

(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore)
(Approved by Government of Tamil Nadu & Accredited by NAAC with A++ Grade (3rd Cycle - 3.64 CGPA)
Dr. N.G.P. – Kalapatti Road, Coimbatore – 641 048, Tamil Nadu, India
Web: www.drngpasc.ac.in | Email: info@drngpasc.ac.in | Phone: +91-422-2369100

REGULATIONS 2024-25 for Under Graduate Programme (Outcome Based Education model with Choice Based Credit System)

Bachelor of Science in Computer Technology Degree

(For the students admitted during the academic year 2024-25 and onwards)

Programme: B.Sc. (Computer Technology)

Eligibility

Candidates for admission to the first year of the Bachelor of Science (Computer Technology)

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 are permitted to appear and qualify with any one of the following subjects: Mathematics / Computer Science / Statistics / Business Mathematics 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. Demonstrating a significant understanding the Key Concepts of various Computer technologies.
- 2. To stimulate the interest among the learners on various technologies through Lab sessions.
- 3. Inculcating professional competence in technologies, software design, database and Quality Assurance.
- 4. To facilitate the learners to develop skills to meet the requirements of the corporate.
- 5. To develop competency in research and in current technologies.

PROGRAMME OUTCOMES

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

PO Number	PO Statement
PO1	Capability to intend, execute and assess a computer based system on par with the industry standards through the ability to identify the problem and capability to provide a solution
PO2	Correlate the knowledge of mathematics and computing in the field of project development and apply the obtained knowledge in real – time platform using latest tools and technologies
PO3	Ability to excel in the field of IT and ITES by enduring learning to accomplish their goals
PO4	Improve the ability to communicate effectively and to work as individual or team in the industry / enterprise / community
PO5	Understand proficient, ethical, and social issues and community responsibilities

B.Sc. Computer Technology 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
	Core (Credits 4)	11	11 x 4 = 44	I to VI
	Core (Credits 3)	2	$2 \times 3 = 6$	III & VI
	Core Practical (Credits 5) (Embedded)	2	2 x 5 = 10	III to IV
III (108 Credits)	Core Project (Credits 4)	1	1 x 4 = 4	VI
(100 Grednes)	Core Practical (Credits 2)	3	3 x 2 = 6	I, II & V
	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, IV, V&V
	Industrial Training	1	1 x 2=2	V
	Environmental Studies (AECC)	1	2	I
IV (8 Credits)	Basic Tamil/Advance Tamil/Human Rights, & Women's Rights (AECC)	1	2	II
(o Cicuis)	Innovation & IPR/ Innovation, IPR & Entrepreneurship (AECC)	1	2	VI
	Generic Elective (GE)	1	1 x 2=2	V
V (2 Credits)	NSS/NCC/YRC/RRC/Yoga/Sports	-	2 x 1=2	I & II
	TOTAL CREDITS		142	

CURRICULUM B. Sc. Computer Technology

Course Code	Course	Course Name	Y	T			ruction ours	Exam	M	ax Mar	ks	C 114
	Category		L	Т	P	Week	Total	(h)	CIA	ESE	Total	Credi
First Semester												
Part- I												
24TLU1TA		Tamil–I										
24TLU1HA	T	Hindi-I	1,				60			12.7		
24TLU1MA	Language-I	Malayalam-I	4	1	-	5	60	3	25	75	100	3
24TLU1FA		French –I									9 3	Jk Cu
Part– II		AL AV										
24ELU1EA	Language-II	English -I	4	-	1	5	60	3	25	75	100	3
Part– III												
24AIU1CA	Core - I	Problem Solving and Programming in C	4	1	-	5	60	3	25	75	100	4
24CTU1CP	Core Practical - I	Programming in C	-		4	4	48	3	40	60	100	2
24ITU1CA	Core -II	Digital Computer Fundamentals	4	=	-	4	48	3	25	75	100	4
24MTU1IC	IDC -I	Numerical Methods and Statistics	4	1	-	5	60	3	25	75	100	4
Part-IV												
24MBU1AA	AECC-I	Environmental Studies	2	-	-	2	24		50	-	50	2
Part-V												
24CTU1XA	Extension Activity	NSS/NCC/ YRC/RRC/ Yoga/Sports	-	-			-		50		50	1
	Total		22	3	5	30	360	-		-	700	23

Course Code	Course	Course Name	L	T	P		ruction ours	Exam	N	Iax Ma	ırks	Cr
Course Code	Category		L	r	P	Week	Total	(h)	CIA	ESE	Total	di
Second Semest	ter											
Part - I	T				_	1			1			_
24TLU2TA		Tamil–II										
24TLU2HA	Language - I	Hindi-II	4	1	_	5	60	3	25	75	100	3
24TLU2MA	Language	Malayalam-II				3	00	3	23	13	100)
24TLU2FA		French -II										
Part – II												
24ELU2EA	Language - II	English -II	4	-	1	5	60	3	25	75	100	3
Part – III							7 -					
24CAU2CA	Core - III	Data Structures	4	1	-	5	60	3	25	75	100	4
24CSU2CA	Core - IV	Object Oriented Programming with C++	4	-	-	4	48	3	25	75	100	4
24CTU2CP	Core Practical-II	Programming in Data Structures and C++	-		4	4	48	3	40	60	100	2
24MTU2IC	IDC -II	Discrete Mathematics	4	1	-	5	60	3	25	75	100	4
Part - IV							34					
24TLU2AA		Basic Tamil										
24TLU2AB	AEGG H	Advanced Tamil	0						50		50	
24CRU2AA	AECC - II	Human Rights and Women's Rights	2	1	1	2	24		50	-	50	2
Part - V												
24CTU2XA	Extension Activity	NSS/NCC/ YRC/RRC/ Yoga/Sports/ Clubs	-		1	-	-		50		50	1
		Total	22	3	5	30	360	-	_	-	700	23

BoS Chairman/HoD
Department of Computer Technology
Dr. N. G. P. Arts and Science College

Coimbatore – 641 048 Dr.NGPASC

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B.Sc. Computer Technology (Students Admitted during the AY 2024-25)

Course Code	Course			(FE)		Instr He	uction ours	Exam	N	Aax Ma	rks	
Course Cour	Category	Course Name	L	Т	P	Week	Total	(h)	CIA	ESE	Tota	Credit
Third Semeste	er										July 1	10.77
Part – I												
24TLU3TA		Tamil - III										
24TLU3HA	Language-I	Hindi-III	3	1	1		40	2	25	7.5	100	2
24TLU3MA	Language-1	Malayalam-III	3	1	-	4	48	3	25	75	100 .	3
24TLU3FA		French -III		-								
Part – II												
24ELU3EA	Language-II	English - III	3	1	-	4	48	3	25	75	100	3
Part – III												
24CAU3CA	Core - V	Database Management Systems	4	-	-	4	48	3	25	75	100	4
24CTU3CM	Core Practical-III	Java Programming	3	-	4	7	84	3	40	60	100	5
24CSU3CA	Core -VI	Operating Systems	3		-	3	36	3	25	75	100	3
24CTU3SP	SEC Practical -I	SQL Programming	-	-	4	4	48	3	40	60	100	2
24BPU3IA	IDC -III	Corporate Culture	4	-	-	4	48	3	25	75	100	4
	Total		20	2	08	30	360		_		700	24

	Course			m			uction ours	Exam	N	Iax Ma	arks	Cre
Course Code	Category	Course Name	L	Т	P	Week	Total	(h)	CIA	ESE	Total	dits
Fourth Semes	ter											
Part – I						,					11. 2	
24TLU4TA		Tamil -IV		, -						111	100	
24TLU4HA	т т	Hindi-IV	3	1	7=	4	48	3	25	75	100	3
24TLU4MA	Language-I	Malayalam-IV	3	1	- (5)	4	40	3	23	15	100	
24TLU4FA		French –IV										V
			Pa	rt – II								
24ELU4EA	Language-II	English -IV	3	1	- V <u>-</u> -	4	48	3	25	75	100	3
			Pa	rt – II	I		m,n.v	4				
24CTU4CA	Core -VII	Computer Networks	4	1	-	4	48	3	25	75	100	4
24CTU4CB	Core-VIII	Web Application Development	3	-	-	3	36	3	25	75	100	3
24CAU4CM	Core Practical -IV	Python Programming	3	-	4	7	84	3	40	60	100	5
24CTU4SP	SEC Practical -II	Web Programming	-	-	4	4	48	3	40	60	100	2
24BIU4IB	IDC -IV	Social Media Marketing	4	-	_	4	48	3	25	75	100	4
	Total		20	2	08	30	360	-	-	-	700	24

Course Code	Course	Course Name	L	Т	P		uction ours	Exam	N	Iax Mar	ks	Cred
Course Coue	Category	Course 1 tame			•	Week	Total	(h)	CIA	ESE	Total	ts
Fifth Semeste	r											a Aus
Part–III												
24CTU5CA	Core – IX	Software Engineering and Testing	4	1	_	5	60	3	25	75	100	4
24ITU5CB	Core – X	Cyber Security and Ethics	4	1		5	60	3	25	75	100	4
24CTU5CB	Core – XI	PHP Programming	4	1		5	60	3	25	75	100	4
24CTU5CP	Core Practical -V	Programming in PHP	-	-	4	4	48	3	40	60	100	2
24CTU5SP	SEC Practical – III	Android Application Development	-	*	4	4	48	3	40	60	100	2
24CTU5DA		Data Mining Techniques										
24CTU5DB	DSE –I	Distributed Computing	4	1	→)	5	60	3	25	75	100	4
24CTU5DC		Service Oriented Architecture										
24CTU5TA	IT	Industrial Training	-	-		-	-	3	40	60	100	2
Part-IV	2			511								
	GE		2	-	-	2	24		50	•	50	2
	Total		18	4	8	30	360		-	-	750	24

10 LT 1500-	Course	ye ye				Instru Ho		Exam	M	ax Marl	KS	Credi
Course Code	Category	Course Name	L	Т	P	Week	Total	(h)	CIA	ESE	Total	ts
Sixth Semeste	r									. '		
Part–III												
24CTU6CA	Core -XII	Network Programming	4	-	-	4	48	3	25	75	100	4
24CTU6CB	Core -XIII	Blockchain Technology Essentials	4	_	-	4	48	3	25	75	100	4
24CTU6SP	SEC Practical-IV	Analytics using R	-	-	4	4	48	3	40	60	100	2
24CTU6CV	Core – XIV	Project Work	-	-	8	8	96	-3	40	60	100	4
24CTU6DA		Artificial Intelligence and Machine Learning Techniques					in co					
24CTU6DB	DSE –II	Cloud Computing and Virtualization	4	- T	-	4	48	3	25	75	100	4
24CTU6DC		Fundamentals of IoT										
24CTU6DD	я — , , , , , , , , , , , , , , , , , ,	Big Data Tools and Technologies								E-		
24CTU6DE	DSE –III	Fault Tolerant Systems	4		-	4	48	3	25	75	100	4
24CTU6DF		Edge Computing									I ₂ II	
				Par	t-IV							
24BCU6AA	AECC-III	Innovation, IPR and Entrepreneurship	2	- .	- 1	2	24	-	50	_	50	2
	Total		18	-	12	30	360		-	-	650	24
	*Grand To	tal									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	24CTU5DA	Data Mining Techniques
2	24CTU5DB	Distributed Computing
3	24CTU5DC	Service Oriented Architecture

Semester VI (Elective II)

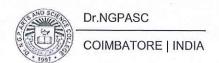
List of Elective Courses

S. No.	Course Code	Name of the Course
1	24CTU6DA	Artificial Intelligence and Machine Learning Techniques
2	24CTU6DB	Cloud Computing and Virtualization
3	24CTU6DC	Fundamentals of IoT

Semester VI (Elective III)

List of Elective Courses

S. No.	Course Code	Name of the Course
1	24CTU6DD	Big Data Tools and Technologies
2	24CTU6DE	Fault Tolerant Systems
3	24CTU6DF	Edge Computing



GENERIC ELECTIVE COURSES(GE)

The following is the course offered under Generic Elective Course

Semester V

S. No.	Course Code	Name of the Course
1	24CTU5GA	Web Development Essentials

EXTRA CREDIT COURSES

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

Semester III

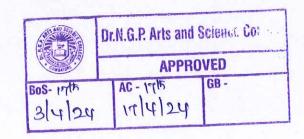
S. No.	Course Code	Name of the Course
1	24CTUSSA	Multimedia and Animation
2	24CTUSSB	Social Networking

CERTIFICATE PROGRAMMES

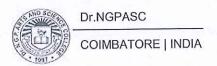
The following are the programmes offered to earn extra credits:

S. No. Programme Code and Name		Course Code	Course name		
		23DCS1A	Fundamentals of Cyber Security		
1	4CT6A Diploma in	23DCS1B	Network Security and Management		
1	Cyber Security	23DCS1P	Network Security		
		23DCS1Q	Offensive and Defensive Security		

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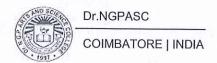




Preamble	மொழிப்பாடங்களின் வாயிலாக தமிழரின் பண்பாடுநாகரீகம், பகுத்தறிவு ஆகியவற்றை அறியச் செய்தல்		
	கலை மற்றும் மரபுகளை அறியச் செய்தல்		
	மாணவர்களின் படைப்பாக்கத்திறன்களை ஊக்குவித்தல்		
Prerequisite	தமிழ் மொழி எழுதி படிக்கும் திறன்		

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)	КЗ		
CO4	சூழலியல் ஆக்கம் (Ecology)	K4		
CO5	மொழி அறிவு (Tamil knowledge)	K4		

Mapping with	Program Out	tcomes:			
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1		1	✓		✓
CO2	✓			✓	
CO3	10000	of the out of the			/
CO4	O	Wingga	/		
CO5	1	3 30 - 34	262	✓	✓



24TLU1TA- TAMIL - I

Unit	Content	Hrs	Resources
1	மறுமலர்ச்சிக் கவிதைகள் 1. இலக்கிய வரலாறு -மறுமலர்ச்சிக் கவிஞர்களின்தமிழ்ப்பணிகள் 2. பாரததேசம்- பாரதியார் 3. படி - பாரதிதாசன் 4. தமிழரின் பெருமை- நாமக்கல்கவிஞர் 5. தமிழ்க் கொலை புரியாதீர்- புலவர் குழந்தை 6. திரைத்தமிழ்	13	தமிழ்மொழிப் பாடம் முதற்பருவம் 2024-2025 https://www.youtube.co m/watch?v=Up55uhkk9zl
	அ) 'விஞ்ஞானத்த வளர்க்கப் போறண்டி' எனத்தொடங்கும் பாடல் - உடுமலை நாராயண கவி ஆ) 'சும்மா கிடந்த நிலத்தை' எனத்தொடங்கும் பாடல் - பட்டுக்கோட்டை கல்யாண சுந்தரனார் இ) 'சமரசம் உலாவும் இடமே' எனத்தொடங்கும் பாடல் -மருதகாசி ஈ) 'உன்னை அறிந்தால்' எனத்தொடங்கும் பாடல்-		
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	தமிழ்மொழிப் பாடம் முதற்பருவம் 2024-2025 https://www.youtube.co m/watch?v=dX9ZaNJMa co
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	தமிழ்மொழிப்பா டம் முதற்பருவம் 2024-2025 https://www.youtube.co m/watch?v=DLabokqWE
4	1.இலக்கிய வரலாறு-சிறுகதையின் தோற்றமும் வளர்ச்சியும் 2. கனகாம்பரம்- கு.ப.ராஜகோபாலன் 3. கடிதம்- புதுமைப்பித்தன்	14	தமிழ்மொழிப் பாடம் முதற்பருவம்

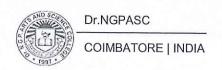
	Total	60	18
	வரை) 2.சிறுகதை - எழுதுதல் (குறைந்தது 3 பக்கங்கள்)		m/watch?v=FchTlqAtwB U https://www.youtube.co m/watch?v=gCP3gC- JQU4 https://www.youtube.co m/watch?v=p9QOHD12Y eo
5	7.வேட்கை - சூர்யகாந்தன் பயிற்சிப் பகுதி அ. இலக்கணம் 1. வல்லின ஒற்று மிகும், மிகா இடங்கள் - ஒற்றுப்பிழை நீக்கிஎழுதுதல் 2. ர,ற-ல,ழ,ள - ண,ந,னவேறுபாடு - ஒலிப்பு நெறி, சொற்பொருள் வேறுபாடு அறிதல் ஆ. படைப்பாக்கம் 1. கவிதை- எழுதுதல் (15 வரிகள் முதல் 30 வரிகள்	10	தமிழ்மொழிப் பாடம் முதற்பருவம் 2024-2025 https://www.youtube.co m/watch?v=B3wfM0QL6 N8
	4. பொம்மை - ஜெயகாந்தன் 5. காய்ச்சமரம் - கி. ராஜநாராயணன் 6. காட்டில் ஒருமான்- அம்பை		2024-2025 https://www.youtube.co m/watch?v=78u7iTN3OU

Text book	1.	தமிழ் மொழிப்பாடம் – 2024-2025தொகுப்பு: தமிழ்த்துறை, டாக்டர்என்.ஜி.பி. கலைஅறிவியல்கல்லூரி, 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	இலக்கியஇதழ்கள்
E-Resources and Website	https://www.tamilvu.org

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

oment / Employability	
/e10]	retopment / Employability



d self-	1		Semester – I				
			HINDI – I				
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	24TLU1HA	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 O	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	К3			
CO5	Apply the power of creative reading	K4			

Mapping with	Program Out	comes:			
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1		✓	✓		✓
CO2	✓			✓	
CO3		1			✓
CO4			✓		
CO5	/			✓	√

24TLU1HA - HINDI - I

Unit	Content	Hrs	Resources
1	गद्य — नूतनगद्यसंग्रह (जयप्रकाश)पाठ1- रजियापाठ2-	13	
	मक्रीलपाठ3- बहतापानीनिर्मला		Text Book
	पाठ४- राष्ट्रपितामहात्मागाँधी		
2	कहानीकुंज- डाँवी.पी. 'अमिताभ'(पाठ 1-4)	13	Text Book
3	व्याकरण : शब्दविचार (संज्ञा, सर्वनाम,विशेषण)	12	Text Book
4	अनुच्छेदलेखन	12	Text Book
5	अनुवादअभ्यास-III (केवलअंग्रेजीसेहिन्दीमें) (पाठ1 to 10)	10	Text Book
	Total	60	

Text books	1.	प्रकाशक: सुमित्रप्रकाशन 204 लीलाअपार्ट्मेंट्स, 15 हेस्टिंग्सरोड'अशोकनगरइलाहाबाद- 211001
	2.	प्रकाशकः गोविन्दप्रकाशनसदरबाजार, मथुराउत्तरप्रदेश-281001
	3.	पुस्तक: व्याकरण प्रदिप – रामदेवप्रकाशक: हिन्दी भवन 36 टेगोर नगर इलाहाबाद- 211024
	4.	पुस्तक: व्याकरण प्रदिप – रामदेवप्रकाशक: 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	
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Focus of the Course	Skill Development / Employability	
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		Semes	ter – I				
		MALAYA	ALAM- I				
Semester	Course Code	Course Name	Category	L	Т	P	Credits
I	24TLU1MA	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	К3		
CO4	Apply creative ability	К3		
CO5	Build the power of creative reading	K4		

Mapping with Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1		✓ ✓	1		✓
CO2	✓			✓	
CO3		1			✓
CO4			/		
CO5	✓		J	✓	✓

24TLU1MA - MALAYALAM - I

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
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Focus of the Course	Skill Development / Employability	
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			emester – I RENCH - I				
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	24TLU1FA	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 O	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 Out	comes:			Autoria, Toronto
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1		✓	✓		✓
CO2	✓			1	
CO3		1			✓
CO4	T T T		✓		
CO5	✓	, a		✓	✓

24TLU1FA - FRENCH - I

Unit		Co	ontent	Hrs	Resources
1	Objectifs de Communic ation	Tâche	Activités de réception et de production orale	14	Text book Salut I
	 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 		Page 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	Exprimers es 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	Organiser un programme d'activités pour accueillir une personne importante	Comprendre une personne demande un service à quelqu'un. Demanderà quelqu'un de faire quelque chose. • Imaginer et raconter au passé à partir de situations dessinées.	10	Text book Autoévalua tion du module I Page 40 – Préparation au DELF A1 page 42 Tu veux bien page 46
	bien?				
5	Practical Appl Make in Own S			10	177
-	2	Т	otal	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		
Journal an Magazines		
E-Resource and Websit		
1		
Learning N	1eth	Lecture/ Tutorial / Student Seminar/GD/Assignment
Focus of th	e Co	urse Skill Development / Employability

Semester - I

ENGLISH - I

Semester	Course Code	Course Name	Category	L	T	P	Credits
I	24ELU1EA	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

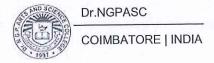
Course Outcomes (COs)

CO Number	Course Outcomes (COs) Statement	Bloom'sTaxonomy Knowledge Level	
CO1	Identify the various aspects in poetry	K2	
CO2	Infer linguistic and non-linguistic features of the context for understanding and interpreting	К3	
CO3	Construct sentences and convey messages effectively in real life situations	К3	
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	К3	

Mapping with Program Outcomes:						
COs / POs	PO1	PO2	PO3	PO4	PO5	
CO1	✓	· ·	✓	W		
CO2		✓	√			
CO3	✓		✓	✓	✓	
CO4	· · · · · · · · · · · · · · · · · · ·	✓		✓	-	
CO5	✓		✓		✓	

24ELU1EA - ENGLISH - I Syllabus

Unit	Content	Hours	E-Contents / Resources	
	Genre Studies Mathew Arnold: Dover Beach- Author's Biography- title indications- outline- paraphrasing the poem- context of poem- form- poetic devices- enjambment- techniques— Annotations			
	NiyiOsundare: Our Earth Will Not Die- Author's Biography- title indications-outline- paraphrasing the poem- context of poem- form- poetic devices-enjambment- techniques— Annotations			
I	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	12	Text Book	
	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			
77.3	Listening Skills			
П	Listening vs. hearing- Types of listening, Tips to enhance Listening Skills, Non-verbal and Verbal signs of active listening- Comprehensive Listening- Listening to prerecorded 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	
A PE	Speaking Skills			
ш	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.or	
	Reading Skills	10	britishcouncil.org	
IV	Study Skills: Skimming and Scanning-Reading different kinds of texts- Types of reading-Developing a good	12	cambridgeenglish.or	

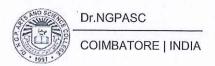


	1.	https://www.poetryfoundation.org/poems/43588/dover-beach.
	2.	https://portal.abuad.edu.ng/lecturer/documents/1586771577our_earth_will_not_die.doc
	3.	http://l-adam-mekler.com/chucktwo.pdf.
Text Books	4.	https://offthewallplays.com/wp-content/uploads/2017/04/1_pdfsam_A-famed-life-full-with-title-page.pdf.
	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	https://academic.oup.com/journals
Magazines	
E-Resources and	https://learnenglish.britishcouncil.org/
Website	https://www.cambridgeenglish.org/learning-english/activities-for-learners/

Learning Method	Chalk and Talk/Assignment/Seminar/ Interactive session

Focus of the	Skill Development/Employability
Course	



$\label{eq:Semester-I} \textbf{Semester-I} \\ \textbf{CORE-I: PROBLEM SOLVING AND PROGRAMMING IN C} \\$

Semester	Course Code	Course Name	Category	L	Т	P	Credits
I	24AIU1CA	PROBLEM SOLVING AND PROGRAMMING IN C	CORE	48	12	-	4

Preamble	the C language fundamentals	 the fundamental aspects of programming and problem solving the C language fundamentals 			
Prerequisite Knowledge on Logical Thinking					
Course Out	comes (COs)				
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level			
CO1	Illustrate the basic principles of programming and problem solving	К2			
CO2	Understand the fundamentals of C Language	K2			
CO3	Implement decision making using branching and looping.	K3			
CO4	Develop programs using arrays and functions	К3			

pping with Prog	ram Outcomes:				
COs / POs	PO1	PO2	PO3	PO4	PO5
CO1	√	√	1	√	
CO2	✓	√	1	√	
CO3	1	√	✓ /	n Hall Y	
CO4	✓	1	✓		
CO5	√	1	√		

Execute programs using pointers, structures and files

CO5

K3

24AIU1CA - CORE: PROBLEM SOLVING AND PROGRAMMING IN C Syllabus

Unit	Content	Hours	E-Contents / 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 Book/ Reference Book/ NPTEL
п	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 Book/ Reference Book
ш	Branching: Simple if Statement – if-else statement – elseif Ladder – Switch statement – goto, break and continue statements. Looping: while loop – do-while loop –for loopnested 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 Book/ Reference Book
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 Book/ Reference Book/ 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 Book/ Reference Book
	Total	60	

Text Books	1.	Ashok N. Kamthane, 2009, "Programming and Data Structures", 1st Edition, Pearson Education.					
	2.	Byron Gottfried, 2018, "Schaum's Outline of Programming with C", 4th Edition, McGraw Hill Education.					
as beginning 25	1.	. Balagurusamy, 2017, "Programming in ANSI C", 7thEdition, TMH.					
Reference	2.	H. Schildt, 2000, "C: The Complete Reference", 4th Edition, TMH					
Books	3. Reema Thareja, 2015, "Programming in C", 2nd Edition, Oxford University P						
	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

	The state of the Continue Platforms
Learning Methods	Lecture, Demonstration, Online Compilers, Coding Platforms

Focus of the	Skill Development/Employability
Course	

24CTU1CP

CORE PRACTICAL: PROGRAMMING IN C

SEMESTER I

Total Credits:

2

Total Instructions Hours:

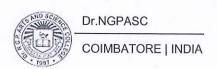
48 h

S.No	Contents					
1	Program to implement basic structure of C with flowchart.					
2	Program to implement formatted and unformatted I/O functions with flowchart.					
3	Program to implement types of number conversion.					
4	Program to implement i) Conditional Operator ii) Bitwise Operator iii) Type Conversion.					
5	Program to implement various decision making statements.					
6	Program to implement iteration statements.					
7	Program to implement predefined macros.					
8	Program to compute various types of matrix using array.					
9	i) Program to implement string handling functions.ii) Program to implement category of functions.					
10	Program to find the palindrome using pointer.					
11	Program to implement array of structure.					
12	Program to implement file operation with command line argument.					

Note: Out of 12 programs 10 Mandatory

References:

1.	Yashavant Kanetkar, 2022, "Let us C:Authentic guide to C Programming", 19th Edition, BPB Publications.
2.	Byron Gottfried, 2018, "Schaum's Outline of Programming with C", 4th Edition, McGraw Hill Education.
3.	www.codechef.com/practice/c
4.	www.hackerrank.com/domains/c



Semester - I Core - II : DIGITAL COMPUTER FUNDAMENTALS

Semester	Course Code	Course Name	Category	L	Т	P	Credits
I	24ITU1CA	DIGITAL COMPUTER FUNDAMENTALS	Core	48	_	-	4

Preamble	This course has been designed for students to learn and understand
	the concepts of number system and circuits
	the principles of logic gates and memory
	 the design and architecture of microprocessors and microcontrollers
Prerequisite	Knowledge on basic digital system

Course Outcomes (COs)

CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Understand the types of number systems, Boolean Algebra	K2
CO2	Understand and analyze Logic gates	K2
CO3	Illustrate the concepts of combinational circuits	K3
CO4	Understand the different types of sequential logic and memory organization	K2
CO5	Understand the architecture of microprocessors and microcontrollers	K2

		PO2	PO3	PO4	PO5
CO1		✓	✓		
CO2	✓	1	✓		
СОЗ	✓	✓	1		
CO4	✓	✓	✓		

24ITU1CA - CORE: DIGITAL COMPUTER FUNDAMENTALS Syllabus

Unit	Content	Hours	E-Contents / Resources
Ι	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 Minterms - Conversion between canonical forms.	10	Text Book 1 / Reference Book1
п	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 - Don't care conditions.	08	Text Book 1 / Reference Book 3
Ш	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 1 / Reference Book1
IV	Introduction- Flip-flops - Clocked RS Flip-flop - D Flip-flop - JK Flip-flop - Design of Counters - Registers -Ripple Counters. The Memory Unit - Random Access Memories: Integrated-circuit Memory - Magnetic-core Memory.	10	Text Book – 1 & NPTEL
V	Introduction — Microprocessor — Microcomputer — Architecture of Microprocessors — History— Evolution — Microprocessor Applications — Evolution of Microcontrollers — Application of Microcontrollers. Architecture of 8085 Microprocessor — Pin diagram of 8085 Microprocessor.	10	Text Book 2 / Reference Book 4 & You Tube Videos
	Total	48	

t .	1.	M. Morris Mano, 2019, "Digital Logic and Computer Design", Pearson India Education.
Text Books	2.	Soumitra Kumar Mandal, 2018, "Microprocessors and Microcontrollers – Architecture, Programming and Interfacing using 8085, 8086, 8051", 15th Edition, Tata Mc Graw Hill Education.
	1.	S. Salivahanan and S Arivazhagan, 2018,"Digital Circuits and Design", 5th Edition, Oxford University Press, Noida
Reference	2.	Thomas Floyd L., 2015, "Digital Fundamentals", 11th Edition, Pearson Publication Ltd, New Delhi
Books	3.	M Morris Mano, 2016, "Digital Logic and Computer Design", 5th edition, Pearson
	4.	Aditya P Mathur, 2016, "Introduction to Microprocessor", 3rd Edition, McGraw Hill Education.

Journal and Magazines	International Journal of (https://journal.uob.edu.bh/handle/12345/https://www.pcmag.com/	Computing 6789/12?id=a	and bout	Digital	System-
E-Resources and Website	https://nptel.ac.in https://www.coursera.org/learn/digital-s https://www.nesoacademy.org/ec/05-dig		<u>cs</u>		

Learning Methods	Lecture/Simulation/Demo/Mind Mapping	
Focus of the	Skill Development/Employability	

Semester - I IDC 1: NUMERICAL METHODS AND STATISTICS

Semester	Course Code	Course Name	Category	L	Т	P	Credits
I	24MTU1IC	NUMERICAL METHODS AND STATISTICS	IDC	48	12	-	4

Preamble	This course has been designed for students to learn and understate the method of solving linear system of equations the relation between two attributes and measure their the method of checking the validity of parameters the	efficiency
Prerequisite		
	comes (COs)	
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Recognize the direct and indirect methods for solving algebraic equations	K1
000		

Number		Level
CO1	Recognize the direct and indirect methods for solving algebraic equations	K1
CO2	Discuss the method of solving differential and integral problems	K2
CO3	Define the parameters of central tendencies and dispersion.	K1
CO4	Demonstrate the applications of correlation and regression	K2
CO5	Analyze the validity of the values of parameters through hypothesis testing.	K3

pping with Prog	ram Outcomes:				
COs / POs	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓		✓	
CO2	✓	√		✓	
СОЗ	✓	✓		✓	
CO4	✓	✓		✓	
CO5	✓	✓		1	

24MTU1IC - IDC: NUMERICAL METHODS AND STATISTICS Syllabus

Unit	Content	Hours	E-Contents / Resources
I	Solution of Algebraic, Transcendental and Linear systems of Equations: 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
п	Interpolation, Numerical Differentiation and Integration: Introduction - Finite difference - Newton's formula for forward and backward interpolation — Interpolation with unevenly spaced points: Lagrange's interpolation — Numerical differentiation - maximum and minimum values of a tabulated Function - Numerical integration - Trapezoidal rule - Simpson's 1/3 Rule - Simpson's 3/8 Rule.	12	Text Book & Reference Book
ш	Classification, Measures of Central tendency and Dispersion: Frequency distribution - Characteristics of a good measure of central tendency - Mean - Arithmetic Mean - pooled mean - Geometric Mean - Harmonic Mean - Median - Mode. Measures of Dispersion - purposes - properties -Range - Inter quartile range - Mean deviation - Variance - Standard Deviation - coefficient of variation.	13	Text Book
IV	Correlation and Regression: Scatter diagram - Least square method of fitting a regression line - properties - regression line of X on Y- Correlation methods - determination of correlation by graphical method -Correlation Coefficient - Correlation in grouped bivariate data - relationship between correlation coefficients and regression coefficient - Rank correlation.	11	Text Book & NPTEL
V	Test of Significance and Chi-square Test: Test of hypothesis for population variance -two types of error - level of significance - critical region - one and two tailed test - size and power of a test -randomized test - non-randomized test - degrees of freedom - student's t-test - test of equality of two population means - paired t- test Chi-square Test: test of hypothesis for population variance - test of goodness of fit - test in one way classification - Contingency table - Test of independence of factors - Yate's correction.	11	Text Book & You Tube Videos
7/	Total	60	

Note: 20% Theory and 80% Problem

Text Book	1.	Sastry S.S., 2012, "Introductory methods of Numerical Analysis", Prentice-Hall of India, New Delhi (Unit I to II)
	2.	Agarwal B L, 2013, Basic Statistics, New age International (P) Limited publishers, New Delhi. (Unit III to V).
Reference Books	1.	Gupta C.B. and Vijay Gupta, 2007,"Introduction to Statistical Methods", S.Chand & Co, New Delhi
	2.	Sanchetti D.C. Kapoor, V.K. 2010. Statistic, S.Chand & Co, New Delhi
	3.	Venkataraman M K, 2004,"Numerical Methods in Science and Engineering", 4 th Edition, NPC.
	4.	Veerarajan T, Ramachandran T, 2004, "Theory and Problems in Numerical Methods With Programs in C and C++", 10 th Edition, Tata Mc- Graw Hill Publishing Company Limited, New Delhi.

Journal and Magazines	https://www.worldscientific.com/worldscinet/bms
E-Resources and Website	https://nptel.ac.in

Learning Method	Chalk and Talk/Assignment/Seminar
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Focus of the	Skill Development/Employability	
Course		

Semester – I

AECC I: ENVIRONMENTAL STUDIES

Semester	Course Code	Course Name	Category	L	T	P	Credits
I	24MBU1AA	ENVIRONMENTAL STUDIES	AECC	24	-	1-	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 Outcon	nes (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	К3				
CO4	To create awareness on effects, causes and control of air, water, soil and noise pollution etc.,	K4				
CO5	To build awareness about sustainable development and Environmental protection	K1				

Cos/POs	PO1	PO2	PO3	PO4	PO5
CO1				✓	✓
CO2				✓	/
CO3				✓	1
CO4				✓	✓
CO5				✓	/

24MBU1AA - AECC: ENVIRONMENTAL STUDIES Syllabus

Unit	Content	Hours	E-Contents / Resources
Ι	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
Ш	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;	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	

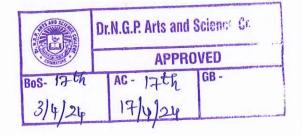
Text Book	1. Carson, R. 2002. Silent Spring. Houghton Mifflin Harcourt
	2. Gadgil, M., & Guha, R.1993. This Fissured Land: An Ecological History
	of India. Univ. of California Press.
	1. Gleeson, B. and Low, N. (eds.) 1999. Global Ethics and Environment
	London, Routledge.
	2. Gleick, P.H. 1993. Water in Crisis. Pacific Institute for Studies in Dev.
Reference	Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.
Books	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	
	Chalk and Talk/ Seminar/ Assignment	

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

BoS Chairman/HoD
Department of Computer Technology
Dr. N. G. P. Arts and Science College
Coimbatore – 641 048





11			Semester – II				
		LAN	GUAGE: TAMIL	- II			
Semester	Course Code	Course Name	Category	L	T	P	Credits
II	24TLU2TA	TAMIL - II	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)	К3		
CO4	சூழலியல் ஆக்கம் (Ecology)	K4		
CO5	மொழி அறிவு (Tamil knowledge)	K4		

Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1		✓	✓		✓
CO2	✓	×		✓	
CO3	e selv	✓			✓
CO4	1		1		Di-
CO5	✓			✓	✓

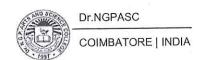
24TLU2TA LANGUAGE: TAMIL - II

Unit	Content	Hrs	Resources
1	அற இலக்கியம்		
	1. இலக்கிய வரலாறு- பதினெண்கீழ்க்கணக்குநூல்கள்		தமிழ்மொ
	2.திருக்குறள்		நிப்பாடம்
	அ. அறன்வலியுறுத்தல் – அறத்துப்பால் - அ. எண் - 04		இரண்டாம்
	ஆ. காலம் அறிதல் — பொருட்பால் - அ. எண் - 49	13	பருவம் 2024-2025
	இ. உழவு - பொருட்பால் - அ. எண் - 104	15	
	ஈ. குறிப்பறிதல் - காமத்துப்பால் - அ. எண் - 110		
2	அற இலக்கியம்		தமிழ்மொ
	1. நாலடியார் - அறிவுடைமை		ழிப்பாடம்
	2. மூதுரை - ஔவையார் - 10 பாடல்கள் 6, 7, 9, 10, 14, 16, 17, 23,		இரண்டாம்
	26, 30		பருவம் 2024-2025
	3. இனியவைநாற்பது- பூதஞ்சேந்தனார் - முதல் 10 பாடல்கள்	13	2024-2023
3	அறநெறிக் கட்டுரைகள்	3:	தமிழ்மொ
	1. இலக்கியவரலாறு - தமிழ் உரைநடையின் தோற்றமும்	10	ழிப்பாடம்
	வளர்ச்சியும்		இரண்டாம்
	2. கலைகள் - உ.வே.சா		பருவம்
	3. சங்க நெறிகள் - வ.சுப.மாணிக்கம்		2024-2025
4	அறநெறிக் கட்டுரைகள்		தமிழ்மொ
	1. வீர வணக்கம் - க. கைலாசபதி	14	நிப்பாடம்
	2. தமிழர் பண்பாடு - டாக்டர் சோ.நா.கந்தசாமி	1	இரண்டாம்
	3. இணையத் தமிழ் வளர்ச்சி - முனைவர் ப.அர.நக்கீரன்		பருவம் 2024-2025
			2024-2023
5	பயிற்சிப் பகுதி		தமிழ்மொ
	1.இலக்கணம் - வழு, வழுவமைதி, வழாநிலை		நிப்பாடம்
	2.அலுவலகம் சார்ந்த கடிதம் - விண்ணப்பங்கள்,		இரண்டாம்
	வேண்டுகோள், முறையீடு	10	பருவம் 2024-2025
	3.படைப்பாக்கம் - பொதுத்தலைப்பில் கட்டுரைகள் எழுதுதல்		2024-2023
	Total	60	1.

Text book	1.	தமிழ் மொழிப்பாடம் – 2024-2025 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	
	Skill Development / Employability	



			Semester – II				1 1 1
		LANC	GUAGE: HINDI	– II			
Semester	Course Code	Course Name	Category	L	T	P	Credits
II	24TLU2HA	HINDI – II	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			

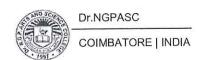
Mapping with Program Outcomes:						
Cos / POs	PO1	PO2	PO3	PO4	PO5	
CO1		✓	✓		✓	
CO2	✓			✓	* 7.	
CO3		✓			✓	
CO4			✓			
CO5	· /			✓	√	

24TLU2HA LANGUAGE: HINDI – II

Unit	Content	Hrs	Resources
1	आधुनिकपद्य - शबरी(श्रीनरेशमेहता)	13	Text Book
2	उपन्यासः सेवासदन-प्रेमचन्द	13	Text Book
3	कहानी-किरीट- डा उषा पाठक / डा अचला पाण्डेय पाठ 1.कफ़न, 3. चीफ़ की दावत	12	Text Book
4	पत्र लेखन: (औपचारिक या अनौपचारिक)	12	Text Book
5	अनुवाद अभ्यास-॥। (केवल हिन्दी से अंग्रेजी में) (पाठ 1 to 10)	10	Text Book
	Total	60	

Text books	1.	प्रकाशकः लोकभारती प्रकाशन पहली मंजिल, दरबारी बिल्डिंग,महात्मा गाँधी मार्ग, इलाहाबाद.
		(Unit I)
	2.	प्रकाशकः सुमित्र प्रकाशन 204 लीला अपार्ट्मेंट्स, 15 हेस्टिंग्स रोड'अशोक नगर इलाहाबाद.
		(Unit II)
	3.	प्रकाशक: राधाकृष्ण प्रकाशन दिल्ली. (Unit III)
	4.	पुस्तक: व्याकरण प्रदिप - रामदेवप्रकाशक: हिन्दी भवन 36 इलाहाबाद. (Unit IV)
	5.	प्रकाशकः दक्षिण भारत प्रचार सभा चेनैई. (Unit V)

Learning Method	Lecture/ Tutorial / Student Seminar/GD/Assignment	
E of the Course	Skill Dovelanment / Employability	



	w	Semes	ter – II		A	(7)	
		LANGUAGE: M	ALAYALAM- II				
Semester	Course Code	Course Name	Category	L	T	P	Credits
II	24TLU2MA	MALAYALAM- II	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	К3			
CO3	Expose the knowledge writing critical views on fiction	K3			
CO4	Apply creative ability	K3			
CO5	Build the power of creative reading	K4			

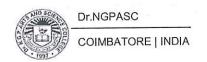
Mapping with Program Outcomes:							
Cos / POs	PO1	PO2	PO3	PO4	PO5		
CO1		✓	· · · ·		√		
CO2	✓			✓ ·			
CO3		✓			✓		
CO4			~		n 8		
CO5	✓			✓ ·	<i>√</i>		

24TLU2MA LANGUAGE: MALAYALAM- II

Unit	Content	Hrs	Resources
1	Novel Enmakaje: Chapter 1 - Chapter 5	14	Text book
2	Novel Enmakaje: Chapter 6- Chapter 10	10	Text book
3	Novel Enmakaje: Chapter 11- Chapter 15	14	Text book
4	Autobiography Neermathalam Pootha Kalam: Chapter 1- Chapter 10	10	Text book
5	Autobiography Neermathalam Pootha Kalam: Chapter 11- Chapter 20	12	Text book
	Total	60	

Text books	1.	Ambika Suthan Mangad, Enmakaje (Novel), DC Books Kottayam, Kerala, India. (Unit I to III)
	2.	Madhavikkutty, Neermathalam Pootha Kalam (Autobiography), DC Books Kottayam, Kerala, India. (Unit IV & V)
Reference Books	1.	Malayala Novel Sahithyam, DC Books Kottayam, Kerala, India
	2.	Malayala Sahithya Charithram, National Books Kottayam, Kerala, India.

Learning Method	Lecture/ Tutorial / Student Seminar/GD/Assignment	
4		



		Se	mester – II				
		LANGUA	GE: FRENCH -	П			
Semester	Course Code	Course Name	Category	L	T	P	Credits
II	24TLU2FA	FRENCH - II	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	К3			
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					
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1		✓	✓		1
CO2	✓			✓	GA _
CO3		✓			✓ ,
CO4			✓		
CO5	√			✓	

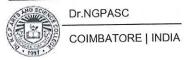
24TLU2FA LANGUAGE: FRENCH - II Syllabus

Unit			(Content		Hrs 14	Resources
Proposer, accepter, accept		reunemessage nsurunrépondeurtéléphonique. elqu'un accepter 'invitation.		Text book			
2	Prendreet fixer rendez-vous. Demander etindiquerl'heu		Organise soirée au avec des téléphor courriel.	i cinéma amis, par ie et par	Comprendre des personnes qui fixentunrendez-vous par téléphonique. Prendreun rendez-vous par telephone	12	Text book
3	Exprimer son vue positif et no S'informersur l G'informersur l quantitité.	égatif. e prix. a		pes, choisir au pour un	Exprimer son point de vuesur des idées de cadeau. Faire des achatsdans un magasin	14	Text book
4	Demander etindiquerune direction. Localiser (prè face de). Exprimerl'oblig Interdit.Consei	s de, en	l'aided'in par telep plan. Par courrieré donner informat	electronique, des ions et des à un ami qui	Comprendre des indications de direction. Comprendre des indications de lieu. Comprendreune chanson. Comprendre de courts messages qui experiment l'obligationoul'interdiction. Donner des conseils à des personnesdans des situations données.		Text book
5	Practical Appl Make in Own S					10	-
				Total		60	

Text book	Français), Goval Publisher & Distributors Pvt.Ltd., 86 UB Jawahar Nagar (Kamala
	Nagar), New Delhi-7 Les Editions Dider, Paris, 2008- Imprime en Roumanie par Canale en Janvier 2012. (Unit I to IV

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Learning Method	Lecture/ Tutorial / Student Seminar/GD/Assignment
2000	

Focus of the Course Skill Development / Employability



5	· · · · · · · · · · · · · · · · · · ·	Semester LANGUAGE: El					
Semester	Course Code	Course Name	Category	L	T	P	Credits
п	24ELU2EA	ENGLISH – II	LANGUAGE – II	48		12	3

Preamble	 This course has been designed for students to learn and understand language for specific purposes through literary works, enhancing listening and reading skills. communicative competencies in academics through real-world contexts, improving speaking and listening. business correspondence with clarity and accuracy, focusing on writing
Prerequisite	skills like emails and essays. Basic knowledge of English Language

Course O	utcomes (Cos)	
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Interpret spoken English through active listening and respond effectively.	K1
CO2	Express effective speaking skills through structured and informal discussions.	K2
CO3	Analyse and comprehend literary and informational texts to enhance reading proficiency.	K2
CO4	Compose written content with clarity and coherence in various contexts.	K3
CO5	Apply essential soft skills for professional interactions, leadership, and communication.	K3

Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1			✓	✓	
CO2	y =		✓	✓	✓
CO3			✓	✓	
CO4			✓	✓	
CO5			/	<u> </u>	/

24ELU2EA LANGUAGE: ENGLISH - II Syllabus

Unit	Content	Hrs	Resources
I	Listening Poem: Edgar A. Guest – Don't Quit Repetition for emphasis - Tone and Emotional appeal Langston Hughes – Still Here Voice & Identity - Resilience & Endurance. Short Story: R.K. Narayan – Engine Trouble Emotional tone – Question for Reflection	12	https://poetryace.com/ im-still-he re/
	Listening Talks: ""Yes, We Can!" - Barack Obama (speech) - (Audio & Visual aids) Grammar: Articles & Prepositions Speaking		
II	Poem: Robert Frost –The Road not Taken Persuading and supporting opinions – logical structure – clear articulation D. H Lawrence – Snake Observation and Patience - Respect and Humility Speaking Skills: Just a Minute Talk (JAM) – Small Talk, Interviewing a Celebrity. Grammar: One word substitution, Loan Words.	12	www.poetrysoup.com
III	Reading Poem: Chinua Achebe – Love Cycle Inferring and Interpreting - Synthesis of Ideas Connection and Understanding - Adaptability and Growth Short story: Sudha Murthy – How I taught My Grandmother to Read Building comprehension – Fluency & Expression Grammar: Syllabification, Mon/Di/polysyllabic Comparison - Odd one Out - Rearranging the sentences (Jumbled sentences).	12	https://www.poetryfour dation.org/poems
IV	Writing Prose: A. G. Gardiner: On Letter Writing Clarity and Precision – Self expression Writing Skills: Story Building, Story Writing & Story Narration Emails (formal/informal) & General Essay Writing - (Descriptive or Narrative) Grammar: Spelling Pitfalls (wrongly spelt words), Agreement of verb and subject	12	https://www.gutenberg org/
V	Soft Skills Expressing opinions through Role play—Interview Skills - Public Speaking - Group Discussions - Leadership Qualities - Communication on Verbal and Non-verbal Total	12	Social intelligence: The new science of human relationships - Daniel Goleman; 2006.

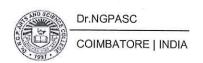
Note: Classroom activities on LSRW skills (Examine Internal only)

Text Books	1.	Martin Hewings. Advanced English Grammar. Cambridge University Press, 2000.
	2.	SP Bakshi, Richa Sharma. Descriptive English. Arihant Publications (India) Ltd., 2019.
	3.	Sheena Cameron, Louise Dempsey. <i>The Reading Book: A Complete Guide to Teaching Reading</i> . S & L. Publishing, 2019.
	4.	Phil Chambers. Brilliant Speed Reading: Whatever you need to read, however. Pearson, 2013.
	5.	Bailey, Stephen. Academic Writing: A Practical Guide for Students. Routledge, 2004.
	6.	Goleman, Daniel. Social Intelligence: The New Science of Human Relationships. Bantam Books, 2006.
Reference	1.	Nesfield, J. C. English Grammar Composition and Usage. Macmillan, 2019.
Books	2.	Krishnasamy. N. Modern English: A Book of Grammar, Usage and Composition. Macmillan, 1975.
	3.	Kumar, Ramendra. Stories of Resilience. Blue Rose Publications, 2020.
e	4.	Thakur, SJ and Rout, S.K. Objective General English. B.K Publications, 2017.

Journals and Magazines	IOSR Journal of Humanities and Social Science (IOSR-JHSS) International Journal of English Literature and Social Sciences http://ijrep.com/wp-content/uploads/2019/03/18-22-SKILL-ENHANCEMENT-TEACHING-LSRW https://www.jetir.org/view?paper=JETIRDY06148
E-Resources	https://learnenglish.britishcouncil.org/
and Website	https://www.yourarticlelibrary.com/

Learning Method	Chalk and Talk/Assignment/Seminar/ Group Discussion
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Focus of the Course	Skill Development/ Employability	
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		Semester – II CORE: DATA STRUCT	URES				
Semester	Course Code	Course Name	Category	L	T	P	Credits
п	24CAU2CA	DATA STRUCTURES	CORE	48	12	_	4

	This course has been designed for students to learn and understand
Preamble	 fundamental concepts of data structures and complexity operations on Linear and Non-Linear data structures Searching, Sorting and Hashing techniques
Prerequisite	

Course Or	itcomes (Cos)		
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level	
CO1	Understand the fundamentals of Data Structures and algorithmic complexity.	K2	
CO2	Demonstrate the operations on Stack and Queue.	К3.	
CO3	Implement operations on Linked List and its variants.	К3	
CO4	Apply non-linear Data Structures in problem solving.	К3	
CO5	Analyze the various Sorting, Searching algorithms and Hashing techniques.	К3	

Cos/POs	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓	✓		
CO2	✓	✓	✓	✓	
CO3	✓	✓	✓	1	
CO4	✓	✓	· 🗸	✓	
CO5	✓	✓	✓	✓	

24CAU2CA | CORE: DATA STRUCTURES

Unit	Content	Hrs	Resources
I	Introduction to Algorithm Algorithm - Definition, Structures and Properties - Efficiency of Algorithm - Asymptotic Notations. Data Structure - Definition - Classification - Array - Representation - Operations. Applications: Sparse Matrices.	10	Text Book/ Reference Book/ NPTEL
.II.	Stacks and Queues Stack - Array Representation - Operations - Linked Representation of Stack - Applications: Evaluation of Arithmetic Expressions, Recursion. Queue - Array Representation - Operations - Linked Representation of Queue - Circular Queue - Types of Queue - Applications: Job Scheduling.	12	Text Book/ Reference Book
III	Linked Lists Singly Linked Lists – Representation - Insertion and Deletion - Circular Linked Lists - Representation - Insertion and Deletion - Doubly Linked Lists - Representation - Insertion and Deletion - Applications: Polynomial Addition.	12	Text Book/ Reference Book/ NPTEL
IV	Trees and Graphs Representation of Tree - Binary Trees - Representation - Traversals - Threaded Binary Tree - Binary Search Tree - Representation - Operations - Applications: Expression Trees. Graph - Representation - Traversals - Applications: Dijkstra's Shortest path Algorithm, Prim's Minimum Cost Spanning Tree Algorithm.	14	Text Book/ Reference Book/ NPTEL
V	Searching and Sorting Linear Search - Binary Search - Bubble Sort - Insertion Sort - Selection Sort - Quick Sort - Merge Sort - Heap Sort. Hash Tables - Hash Functions - Collision - Applications of Hashing: Keyword Table in Compilers.	12	Text Book/ Reference Book
	Total	60 .	

Text Books	1.	GAV Pai, 2017, "Data Structures and Algorithms: Concepts - Techniques and Applications", McGraw Hill Education.		
Reference Books	1.	Mark Allen Weiss, 2014, "Data Structures and Algorithm Analysis in C++", Third Edition, Pearson Education.		
	2.	Yashavant Kanetker, 2003, "Data Structure Through C++ Paperback", Fourth Edition, BPB Publications.		
	3.	Lipchitz (Schaum's Outline Series), 2010, "Data Structures with C", McGraw Hill Education.		

Journal and Magazines		وليتتاب وإذكري
E-Resources and Website	https://nptel.ac.in/courses/106102064	

Learning	Lecture, Demonstration through Online Compilers and Coding Platforms
Method	Eccture, Demonstration through offine compilers and coding rationals

Focus of the		> -	 -0
rocus of the	Skill Development/ Employability		
Course	Skiii Developinena Empioyaemiy		

	CORE: 0	Semester – II OBJECT ORIENTED PROGRAMM	ING WITH	C++			
Semester	Corse Code	Course Name	Category	L	T	P	Credits
II ,	24CSU2CA	OBJECT ORIENTED PROGRAMMING WITH C++	CORE	48	-	-	4

Preamble	This course has been designed for students to learn and understand • basic concepts of Object-Oriented Programming • structure and features of C++ • design and implementation of OOP concepts using C++
Prerequisite	C programming

Course Ou	itcomes (Cos)	
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Understand the concepts of Object Oriented Programming	K2
CO2	Construct Classes and Objects using C++	К3
CO3	Demonstrate Operator Overloading and Inheritance	К3
CO4	Implement Polymorphism and Virtual functions	К3
CO5	Illustrate Templates, Strings and Exception Handling	К3

Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓	✓	· ✓	1
CO2	✓	✓	✓	✓	
CO3	✓	✓ -	✓	✓	
CO4	✓	✓	✓	√	
CO5	✓	✓	✓		/

24CSU2CA | CORE: OBJECT ORIENTED PROGRAMMING WITH C++

Unit	Content	Hrs	Resources
I	Introduction to C++ Key concepts of Object-Oriented Programming – Advantages – Structure of a C++ Program - I/O in C++ - Declarations - Decision Statements - Control Loop Structures - Functions in C++ - inline functions.	8	Text Book / Reference Book
II	Classes and Objects Declaring Objects – Defining Member Functions – Static Member variables and functions – Array of objects – Friend functions – Overloading member functions – Constructor and destructor: Constructor with arguments, Overloading constructors, Constructors with default arguments, Copy constructors, Destructors.	10	Text Book / Reference Book
III	Operator Overloading and Inheritance Overloading unary, binary, assignment operators — Rules for overloading operators. Inheritance: Types of Inheritance — Single, Multilevel, Multiple, Hierarchical, Hybrid, Multipath— Virtual base Classes — Abstract Classes.	10	Text Book / Reference Book
IV	Polymorphism and Virtual Functions Declaration – Pointer to Class - Pointer to Object – this pointer – Array of classes – new and delete operators – Dynamic objects - Binding, Polymorphism and Virtual Functions: Pointer to base and derived class objects, Virtual functions, Rules for virtual functions, Array of pointers, Pure virtual functions.	10	Text Book / Reference Book
V	Templates, String and Exception Handling Templates: Class Templates, Function Templates. String: C string Vs C++ String – Declaring and Initializing string objects – String Attributes. Exception Handling: Principles, try-throw-catch, Multiple catch statements.	10	Text Book / Reference Book
	Total	48	

Text book	1.	Ashok N. Kamthane, 2017, "Object Oriented Programming with ANSI and Turbo C++", 3 rd Edition, Pearson Education.
	1.	Bjarne Stroustrup, 2022, "C++ Programming Language, 4th Edition, Pearson Education.
Reference Books	2.	Behrouz A. Forouzan, Richard F. Gilberg, 2020, "C++ Programming: An Object-Oriented Approach" McGraw Hill Education.
	3.	Yashvant Kanetkar, 2020, "Let Us C++", BPB Publications.

Journal and	
Magazines	
E-Resources and	https://www.w3schools.com/cpphttps://www.spoken-tutorial.org
Website	

Learning Method	Lecture, Demonstration, Online Compilers, Coding Platforms	
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Focus of the	Skill Development/ Employability	a gradu and days	
Course	Zampiojuomity		

CO	RE PRACTIC	Semester – II AL: PROGRAMMING IN		RES	AN	D C+	+ _
Semester	Corse Code	Course Name	Category	L	Т	P	Credits
п	24CTU2CP	PROGRAMMING IN DATA STRUCTURES AND C++	CORE PRACTICAL	-	-	48	2

Preamble	 This course has been designed for students to learn and understand fundamental object-oriented programming concepts. class templates and exception handling. essential data structures and algorithms
Prerequisite	C programming

Course Or CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Understand the fundamentals of object-oriented programming.	K2
CO2	Build programs using class templates and exception handling.	K3
CO3	Apply stack and queue data structures	K3
CO4	Solve different sorting and searching algorithmic techniques.	K3
CO5	Apply non-linear data structures in solving problems.	K3

Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓	✓		1
CO2	✓	✓	✓	✓	✓
CO3	✓	✓	✓		✓
CO4	✓	✓	✓		✓
CO5	✓	1	✓	✓	✓

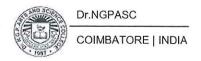
24CTU2CP

CORE PRACTICAL: PROGRAMMING IN DATA STRUCTURES AND C++

S.No	List of Programs
1	a. Program to demonstrate static member variables and member functions.
1	b. Program to implement friend function.
2	Program to demonstrate overloading member functions and constructors.
3	Program to demonstrate operator overloading.
4	a. Program to demonstrate all types of inheritance
- 7	b. Program to implement virtual function.
5	Program to implement class templates.
6	Program to implement exception handling.
7	Program to convert infix expression to postfix expression.
8	Program to implement queue operations.
9	Program to implement any one linked list data structure.
10	Program that implements sorting algorithms.
11	a. Program to implement searching techniques.
11	b. Program to implement graph traversal.
12	Program to solve the single source shortest path problem using Dijkstra's algorithm

Reference Books	1.	Bjarne Stroustrup, 2022, "C++ Programming Language, 4th Edition, Pearson Education.
DOOKS	2.	Yashvant Kanetkar, 2020, "Let Us C++", BPB Publications.

Learning Method	
Focus of the Course	Skill Development/ Employability



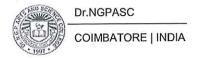
Semester - II

IDC: DISCRETE MATHEMATICS

Semester	Course Code	Course Name	Category	L	T	P	Credits
II	24MTU2IC	DISCRETE MATHEMATICS	IDC	48	12	-	4

Preamble	erstand							
Prerequisit	te Knowledge on Basic Mathematics							
Course Ou	tcomes (COs)							
CO Number	Course Outcomes (COS) Statement							
CO1	Apply concepts of set theory to real-world problems.	К3						
CO2	Interpret the various optimization problems in term of relations and functions.	K3						
CO3	Interpret and use quantifiers and predicates in logical expressions.	K2						
CO4	Demonstrate proficiency in representing graphs using various methods, such as adjacency matrices and incidence matrices.							
CO5	Distinguish between deterministic finite automata and nondeterministic finite automata.							

Mapping with Program Outcomes:						
COs / POs	PO1	PO2	PO3	PO4	PO5	
CO1	✓	· ✓	✓			
CO2	✓	✓	✓			
CO3	✓	✓	✓			
CO4	✓	✓	✓			
CO5	✓	✓	✓	0		

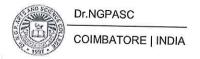


24MTU2IC IDC:DISCRETE MATHEMATICS

Syllabus

Unit	Content	Hours	E-Contents Resources
I	Set Theory: Introduction - set and its elements - set description - types - Venn-Euler Diagrams - set operations and laws of set theory - fundamental products - index and indexed sets - partitions of sets - minsets - countable and uncountable sets - Algebra of sets and duality - computer representation - the inclusion and exclusion principle- Fuzzy sets	10	Textbook
II	Relations and Functions: Relations: Introduction - cartesian product of sets - binary relations - set operations on relations - types - partial order relations - equivalence relation and classes -Functions: Introduction - types - invertible functions - composition of functions.	12	Textbook/ Reference book1
Ш	Mathematical Logic: Introduction - propositional calculus – basic logical operations - statements generated by a set - conditional statements - converse, inverse and contrapositive statements - biconditional - tautologies - contradiction - contingency - argument - methods of proof - equivalence and implication - predicate calculus - quantifiers	10	Textbook
IV	Graph Theory and Trees: Introduction - paths, cycles and connectivity - subgraphs - types - isomorphic and homeomorphic graphs - representation of graphs in computer memory- Eulerian and Hamiltonian graphs - cartesian product - shortest path. Trees: Introduction - binary trees - complete binary tree - tree of an Algebraic expression - traversing binary trees.	14	Textbook/ Reference books 2-4
v	Language, Grammar and Automata: Introduction - language: the set theory of strings - languages - regular expressions and regular languages - grammar - finite state machine - finite state automata.		Textbook/ Reference book2-4
	Total	60	au au

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

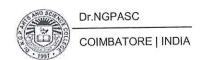


Text Book	1.	Sharma J.K., 2022 "Discrete Mathematics", 4th Edition, Trinity Press, New Delhi.		
Reference Books	1.	Tremblay J.P. and Manohar R, 1997, "Discrete Mathematics Structures with Applications to computer science", 2 nd Edition, McGraw Hill International, New York.		
	2.	Venkataraman M.K. Sridharan N. and Chandarasekaran N, 2000,"Discrete Mathematics", The National publishing Company, Chennai.		
	3.	Kolman B, Busby R.C. and Ross S.C,2006,"Discrete Mathematical Structures", 5 th Edition., Prentice hall of India Pvt. Ltd., New Delhi.		
	4.	Kenneth H Rosen, 1999, "Discrete Mathematics and its Applications",4 th Edition, McGraw-Hill Professional, China.		

Journal and Magazines	Journal of Combinatorial Theory, Series A,URL: Elsevier Discrete Mathematics, URL: Elsevier	٥
E-Resources and Website	mdpi.com/discrete-mathematics ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-042sc-mathematics-for-computer-science-fall-2010	Þ

Learning Method	Chalk and Talk, Assignment	

Focus of the	Skill development, Employability
Course	



		Se	mester – II				
		AECC: B	ASIC TAMIL				
Semester	Course Code	Course Name	Category	L	T	P	Credits
11	24TLU2AA	BASIC TAMIL	AECC	24	-	-	2

Preamble	பிறமொழி பயிலும் மாணவர்களுக்கு அடிப்படைத் தமிழ்
	எழுத்துக்களைக் அறியச் செய்தல்
X.	தமிழ்மொழியில் உள்ள உயிர், மெய், உயிர்மெய் எழுத்துக்களைக் எழுதச் செய்தல்
	தமிழ்மொழியில் உள்ள அடிப்படைச் சொற்களை எழுதி, படிக்கச் செய்தல்
Prerequisite	தமிழ்மொழியினை முறையாக எழுதிப் படிக்கும் திறனை வளர்த்தல்

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)	К3
CO3	பாடஇணைச்செயல்பாடுகள் (Co-curricular activities)	К3
CO4	சூழலியல் ஆக்கம் (Ecology)	K4
CO5	மொழி அறிவு (Tamil knowledge)	K4

Mapping with	Program Out	comes:			
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1		✓	✓		1
CO2	✓	-	3.	✓	
CO3		✓		*	√
CO4			✓		and the second
CO5	✓			✓	✓

24TLU2AA AECC: BASIC TAMIL

இளங்கலை 2024 –25 ஆம் கல்வியாண்டு முதல் சேர்வோர்க்குரியது (10 மற்றும் 12 – ஆம் வகுப்பு வரை தமிழ் மொழிப்பாடம் பயிலாதவர்களுக்கு)

(பருவத் தேர்வு இல்லை)

Unit	Content	Hrs	Resources
1	தமிழ் மொழியின் அடிப்படைக் கூறுகள் எழுத்துகள் அறிமுகம் 1. உயிர் எழுத்துக்கள் - குறில் , நெடில் எழுத்துகள் 2. மெய் எழுத்துக்கள் - வல்லினம், மெல்லினம்,	05	அடிப்படைத் தமிழ்மொழிப் பாடம் இரண்டாம்
	இடையினம் 3. உயிர்மெய் எழுத்துக்கள் 4. பயிற்சி		பருவம் 2024-2025
2	சொற்களின் அறிமுகம் 1.பெயர்ச்சொல் 2.வினைச்சொல் – விளக்கம் (எ.கா.) 3.பயிற்சி	05	அடிப்படைத் தமிழ்மொழிப் பாடம் இரண்டாம் பருவம் 2024-2025
3	குறிப்பு எழுதுதல் 1. பெயர், முகவரி, பாடப்பிரிவு, கல்லூரியின் முகவரி 2. தமிழ் மாதங்கள்(12), வாரநாட்கள்(7) 3. எண்கள் (ஒன்று முதல் பத்து வரை), வடிவங்கள்,	05	அடிப்படைத் தமிழ்மொழிப் பாடம் இரண்டாம் பருவம் 2024-2025
4	குறிப்பு எழுதுதல் 1. ஊர்வன, பறப்பன, விலங்குகள் 2.மனிதர்களின் உறவுப்பெயர்கள் 3. ஊர்களின்பெயர்கள் (எண்ணிக்கை 10)	05	அடிப்படைத் தமிழ்மொழிப் பாடம் இரண்டாம் பருவம் 2024-2025
5	பயிற் சிப் பகுதி (உரையாடும் இடங்கள்) வகுப்பறை, பேருந்து நிலையம், சந்தை– பேசுதல்,எழுதுதல்.	04	அடிப்படைத் தமிழ்மொழிப் பாடம் இரண்டாம் பருவம் 2024-2025
	Total	24	

Notes:

அகமதிப்பீட்டுத்தேர்வு – வினாத்தாள் அமைப்புமுறை- மொத்த மதிப்பெண்கள் - 50

பகுதி –அ

சரியான விடையைத் தேர்வு செய்தல்

10x2=20

பகுதி –ஆ

சரியா? தவறா?

10x2=20

பகுதி – இ

ஒரு பக்க அளவில் விடையளிக்க

1x10=10

குறிப்பு:

• அனைத்து அலகுகளில் இருந்தும் வினாக்கள் அமைதல் வேண்டும்

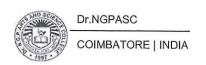
• பகுதி இ–க்கான வினாக்கள் இதுஅல்லது அதுஎன்ற அடிப்படையில் அமைதல் வேண்டும்

Text book	1.	அடிப்படைத் தமிழ் - 2024-2025 தொகுப்பு: தமிழ்த்துறை, டாக்டர்என்.ஜி.பி. கலை அறிவியல் கல்லூரி, கோயம்புத்தூர் – 641048.
Reference Books	1.	ஒன்றாம் வகுப்பு பாடநூல் - தமிழ்நாடு அரசு பாடநூல் கழகம், சென்னை.

E-Resources and Website	https://www.tamilvu.org	
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Learning Method	Lecture/ Tutorial / Student Seminar/GD/Assignment

Focus of the Course



	***	Semeste AECC: ADVANC					
Semester	Course Code	Course Name	Category	L	T	P	Credits
II	24TLU2AB	ADVANCED TAMIL	AECC	24		-	2

Preamble	மொழிப்பாடங்களின் வாயிலாக தமிழரின் பண்பாடு நாகரீகம்,		
	பகுத்தறிவு ஆகியவற்றை அறியச் செய்தல்		
	கலை மற்றும் மரபுகளை அறியச் செய்தல்		
	மாணவர்களின் படைப்பாக்கத்திறன்களை ஊக்குவித்தல்		
Prerequisite	தமிழ்மொழியினை முறையாக எழுதிப் படிக்கும் திறனை		
	வளர்த்தல்		

Course O	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)	КЗ				
CO4	சூழலியல் ஆக்கம் (Ecology)	K4				
CO5	மொழி அறிவு (Tamil knowledge)	K4				

Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1	12	√	<i>✓</i>		✓
CO2	1			✓	
CO3		✓	9		✓
CO4			✓		
CO5	· /			✓	✓

24TLU2AB AECC: ADVANCED TAMIL

இளங்கலை 2024– 2025ஆம் கல்வியாண்டு முதல் சேர்வோர்க்குரியது (10 மற்றும் 12 – ஆம் வகுப்புகளில் தமிழ் மொழிப்பாடம் பயின்றவர்களுக்கு உரியது) (பருவத் தேர்வு இல்லை) Syllabus

Unit	Content	Hrs	Resources
1	கவிதைகள் 1. தமிழ்நாடு - பாரதியார் 2.மனதில் உறுதி வேண்டும் - பாரதியார் 3. இன்பத்தமிழ் - பாரதிதாசன் 4.வேலைகளல்லவேள்விகள் - தாராபாரதி 5.தமிழா! நீ பேசுவது தமிழா! - காசியானந்தன் 6. நட்புக் காலம் (10 கவிதைகள்) - அறிவுமதி கவிதைகள்	05	சிறப்புத் தமிழ்மொழிப் பாடம் இரண்டாம் பருவம் 2024-2025
2	கட்டுரை கட்டுரைத் தொகுப்பு - நல்வாழ்வு - டாக்டர் மு.வரதராசன் 1. நம்பிக்கை 2. புலனடக்கம் 3. பண்பாடு	05	சிறப்புத் தமிழ்மொழிப் பாடம் இரண்டாம் பருவம் 2024-2025
3	இலக்கணம் 1.வல்லினம் மிகும் மற்றும் மிகா இடங்கள் 2. ர,ற,ல,ழ,ள,ந,ண,ன – வேறுபாடு அறிதல்	05	சிறப்புத் தமிழ்மொழிப் பாடம் இரண்டாம் பருவம் 2024-2025
4	கடிதங்கள் 1. பாராட்டுக் கடிதம் 2. நன்றிக் கடிதம் 3. அழைப்புக் கடிதம் 4. அலுவலக விண்ணப்பங்கள்	05	சிறப்புத் தமிழ்மொழிப் பாடம் இரண்டாம் பருவம் 2024-2025
5	பயிற் சிப் பகுதி படைப்பாக்கப் பகுதி: பொதுத் தலைப்புகளில் கவிதை,கட்டுரை எழுதச்செய்தல்	04	சிறப்புத் தமிழ்மொழிப் பாடம் இரண்டாம் பருவம் 2024-2025
	Total	24	

Notes அக மதிப்பீட்டுத் தேர்வு - வினாத்தாள் அமைப்பு முறை- மொத்த மதிப்பெண்கள் - 50

பகுதி –அ

சரியான விடையைத் தேர்வு செய்தல்

10x1=10

பகுதி –ஆ

கோடிட்ட இடங்களை நிரப்புக.

10x2=20

பகுதி -இ

இரண்டு பக்க அளவில் விடையளிக்க

2x10=20

குறிப்பு:

• அனைத்து அலகுகளில் இருந்தும் வினாக்கள் அமைதல் வேண்டும்

• பகுதி இ–க்கான வினாக்கள் இதுஅல்லது அதுஎன்ற அடிப்படையில் அமைதல் வேண்டும்

Text book	1.	சிறப்புத் தமிழ் - 2024-2025 தொகுப்பு: தமிழ்த்துறை,
		டாக்டர்என்.ஜி.பி. கலை அறிவியல் கல்லூரி, கோயம்புத்தூர் –
		641048.
Reference Books	1.	பேராசிரியர் புலவர் சோம. இளவரசு,எட்டாம் பதிப்பு. 2014. தமிழ் இலக்கிய வரலாறு – மணிவாசகர் பதிப்பகம்,சென்னை.
	2.	டாக்டர் மு.வரதராசன். 2010. நல்வாழ்வு, பாரி நிலையம், சென்னை.
	3.	பேராசிரியர் முனைவர் பாக்கியமேரி,முதற் பதிப்பு.2013. இலக்கணம் - இலக்கிய வரலாறு - மொழித்திறன்- பூவேந்தன் பதிப்பகம், சென்னை.

E-Resources and	https://www.tamilvu.org	
Website		

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

Focus of the Course	Skill Development / Employability	7



	AECC	Semester – II HUMAN RIGHTS AND WOM	EN'S RIGHTS	S			
Semester	Corse Code	Course Name	Category	L	T	P	Credits
II	24CRU2AA	HUMAN RIGHTS AND WOMEN'S RIGHTS	AECC	24	-		2

Preamble	This course has been designed for students to learn and understand Concepts of Human Rights Human Rights Violation and Redressal Mechanism. Rights to Women and Child.
Prerequisite	Knowledge on Human and Women's Rights.

Course Outcomes (Cos) CO Bloom's Taxonomy Course Outcomes (COs) Statement						
Number	Course Outcomes (COs) Statement	Knowledge Level				
CO1	Understand the basic concepts of Human Rights.	K2				
CO2	Describe the Fundamental Rights.	K2				
CO3	Relate Human Rights Violation and Redressal Mechanism.	К3				
CO4	Infer the Rights of Women and Child.	K2				
CO5	Apply Civil and Political Rights of Women.	K3				

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

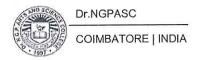
24CRU2AA

AECC: HUMAN RIGHTS AND WOMEN'S RIGHTS

Syllabus

	Introduction to Human Rights		
	Inti oddetion to Itaman Idgats		
	Meaning - Definition - Nature - Content - Legitimacy of Human Rights - Origin and Development of Human Rights - Theories - Principles of Magna Carta - Modern Movements of Human Rights - The Future of Human Rights.	4	Text Book
	Human Rights in India		
	The Constitution of India: Fundamental Rights - Right to Life and Liberty - Directive Principles of State Policy - Fundamental Duties - Individual and Group Rights - Other facets of Human Rights - Measures for Protection of Human Rights in India.	5	Text Book
	Human Rights Violation and Redressal Mechanism		
III	Human Rights: Infringement of Human Right by State Machinery and by Individual - Remedies for State action and inaction - Constitutional Remedies - Public Interest Litigation (PIL) - Protection of Human Rights Act, 1993 - National Human Rights Commission - State Human Rights Commissions - Constitution of Human Right Courts.	5	Text Book
	Case study: Human rights violation.		
	Rights of Women and Child		
IV	Matrimonial protection - Protection against dowry - Protection to pregnancy - Sexual offences - Law relating to work Place - Directive principles of Constitution (Article 39 a, d, e & Article 42, 43 & 46) - Trafficking of women - Constitutional Rights - Personal Laws - Protection of children against Sexual Offences Act, 2012 (POCSO).	5	Text Book
	Case study: Sexual offences.		
	Civil and Political Rights of Women		
V	Right of Inheritance - Right to live with decency and dignity - The Married Women's Property Act, 1874 - Women's right to property - Women Reservation Bill - National Commission for Women - Political participation - Pre-independent political participation of women - Participation of Women in post independent period. Kavalan App and Police Akka App. Case study: Women's right to property	5	Text Book
	Total	24	

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



Text book	1.	Lalit Parmar, 1998, "Human Rights", Anmol Publications Pvt. Limited, New Delhi
	2.	Krishna Pal Malik, 2009, "Women & Law", Allahabad Law University, New Delhi.
Reference Books	1.	Mandagadde Rama Jois, 2015, "Human Rights", Bharatiya Values, Bharatiya Vidya Bhavan Publications, Mumbai.
	2.	Paras Diwan and Piyush Diwan, 1994, "Women and Legal Protection", South Asia Books, Andhra Pradesh.
	3.	Venkataram and Sandhiya. N, 2001, "Research in Value Education", APH Publishing Corporation, New Delhi.
	4.	Anand A. S, 2008, "Justice for Women: Concerns and Expressions", Universal Law Publishing Co., New Delhi

Journal and Magazines	Women and International Human Rights in Modern Times, Human Rights Law Review, Volume 24, Issue 2, June 2024. https://doi.org/10.1093/hrlr/ngae007
E-Resources and Website	Women's Rights as Human Rights, https://www.ohchr.org/sites/default/files/Documents/Events/WHRD/WomenRightsAreHR.pdf

Learning Method	Chalk and Talk/Assignment/Seminar/ Group Discussion/Case Study
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Focus of the	Social Awareness/ Environment / Gender Sensitization / Constitutional Rights/	
Course	Human Values/ Ethics	

BoS Chairman/HoD
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