவம் 2025-2026 https://www.youtube.com/watch?v=DLabokqWEdg
4	**சிறுகதைகள்** 1.இலக்கிய வரலாறு - சிறுகதையின் தோற்றமும் வளர்ச்சியும் 2. கனகாம்பரம் - கு.ப.ராஜகோபாலன் 3. கடிதம்- புதுமைப்பித்தன் 4. பொம்மை - ஜெயகாந்தன் 5. காய்ச்சமரம் - கி. ராஜநாராயணன் 6. காட்டில் ஒருமான் - அம்பை 7.வேட்கை - சூர்யகாந்தன்	14	தமிழ்மொழிப்பாடம் முதற்பருவம் 2025-2026 https://www.youtube.com/watch?v=78u7iTN3OU8

5	**பயிற்சிப் பகுதி** **அ. இலக்கணம்** 1. வல்லின ஒற்று மிகும், மிகா இடங்கள் - ஒற்றுப்பிழை நீக்கிஎழுதுதல் 2. ர,ற-ல,ழ,ள - ண,ந,ன வேறுபாடு - ஒலிப்பு நெறி, சொற்பொருள் வேறுபாடு அறிதல் **ஆ. படைப்பாக்கம்** 1. கவிதை- எழுதுதல் (15 வரிகள் முதல் 30 வரிகள் வரை) 2.சிறுகதை - எழுதுதல் (குறைந்தது 3 பக்கங்கள்)	10	தமிழ்மொழிப்பாடம் முதற்பருவம் 2025-2026 https://www.youtube.com/watch?v=B3wfM0QL6N8 https://www.youtube.com/watch?v=FchTlqAtwBU https://www.youtube.com/watch?v=gCP3gC-JQU4 https://www.youtube.com/watch?v=p9QOHD12Yeo
	Total	60	

Text book	1.	தமிழ் மொழிப்பாடம் – 2025-2026 தொகுப்பு: தமிழ்த்துறை, டாக்டர் என். ஜி. பி. கலை அறிவியல் கல்லூரி, கோயம்புத்தூர் – 641048.
Reference Books	1.	பேராசிரியர் புலவர் சோம. இளவரசு, தமிழ் இலக்கிய வரலாறு, எட்டாம் பதிப்பு – 2024, மணிவாசகர் பதிப்பகம், சென்னை – 600 108.
	2.	பேராசிரியர் முனைவர் பாக்கியமேரி, முதற் பதிப்பு – 2023, இலக்கணம், இலக்கியவரலாறு, மொழித்திறன் – பூவேந்தன் பதிப்பகம், சென்னை – 600 004.

Journal and Magazines	இலக்கிய இதழ்கள்
E-Resources and Website	https://www.tamilvu.org

Learning Method	Lecture/ Tutorial / Student Seminar/GD/Assignment

Focus of the Course	Skill Development / Employability

Semester – I LANGUAGE –I: HINDI – I							
Semester	**Course Code**	**Course Name**	**Category**	**L**	**T**	**P**	**Credits**
I	25TLU1HA	HINDI – I	LANGUAGE- I	48	12	-	3

Preamble	The writing ability and develop reading skill
	The various concepts and techniques for criticizing literature
	The techniques for expansion of ideas and translation process
Prerequisite	To understand the language Hindi for communication

Course Outcomes (Cos)		
CO.No.	**Course Outcomes (COs) Statement**	**Bloom's Tax anomy Knowledge Level**
CO1	Learn the fundamentals of novels and stories	K2
CO2	Understand the principles of translation work	K3
CO3	Expose the knowledge writing critical views on fiction	K3
CO4	Build creative ability	K3
CO5	Apply the power of creative reading	K4

Mapping with Program Outcomes:					
Cos / POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1		✓	✓		✓
CO2	✓			✓	
CO3		✓			✓
CO4			✓		
CO5	✓			✓	✓

25TLU1HA	HINDI – I

Syllabus

Unit	Content	Hrs	Resources
1	गद्य – नूतन गद्य संग्रह (जयप्रकाश) पाठ1- रजिया पाठ, 2- मक्रील पाठ 3- बहता पानी निर्मला पाठ4- राष्ट्रपिता महात्मा गाँधी	13	Text Book
2	कहानी कुंज- डॉ वी.पी. 'अमिताभ'(पाठ 1-4)	13	Text Book
3	व्याकरण : शब्दविचार (संज्ञा, सर्वनाम,विशेषण)	12	Text Book
4	अनुच्छेद लेखन	12	Text Book
5	अनुवाद अभ्यास-III (केवल अंग्रेजी से हिन्दी में) (पाठ1 to 10)	10	Text Book
	Total	60	

Text books	1.	प्रकाशक: सुमित्र प्रकाशन 204 लीला अपार्ट्मेंट्स, 15 हेस्टिंग्स रोड'अशोक नगर इलाहाबाद-211001
	2.	प्रकाशक: गोविन्द प्रकाशन सदर बाजार, मथुरा उत्तरप्रदेश-281001
	3.	पुस्तक: व्याकरण प्रदिप – रामदेव प्रकाशक: हिन्दी भवन 36 टेगोर नगर इलाहाबाद-211024
	4.	पुस्तक: व्याकरण प्रदिप – रामदेव प्रकाशक: हिन्दी भवन 36 इलाहाबाद-211024
	5.	प्रकाशक: दक्षिण भारत प्रचार सभा चेनैई -17
Reference Books		-

Journal and Magazines	-
E-Resources and Website	-

Learning Method	Lecture/ Tutorial / Student Seminar/GD/Assignment

Focus of the Course	Skill Development / Employability

Semester – I MALAYALAM- I							
Semester	**Course Code**	**Course Name**	**Category**	**L**	**T**	**P**	**Credits**
I	25TLU1MA	MALAYALAM- I	LANGUAGE- I	48	12	-	3

Preamble	The writing ability and develop reading skill
	The various concepts and techniques for criticizing literature, to learn the techniques for expansion of ideas and translation process
	The competency in translating simple Malayalam sentences into English and vice versa
Prerequisite	To understand the language Malayalam for communication

Course Outcomes (Cos)		
CO. No.	**Course Outcomes (COs) Statement**	**Bloom's Tax anomy Knowledge Level**
CO1	Learn the fundamentals of novels and stories	K2
CO2	Understand the principles of translation work	K3
CO3	Expose the knowledge writing critical views on fiction	K3
CO4	Apply creative ability	K3
CO5	Build the power of creative reading	K4

Mapping with Program Outcomes:					
Cos / POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1		✓	✓		✓
CO2	✓			✓	
CO3		✓			✓
CO4			✓		
CO5	✓			✓	✓

25TLU1MA	MALAYALAM- I

Syllabus

Unit	Content	Hrs	Resources
1	**Novel** PathummayudeAdu	14	Text book
2	**Novel** PathummayudeAdu	10	Text book
3	**Short Story** Nalinakanthi	14	Text book
4	**Short Story** Nalinakanthi	10	Text book
5	**Practical Application** Expansion of ideas, General Essay and Translation	12	Text book
	Total	60	

Text books	1.	Vaikkam Muhammed Basheer, "PathummayudeAdu" (NOVEL), DC Books & Kottayam
	2.	T.Padmanabhan, "Nalinakanthi" (Short Story), DC Books & Kottayam.
Reference Books	1.	MalayalaNovel Sahithyam.
	2.	MalayalaCherukathaInnale Innu.

Journal and Magazines	-
E-Resources and Website	-

Learning Method	Lecture/ Tutorial / Student Seminar/GD/Assignment

Focus of the Course	Skill Development / Employability

Semester – I FRENCH - I							
Semester	**Course Code**	**Course Name**	**Category**	**L**	**T**	**P**	**Credits**
I	25TLU1FA	FRENCH - I	LANGUAGE- I	48	12	-	3

Preamble	The competence in general communication skills with oral, written and comprehension & expression
	The culture, life style and the civilization aspects of the French people as well as of France
	The students to acquire competency in translating simple French sentences into English and vice versa
Prerequisite	To understand the language French for communication

Course Outcomes (Cos)		
CO. No.	**Course Outcomes (COs) Statement**	**Bloom's Tax anomy Knowledge Level**
CO1	Learn the Basic verbs, numbers and accents	K2
CO2	Apply the adjectives and the classroom environment in France	K3
CO3	Select the Plural, Articles and the Hobbies	K3
CO4	Measure the Cultural Activity in France	K3
CO5	Evaluate the sentiments, life style of the French people and the usage of the conditional tense	K4

Mapping with Program Outcomes:					
Cos / POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1		✓	✓		✓
CO2	✓			✓	
CO3		✓			✓
CO4			✓		
CO5	✓			✓	✓

25TLU1FA	FRENCH - I

Syllabus

Unit	Content			Hrs	Resources
1	**Objectifs de Communication**	**Tâche**	**Activités de réception et de production orale**	14	Text book Salut I Page 10
	• Saluer • Enter en contact • avec quelqu'un. • Se presenter. • S'excuser	En cours de cuisine, premiers contacts avec les members d'un groupe	• Comprendre des personnes qui se saluent. • Ēchanger pour entrer en contact, se présenter, saluer, s'excuser. • Communiquer avec *tu* ou *vous*. • Comprendre les consignes de classe • Ēpeler son nom et son prénom. Computer jusqu'à 10.		
2	• Demander de se presenter. • Présenter quelqu'un . •	Dans la classe de français, se presenter et remplir une fiche pour le professeur.	• Comprendre les informations essentielles dans un échange en milieu professionnel. Ēchanger pour se presenteret présenterquelqu'un.	12	Text book Enchanté I Page 20
3	• Exprimer ses gouts.	Dans un café, participer à une soirée de rencontres rapides et remplir de taches d'appréciation	• Dans une soirée de recontresrapid comprendre des personnes qui échangent sur elles et sur leurs goût • Comprendre une personne qui parler des goûts de quelqu'un d'autre	14	Text book J'adore I Page 30
4	Demander à quelqu'un de faire quelque chose. Demander poliment. Parler d'actions passes. Tu veux bien?	Organiser un programme d'activités pour accueillir une personne importante	Comprendre une personne demande un service à quelqu'un. Demander à quelqu'un de faire quelque chose. • Imaginer et raconter au passé à partir de situations dessinées.	10	Text book Autoévaluation du module I Page 40 – Préparation au DELF A1 page 42 Tu veux bien page 46
5	**Practical Application** Make in Own Sentences			10	-
	Total			60	

Text book	1.	Regine Merieux, Yves Loiseau. 2012. LATITUDES – 1: Méthode de français (Page No: 9-55) Les Editions Dider, Paris, ImprimeenRoumanie par Canale en Janvier
Reference Book	1.	-

Journal and Magazines	-
E-Resources and Website	-

Learning Method	Lecture/ Tutorial / Student Seminar/GD/Assignment

Focus of the Course	Skill Development / Employability

SEMESTER – I LANGUAGE II: ENGLISH – I							
Semester	**Course Code**	**Course Name**	**Category**	**L**	**T**	**P**	**Credits**
I	**25ELU1EA**	**ENGLISH - I**	**LANGUAGE- II**	**48**	**-**	**12**	**3**

Preamble	This course has been designed for students to learn and understand • the effect of dialogue, imagery and varied genres • any spontaneous spoken discourse and respond to them with proper sentence structure • the transactional concept of English language.
Prerequisite	Basic comprehension of Language Skills

Course Outcomes (Cos)		
CO Number	**Course Outcomes (COs) Statement**	**Bloom's Taxonomy Knowledge Level**
CO1	Identify the various aspects in poetry.	K2
CO2	Infer linguistic and non-linguistic features of the context for understanding and interpreting.	K3
CO3	Construct sentences and convey messages effectively in real life situations.	K3
CO4	Apply different reading strategies with varying speed.	K3
CO5	Prepare modules with their own ideas and present them coherently in a grammatically correct form.	K3

Mapping with Program Outcomes:					
Cos / POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	✓	✓	✓		
CO2		✓	✓		
CO3	✓		✓	✓	✓
CO4		✓		✓	
CO5	✓		✓		✓

25ELU1EA | LANGUAGE II: ENGLISH – I

Syllabus

Unit	Content	Hrs	Resources
I	**Genre Studies** **Mathew Arnold: Dover Beach**- Author's Biography- title indications- outline- paraphrasing the poem- context of poem- form- poetic devices- enjambment- techniques– Annotations **Niyi Osundare: Our Earth Will Not Die**- Author's Biography- title indications-outline- paraphrasing the poem- context of poem- form- poetic devices-enjambment- techniques– Annotations **Charles Lamb: Christ's Hospital Five and Thirty Years Ago**- Author's biography- Narrative structure- Exploration of the text- passage analysis- insight of ideas- cohesion and context- style- language techniques- Annotation **James Hanson: A Famed Life - Ten Minute Comedy for Two Women** - Author's Biography- Plot Summary- Detailed summary and Analysis- Themes- Important Quotations- Characters- Description - analysis- Terms- Symbols- Critical analysis **Sheila Nayampalli Baruna: Alone** - Author's Biography- narrative structure- passage analysis- insight of ideas- cohesion and context- style- language techniques.	12	Text Book
II	**Listening Skills** Listening vs. hearing- Types of listening, Tips to enhance Listening Skills, Non-verbal and Verbal signs of active listening- Comprehensive Listening- Listening to pre-recorded audios on speeches, interviews and conversations-Listening Activities- Listening and responding to complaints (formal situation), Listening to problems and offering solutions (informal)	13	britishcouncil.org cambridgeenglish.org
III	**Speaking Skills** Formal occasions- Introducing oneself, Introducing others, Enquiries and Seeking permission, neural speaking -Making short presentations- Informal occasions- Requests, Offering help, Congratulating, Farewell party, graduation speech- Giving instructions to do a task and to use a device, Giving and asking directions	11	britishcouncil.org cambridgeenglish.org
IV	**Reading Skills** Study Skills: Skimming and Scanning- Reading different kinds of texts- Types of reading-Developing a good reading speed, reading aloud, Referencing skill- Word Power (Denotation and Connotation) - Reading comprehension, Data interpretation – Charts, Graphs, Advertisements - Cognitive Skills- Inference Making – Interpretation	12	britishcouncil.org cambridgeenglish.org
V	**Writing Skills** Sentence patterns, Note- making and note taking-Strategies - Paragraph writing: Structure and Principles - Academic Writing - Formal and Informal Letters, Report, Book /Movie Review - Infographics Writing	12	britishcouncil.org cambridgeenglish.org
	Total	**60**	

Note: Case studies related to the above topics to be discussed (Examined Internal only)

Text book	1.	https://www.poetryfoundation.org/poems/43588/doverbeach
	2.	https://portal.abuad.edu.ng/lecturer/documents/1586771577our_earth_will_not_die.doc
	3.	http://l-adam-mekler.com/chucktwo.pdf
	4.	https://offthewallplays.com/wpontent/uploads/2017/04/1_pdfsam_A-famed-life-full-with-title-page.pdf
	5.	Nation, I. S. P and Jonathan Newton. 2009. *Teaching ESL/EFL Listening and Speaking*. Routledge, New York, United States of America.
	6.	Prabha, Dr. R. Vithya & S. Nithya Devi. 2019. *Sparkle.* (1st Edn.) McGraw - Hill Education, Chennai, India.
Reference Books	1.	Rudzka, Brygida -Ostyn, 2003. Word Power: *Phrasal Verbs and Compounds: A Cognitive Approach,* Mouton de Gruyter, New York, United States of America.
	2.	Swales, John M. & Feak, Christine B. 2012. *Academic Writing for Graduate Students: Essential Tasks and Skills*, University of Michigan Press, Michigan, United States of America.
	3.	Sen, Leena. 2007. *Communication Skills*, Second Edition, Prentice Hall India Learning Private Limited, New Delhi, India.
	4.	O. Greene, John. 2021. *Essentials of Communication Skill and Skill Enhancement: A Primer for Students and Professionals*, Routledge publishers, United Kingdom.

Journal and Magazines	https://academic.oup.com/journals
E-Resources and Website	https://learnenglish.britishcouncil.org/ https://www.cambridgeenglish.org/learning-english/activities-for-learners/

Learning Method	Chalk and Talk/Assignment/Seminar/ Group Discussion/Case Study

Focus of the Course	Skill Development/ Employability

Semester – I CORE I: PROBLEM SOLVING AND PROGRAMMING IN C							
Semester	**Course Code**	**Course Name**	**Category**	**L**	**T**	**P**	**Credits**
I	25AIU1CA	PROBLEM SOLVING AND PROGRAMMING IN C	CORE	48	12	-	4

Preamble	This course has been designed for students to learn and understand • The fundamental aspects of programming and problem solving • The C language fundamentals • The representation and working of arrays, pointers, functions and files.
Prerequisite	Knowledge on Logical Thinking

Course Outcomes (Cos)		
CO Number	**Course Outcomes (COs) Statement**	**Bloom's Taxonomy Knowledge Level**
CO1	Illustrate the basic principles of programming and problem solving.	K2
CO2	Understand the fundamentals of C Language.	K2
CO3	Implement decision making using branching and looping	K3
CO4	Develop programs using arrays and functions.	K3
CO5	Execute programs using pointers, structures and files.	K3

Mapping with Program Outcomes:					
Cos / POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	✓	✓	✓	✓	✓
CO2	✓	✓		✓	✓
CO3	✓	✓		✓	✓
CO4	✓	✓		✓	✓
CO5	✓	✓		✓	✓

25AIU1CA | PROBLEM SOLVING AND PROGRAMMING IN C

Syllabus

Unit	Content	Hrs	Resources
I	**Introduction:** Types of Programming Languages – High level Languages – Assembly Languages – Machine Level Languages – System Software – Operating Systems – Compiler – Linker and Interpreter. Problem Solving Strategies: Steps involved in problem solving - Algorithms - Flow Charts - Symbols used in Flow Charts - Pseudo Codes – Structured Programming - Sequence – Selection – Repetition – Modular Programming..	12	Text Books/ Reference Books/ NPTEL
II	**C Language Fundamentals:** Introduction to C - Basic Structure of C Program – Constants – Variables – Data Types - Operators – Expressions – Evaluation of Expressions - Operator Precedence and Associativity - Managing the Input and Output – Formatted I/O – Unformatted I/O – Storage classes- Simple programs for logic building.	12	Text Books/ Reference Books
III	**Branching:** Simple if Statement – if-else statement – elseif Ladder – Switch statement – goto, break and continue statements. Looping: while loop – do-while loop -for loop- nested for loop – Pre-processor Directives: Macro substitution – File inclusion – Compiler control directives. Arrays: Introduction – Types of arrays – Declaration and Initialization of Arrays – Dynamic Arrays	12	Text Books/ Reference Books
IV	**Strings:** Declaring and Initializing the string variables – String handling functions. Functions – Need for functions – Elements of functions – Category of functions – Passing arrays to functions - Recursion. Pointers: Understanding Pointers – Declaration and Initialization of pointer variables – Accessing variables through pointers – Pointers and arrays.	12	Text Books/ Reference Books/ NPTEL
V	**Structures:** Defining a structure – Declaring structure variables – Accessing structure members – Array of structures - Structure within structures -Unions. Files: Defining and opening a File – Closing a file – I/O Operations on files - Dynamic memory allocation - Command Line Arguments.	12	Text Books/ Reference Books
	Total	60	

	Note: Case studies related to the above topics to be discussed (Examined Internal only)

Text books	1.	Byron Gottfried, 2018, "Schaum's Outline of Programming with C", 4th Edition, McGraw Hill Education.
	2.	Ashok N. Kamthane, 2009, "Programming and Data Structures", 1st Edition, Pearson Education.
Reference Books	1.	E. Balagurusamy, 2017, "Programming in ANSI C", 7thEdition, TMH.
	2.	H. Schildt, 2000,"C: The Complete Reference", 4th Edition, TMH
	3.	ReemaThareja, 2015, "Programming in C", 2nd Edition, Oxford University Press.
	4.	Anita Goel, Ajay Mittal, 2016,"Computer Fundamentals and Programming in C", 1st Edition, Pearson.

Journal and Magazines	-
E-Resources and Website	https://nptel.ac.in

Learning Method	Chalk and Talk/Assignment/Seminar/ Group Discussion/Case Study

Focus of the Course	Skill Development/ Employability/ Entrepreneurial Development/ Innovations

Semester – I CORE PRACTICAL -I: C PROGRAMMING							
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	25AIU1CP	C PROGRAMMING	CORE	-	-	48	2

Preamble	This course has been designed for students to learn and understand • Obtain strong C programming foundation with hands-on I/O, operators, and control structures. • Implement arrays, functions, pointers, and strings to enhance structured programming skills • Explore structures and dynamic memory allocation for efficient data management.
Prerequisite	Knowledge on Logical Thinking and Problem Solving

Course Outcomes (Cos)		
CO Number	**Course Outcomes (COs) Statement**	**Bloom's Taxonomy Knowledge Level**
CO1	Understand and apply basic I/O operations, operators, and control structures in C	K2
CO2	Implement arrays and functions for structured programming.	K3
CO3	Apply string handling and pointer concepts in C programming	K2
CO4	Analyze structured data representation and dynamic memory management	K3
CO5	Implement file handling and command-line argument concepts for efficient data processing	K3

Mapping with Program Outcomes:					
Cos / POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	✓	✓	✓	✓	✓
CO2	✓		✓	✓	
CO3	✓	✓	✓		✓
CO4	✓	✓	✓	✓	✓
CO5	✓			✓	

25AIU1CP	C PROGRAMMING

S.No	List of Programs
1	Implement programs using I/O Statements.
2	Write programs with Operators in C.
3	Experiments using Conditional Statements.
4	Design programs using Looping Statements.
5	Implement One Dimensional and Two Dimensional Arrays in C.
6	Programs using Functions.
7	Implement the String handling functions in C.
8	Experiments using Pointers and storage classes.
9	Implement programs using Structures.
10	Programs using Dynamic memory allocation.
11	Create files using File handling in C.
12	Programs using Command line arguments.

Texk Books	1.	Ashok N. Kamthane, 2017, "Object Oriented Programming with ANSI and Turbo C++", 3rd Edition, Pearson Education.
	2.	Yedidyah Langsam, Moshe J. Augenstein, Aaron M. Tenenbaum, 2015, "Data Structures Using C and C++", Second Edition, Pearson Education India.

Learning Method	Demonstration/ Hands on Experiments

Focus of the Course	Skill Development/ Employability

Semester – I CORE II: DIGITAL LOGIC DESIGN							
Semester	**Course Code**	**Course Name**	**Category**	**L**	**T**	**P**	**Credits**
I	25CYU1CA	DIGITAL LOGIC DESIGN	CORE	48	-	-	4

Preamble	This course has been designed for students to learn and understand • The fundamental digital logic concepts. • The combinational logic circuits and sequential logic circuits. • The concepts behind memory design and its memory types.
Prerequisite	A basic understanding of mathematics and logical reasoning

Course Outcomes (Cos)		
CO Number	**Course Outcomes (COs) Statement**	**Bloom's Taxonomy Knowledge Level**
CO1	Demonstrate proficiency in binary number representation, base conversions, and operations.	K2
CO2	Understanding the functionality and truth tables of basic logic gates.	K2
CO3	Analyze and optimize the combinational logic circuits.	K2
CO4	Understand the fundamental concepts of flip-flops and registers.	K2
CO5	Analyze the basic concepts of memory hierarchy and its components.	K3

Mapping with Program Outcomes:					
Cos / POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1	✓	✓		✓	
CO2	✓		✓		✓
CO3	✓	✓			✓
CO4	✓	✓		✓	
CO5	✓	✓	✓	✓	✓

25CYU1CA | DIGITAL LOGIC DESIGN

Syllabus

Unit	Content	Hrs	Resources
I	**Number System and Boolean Algebra** Binary Numbers - Number base conversions- Octal and Hexadecimal conversions – Compliments - Binary codes - Decimal codes. Basic Definitions-Boolean functions - Canonical standard forms: Minterms and Maxterms - Sum of Minterms - Product of Maxterms - conversion between canonical forms.	10	Text Book
II	**Logic Gates and Boolean functions** Digital Logic Gates: AND, OR, Inverter, Buffer, NAND, NOT, Exclusive-OR, Exclusive-NOR. The Map Method-Two and three-variable Maps-Four variable Map - Five and Six-Variable Maps - Product of Sum simplification – NAND and NOR Implementation - Don't care conditions.	10	Text Book
III	**Combinational Logic** Adders: Half-Adder, Full-Adder. Subtractors Half-Subtractor, Full-Subtractor. Multilevel NAND Circuits: Universal Gate. Multilevel NOR Circuits: Universal Gate. Binary Parallel Adder- Decimal Adder - BCD Adder. Decoders: Demultiplexers-Encoders - Multiplexer.	10	Text Book
IV	**Sequential Logic** Introduction- Flip-flops-Clocked RS Flip-flop - D Flip-flop - JK Flip-flop - Design of Counters- Registers -Shift registers- Ripple Counters- Synchronous Counters- Error Correcting Codes.	10	Text Book
V	**Memory Organization** Memory Hierarchy- Main memory- Auxiliary memory- Associative Memory- Cache Memory- Virtual memory- Memory Management Hardware.	8	Text Book
	Total	**48**	

Text book	1.	M. Morris Mano, 2019, "Digital Logic and Computer Design", Pearson India Education..
Reference Books	1.	M. Morris Mano, 2022, "Computer System Architecture", 3rd edition, Pearson India Education.
	2.	S. Salivahanan and S Arivazhagan, 2018, "Digital Circuits and Design", 5th Edition, Oxford University Press, Noida.
	3.	Thomas Floyd L., 2015, "Digital Fundamentals", 11th Edition, Pearson Publication Ltd, New Delhi.
	4.	David A. Patterson, John L. Hennessy, 2013, "Computer Organization and Design: The Hardware/Software Interface", Morgan Kaufmann.

Journal and Magazines	-
E-Resources and Website	https://www.youtube.com/channel/UCBkOVp1Cqz4MR0LYR8vKpZg https://www.coursera.org/learn/digital-systems

Learning Method	Chalk and Talk/Assignment/Role Play

Focus of the Course	Skill Development/ Employability

Semester – I IDC: MATHEMATICS FOR COMPUTING - I							
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	25MTU1ID	MATHEMATICS FOR COMPUTING - I	IDC	48	12	-	4

Preamble	This course has been designed for students to learn and understand • the concepts of matrices and linear systems • the technique of obtaining eigen values and eigen vectors • the method of solving linear system of equations
Prerequisite	Knowledge on Basic Mathematics

Course Outcomes (Cos)		
CO Number	**Course Outcomes (COs) Statement**	**Bloom's Taxonomy Knowledge Level**
CO1	define the various terms of matrices and the operations involved in it.	K1
CO2	Discuss the real life applications of linear systems in various fields.	K2
CO3	identify the determinant value of matrices.	K1
CO4	determine the eigen values and eigen vectors through different methods.	K3
CO5	recognize the direct and indirect methods for solving algebraic equations.	K1

Mapping with Program Outcomes:					
Cos / POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**
CO1		√		√	√
CO2	√		√	√	
CO3		√		√	√
CO4	√		√	√	√
CO5	√	√		√	

25MTU1ID	IDC: MATHEMATICS FOR COMPUTING - I

Syllabus

Unit	Content	Hrs	Resources
I	**Systems of Linear Equations:** Introduction to system of linear equations- - linear systems in two and three unknown - augmented matrices and elementary row operations - Gaussian elimination- Matrices and Matrix operations - inverses - algebraic properties of matrices - elementary matrices - method for finding A^{-1}- invertible matrices.	13	Text Book
II	**Matrix Transformations and Applications:** Diagonal matrices - triangular matrices - symmetric matrices - Matrix Transformations - Network Analysis - Electrical Circuits - Balancing Chemical Equations - Polynomial Interpolation - Leontief Input-Output Models.	12	Text Book
III	**Determinants:** Introduction - determinants by cofactor expansion- minors and cofactors - technique for evaluating 2×2 and 3×3 determinants - evaluating determinants by row reduction - elementary row operations - Matrices with proportional rows or columns - properties of determinants - Cramer's rule.	12	Text Book
IV	**Eigenvalues and Eigenvectors:** Definition of eigenvalues and eigenvectors - computing eigenvalues and eigenvectors - Diagonalization - Geometric and Algebraic multiplicity - complex vector spaces - vectors in C^n - differential equations - first order linear systems - solution by diagonalization.	10	Text Book
V	**Solution of Algebraic, Transcendental Equations and Linear Systems:** Introduction - Newton-Raphson method - Direct methods - Matrix inversion method - Gaussian elimination method - Gauss Jordan method - Iterative methods - Gauss Seidel Method - Gauss Jacobi method.	13	Text Book
	Total	60	

	Note: Distribution of marks 80% Problem and 20% Theory

Text book	1.	Howard Anton and Chris Rorres, 2015 "Elementary Linear Algebra with Supplemental Applications", 11th Edition, Wiley India Pvt. Ltd, New Delhi. (Unit I to IV).
	2.	Sastry S.S, 2012, " Introductory methods of Numerical Analysis", Prentice- Hall of India. New Delhi. (Unit V).
Reference Books	1.	Partha Karmakar, Chandan Bikash Das, Pabitra kumar Gouri, 2021 "Introduction to Linear Algebra", 1st Edition, Books and Allied(P) Ltd, Kolkata.
	2.	Gilbert Strang, 2005, "Linear Algebra and its Applications", 4th Edition, Brooks/Cole, Noida.
	3.	Veerarajan T, Ramachandran.T, 2004. "Theory and Problems in Numerical Methods with Programs in C and C++",10th Edition, Tata Mc-Graw Hill Publishing Company Limited, New Delhi.
	4.	Venkataraman M.K. 2004,"Numerical Methods in Science and Engineering", 4th Edition, NPC.

Journal and Magazines	https://www.ijream.org/papers/ICRTET0062.pdf
E-Resources and Website	Matrices: Definition, Properties, Types, Formulas, and Examples (geeksforgeeks.org) https://nptel.ac.in

Learning Method	Chalk and Talk/Assignment/Seminar

Focus of the Course	Skill Development

Semester – I

AECC I: ENVIRONMENTAL STUDIES

Semester	Course Code	Course Name	Category	L	T	p	Credits
I	25MBU1AA	ENVIRONMENTAL STUDIES	AECC	24	-	-	2

Preamble	This course has been designed for students to learn and understand • Multi-disciplinary aspects of Environmental studies • Importance to conserve the biodiversity • Causes of Pollution and its control
Prerequisite	Aware the basics of environmental components

Course Outcomes (Cos)

CO Number	Course Outcomes (Cos) Statement	Bloom's Taxonomy Knowledge Level
CO1	To understand the importance of natural resources in order to conserve for the future	K1
CO2	To impart knowledge on Natural resources and its conservation	K2
CO3	To impart knowledge on Biodiversity and its conservation	K3
CO4	To create awareness on effects, causes and control of air, water, soil and noise pollution etc.,	K3
CO5	To build awareness about sustainable development and Environmental protection	K1

Mapping with Programme Outcomes

Cos/POs	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓	✓	✓	✓
CO2	✓	✓	✓	✓	✓
CO3	✓	✓	✓	✓	✓
CO4	✓	✓	✓		
CO5	✓	✓	✓	✓	✓

25MBU1AA - ENVIRONMENTAL STUDIES
Syllabus

Unit	Content	Hours	E-Contents / Resources
I	Introduction to Environmental studies& Ecosystems: components of environment – atmosphere, hydrosphere, lithosphere and biosphere. Scope and importance - Energy flow in an ecosystem: food chain, food web and ecological succession.	5	Text book and Website
II	Natural Resources: Renewable and Non-renewable Resources: Land Resources and land use - Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. Conflicts over water (international & inter-state). Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs.	5	Text book and Website
III	Biodiversity and Conservation: Global biodiversity hot spots. India as a mega-biodiversity nation; Endangered and endemic species of India. Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.	4	Text book and Website
IV	Environmental Pollution: types, causes, effects and controls; Air, water, soil, chemical and noise pollution. Nuclear hazards and human health risks. Environment Laws: Environment Protection Act; Prevention & Control of Pollution Act – Air & Water. Wildlife Protection Act; Forest Conservation Act; Indigenous knowledge used for sustainable forest use.	5	Text book and Website
V	Environmental ethics: Role of Indian and other religions and cultures in environmental conservation. Role of Information Technology in Environment and human health. Role of the Colleges, Teachers and Students in village adoption towards clean, green and make in villages in various aspects.	5	Text book and Website
	Total	**24**	

Text 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.*
Reference Books	1.	*Gleeson, B. and Low, N. (eds.)* 1999. **Global Ethics and Environment, London, Routledge**.
	2.	*Gleick, P.H.* 1993. **Water in Crisis. Pacific Institute for Studies in Dev., Environment & Security.** *Stockholm Env. Institute, Oxford Univ. Press.*
	3.	*Groom, Martha J. Gary K. Meffe, and Carl Ronald carroll.* 2006, **Principles of Conservation Biology**. *Sunderland: Sinauer Associates.*
	4.	*Grumbine, R. Edward, and Pandit, M.K.* 2013. **Threats from India's Himalaya dams. Science,** *339: 36-37.*

Journal and Magazines	https://www.hzu.edu.in/bed/E%20V%20S.pdf
E-Resource and Websites	https://www.ugc.gov.in/oldpdf/modelcurriculum/env.pdf

Learning Methods	Chalk and Talk/ Seminar/ Assignment

Focus of the Course	Skill Development/Employability/Social Awareness and Environment