VIVEKANANDA COLLEGE

College with Potential for Excellence

Residential & Autonomous – A Gurukula Institute of Life-Training

Re-accredited (3rd Cycle) with 'A' Grade (CGPA 3.59 out of 4.00) by NAAC

Affiliated to Madurai Kamaraj University

(Managed by Sri Ramakrishna Tapovanam, Tirupparaitturai, Trichy)

TIRUVEDAKAM WEST, MADURAI DISTRICT– 625 234

www.vivekanandacollege.ac.in

Department of Computer Science

Programme**: B.Sc Computer Science**

CBCS & LOCF

(For those students admitted during the Academic Year 2022-23 and after)

VIVEKANANDA COLLEGE

Tiruvedakam West, Madurai District-625234, Tamil Nadu

Department of Computer Science

Vision

The vision of the department is to become a leading college in offering high-quality undergraduate programs in computing sciences to a large number of talented students. To evolve as a Computer Science with center of excellence to serve the changing needs of Indian industry and society.

Mission

The mission of the department is to offer a high-quality education in the art and science of computing, as well as to prepare students for career opportunities in this area requiring a high level of technical Remembering and skill.

- Our programs have a central core of requirements covering the fundamental areas of computing sciences.
- Our programs have co-requirements to assure that our graduates have thorough training in logical and critical reasoning needed for continuing intellectual growth.
- Our programs meet the needs of adult students with interest in skill enhancement for current jobs or retraining in the computing sciences.
- To provides support to the general education and other academic programs in the college.
- Contribution to welfare of the society through services

About the Programme

B.Sc., Computer Science Major Course was started during the academic year 1994–1995. M.Sc., Computer Science was taught during 1998– 2005. Prof. R. Jayabalan was the first Coordinator of this department (1994–1997) folLowed by Dr. S. Raja (1997–2007), Prof. T. Venkatesan (2007–2010), Prof. G.Venkateswaran (2010–2011), Prof. N.S. Lakshmikanthan (2011–2015), Prof. R.Krishnaswamy (2015-2017), Prof. A.Satheesh Babu (2017- 2020),Prof. G.Balaji (2020 – till date)

The strategic objectives of Computer Science Department are:

Graduate competent professionals in computing sciences who can succeed as future leaders and practitioners in their profession.

Develop accredited educational programs in computing sciences in order to serve the current and future market needs in IT industry

- Provide a student-centered educational experience that attracts talented students and enables them to realize their potentials.

This department offers high quality education in under graduate level. In addition to regular Courses various certificate courses are being taught to students. Every week Software Skill Development Programmes are conducted to prepare students for career opportunities in IT industry and for higher education. Computer Learning Programme for school children is conducted frequently under extension activities.

Programme Educational Objectives (PEO)

A graduate of B.Sc. Computer Science programme after five years will

PEO 1	Be an expert in principles of computing sciences and can apply them to develop applications across various domains of study and utility.
PEO 2	Be able to develop an identity to analyze the needs of the user and select, create, evaluate and control various computing systems
PEO 3	Be continuously learning, develop entrepreneurial skills to adopt latest technologies

PEO 4	Show continuous improvement in their professional career through life learning, appreciating human values and ethics
PEO 5	Develop team building skills and leadership skills, acquired through life-training to build an effective work environment and relationships

Programme Learning Outcomes (PLOs)

On completion (after three years) of B.Sc. Computer Science Programme, the students are expected to

P.No.	Programme Outcome	Description
PLO1	Disciplinary Knowledge and Critical Thinking	Take informed actions after identifying the assumptions that frame our thinking and actions, checking out degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from perspectives.
PLO2	Effective Communication and Digital Literacy	Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people , ideas, books, media and technology.
PLO3	Social Interaction and Problem Solving	Elicit views of others, mediate disagreements and help reach conclusions in group settings
PLO4	Effective Citizenship and Social Responsibility	Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering and life training.
PLO5	Professional Ethics and Human Values	Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
PLO6	Environment and Sustainability	Understand the issues of environmental contexts and Sustainable development
PLO7	Self –directed and life – long learning	Acquire the ability to engage in independent and life – long learning in the broadest context socio- technological changes

Programme Specific Outcomes (PSOs)

At the end of the programme the student will

PSO1	Learn to analyze, build application models, algorithms and prototypes for various industry domains
PSO2	Specialize in using different programming languages, platforms to provide effective solutions
PSO3	Develop and implement different algorithms, user interface methods in the process of providing effective solutions
PSO4	Apply analytical and programming skills in software environment to develop, communicate, implement, test and maintain software applications.
PSO5	Develop entrepreneurial skills, team building skills, reasonable verbal, written communication skills for a profession and also to become an entrepreneur

Graduate Attributes (GA)

No.	Attribute	Description	Part
GA 1	Scientific Remembering	Applying the Remembering of mathematics, science, arts and humanities fundamentals to the solution of complex problems in the day-to-day life.	**Head**
GA 2	Problem	Identify, formulate research literature and analyse	**Head**

	Analysis	complex problems reaching substantiated conclusions using first principles of mathematics, natural sciences and social sciences by using research-based Remembering and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.	
GA 3	Problem Solving	Design solutions for complex problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.	**Head**
GA 4	Modern Tool Usage	Create, select, and Applying appropriate techniques, resources, and modern economics theories including principles and modelling to complex economic activities with an Understandinging of the limitations.	**Hand**
GA 5	Graduate and society	Applying reasoning informed by the contextual Remembering to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the social practice.	**Heart**
GA 6	Environment and sustainability	Understanding the impact of the solutions in societal and environmental contexts and demonstrate the Remembering and need for sustainable development.	**Heart & Hand**
GA 7	Ethics and Values	Applying ethical principles, commit to professional ethics, responsibilities and norms of the life through value oriented life training.	**Heart**
GA 8	Leadership Quality	Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings.	**Head**
GA 9	Communication	Communicate effectively on complex activities with the computing community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.	**Head**
GA 10	Project management and Finance	Demonstrate Remembering and Understandinging of the computing and management principles and Applying these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.	**Head**

Mapping of PEO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**
PEO 1					
PEO 2					
PEO 3					
PEO 4					
PEO 5					

Mapping of PLO with GA

	GA 1	GA 2	GA 3	GA 4	GA 5	GA 6	GA 7	GA 8	GA 9	GA 10
PLO 1										
PLO 2										
PLO 3										
PLO 4										
PLO 5										

Assessment

Under Graduate Programmes - Question Paper Pattern for Both CIA & End Semester Examinations

With Effect From: 2018-19 onwards

Part I (Tamil / Sanskrit/Hindi) and Part II

LOCF Syllabus UG: Section A – Remembering (K1)
Section B – Remembering (K1)
Section C – Understandinging (K2)
Section D – Applyinging (K3)

CIA Test Question Paper Pattern (UG) – 3 Tests per Semester – 2 Hours

Section - A: MCQs (Compulsory)	10 X 1 =10 Marks
Section - B: VSA (5 out of 7)	5 X 2 = 10 Marks
Section - C: SA (3 out of 5)	3 X 6 = 18 Marks
Section - D: LA (1 out of 2)	1 X 12 =12 Marks

Total	**50 Marks**

End Semester Examinations Question Paper Pattern (UG) – 3 Hours

Section - A: MCQs	10 X 1 =10 Marks **(From Question Bank given by the Course Teacher)**
Section - B: VSA (5 out of 7)	5 X 2 =10 Marks
Section - C: SA (Either-or)	5 X 5 = 25 Marks
Section - D: LA (3 out of 5)	3 X 10 =30 Marks

Total	**75 Marks**

Part III (Core Course, AEC & DSE)

CIA Test Question Paper Pattern (UG) – 3 Tests per Semester – 2 Hours

Section - A: MCQs (Compulsory)	10 X 1=10 Marks
Section - B: VSA (5 out of 7)	5 X 2 = 10 Marks
Section - C: SA (3 out of 5)	3 X 6 = 18 Marks
Section - D: LA (1 out of 2)	1 X 12=12 Marks

Total	**50 Marks**

End Semester Examinations Question Paper Pattern (UG) – 3 Hours

Section - A: MCQs 10 X 1 =10 Marks **(From Question Bank given by the Course Teacher)**
Section - B: VSA (5 out of 7) 5 X 2 =10 Marks
Section - C: SA (Either-or) 5 X 5= 25 Marks
Section - D: LA (3 out of 5) 3 X 10 =30 Marks

Total 75 Marks

Part IV (SEC-Skill Enhancement Course)

CIA Test Question Paper Pattern (UG) – 3 Tests per Semester at Department Level– 1 Hour

Section - A: MCQs 5 X 1 = 5Marks
Section - B: VSA (2 out of 4) 2 X 2 = 4 Marks
Section - C: SA (1 out of 2) 1 X 6 = 6 Marks
Section - D: LA (1 out of 2) 1 X 10=10 Marks

Total 25 Marks

For competitive exam questions Pattern (OMR with 4 options will be used) 50X1=50 (**1 hour**)

End Semester Examinations Question Paper Pattern (UG) – 2 Hours

Section - A: MCQs 10 X 1 = 10 Marks **(From Question Bank given by the Course Teacher)**
Section - B: VSA (5 out of 7) 5 X 2 = 10 Marks
Section - C: SA (Either-or) 3 X 9 = 27 Marks
Section - D: LA (2 out of 4) 2 X 14= 28 Marks

Total 75 Marks

For competitive exam questions Pattern (OMR with 4 options will be used) 75X1=75 (**2 hours**)

Part IV (Generic Elective Course, Value Education and Environmental Studies)

CIA Test Question Paper Pattern (UG) – 1 Test per Semester – 2 Hours

Section - A: MCQs 10 X 1 = 10 Marks
Section -B: VSA (5 out of 7) 5 X 2 = 10 Marks
Section - C: SA (3 out of 5) 3 X 6 = 18 Marks
Section - D: LA (1 out of 2) 1 X 12= 12 Marks

Total 50 Marks

End Semester Examinations Question Paper Pattern (UG) – 2 Hours

Section - A: MCQs 10 X 1 = 10 Marks **(From Question Bank given by the Course Teacher)**
Section - B: VSA (5 out of 7) 5 X 2 = 10 Marks
Section - C: SA (Either-or) 3 X 9 = 27 Marks
Section - D: LA (2 out of 4) 2 X 14= 28 Marks

Total 75 Marks

Part V (End Semester Examinations only)

EXTENSION ACTIVITIES

End Semester Examinations Question Paper Pattern (UG) – 2 Hours

Section - A: MCQs	10 X 1 = 10 Marks
Section - B: VSA (5 out of 7)	5 X 2 = 10 Marks
Section - C: SA (Either-or)	3 X 9 = 27 Marks
Section - D: LA (2 out of 4)	2 X 14= 28 Marks

Part VI (End Semester Examinations only) UG & PG

1. General Remembering **– (One Examination per Semester– UG & PG) – 1 Hour**

Section – A: MCQs	50 X 1 =50 Marks (**OMR Sheet**)

Total	**50** Marks
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2. Wit for Wisdom and Humour for Health – (One Examination per Year – UG & PG) – 1 Hour

Section – A: LA (5 out of 7)	5 X 20= 100 Marks

Total	**100** Marks
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3. Spiritual Education– (One Examination per Year – UG & PG) – 1 Hour

Section – A: VSA	20 X 2= 40 Marks
Section – B: SA (3 out of 5)	3 X 5 = 15 Marks
Section –C: LA (2 out of 4)	2 X 10 =20 Marks

Total	**75** Marks
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4. Physical Training– (One Examination for III Year UG & II Year PG Students) – 1 Hour

Section - A: MCQs	10 X 1 = 10 Marks
Section – B: SA ((Either-or))	4 X 5 = 20 Marks
Section – C: LA (2 out of 4)	2 X 10 =20 Marks

Total	**50** Marks

Continuous Internal Assessment (CIA) - Distribution of Marks

	UG		**PG**	
Part - I, II Part - III	Test (Best Two)	15 Marks	Test (Best Two)	15 Marks
	Cycle Test (5 × 1 = 5)	5 Marks	Quiz / Seminar	5 Marks
	Assignment (5 × 1 = 5)	5 Marks	Assignment	5 Marks
	Total	**25 Marks**	**Total**	**25 Marks**
Part- IV	Test (Best Two for SEC)	20 Marks		
	Assignment	5 Marks		
	Total	**25 Marks**		

Abbreviations:

MCQs: Multiple Choice Questions
SA : Short Answer
VSA: Very Short Answer
LA : Long Answer

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc Computer Science

SCHEME OF EXAMINATION

(For those students admitted during the Academic Year 2022-23 and after)

FIRST SEMESTER

Part	Study Component	Course Code	Course Title	Hours	Credits	CIA Marks	ESE Marks	Total Marks
I	Tamil	**P1LT11/ P1CT11**	கவிதை இலக்கியமும் கதை இலக்கியமும்	6	3	25	75	100
II	English	**P2LE11/ P2CE11**	Basic English Communication Skills	6	3	25	75	100
III	Core Course	10CT11	Programming In C	4	4	25	75	100
	Core Course	10CT12	Digital Principles and Computer Organization	4	4	25	75	100
	Core Course	10CP13	Lab -I C Programming Lab	4	2	40	60	100
	AEC	10AE11	Discrete Mathematics	4	5	25	75	100
IV	GEC	10GE11	Introduction to Information Technology	2	2	25	75	100
			TOTAL	**30**	**23**			

SECOND SEMESTER

Part	Study Component	Course Code	Course Title	Hours	Credits	CIA Marks	ESE Marks	Total Marks
I	Tamil	P1LT21/ P1CT21	இடைக்கால இலக்கியமும் நாடகமும்	6	3	25	75	100
II	English	P2LE21/ P2CE21	Advanced English Communication Skills	6	3	25	75	100
III	Core Course	10CT21	Object Oriented Programming with C++	4	4	25	75	100
	Core Course	10CT22	Data Structure	4	4	25	75	100
	Core Course	10CP23	Lab II: C++ & Data Structure	4	2	40	60	100
	AEC	10AE21	Statistics and Numerical Methods	4	5	25	75	100
IV	GEC	10GE21	Web Programming	2	2	25	75	100
			TOTAL	**30**	**23**			

THIRD SEMESTER

Part	Study Component	Course Code	Course Title	Hours	Credits	CIA Marks	ESE Marks	Total Marks
I	Tamil	P1LT31/ P1CT31	காப்பிய இலக்கியமும் உரைநடை இலக்கியமும்	6	3	25	75	100
II	English	P2LE31/ P2CE31	English for Innovative Skills in Higher Education	6	3	25	75	100
III	Core Course	10CT31	Computer Networks	4	4	25	75	100
	Core Course	10CT32	Java Programming	4	4	25	75	100
	Core Course	10CP33	Lab III: Java Programming Lab	4	2	40	60	100
	AEC	10AE31	Operations Research	4	5	25	75	100
IV	SEC	10SE31	Operating System	2	2	25	75	100
			TOTAL	**30**	**23**			

FOURTH SEMESTER

Part	Study Component	Course Code	Course Title	Hours	Credits	CIA Marks	ESE Marks	Total Marks
I	Tamil	**P1LT41/ P1CT41**	**சங்க இலக்கியமும் நீதி இலக்கியமும்**	6	3	25	75	100
II	English	**P2LE41/ P2CE41**	**English for Environmental Communication Skills**	6	3	25	75	100
III	Core Course	10CT41	Relational Database Management System	4	4	25	75	100
	Core Course	10CT42	Python Programming	4	4	25	75	100
	Core Course	10CP43	Lab IV: Python Programming With MySql	4	2	40	60	100
	AEC	10AE41	Business Data Analytics	4	5	25	75	100
IV	SEC	10SE41	Computer Skills Lab	2	2	40	60	100
			TOTAL	**30**	**23**			

FIFTH SEMESTER

Part	Study Component	Course Code	Course Title	Hours	Credit	CIA Marks	ESE Marks	Total Marks
III	Core Course	10CT51	Cloud Computing	5	4	25	75	100
	Core Course	10CT52	Internet of Things	5	4	25	75	100
	Core Course	10CT53	Software Engineering	5	4	25	75	100
	Core Course	10CP54	Lab V –Visual Programming Lab	6	2	40	60	100
	DSE	10DS5A	Visual Programming	5	5	25	75	100
		10DS5B	DEVOPS					
IV	SEC	10SE51	Competitive Examination for IT	2	2	25	75	100
	ES	ESUG51	Environmental Studies	2	2	25	75	100
			TOTAL	**30**	**23**			

SIXTH SEMESTER

Part	Study Component	Course Code	Course Title	Hours	Credits	CIA Marks	ESE Marks	Total Marks
III	Core Course	10CT61	Web Programming	4	4	25	75	100
	Core Course	10CP62	Lab VI: Web Programming Lab	5	2	40	60	100
	DSE	10DS6A	Fundamentals of Artificial Intelligence	5	5	25	75	100
		10DS6B	Cyber Security					
	DSE	10PV61	Project and Viva-Voce	8	5	-	100	100
IV	SEC	10SE61	Open Source Software lab	2	2	40	60	100
	SEC	10SE62	Professional Ethics for Computer Science	2	2	25	75	100
	SEC	10SE63	R Programming Lab	2	2	40	60	100
	VE	VEUG61	Value Education	2	2	25	75	100
V	EA	EAUG61	Extension Activities	-	1	25	75	100
			TOTAL	**30**	**25**			

விவேகானந்த கல்லூரி, திருவேடகம் மேற்கு - 625 234.
தமிழ்த்துறை,
Programme : B.A., BSc., (CBCS and LOCF)
(For those students admitted during the Academic Year 2022 – 2023 and after)
பாடத்திட்டத்தின் கட்டமைப்பு (PROGRAMME STRUCTURE)

UG Language PART – I **TAMIL**	SEMESTER: **I**	
Subject Title: கவிதை இலக்கியமும் கதை இலக்கியமும		
Course Code: P1LT11/P1CT11	Hours per week**: 06**	Credit**: 03**
CIA Marks: **25**	ESE Marks: **75**	Total Marks: **100**

நிரல் கல்வி திட்டத்தின் குறிக்கோள்கள்
(Programme Educational Objectives)

- செம்மொழியான தமிழ் மொழியின் இலக்கியம் மற்றும் இலக்கணத்தின் வரலாறு தொடர்பான சிறப்பு கூறுகளை வழங்குதல்.
- தமிழ் இலக்கியத்தின் வாயிலாக பண்டைய தமிழர்கள் தங்கள் வாழ்க்கையில் பின்பற்றிய சுய ஒழுக்கங்களையும், அதன் மதிப்புகளையும் எடுத்துரைத்து அதனை செயல்படுத்த வழிவகை செய்தல்.
- தாய் மொழி அல்லாத பிற மொழியினைக் கற்றுத் தேர்ந்த மாணவர்களுக்குத் தமிழ் மொழியில் உள்ள இலக்கியத்தின் உறுதியான திறன்களை எடுத்துரைத்து, அதனை அம்மாணவர்கள் பெற முயற்சித்தல்.
- அனைத்து வகைகளிலும் முழுமையான ஆளுமைத் திறன்களின் வளர்ச்சியை ஊக்குவித்தல்.

rogramme Learning Outcomes (PLOs)

1. தமிழர்களின் பெருமையினை உணர்ந்து கொள்ளுதல்.
2. படைப்பாளர்களின் தன்மைகளை அறிந்து படைப்பாற்றல் பெறுதல்.
3. வாழ்க்கையின் ஒழுக்க நெறிகளைக் கடைபிடித்தல்.
4. மொழியினைப் பிழையின்றி பேச எழுதப்பழகுதல்.
5. இலக்கியங்களின் படைப்பாளர்களின் வரலாற்றினை அறிந்து கொள்ளுதல்.

முன்னுரை(Preamble)

1. மரபின் பழம்பெருமையினை மாணவர்களுக்கு உணர்த்துதல்.
2. புதுக்கவிஞர்களின் படைப்பாக்கங்களின் பொருண்மை வழி கட்டமைப்பு நிலைகளை எடுத்துரைத்தல்.
3. தனி மனித ஒழுக்கம் சார்ந்த நிலைகளைக் கடைபிடிக்க வலியுறுத்துதல்.
4. தமிழ் எழுத்துக்களின் வகைமைகளை வெளிக்கொணர வழிவகை செய்வித்தல்.
5. தமிழிலக்கியத்தின் கவிதை மற்றும் கதை இலக்கிய வரலாற்றினை புலப்படுத்துதல்.

பாடதிட்டத்தின் முடிவுகள்(Course Learning Outcomes (CLOs)

On the successful completion of the course, students will be able to

NO	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	மரபுக்கவிதை வாயிலாக மொழியின் சிறப்புகள், பொதுவுடைமை குறித்ததான சிந்தனைகளை வரையறை செய்வர்.	K_1, K_2
CLO 2	புதுக்கவிதைகளின் வழி சமூக போக்குகளையும், மக்களின் வாழ்வியல் நிலைப்பாட்டையும் கலந்துரையாடுவர்.	K_2, K_3
CLO 3	சிறுகதை மற்றும் நாவல் இலக்கியங்கள் வழி படைப்புகள் வெளிப்படுத்தும் மக்களின் வாழ்க்கை முறைகளையும், படைப்பாளர்களின் வரலாற்றினையும், கதையெழுதும் உத்திகளையும் விவரிப்பர்.	K_2, K_3
CLO 4	தமிழ் மொழியின் எழுத்து வடிவங்கள் குறித்தும் அவற்றை வகைப்படுத்தும் திறன்கள் குறித்தும் வெளிப்படுத்துவர்.	K_2
CLO 5	மொழியினைப் பிழையின்றி எழுதுதல், பேசுதல், ஒலி வேறுபாட்டினை அறிந்து மயக்கம் நீக்குதல் போன்ற ஒரு மொழியின் பயன்பாட்டுத் தன்மையைத் தெளிவுறுத்துவர்.	K_1, K_2, K_3

K_1-Knowledge **K_2-Understand** **K_3-Apply**

Mapping of CLO and PLO

CLO – PLO Mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7
CLO1	9	3	9	9	3	9	9
CLO2	9	3	9	3	9	3	9
CLO3	9	3	9	9	3	9	9
CLO4	9	1	3	9	9	-	9
CLO5	9	1	3	9	9	-	9
Weightage of the course	45	11	33	39	33	21	45
Weighted percentage of Course contribution to PLOs							

பாடத்திட்டம்(Syllabus)

அலகு - 1	மரபுக்கவிதைகள் 1.1 பாரதியார் கவிதைகள் 1. தமிழ் (நான்கு பத்தி) 2. நடிப்புச் சுதேசிகள் 1.2. பாரதிதாசன் கவிதைகள் 1. நீங்களே சொல்லுங்கள் 2. புதியதோர் உலகம் செய்வோம் 1.3. நாமக்கல் கவிஞர் வெ.இராமலிங்கம் பிள்ளை 1.குருதேவர் இராமகிரு‘ணர் (3 பாடல்கள்) 1.4. சோழவந்தானூர் அரசஞ்சண்முகனார் 1.திருவடிப்பத்து (மதுரை மீனாட்சியம்மை மீது பாடியது)	15மணிநேரம்
அலகு - 2	புதுக்கவிதைகள் 2.1 கவிஞர் கண்ணதாசன் - ‘அனுபவமே கடவுள்’ 2.2. கவிஞர் வைரமுத்து - “தீக்குச்சிக்குத் தின்னக் கொடுப்போம்’ 2.3 கவிஞர் மு.மேத்தா- “பொங்கும் கனவுகள்’, ‘தாய்’	15மணிநேரம்
அலகு - 3	சிறுகதை - நாவல் இலக்கியம் 3.1.‘உள்ளம் பெருங்கோயில்’ - சிறுகதைத் தொகுப்பு (தமிழ்த்துறை வெளியீடு) 3.2.‘ஆத்தங்கரை ஓரம்’ - நாவல்இலக்கியம் - வெ.இறையன்பு	15மணிநேரம்
அலகு - 4	தமிழ் இலக்கணம் - எழுத்து 4.1 முதல் எழுத்துகள் - சார்பெழுத்துகள் 4.2 மொழி முதல் எழுத்துகள்-மொழி இறுதிஎழுத்துகள் 4.3 வல்லெழுத்து மிகும் இடங்கள் 4.4 வல்லெழுத்து மிகாஇடங்கள்	15மணிநேரம்
அலகு - 5	தமிழ் இலக்கிய வரலாறும் பயன்பாட்டுத் தமிழும் 5.1 கவிதை இலக்கியத்தின் தோற்றமும் வளர்ச்சியும் 5.2 கதை இலக்கியத்தின் தோற்றமும் வளர்ச்சியும் 5.3 மரபுப்பிழை நீக்குதல் - பிறமொழிச் சொற்களை நீக்குதல் - பிழையற்றத் தொடரைத் தேர்ந்தெடுத்தல் - ஒருமை பன்மை மயக்கம் - ஓர் எழுத்து ஒரு மொழிக்குரிய பொருள் - ஒலி வேறுபாடுகளும் பொருள் வேறுபாடுகளும் - பொருத்தமான பொருள் - பொருத்தமான தொடர் அறிதல்.	15மணிநேரம்

பாட நூல்கள்(Text books)

1. தமிழ்ச் செய்யுள் தொகுப்பு,
   தமிழ்த்துறை வெளியீடு, விவேகானந்த கல்லூரி, திருவேடகம் மேற்கு.
2. சிறுகதைத்தொகுப்பு, ‘உள்ளம் பெருங்கோயில்’
   தமிழ்த்துறை வெளியீடு, விவேகானந்த கல்லூரி, திருவேடகம் மேற்கு.
3. ஆத்தங்கரை ஓரம் - நாவல்
   நியூ செஞ்சுரி புக் ஹவுஸ்(பி)லிட்,
   41-பி, சிட்கோ இண்டஸ்டிரியல் எஸ்டேட்,
   அம்பத்தூர், சென்னை- 600 098.

பார்வை நூல்கள் (Reference Books)

1. தமிழ் இலக்கிய வரலாறு
   முனைவர் கி.இராசா
   நியூ செஞ்சுரி புக் ஹவுஸ்(பி)லிட்,
   41-பி, சிட்கோ இண்டஸ்டிரியல் எஸ்டேட்,
   அம்பத்தூர், சென்னை- 600 098.

2. நற்றமிழ் இலக்கணம்
   டாக்டர் சொ.பரமசிவம்
   பாட்டுப் பதிப்பகம்,
   1269, 32-ஆம் தெரு,˙ஜ’ பிரிவு,
   சென்னை - 600 040.

DEPARTMENT OF ENGLISH

Programme: B.A., B.Com., B.Com.(CA), & B.Sc.(CBCS & LOCF)

(For the students of the Academic Year 2022-23 onwards)

PART – II **: English**		SEMESTER–**I**
Subject Title **: Basic English Communication Skills**		
Course Code: **P2LE11/ P2CE11**	Hours per week: **6**	Credit: **3**
CIA Marks: **25**	ESE Marks: **75**	Total Marks: **100**

Preamble

The students are expected to inculcate English language proficiency and its socio-linguistic competency.
The students are also expected to use the language skills for creativity and innovation with high quality both in study and profession.

Course Learning Outcomes (CLO)

On the successful completion of the course, the students would be able to:

No	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO1	Recognize listening, and reading proficiency through the prose discourse	K1, K2, K3
CLO2	Use and interpret imaginative, and creative skills through the poetic genre	K1, K2, K3
CLO3	Discuss the socio-linguistic and psychological behaviour of author, and characters found in the one-act-play	K1, K2, K3
CLO4	Examine the functions of English language and its grammar in transactions	K1, K2, K3
CLO5	Execute and exercise LSRW skills in everyday interactions	K1, K2, K3

K1-Remembering K2 – Understanding K3 – Applying

Mapping of CLO and PLO

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7
CLO1	9	9	9	9	9	-	9
CLO2	9	9	9	3	9	-	9
CLO3	9	9	9	3	3	-	9
CLO4	9	9	3	-	-	-	9
CLO5	9	9	9	3	3	1	9
	45	45	39	18	24	01	45

Strong-9 **Medium -3** **Low -1**

Syllabus

Unit-I Prose

1. Swami Chidbhavananda – The Teacher [extract from *The Indian National Education*]
2. Abraham Lincoln – Letter to His Son's Headmaster
3. Francis Bacon – Of Friendship

Unit-II Poetry

1. Coventry Patmore – The Toys
2. Henry Wadsworth Longfellow – A Psalm of Life
3. Ted Hughes – Hawk Roosting

Unit-III One-Act Play

Gordon Daviot – Remember Caesar

(For all the Continuous Internal Assessment [CIA] Tests)

Unit-IV Grammar & Language Practical Workbook Exercise for Capacity Building

1. Parts of Speech: Noun, Adjective, Pronoun, Verb, Adverb, Preposition, Conjunction, Interjection, and Article

2. Kinds of Sentences: Declarative, Imperative, Interrogative, and Exclamatory
3. Role of Auxiliary (Helping) and Modal Verbs in Tenses.

WORKBOOK: Cycle-1, Dave Willis, and Jon Wright. *Basic English Grammar & Practice*. London: HarperCollins Publishers, 1997.

Unit-V Communicative Skills (LSRW):

Listening – Importance of Listening Skills in Classroom, Office, and Public-spaces,
Comprehension practice from Prose, Poetry, Drama, and Grammar,
Observing Guest/Invited Lectures/ E-content (with subtitles),
Conference/Seminar Presentations and Viewing DD News Live, BBC, etc.

Speaking – Importance of Speaking Skills at Articulation and Idea Fixation (AIF),
Peer-Team-Interactions (PTI) on Critical Thinking, Negotiation, and Turn Taking,
Group Discussion Forum (GDF) in Classroom on Intelligibility in speaking, Role-Play,
Aspects of Pronunciation, Fluency, and Tongue Twisters,
Seminar Presentations on Classroom-Assignments/Communication Skills.

Reading – Introduction to Reading Skills, Introduction to Basic Theories of Human,
Communication Process and Principles, Types of Communication: verbal and non-verbal,
Introducing different types of texts and appreciating: Argumentative, Narrative, Descriptive, Expository, etc.

Writing – Introduction to Writing Skills, Importance of Handwriting,
Aspects of Cohesion and Coherence in Essay/Letter/Paragraph/ Report/Research writing,
Notion of correctness and attitude to error correction at the Punctuation Marks,
Asking & Giving Directions/Instructions, Developing Hints, and Filling Forms,
Drafting different Types of Letters (applications, complaints, appreciation,
conveying sympathies, etc.), and Résumé Preparation with a covering letter.

(For all the Continuous Internal Assessment [CIA] Tests)

Text Books

Swami Chidbhavananda. *The Indian National Education*. Tirupparaithurai: Sri Ramakrishna Tapovanam, 2017. <http://www.rktapovanam.org/book_details.php?book_id=MjE=>
The Norton Anthology English Literature. New York/London: W.W.Norton, 2012.
Gordon Daviot, Josephine Tey. *Leith Sands and Other Short Plays*. Michigan: Duckworth, 1946
Wren and Martin. *High School English Grammar and Composition*. New Delhi: S.Chand& Company LTD.1935.
Owen Hargie, David Dickson, and Dennis Tourish. *Communication Skills for Effective Management*. New York: Palgrave Macmillan, 2004.
British Council | LearnEnglish<*https://learnenglish.britishcouncil.org/skills*>
BBC News < https://www.bbc.com/news >
VOA Learning English < https://learningenglish.voanews.com/ >
University Grants Commission (UGC), New Delhi
< https://www.ugc.ac.in/subpage/EContent-URL.aspx >
British Council | LearnEnglish
< https://www.youtube.com/channel/UCOtnu-KKoAbN47IuYMeDPOg >
Cambridge Assessment English < https://www.cambridgeenglish.org/test-your-english/ >
CLIL (Content & Language Integrated Learning) – Module by TANSCHE
NOTE: (*Text: Prescribed chapters or pages will be given to the students by the institution*

REFERENCE BOOKS

Swami Chidbhavananda. *The Indian National Education*. Tirupparaithurai: Sri Ramakrishna Tapovanam, 2017. <http://www.rktapovanam.org/book_details.php?book_id=MjE=>
The Norton Anthology English Literature. New York/London: W.W.Norton, 2012.
Gordon Daviot, Josephine Tey. *Leith Sands and Other Short Plays*. Michigan: Duckworth, 1946
Wren and Martin. *High School English Grammar and Composition*. New Delhi: S.Chand& Company LTD.1935.
Owen Hargie, David Dickson, and Dennis Tourish. *Communication Skills for Effective Management*. New York: Palgrave Macmillan, 2004.

Pedagogy

Teacher made aids and Mechanical (ITC) Aids, Chalk and Talk with interactive session. Note: (Additional online sources, presentation, webinar, and online test will be given by the respective teachers in the English Language Lab).

Teaching Aids

Course Texts, Reference books, Writing Board, Guest Lecture/Invited Lecture, Group Discussion Forum, Online Sources and Webinar.

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2018-19 and after)

Part-III: **Core Course**		SEMESTER – **I**
Course Title: **PROGRAMMING IN C**		
Course Code: **10CT11**	Hours per week: **4**	Credits: **4**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Preamble

This course offered in first semester for the students of Computer Science. This course has four credits dedicated to provide the students a Strong foundation on programming concepts and its application. It also enables the students to solve problems using programmable logic.

Course Learning Outcomes (CLOs)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Understanding the basic concepts of C,constants,variables and data types and to Applying the concept of decision making and looping	K1 K2 K3
CLO 2	Understanding the concept of array and String .Develop C programs for arrays and string	K1 K2 K3
CLO 3	Understanding and Applying the concept of function ,Category of function, Nesting of function	K1 K2 K3
CLO 4	Understanding and Applying the concept of structure and union	K1 K2 K3
CLO 5	Understanding and Applying the concept of pointers and file management	K1 K2 K3

K1-Remembering **K2**-Understanding **K3**-Applying

Mapping of CLO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO6**	**PLO7**
CLO 1	9	-	9	-	-	3	-
CLO 2	9	-	9	-	-	3	-
CLO 3	9	-	9	-	-	-	-
CLO 4	9	-	9	-	-	3	-
CLO 5	9	-	9	-	-	3	-
TOTAL	45	-	45	-	-	12	-

9-Strong 3-Medium 1-Low

Mapping of CLO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO 1	9	9	9	9	-
CLO 2	-	-	9	9	-
CLO 3	9	9	9	9	-
CLO 4	9	9	9	-	-
CLO 5	9	9	9	9	-
TOTAL	36	36	45	36	-

Syllabus

Unit I	**Overview of C:** Introduction to C -Importance -Basic Structure of C Programs - Programming Style and execution of a C Program **Constants, variables and data types:** Introduction - Character Set -Keywords and Identifiers - Constants, Variables and data types -Declaration of variables - Declaration of storage class - Assigning values to variables - defining Symbolic Constants. **Operators:** Introduction - Arithmetic Operators, Relational, Logical, Assignment Operators, Increment and decrement Operators -Conditional -Bitwise Logical Operators and all types of expressions -Operator Precedence and Associating. **Managing input and output Operations**: Introduction – reading a character – writing character – formatted input – formatted output. **Decision making and Branching**: Introduction – Decision making with IF Statement -IF ELSE, nesting of IF ELSE statement -ELSE IF Ladder -Switch Statement - the? : Operator - GOTO statement **Decision making and Looping:** Introduction -WHILE -FOR statement -jumps in Loops.	**(12 HRS)**
Unit II	**Arrays:** Introduction - One Dimensional Arrays - Two Dimensional Arrays - Initializing Two Dimensional Arrays - Multidimensional Arrays. **Character String:** Declaring and initializing String Variables -reading and writing strings - Arithmetic Operations on characters - Other String Operations	**(12 HRS)**
Unit III	**User Defined Functions:** Introduction -Need for User defined Functions -A Multifunction Program -The form of C functions -Returns values and their types - Calling a function -Category of functions -No arguments and no return values - Arguments but no return values -Arguments with return values -Handling of non-integer functions -Nesting of Functions -Recursion -Functions with arrays.	**(12 HRS)**
Unit IV	**Structures & Unions**: Introduction -Structure definition -giving values to members - Structure initialization -Comparison of Structure Variables -Arrays of Structures - Arrays within structures -structures within structures -structures and functions - unions -Size of structures -Bit Fields.	**(12 HRS)**
Unit V	**Pointers:** Introduction -Understanding Pointers -Accessing the address of a variable - dec1aring and initializing pointers -Pointers expressions -Pointers increment and scale factor- Pointers and arrays -Pointers and character strings -Pointers and functions -Pointers and structures -point on Pointers. **File Management in C:** Introduction – defining and opening File – closing File – I/O operations in files – error handling during I/O operations on files – Random Access to Files.	**(12 HRS)**

Text Book

Programming in ANSI C -E: Balagurusamy. 7th edition , Publication: McGrawHill publications

Units Chapters

I	1, 2, 3, 4, 5, 6
II	7, 8
III	9
IV	10
V	11, 12

Reference Books

Theory and Problems of Programming with C - Byron S.Gottfried, Schaum's Outline series
.Let us C – Yashvanth Kaneethkar.

Pedagogy

Chalk&Talk,Group Discussion,PPT

Teaching Aids

Green Board,LCDProjector,InteractiveWhite Board

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2020-21 and after)

Part-III: **Core Course**		SEMESTER – **I**
Course Title: **DIGITAL PRINCIPLES AND COMPUTER ORGANIZATION**		
Course Code: **10CT12**	Hours per week: **4**	Credits: **4**
CIA: **25 Marks**	ESE: **75 Marks**	Total: **100 Marks**

Preamble

This course offered in first semester for the students of Computer Science. Implement simple logical operations using combinational and logic circuits. Determine the function and performance of given combinational and sequential circuits.

Course Learning Outcomes (CLO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Define the basic concepts of number system and discrete logic	K1 K2 K3
CLO 2	Understand and apply the concepts of Multiplexers, DE multiplexers, Decoders, Encoders.	K1 K2 K3
CLO 3	Explain the Flip Flop and Shift Register Concepts	K1 K2 K3
CLO 4	Understanding the basic function operation, Bus structure, Stack and Queue.	K1 K2 K3
CLO 5	Explain the addressing mode, DMA, Hardwired control	K1 K2 K3

K_1-Remembering **K_2**-Understanding **K_3**-Applying

Mapping of CLO with PLO

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO6	PLO7
CLO 1	9	-	9	-	-	-	-
CLO 2	9	-	9	-	-	-	-
CLO 3	9	-	9	-	-	-	-
CLO 4	9	-	9	-	-	-	-
CLO 5	9	-	9	-	-	-	-
TOTAL	45	-	45	-	-	-	-

9-Strong 3-Medium 1-Low

Mapping of CLO with PSO

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CLO 1	9	9	9	-	-
CLO 2	9	9	9	9	-
CLO 3	9	-	-	-	-
CLO 4	9	-	-	-	-
CLO 5	9	-	-	-	-
TOTAL	45	18	18	9	-

Syllabus

UNIT I	Number system – Excess – 3 – Code - Gray code - Transistor Inverter - Logic Gates -Boolean algebra – k-map- 2 variable -3 variable – 4 - variable – k – map Simplifications.	**(12 HRS)**
UNIT II	Multiplexers – 4 to 1 Multiplexer – 8 to 1 Multiplexer – 16 to 1 Multiplexer -De-multiplexers – 1 to 4 De-Multiplexer – 1 to 8 De-Multiplexer – 1 to 16	**(12 HRS)**

	De- Multiplexer – Encoders – Octal to Binary encoder – Decimal to BCD encoder– Decoders – Basic Binary Decoder – 3 to 8 Decoder	
UNIT III	Flip - Flops - JK Flip Flop - RS Flip Flop - T Flip Flop - D Flip Flop - Shift Registers - Serial In Serial Out - Serial In Parallel Out - Parallel In Serial Out - Parallel In Parallel Out.	**(12 HRS)**
UNIT IV	Functional Units - Basic Operational Concepts - Bus Structures – Software – Performance - Stack and Queue	**(12 HRS)**
UNIT V	Addressing Modes – Instruction formats – Data manipulation instruction formats - Processing Unit: Fundamental Concepts – Execution of a complete Instruction - Hardwired control - Micro Programmed Control - DMA.	**(12 HRS)**

Text book(s)

1. **"Digital circuits and design"** S.Salivahanan& S.Arivazhagan Vikas publications.
2. **"Computer organization"** V. carl hamacher, Zvonko G.vranesic, Sawat G.Zaky, TMH publications.

Reference book(s)

1. **"Digital Principles & Applications"** Albert dave marvinot & Donald p.leach, TMH publications.
2. **"Computer Organization and Architecture"** William Stalling, PHI publications.

E-Resources

https://www.javatpoint.com/digital-computers
http://www.svecw.edu.in/Docs%5CITIIBTechIISemLecCOA.pdf
https://mrcet.com/downloads/digital_notes/IT/COMPUTER%20ORGANIZATION%20(R17A0510).pdf
https://lecturenotes.in/subject/419/digital-logic-design-and-computer-organisation-dldco/note

Pedagogy

Chalk&Talk,Group Discussion,PPT

Teaching Aids

Green Board,LCDProjector,InteractiveWhite Board

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2019-20 and after)

Part-III: **Core Practical**		SEMESTER – **I**
Course Title: **LAB I: C PROGRAMMING LAB**		
Course Code: **10CP13**	Hours per week: **4/Semester:60**	Credits: **2**
CIA Marks: **40 Marks**	ESE Marks: **60 Marks**	Total Marks: **100 Marks**

Preamble

This course provides the ability to write programs in C to solve given problems.

Course Learning Outcomes (CLOs)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Solving Simple Problems using basic concepts	K2 K3
CLO 2	Solving Problems based on mathematical formulas and expressions	K2 K3
CLO 3	To write programs to perform multiple tasks.	K2 K3 K4
CLO 4	To write program using structure and union for problem solving.	K2 K3 K4
CLO 5	To develop program using pointers and files for problem solving.	K2 K3 K4

K1-Remembering **K2**-Understanding **K3**-Applying

Mapping of CLO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO6**	**PLO7**
CLO 1	9	-	9	-	3	3	3
CLO 2	9	-	9	-	3	3	3
CLO 3	9	-	9	-	3	3	3
CLO 4	9	-	9	-	3	3	3
CLO 5	9	-	9	-	3	3	3
TOTAL	45	-	45	-	15	15	15

9-Strong 3-Medium 1-Low

Mapping of CLO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO 1	9	-	-	-	-
CLO 2	9	9	-	-	-
CLO 3	-	-	9	9	-
CLO 4	-	-	9	9	-
CLO 5	-	-	-	9	9
TOTAL	18	9	18	27	09

Syllabus

C – Practical Lab List:

1. Write a C program to arrange the strings in alphabetical order
2. Write a C program to print Pascal triangle.
3. Write a C program to add two matrices.
4. Write a C program to print n prime numbers.
5. Write a C program to subtract two matrices.
6. Write a C program to print Floyd's triangle with O's and 1's.
7. Write a C program to multiply two matrices.
8. Write a C program to print reverse of the string using recursion.
9. Write a C program to transpose a matrix.
10. Write a C program to find the NCR value using function.
11. Write a C program to create a student file consists of records of field members name, register Number, and 5 marks. Calculate total and average.
12. Write a C program to find the sum of the digits of a given number
13. Write a C program to create an employee file consists of records of field member's name, employee Number and basic pay. Calculate gross pay and net pay.
14. Write a C program to print all ArmStrong numbers
15. Write a C program to create an electricity file consists of records of field members name, customer code, previous month reading, current month reading, customer status Calculate no of units and Amount if customer status is residential Rs 2/unit is commercial Rs 4/unit.
16. Write a C program to reverse the digits of a given number
17. Write a C program to create a Cricket file consists of records of field members player name, country, total runs, total matches. Calculate batting average and print results as country wise.
18. Write a C program to print Fibonacci series
19. Write a C program to create a text file and convert the text into upper case letters and write it into another file.
20. Write a C program to solve a quadratic equation.
21. Write a C program to solve Towers of Hanoi using recursion
22. Write a C program to imitate DOS COPY command using command line arguments.
23. Write a C program to arrange the numbers in ascending order (using arrays)
24. Write a C program to arrange the numbers in ascending order using pointers
25. Write a C program to search a number in an array and also find its position.

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2018-19 and after)

Part-III: **Ability Enhancement Course**		SEMESTER – **I**
Course Title: **DISCRETE MATHEMATICS**		
Course Code: **10AE11**	Hours per week: **4**	Credits: **5**
CIA: **25 Marks**	ESE: **75 Marks**	Total: **100 Marks**

Preamble

The main objective of this course is to introduce the basic terminology used in foundation of computer science. This emphasizes the development of rigorous logical thinking for solving different kinds of problems. Based on this the course aims at giving adequate exposure in the theory and applications of Set theory, Propositional logic, Graph theory which helps the learner to use them eventually in practical applications of computer science These topics supports the advanced courses in computer science such as digital principles, artificial intelligence, compiler and design, DBMS, Design of Software etc.

Course Learning Outcomes (CLO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Define the basic concepts of set theory. Understanding and Applying the concepts of functions, relations, mathematical induction and permutation, combination	K1 K2 K3
CLO 2	Explain about the Types of Matrix, addition, subtraction, multiplication, rank, inverse of matrix. Applying the Eigen values & vector, cayley Hamilton theorem	K1 K2 K3
CLO 3	Prove implication problems using truth table method, Obtain PCNF and PDNF of given logical expression	K1 K2 K3
CLO 4	Applying the concepts of Induction, Recursions and Recurrence relations	K1 K2 K3
CLO 5	Applying the concepts of graph theory	K1 K2 K3

K_1-Remembering **K_2**-Understanding **K_3**-Applying

Mapping of CLO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO6**	**PLO7**
CLO 1	9	-	9	-	-	3	-
CLO 2	9	-	9	-	-	-	-
CLO 3	9	-	9	-	-	3	-
CLO 4	9	-	9	-	-	-	-
CLO 5	9	-	9	-	-	3	-
TOTAL	45	-	45	-	-	09	-

9-Strong **3**-Medium **1**-Low

Mapping of CLO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO 1	3	9	3	-	-
CLO 2	-	9	3	-	-
CLO 3	-	9	3	-	-
CLO 4	-	9	3	-	-
CLO 5	-	9	3	-	-
TOTAL	03	45	15	-	-

Syllabus

Unit I	**SET THEORY:**Introduction - Operations on sets – relation between sets – closures of a relation – N-ary relations and their applications – functions – mathematical induction – permutations and combinations.	**(12 HRS)**
Unit II	**MATRIX ALGEBRA:**Introduction - Definition of Matrix – types of matrices – matrices associated with a given matrix – sub matrix – equality of matrices – addition and subtraction of matrices – multiplication of matrices – adjoin of square matrix – inverse of matrix – rank of matrix – normal form of matrix – clayey Hamilton theorem.	**(12 HRS)**
Unit III	**MATHEMATICS LOGIC** :Introduction – propositions and logical operators – construction of truth tables – tautologies and contradictions – equivalence and implication – NAND and NOR – functionally complete sets – two state devices and statement logic – normal forms	**(12 HRS)**
Unit IV	**INDUCTION, RECURSION AND RECURRENCE RELATIONS:**Introduction - Mathematical induction – recursion – recursion and iteration – closed from expression – sequence of integers – recurrence relations – recurrence relation and obtained from solutions – generating functions.	**(12 HRS)**
Unit V	**GRAPH THEORY:**Introduction - Basic concepts – connected graphs – distance in a graph – connectedness in directed graph – incidence and adjacency matrices – Trees – application of trees – binary search trees – decision trees – traversal trees – infix, prefix and postfix notation –Sorting – Bubble sort – Heap sort – Spanning Tree	**(12 HRS)**

Text Book

Discrete Mathematics: By N Ch. S.N.Iyengar, V.M.Chandrasekaran, K.A. Venkatesh And P.S. Arunachalam.

Chapters

1,2,3,4,7

Reference Books

Discrete Mathematics for Computer Science by V.Sundarasan and K.Ganesan.
Discrete Mathematics for Computer Science by Bemard Kolman.

Pedagogy

Chalk&Talk,Group Discussion,PPT

Teaching Aids

Green Board,LCDProjector,InteractiveWhite Board

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2018-19 and after)

Part-IV: **Generic Elective Course**		SEMESTER – **I**
Course Title: **INTRODUCTION TO INFORMATION TECHNOLOGY**		
Course Code: **10GE11**	Hours per week: **2**	Credits: **2**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Preamble

This course offered in first semester for the students of Non-Computer Science Students. This course has two credits dedicated to provide the students a Strong foundation on Information Technology and its application.

Course Learning Outcomes (CLO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Define the basic concepts of Information Technology	K1 K2 K3
CLO 2	Understanding the concepts of computer system and CPU	K1 K2 K3
CLO 3	Understanding the Applying the concepts of Input and output devices, Secondary storage	K1 K2 K3
CLO 4	Understanding Applying the concepts of Operating systems, File Management	K1 K2 K3
CLO 5	Define the basic concepts of Internet	K1 K2 k3

K1-Remembering **K2**-Understanding **K3**-Applying

Syllabus

Unit I	**Introduction:** Information systems – Software and data – IT in Business and Industry – IT in Home and at Play – IT in education and training – IT in Entertainment and the Arts – IT in science, engineering and mathematics – Computer in Hiding.	**(6 HRS)**
Unit II	**The Computer System and Central Process Unit:** Types of computers – Corporate and Departmental computers, Desktop and Personal Computers – The Anatomy of computer – The foundation of Modern Information Technology: Binary Numbers, Digital Signals, Bits and Bytes –Central Process Unit – Memory.	**(6 HRS)**
Unit III	**Input and Output**: I/O Devices – Keyboards – Inputting text, Graphics – Pointing devices – The foundation of Modern outputs: Pixels and resolutions, Fonts, Color – Display Screens	**(6 HRS)**
Unit IV	**Software:** Introduction – User Interface – Application Programs – Operating systems: Introduction, Types, File Management and Utilities – Major Software Issues.	**(6 HRS)**
Unit V	**Internet and World Wide Web**: Introduction – The Web – Getting connected to the Web – Browsing the Web – Locating information on the Web – Web Multimedia.	**(6 HRS)**

Text Book

Information Technology The Breaking Wave By Dennis P.Curtin, Kim Foley, Kunal Sen, Cathleen Morin – Tata McGraw-Hill Publishing

தமிழ்த்துறை, விவேகானந்த கல்லூரி, திருவேடகம் மேற்கு.

Programme : B.A., BSc., (CBCS and LOCF)
(For those students admitted during the Academic Year 2021 – 2022 and after)
பாடத்திட்டத்தின் கட்டமைப்பு (PROGRAMME STRUCTURE)

UG Language PART – I TAMIL	SEMESTER: II	
Subject Title: இடைக்கால இலக்கியமும் நாடகமும்		
Course Code: P1LT21/P1CT21	**Hours per week: 6**	**Credit: 03**
CIA Marks: 25	ESE Marks: 75	Total Marks: 100

Preamble

1. பக்தி இலக்கியத்தின் வாயிலாக சமயம் மற்றும் வழிபாட்டு நெறிகளை உணர்த்துதல்.
2. சிற்றிலக்கியங்களின் வாயிலாக குடிமக்களின் வாழ்வியல் நெறிமுறைகளை வெளிக்கொணர்தல்.
3. நாடக இலக்கியம் வாயிலாக மனித வாழ்க்கையின் எதார்த்த நிகழ்வுகளைப் புலப்படுத்துதல்.
4. கணினிச் சொற்களின் வகைமைகளை அறிவித்தல்.
5. சைவ - வைணவ, சிற்றிலக்கியம், நாடகம் - ஆகியவற்றின் வரலாற்றினைத் தெளிவுபடுத்துதல்.

Course Learning Outcomes (COs)

On the successful completion of the course, students will be able to

NO	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	பக்தி இலக்கியங்களின் வாயிலாக வழிபாட்டு முறைகள், இறை நம்பிக்கைகள் குறித்ததன்மையினை வரையறை செய்வர்.	K_1, K_2
CO 2	சிற்றிலக்கியங்களின் வாயிலாக குடிமக்களின் வாழ்வியல் குறித்த செய்திகளைக் கலந்துரையாடுவர்.	K_2, K_3
CO 3	குறுநாடகங்களின் வாயிலாக மக்களின் எதார்த்த வாழ்வியல் முறைகளையும், நாடக உத்திமுறைகளையும் அறிவர்.	K_2, K_3
CO 4	பேயர் - வினை, வினா - விடை, வேற்றுமை, தொகைகள் ஆகியன குறித்த தெளிவும், அவற்றை வகைப்படுத்தும் தன்மைகளையும் வெளிப்படுத்துவர்.	K_2
CO 5	கணினியில் தமிழ் மொழியின் பயன்பாட்டுத் தன்மைகளையும், சைவம் - வைணவம், சிற்றிலக்கியம், நாடகம் போன்ற இலக்கியத்தின் தன்மைகளையும், அதனைப் படைத்த படைப்பாளர்களின் வரலாற்றினையும் விவரிப்பர்.	K_1, K_2, K_3

K_1-Knowledge **K_2-Understand** **K_3-Apply**

Mapping of CLO and PLO

CLO – PLO Mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7
CLO1	9	3	3	9	9	3	9
CLO2	9	3	9	9	9	3	9
CLO3	9	1	3	9	9	3	9
CLO4	9	-	3	9	9	-	9
CLO5	9	-	3	3	3	-	9
Weightage of the course	45	07	21	39	39	09	45

Weighted percentage of Course contribution to PLOs							

பாடத்திட்டம்(Syllabus)

அலகு - 1	சைவ இலக்கியம் - வைணவ இலக்கியம் 2.1 தேவாரம் - திருவேடகப்பதிகம் திருஞானசம்பந்தர் 2.2 திருவாசகம் - பிடித்த பத்து மாணிக்கவாசகர் 2.3 திருப்பாவை - 1,2,3,4,5,6,17,24,25,29 ஆகிய 10 பாசுரங்கள் ஆண்டாள் 2.4 பெருமாள் திருமொழி (ஊனேறு செல்வத்து உடல் பிறவி... 11பாடல்கள்) குலசேகரஆழ்வார்	(15மணிநேரம்)
அலகு - 2	சிற்றிலக்கியம் 1.முக்கூடற் பள்ளு (முக்கூடலின் சிறப்பு, முக்கூடல் வளம்) 2.2 நந்திக்கலம்பகம் (1.திறையிடுமி னன்றி மதில்விடுமி னுங்கள்.... 2. வானுறு மதியை யடைந்ததுன் வதனம்....) 2.3 கலிங்கத்துப்பரணி - செயங்கொண்டார் (1.போரின் பேரொலி 2.வீரர்களும் அரசர்களும்) 2.4 தமிழ்விடுதூது (4 கண்ணிகள்) 2.5 மீனாட்சியம்மைப் பிள்ளைத்தமிழ் - குமரகுருபரர் (அம்புலிப் பருவம்) 2.6 குற்றாலக்குறவஞ்சி-திரிகூடராசப்பக்கவிராயர் (1.வானரங்கள் கனிகொடுத்து மந்தியொடு.... 2. ஓடக் காண்பது பூம் புனல் வெள்ளம்...)	(15மணிநேரம்)
அலகு - 3	நாடக இலக்கியம் 1. 'வைகையில் வெள்ளம் வரும்' - சேதுபதி	(15மணிநேரம்)
அலகு - 4	தமிழ் இலக்கணம் - சொல் 4.1 பெயர்ச்சொல் - வினைச் சொல் 4.2 வினா - விடை வகைகள் 4.3 வேற்றுமைகள் 4.4 தொகைகள்	(15மணிநேரம்)
அலகு - 5	தமிழ் இலக்கிய வரலாறும் பயன்பாட்டுத்தமிழும் 5.1 பக்தி இலக்கியத்தின் தோற்றமும் வளர்ச்சியும். 5.2 சிற்றிலக்கியத்தின் தோற்றமும் வளர்ச்சியும். 5.3 நாடகத்தின் தோற்றமும் வளர்ச்சியும் 5.4 கணினித்தமிழ் அறிமுகம் - கணினி ஆங்கிலச்சொல்லுக்கு நிகரான தமிழ்ச் சொல் அறிதல்.	(15மணிநேரம்)

பாட நூல்கள்

1. செய்யுட் தொகுப்பு,
   தமிழ்த்துறை வெளியீடு.
   விவேகானந்த கல்லூரி,
   திருவேடகம் மேற்கு.

2. வைகையில் வெள்ளம் வரும்(குறு நாடகங்கள்)

சொ.சேதுபதி,
பாவை பப்ளிகே'ன்ஸ்,
142, ஜானி ஜான் கான் சாலை,
இராயப்பேட்டை, சென்னை – 600 014.

பார்வை நூல்

1. தமிழ் இலக்கிய வரலாறு முனைவர் கி.இராசா நியூ செஞ்சுரி புக் ஹவுஸ்(பி)லிட், 41-பி, சிட்கோ இண்டஸ்டிரியல் எஸ்டேட், அம்பத்தூர், சென்னை- 600 098.

DEPARTMENT OF ENGLISH

(For those students admitted during the Academic Year 2022-23 onwards

Programme: B.A., B.Com., B.Com.(CA), & B.Sc.(CBCS & LOCF)

PART – II**: English**		SEMESTER–**II**
Course Title**: Advanced English Communication Skills**		
Course Code: **P2LE21/ P2CE21**	Hours per week: **6**	Credit: **3**
CIA Marks: **25**	ESE Marks: **75**	Total Marks: **100**

Preamble

The students are expected to inculcate English language proficiency and its socio-linguistic competency.

The students are also expected to use the language skills for creativity and innovation with high quality both in study and profession.

Course Learning Outcomes (CO):

On the successful completion of the course, the students would be able to:

No	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO1	Recognize listening, and reading proficiency through the prose discourse	K1, K2, K3
CLO2	Interpret philosophical thoughts and language mastery found in the poetry	K1, K2, K3
CLO3	Face short artistic writing outcome in English through short-stories	K1, K2, K3
CLO4	Examine the functions of English language and its grammar in transactions	K1, K2, K3
CLO5	Execute and exercise LSRW skills in everyday interactions	K1, K2, K3

K1 – Remembering K2–Understanding K3 – Applying

Mapping of CLO and PLO

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO6	PLO7
CLO1	9	9	9	9	9	-	9
CLO2	9	9	9	3	9	-	9
CLO3	9	9	9	3	3	-	9
CLO4	9	9	3	-	-	-	9
CLO5	9	9	9	3	3	1	9
	45	45	39	18	24	01	45

Strong-9 Medium -3 Low -1

Syllabus

Unit-I Prose

1. Swami Vivekananda – Sisters and Brothers of America…
2. Swami Chidbhavananda –The Student [extract from *The Indian National Education*]
3. Martin Luther King Jr. – I Have a Dream…

Unit-II Poetry

1. Alfred Lord Tennyson – Ulysses
2. Nissim Ezekiel – Night of the Scorpion
3. Robert Frost – Stopping by Woods on a Snowy Evening

Unit-III Short Stories

1. R.K. Narayan – A Shadow
2. Khushwant Singh – Karma
3. Ruskin Bond – Tiger in the Tunnel

Unit-IV Grammar & Language Practical Workbook Exercise for Capacity Building

1. Spotting Errors (Articles & Tenses) and Concord/Agreement between different parts of a sentence
2. Analogy and One-Word Substitution
3. Degrees of Comparison

Workbook: Cycle-2, Dave Willis, and Jon Wright. *Basic English Grammar & Practice*. London: HarperCollins Publishers, 1997.

Unit-V Communicative Skills (LSRW)

Listening – Problems of listening to unfamiliar dialects,
Comprehension practice from Prose, Poetry, and Grammar,
Observing Guest/Invited Lectures/ E-content (with subtitles),
Conference/Seminar Presentations and Viewing DD National News Live, BBC, etc.

Speaking – PTI on Mock-Interview, and Mock Viva-voce,
AIF in Classroom on advancement in Spoken English
GDF in Classroom on Defending your assignment/project/field-visit,
Seminar Presentations on the Summary of any piece of literature/topic.

Reading – Identifying and overcoming problems of English Communication Skills,
Cross-cultural communication skills,
Intonation practice and its enhancement from Prose, Poetry, etc.
Reading out the Individual-Assignment/Research writing/Project.

Writing – Report Writing: Analyzing a topic for an essay, a report, or a research work,
Editing the drafts arrived at and preparing the final draft with Sentence
Connectors/Linkers/Transitional Words and Phrases in sentences, paragraph, etc.
Re-draft a piece of text with a different perspective (Manipulation exercise),
Expanding a given sentence without affecting the structure,
Reorganizing jumbled sentences into a coherent paragraph,
Transcoding (graphs, diagrams, Charts and data).

(For all the Continuous Internal Assessment [CIA] Tests)

Text Books

Swami Vivekananda. *Sisters and Brothers of America*, (Chicago address at the World Parliament of Religions, 11th Sep, 1893.) <http://www.advaitayoga.org/advaitayogaarticles/svchicagoadd.html>

Swami Chidbhavananda. *The Indian National Education*. Tirupparaithurai: Sri Ramakrishna Tapovanam, 2017. <http://www.rktapovanam.org/book_details.php?book_id=MjE=>

Anderson et al. *Elements of Literature: Fourth Course Literature of the United States*. Florida: HRW Inc. 1993.

Dr.P.C.James Daniel, ed. *Gateway to English: An Anthology of Prose*. Chennai: Harrows Publications, 2018.

Vinay Harwadker, and A.K.Ramanujan, ed. *The Oxford Anthology of Modern Indian Poetry*. New Delhi: OUP, 1994.

The Norton Anthology English Literature. New York/London: W.W.Norton, 2012.

Suresh Kohli. *Great Stories from Modern India*, New Delhi: Om Books International; 2015.

Dave Willis and Jon Wright. *Basic Grammar: Helping Learners with Real English*. London: HarperCollins Publishers, 1997.

Wren and Martin. *High School English Grammar and Composition*. New Delhi: S.Chand& Company LTD.1935.

Owen Hargie, David Dickson, and Dennis Tourish. *Communication Skills for Effective Management*. New York: Palgrave Macmillan, 2004

British Council | LearnEnglish<https://learnenglish.britishcouncil.org/skills>

BBC News <https://www.bbc.com/news>

VOA Learning English <https://learningenglish.voanews.com/>

University Grants Commission (UGC), New Delhi <https://www.ugc.ac.in/subpage/EContent-URL.aspx>

British Council | LearnEnglish<https://www.youtube.com/channel/UCOtnu-KKoAbN47IuYMeDPOg>

Cambridge Assessment English <https://www.cambridgeenglish.org/test-your-english/>

CLIL (Content & Language Integrated Learning) – Module by TANSCHE

NOTE: (Text: Prescribed chapters or pages will be given to the students by the department and the college)

REFERENCE BOOKS

<http://www.advaitayoga.org/advaitayogaarticles/svchicagoadd.html>

Swami Chidbhavananda. *The Indian National Education*. Tirupparaithurai: Sri Ramakrishna Tapovanam, 2017. <http://www.rktapovanam.org/book_details.php?book_id=MjE=>

Vinay Harwadker, and A.K.Ramanujan, ed. *The Oxford Anthology of Modern Indian Poetry*. New Delhi: OUP, 1994.

The Norton Anthology English Literature. New York/London: W.W.Norton, 2012.

Greatest Short Stories, Mulk Raj Anand, Jaico Publication House, 1999.

Murli Melwani. The Indian Short Story in English, BookBaby: 2015.

Dave Willis and Jon Wright. *Basic Grammar: Helping Learners with Real English*. London: HarperCollins Publishers, 1997.

Wren and Martin. *High School English Grammar and Composition*. New Delhi: S.Chand& Company LTD.1935.

Owen Hargie, David Dickson, and Dennis Tourish. *Communication Skills for Effective Management*. New York: Palgrave Macmillan, 2004

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)
(For those students admitted during the Academic Year 2019-20 and after)

Part-III: **Core Course**		SEMESTER – **II**
Course Title: **OBJECT ORIENTED PROGRAMMING WITH C++**		
Course Code: **10CT21**	Hours per week: **4**	Credits: **4**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Preamble

To experience with C++ programming using OOP. Simple & easy understand the programming language. To cope with complexity of real- world problem. New Programming approach (Bottom –up). To enhance the programming skills.

Course Learning Outcomes (CLO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Explain the principles of OOPs, Control structure & Operator	K1, K2, K3
CLO 2	Develop solutions for problems using class and object concepts.	K1, K2, K3
CLO 3	Explain about the Constructor & Destructor	K1, K2, K3
CLO 4	Explain the Inheritance. Develop the Program use this concept	K1, K2, K3
CLO 5	Explain about the Pointer & Polymorphism. Develop the Program use this concept	K1, K2, K3

K1-knowledge K2-Understand K3-Apply

Mapping of CLO with PLO

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO6	PLO7
CLO 1	9	-	9	-	-	3	-
CLO 2	9	-	9	-	-	3	-
CLO 3	9	-	9	-	-	3	-
CLO 4	9	-	9	-	-	3	-
CLO 5	9	-	9	-	-	3	-
TOTAL	45	-	45	-	-	15	-

9-Strong; 3-Medium; 1-Low

Mapping of CLO with PSO

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CLO 1	9	-	-	-	-
CLO 2	9	-	-	-	-
CLO 3	-	-	9	9	-
CLO 4	-	-	9	9	-
CLO 5	-	9	9	9	-
TOTAL	18	09	27	27	-

Syllabus

UNIT I	**Basic concepts of Object**: Oriented programming – Benefits of OOP - Object – Oriented Languages – Application of OOP. BEGINNING WITH C++: An example with class – structure of C++ program – creating the source the source file – compiling and linking. **TOKENS, EXPRESSIONS AND CONTROL STRUCUTURES**: Introduction – tokens – Keywords – identifiers – basic data types – user defined data types – derived data types – symbolic constants – type compatibility – declaration of variables – dynamic initialization of variables – reference variables **Operators in C++:** Introduction - scope resolution operators – member de-referencing operators – memory management operators – manipulators type cast operator- expression and implicit conversions – operator overloading – operator precedence – control structures.	**(12 HRS)**
UNIT II	**Functions in C++:** Introduction – the main function – function prototyping call by reference – return by reference in line functions – default arguments – const arguments – function overloading – friend and virtual functions. **CLASSES AND OBJECTS:** Introduction – C structure revisited – specifying a class – defining member functions – a C++ program with class – making an outside function inline – nesting of member functions – private member functions – arrays within a class – memory allocation for objects – static data members – static member functions – arrays of objects – objects as function arguments – friendly functions – returning objects – const member functions – pointers to members.	**(12 HRS)**
UNIT III	**CONSTRUCTORS AND DESTRUCTORS**: Introduction – constructors – parameterized constructors – multiple constructors in class – constructors with default arguments – dynamic initializations of objects – copy constructor – dynamic constructors – constructing two dimensional arrays – destructors. **OPERATOR OVERLOADING AND TYPE CONVERSIONS**: Introduction – defining operator overloading – overloading unary operators – overloading binary operators – overloading binary operators using friends – manipulation of strings using operators – type conversions.	**(12 HRS)**
UNIT IV	**Inheritance : extending classes:** Introduction – defining derived classes – single inheritance – making a private member inheritable – multilevel inheritance – multiple inheritance – hierarchical inheritance – hybrid inheritance – virtual base classes – abstract classes – constructors in derived classes – member classes – nesting of classes.	**(12 HRS)**
UNIT V	**POINTERS, VIRUTAL FUNCTIONS AND POLYMORPHISM:**Introduction – pointers of objects – this pointer – pointers to derived classes – virtual functions – pure virtual functions **MANAGING CONSOLE I/O OPERATIONS**: Introduction – C++ stream classes – unformatted I/O operations – formatted console I/O operations – managing output with manipulators.	**(12 HRS)**

TEXT BOOK:

OBJECT ORIENTED PROGRAMMING WITH C++ **- E**.Balaguru Samy – Tata McGraw – Hill Publishing Company Ltd-6th Edn.- 1995.

REFERENCE:

1. Ira Pohl, “Object oriented programming using C++”, Pearson Education Asia, 2003.
2. Bjare Stroustrup, “The C++ programming language”, Addition Wesley, 2000.
3. John R.Hubbard, “Programming with C++”, Schaums outline series, TMH, 2003.

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2019-20 and after)

Part-III: **Core Course**		SEMESTER – **II**
Course Title: **DATA STRUCTURE**		
Course Code: **10CT22**	Hours per week: **4**	Credits: **4**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Preamble

To provide a comprehensive introduction to data structure leading to the ability to understand contemporary terminology, progress, issues and trends. Focusing on types of data structure models, their operations and related algorithms

Course Learning Outcomes (CLO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Explain about the basic terminology of data structure, Array and pointer	K1, K2, K3
CLO 2	Describe the Stack and Queue concept in Data Structure	K1, K2, K3
CLO 3	Explain how to implement the linked list concept in Data Structure	K1, K2, K3
CLO 4	Briefly discuss about the TREE concept	K1, K2, K3
CLO 5	Explain about the Graph, Sorting concept	K1, K2, K3

K1-knowledge K2-Understand K3-Apply

Mapping of CLO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO6**	**PLO7**
CLO 1	9	-	9	-	-	3	-
CLO 2	9	-	9	-	-	3	-
CLO 3	9	-	9	-	-	3	3
CLO 4	9	-	9	-	-	3	3
CLO 5	9	-	9	-	-	3	3
TOTAL	45	-	45	-	-	15	09

9-Strong; 3-Medium; 1-Low

Mapping of CLO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO 1	9	-	-	-	-
CLO 2	9	-	9	-	-
CLO 3	-	9	-	9	-
CLO 4	9	9	9	-	-
CLO 5	9	9	9	-	-
TOTAL	36	27	27	09	-

Syllabus

UNIT I	**Introduction and Overview:** Introduction- Basic Terminology; Elementary Data Organization – Data Structures- Data Structure Operations. **Arrays, Records and Pointers:** Linear Arrays- Representation of Linear Arrays in Memory- Traversing Linear Arrays- Inserting and Deleting- Sorting; Bubble Sort- Searching; Linear Search- Binary Search- Multidimensional Arrays- Pointers; Pointer Arrays- Records; Record Structures- Matrices- Sparse Matrices.	**(12 HRS)**
UNIT II	**Stacks, Queues, Recursion:** Stacks- Array Representation of Stacks- Linked Representation of Stacks- Arithmetic Expressions; Polish Notation- Quicksort, an Application of Stacks- Recursion- Queues- Linked Representation of Queues- Dequeues.	**(12 HRS)**
UNIT III	**Linked List:** Linked Lists- Representation of Linked Lists in Memory- Traversing a Linked List- Searching a Linked List- Insertion into a Linked List- Deletion from a Linked List- Two – way Lists.	**(12 HRS)**
UNIT IV	**Trees:** Binary Trees- Representing Binary Trees in Memory- Traversing Binary Trees- Traversal Algorithms using Stacks- Binary Search Trees- Searching and Inserting in Binary Search Trees- Deleting in a Binary Search Tree.	**(12 HRS)**
UNIT V	**Graphs and their Applications:** Introduction- Graph Theory Terminology- Sequential Representation of Graphs; Adjacency Matrix; Path Matrix- Warshall's Algorithm; Shortest Paths. **Sorting:** Introduction- Sorting- Insertion Sort- Selection Sort- Merge-Sort- Radix Sort.	**(12 HRS)**

TEXT BOOK:

1. **"Data Structures",** Seymour Lipschutz, Indian Adapted Edition 2006, Sixteenth reprint, Tata McGraw-Hill Companies.

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2018-19 and after)

Part-III: **Core Practical**		SEMESTER – **II**
Course Title: **LAB II: C++ & DATA STRUCTURE**		
Course Code: **10CP23**	Hours per week: **4/Semester:60**	Credits: **2**
CIA Marks: **40 Marks**	ESE Marks: **60 Marks**	Total Marks: **100 Marks**

Preamble

This course provides the ability to develop programs in C++, using data structures concepts and algorithms to solve given problems.

Course Learning Outcomes (CLOs)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Solving Simple Problems using basic concepts in C++	K2 K3
CLO 2	Solving Problems using constructors, overloading concepts and functions	K2 K3
CLO 3	To write a C++ programs using all the OOPS concepts	K2 K3
CLO 4	Solving problems, applying concepts and algorithm of primitive data structures and perform different operations.	K2 K3 K4
CLO 5	Solving problems, applying concepts and algorithm of non - primitive data structures and perform different operations.	K2 K3 K4

K1-Remembering **K2**-Understanding **K3**-Applying

Mapping of CLO with PLO

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO6	PLO7
CLO 1	9	-	9	-	3	3	3
CLO 2	9	-	9	-	3	3	3
CLO 3	9	-	9	-	3	3	3
CLO 4	9	-	9	-	3	3	3
CLO 5	9	-	9	-	3	3	3
TOTAL	45	-	45	-	15	15	15

9-Strong 3-Medium 1-Low

Mapping of CLO with PSO

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CLO 1	9	9	-	-	-
CLO 2	9	9	-	-	-
CLO 3	9	9	-	9	-
CLO 4	9	-	9	9	-
CLO 5	9	-	9	9	-
TOTAL	45	27	18	27	-

Syllabus

OOPS AND DATA STRUCTURE LAB

OOPS: Practical Exercise List

1. Inline Functions
2. Function Overloading
3. Friend Functions
4. Array of Objects
5. Object as Parameters
6. Binary Operator Overloading
7. Unary Operator Overloading
8. Friend Functions
9. Virtual Functions
10. Constructors with Default arguments
11. Copy Constructor and Destructor
12. String Manipulations
13. Pointers
14. Files
15. Command Line Arguments
16. Single Inheritance
17. Multiple Inheritance
18. Multilevel Inheritance
19. Hybrid Inheritance.
20. Static Member functions.

DATA STRUCTURE: PRACTICAL LAB LIST

1. Stack using pointers
2. Stack using arrays
3. Queue using Pointers
4. Queue using arrays
5. Singly Linked List
6. Doubly Linked List
7. Circular Lists
8. Tree Traversal
9. Evaluating Expression
10. Insertion Sort
11. Selection Sort
12. Bubble Sort
13. Quick Sort
14. Heap Sort
15. Stack as a Linked List
16. Queue as a Linked List

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2022-23 and after)

Part-III: **Ability Enhancement Course**		SEMESTER – **II**
Course Title: **STATISTICS & NUMERICAL METHODS**		
Course Code: **10AE21**	Hours per week: **4**	Credits: **5**
CIA: **25 Marks**	ESE: **75 Marks**	Total: **100 Marks**

Preamble

This course offered in second semester for the students of Computer Science Students. This course has five credits dedicated to provide the students a Strong foundation on statistics and probability and its application.

Course Learning Outcomes (CLO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Applying and basic concepts of frequency distribution, mean, median & mode	K1, K2, K3
CLO 2	Applying the basic concepts of theory of probability, Bays Theorem	K1, K2, K3
CLO 3	Identify an Applying the random variables & distribution function	K1, K2, K3
CLO 4	Applying Newton Raphson method, Bisection method, Iteration method, Gauss elimination method , Gauss-Seidel Iteration method, Gauss Jordan elimination method, Gregory-Newton forward interpolation formula, Gregory-Newton backward interpolation formula	K1, K2, K3
CLO 5	Applying Gauss forward interpolation formula – Gauss backward interpolation formula, Newton divided differences formula,Lagrange's interpolation formula The Trapezoidal rule, Romberg's method ,Simpson's 1/3 rule – Simpson's 3/8 rule.	K1, K2, K3

K_1-Remembering **K_2**-Understanding **K_3**-Applying

Mapping of CLO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO6**	**PLO7**
CLO 1	9	-	9	-	-	3	-
CLO 2	9	-	9	-	-	3	-
CLO 3	9	-	9	-	-	3	-
CLO 4	9	-	9	-	-	3	-
CLO 5	9	-	9	-	-	3	-
TOTAL	45	-	45	-	-	15	-

9-Strong; 3-Medium; 1-Low

Mapping of CLO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO 1	9	-	-	9	-
CLO 2	9	-	-	9	-
CLO 3	9	-	-	9	-
CLO 4	9	-	9	9	-
CLO 5	9	-	9	9	-
TOTAL	45	-	18	45	-

Syllabus

UNIT I	**FREQUENCY DISTRIBUTION AND MEASURESOF CENTRAL TENDENCY:** Frequency distributions - Graphic representation of a frequency distribution – Averages or measures of central tendency or measures of location – Requisites for an ideal measure of central tendency – arithmetic mean – weighted mean – median – mode – geometric mean- harmonic mean – selection of an average.	**(12 HRS)**
UNIT II	**THEORY OF PROBABILITY:** Definition of various terms – mathematical or classical or 'a priori' probability – statistical or empirical probability – mathematical tools: preliminary notion of sets – operations on sets – random experiment (sample space) – event – some illustrations – laws of addition of probabilities – extension of general law of addition of probabilities – independence events – Bay's theorem.	**(12 HRS)**
UNIT III	**RANDOM VARIABLES, DISTRIBUTION FUNCTIONS:**Random variables – distribution function – discrete random variable – continuous random variables – continuous distribution function – marginal density function - independent random variables – transformation of one dimensional random variable.	**(12 HRS)**
UNIT IV	Newton Raphson method – Regula False (False Position) method – Bisection method – Iteration method – Gauss elimination method – Gauss-Seidel Iteration method - Gauss Jordan elimination method – Matrix inversion – Gregory-Newton forward interpolation formula – Gregory-Newton backward interpolation formula	**(12 HRS)**
UNIT V	Gauss forward interpolation formula – Gauss backward interpolation formula – Interpolation with unequal intervals – Divided differences – Newton divided differences formula – Lagrange's interpolation formula - Derivatives using stirling formula – The Trapezoidal rule – Romberg's method – Simpson's 1/3 rule – Simpson's 3/8 rule	**(12 HRS)**

Text Book

1. Elements of mathematical statistics: 3rd edition by S.C Gupta and V.K. Kapoor
2. Numerical Methods – P.Kandasamy, K.Thilagavathy and K.Gunavathy - S. Chand & Company Ltd., New Delhi.

Reference Book:

1. Probability and Statistics by A.M. MATHAI.
2. Statistics and its Application by Sankaranarayanan.
3. Advanced Mathematics for Engineering Students – S.Narayanan, T.K.Manicavachagam pillay And Dr.G.Ramanath
4. Introduction to Numerical Analysis – F.B.Hildebrand

E-Resources

https://sites.math.northwestern.edu/~mlerma/papers/discrete_mathematics-2005.pdf
http://people.math.harvard.edu/~knill/teaching/math19b_2011/handouts/chapters1-19.pdf
https://mrcet.com/downloads/digital_notes/IT/PROBABILITY%20&%20STATISTICS%20(R17A0024).pdf
http://math.iisc.ernet.in/~manju/UGstatprob16/statprob.pdf

https://www.geeksforgeeks.org/newton-forward-backward-interpolation/
https://www.geeksforgeeks.org/newton-forward-backward-interpolation/
https://atozmath.com/example/CONM/NumeInterPola.aspx?he=e&q=GB
https://atozmath.com/example/CONM/NumeInterPola.aspx?he=e&q=LI
https://www.math24.net/trapezoidal-rule
https://math.libretexts.org/Bookshelves/Differential_Equations/Book%3A_Elementary_Differential_Equations_with_Boundary_Value_Problems_(Trench)/03%3A_Numerical_Methods/3.03%3A_The_Runge-Kutta_Method
https://byjus.com/maths/bisection-method/
https://mathworld.wolfram.com/GaussianElimination.html

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2018-19 and after)

Part-IV: **Generic Elective Course**		SEMESTER – **II**
Course Title: **WEB PROGRAMMING**		
Course Code: **10GE21**	Hours per week: **2**	Credits: **2**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Preamble

This course offered in second semester for the students of Non-Computer Science Students. This course has two credits dedicated to provide the students a foundation on Web Programming.

Syllabus

UNIT – I	**Overview of HTML**: Introduction - Origins of Hyper Text Markup Language (HTML) - Browsers and Servers – The role of HTTP - Structure of HTML Program – HEAD tag – BODY tag – Paragraph tag - HTML page formatting basics.	**(6 HRS)**
UNIT –II	**LISTS**: Introduction - Ordered list and unordered list – Marquee tag – break tag – ruler tag – font tag – data definition tag.	**(6 HRS)**
UNIT – III	**TABLES**: Introduction - TABLE building tags and attributes of table – table tag – table header tag – table row tag – table data tag – row span – column span.	**(6 HRS)**
UNIT – IV	**LINKS:** Introduction – Linking pages using Anchor tag – attributes of Anchor tag – Image tag and its attributes – Frame tag.	**(6 HRS)**
UNIT – V	**FORMS:** Introduction – Form tag – Input tag – types – text, radio, button, check, and password – sample web page creation	**(6 HRS)**

Text Book

1. HTML Complete – RPB Publications – 2nd Edition.

Reference Books:

1. C.Xavier,"World Wide Web Design With HTML ",Tmh Publishers-2001.
2. Joel Sklar,"Principles of Web Design", Vikas Publications.
3. David Mercer,"HTML Introduction To Web Page Design And Development",Schaum's Outlines Tmh Publishers-2002.

தமிழ்த்துறை, விவேகானந்த கல்லூரி,திருவேடகம் மேற்கு.

Programme : B.A., BSc., (CBCS and LOCF)

(For those students admitted during the Academic Year 2021 – 2022 and after)

பாடத்திட்டத்தின் கட்டமைப்பு (PROGRAMME STRUCTURE)

UG Language PART – I TAMIL		SEMESTER : III
Subject Title :**காப்பிய இலக்கியமும் உரைநடை இலக்கியமும்**		
Course Code : P1LT31/P1CT31	**Hours per week : 06**	**Credit : 03**
CIA Marks : 25	ESE Marks : 75	Total Marks : 100

Preamble

1. வாழ்க்கையின் உறுதிப்பொருள்களான அறம், பொருள், இன்பம் வீடுபேறு ஆகியனவற்றை உணர்த்துதல்.
2. மனிதவாழ்வியல் நெறிகளை எடுத்துரைத்தல்.
3. உரைநடை இலக்கியத்தின் வாயிலாக தனிமனித ஒழுக்க நிலைகளை எடுத்துக்காட்டல்.
4. பாக்களின் வகைமைகளை அறிவித்தல்.
5. காப்பியம்மற்றும் உரைநடை இலக்கியத்தின் வரலாற்றினை அறிவித்தல்.

Course Learning Outcomes (COs)

On the successful completion of the course, students will be able to

NO	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	காப்பிய இலக்கியங்களின் வாயிலாக அறம், பொருள், இன்பம், வீடுபேறு என்ற வாழ்க்கையின் உறுதிப்பொருட்கள், எவ்வுயிரையும் தம்முயிர்போல மதித்தல், பிறர் மனை நோக்கா நிலை, பகைமை பாராட்டாத தன்மை, ஆணவம் இல்லா வாழ்க்கை போன்றவைகளை வரையறை செய்த தன்மைகளை உணர்த்துவர்.	K_1, K_2
CO 2	மரபு இலக்கணங்களான அணிகள், பாவகைகளின் வாயிலாக இலக்கியச்சுவை உணர்வினை வளர்த்து, கற்பனைத் திறன்களை வெளிப்படுத்துவர்.	K_2, K_3
CO 3	உரைநடை இலக்கியங்களின் வாயிலாக இறைவழிபாட்டுச் சிந்தனைகளை தனிமனித வாழ்க்கை நிகழ்வுகளின் வழி வெளிப்படுத்தி, உலக இயல்புகளை மொழிந்து, பரம்பொருளை அடையக்கூடிய வழிவகைகளையும், சமரச சன்மார்க்க நெறிகளையும் தெளிவுறுத்துவர்.	K_2, K_3
CO 4	புராண, இதிகாசங்களின் வழி அக்கால மக்களின் வாழ்வியல் கூறுகளை கலந்துரையாடுவர்.	K_2
CO 5	காப்பியம் மற்றும் உரைநடை இலக்கியம் தோன்றிய காலகட்ட வரலாற்றினையும், இதழ்கள் தொடங்குவதற்குரிய வழிமுறைகளையும் விவரிப்பர்.	K_1, K_2, K_3

K_1-Knowledge **K_2-Understand** **K_3-Apply**

Mapping of CLO and PLO

CLO – PLO Mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7
CLO1	9	9	9	9	9	3	9
CLO2	9	9	9	9	9	3	9
CLO3	9	9	9	9	9	3	9
CLO4	9	3	3	3	9	-	9
CLO5	9	3	9	9	9	-	9
Weightage of the course	45	33	39	39	45	09	45
Weighted percentage of Course contribution to PLOs							

பாடத்திட்டம்(Syllabus)

அலகு - 1	**காப்பிய இலக்கியம்** 1. சிலப்பதிகாரம்(கனாத்திறம் உரைத்த காதை) 2. சீவகசிந்தாமணி (குணமாலையார் இலம்பகம்)	**15மணிநேரம்**
அலகு - 2	**இதிகாச இலக்கியம்** 1. கம்பராமாயணம் (குகப்படலம்) 2. வில்லிபாரதம் (கண்ணன் தூதுச் சருக்கம்)	**15மணிநேரம்**
அலகு - 3	**உரைநடை இலக்கியம்** 1. சித்பவானந்தர் சிந்தனைகள்	**15மணிநேரம்**
அலகு - 4	**தமிழ் இலக்கணம்** 1.அணிகள் - உவமை - உருவகம் - பிறிது மொழிதல் - தற்குறிப்பேற்றம் - வஞ்சப்புகழ்ச்சி அணி 2.பாவகைகள் - வெண்பா - ஆசிரியப்பா 3.மடல் வரைதல் - விண்ணப்பம் - புகார்க் கடிதம் - பாராட்டுக் கடிதம்	**15மணிநேரம்**
அலகு -5	**தமிழ் இலக்கிய வரலாறும் பயன்பாட்டுத் தமிழும்** 1. காப்பிய இலக்கிய வரலாறு 2. உரைநடை இலக்கிய வரலாறு 3. செய்தித்தாள் தொடங்கும் வழிமுறைகள் - செய்தித்தாளின் நிர்வ அமைப்பு- பேட்டி	**15மணிநேரம்**

பாட நூல்கள்

1. தமிழ்ச் செய்யுட் தொகுப்பு
   தமிழ்த்துறை வெளியீடு,
   விவேகானந்த கல்லூரி,
   திருவேடகம் மேற்கு.

2. உரைநடை - சித்பவானந்தரின் சிந்தனைகள் -
   தமிழ்த்துறை வெளியீடு
   விவேகானந்த கல்லூரி,
   திருவேடகம் மேற்கு.

பார்வை நூல்கள்

1. தமிழ் இலக்கிய வரலாறு
   முனைவர் கி.இராசா
   நியூ செஞ்சுரி புக் ஹவுஸ்(பி)லிட்,
   41-பி, சிட்கோ இண்டஸ்டிரியல் எஸ்டேட்,
   அம்பத்தூர், சென்னை- 600 098.
2. இதழியல் கலை
   ம.ப.குருசாமி

DEPARTMENT OF ENGLISH

(For the students of the Academic Year 2022-23 onwards)

Programme: B.A., & B.Sc.(CBCS & LOCF)

PART – II **: English**		SEMESTER–**III**
Course Title: P2LE31/P2CE31 English for Innovative Skills in Higher Education		
Course Code: **P2LE31/P2CE31**	Hours per week: **6**	Credit: **3**
CIA Marks: **25**	ESE Marks: **75**	Total Marks: **100**

Preamble:

The students are expected to inculcate English language proficiency and its socio-linguistic competency.

The students are also expected to use the language skills for creativity and innovation with high quality.

Course Learning Outcomes (CLO):

On the successful completion of the course, the students would be able to:

No	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO1	Appraise various authors' socio-linguistic values through the prose discourse	K1, K2, K3
CLO2	Develop comprehension skills of poetic diction/usage through the poetry	K1, K2, K3
CLO3	Critique the views of the author, and characters from their discourses found in the drama	K1, K2, K3
CLO4	Examine the functions of English language and its grammar in transactions	K1, K2, K3
CLO5	Execute and exercise LSRW skills in everyday interactions	K1, K2, K3

K1-Remembering K2– Understanding K3 –Applying

Mapping of CLO and PLO

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7
CLO1	9	9	9	3	3	-	9
CLO2	9	9	9	3	3	3	9
CLO3	9	9	9	3	9	3	9
CLO4	9	9	3	-	-	-	9
CLO5	9	9	9	9	3	1	9
	45	45	39	18	18	07	45

Strong-9 Medium -3 Low -1

Syllabus

Unit-I Prose

1. Stephen Leacock – With the Photographer
2. Frank R.Stockton – The Lady, or the Tiger?
3. Bertrand Russell – How to Avoid Foolish Opinions

Unit-II Poetry

1. Rabindranath Tagore – Where the Mind is without Fear
2. John Keats – La Belle Dame Sans Merci

3. Toru Dutt – The Lotus

Unit-III Drama

William Shakespeare – The Tempest

(For all the Continuous Internal Assessment [CIA] Tests)

Unit-IV Grammar & Language Practical Workbook Exercise for Capacity Building

1. Idiom and Phrases from English and other languages.
2. Question Tags, Short Answers, and Indirect Questions
3. Active Voice and Passive Voice (Reporting the past)

Workbook: Cycle-3, Dave Willis, and Jon Wright. *Basic English Grammar & Practice*. London: HarperCollins Publishers, 1997.

Unit-V Communicative Skills (LSRW)

Listening – Comprehension practice from Prose, Poetry, Short Stories, and Grammar,
Online Practice of listening skills and online Observation of Innovative Thinkers' creativities,
Observing Guest/Invited Lectures/ E-content (with subtitles),
Conference/Seminar Presentations on Higher Education in present and future,
Viewing DD National News Live, BBC, etc.

Speaking – Peer-Team-Interactions(PTI) on Innovation in colleges, and universities,
Presentation Skills at the Mock Viva-voce,
Articulation and Idea Fixation (AIF) in Class-room on Debating, and Defending Research Article/Paper at the Higher Education Institutions,
Group Discussion Forum (GDF) in Classroom on Cultural Importance in Higher Education
Seminar Presentations on Classroom-Assignments/Projects.

Reading – Different Reading Strategies in Poetry, Prose, Novel, etc,
Reading Body Language during Theatrical/Dramatic Enactment, PTI, AIF, and GDF.

Writing – Dialogue/Conversation Writing, Advertisement Writing,
Creative Writing (essay, article, etc,) for Social/Digital Media.
(For all the Continuous Internal Assessment [CIA] Tests)

Text Books

Vinay Harwadker, and A.K.Ramanujan, ed. *The Oxford Anthology of Modern Indian Poetry*. New Delhi:OUP, 1994.

The Norton Anthology English Literature. New York/London: W.W.Norton, 2012.

Dr.P.C. James Daniel, ed. *Gateway to English: An Anthology of Prose*. Chennai: Harrows Publications, 2018.

Abhijit Acharijee, and Rakesh Ramamoorthy, ed. *Frontiers of Communication: An Anthology of Short Stories and Prose*. Chennai: Cambridge University Press,2018.

Michael Swan and Catherine Walter. *How English Works: A Grammar Practice Book.* Oxford: OUP, 1997.

Wren and Martin. *High School English Grammar and Composition*. New Delhi: S.Chand& Company LTD.1935.

Owen Hargie, David Dickson, and Dennis Tourish. *Communication Skills for Effective Management*. New York: Palgrave Macmillan, 2004.

British Council | LearnEnglish<https://learnenglish.britishcouncil.org/skills>

BBC News <https://www.bbc.com/news>VOA LearningEnglish <https://learningenglish.voanews.com/>

University Grants Commission (UGC), New Delhi <https://www.ugc.ac.in/subpage/EContent-URL.aspx> British Council | LearnEnglish<https://www.youtube.com/channel/UCOtnu-KKoAbN47IuYMeDPOg>

Cambridge Assessment English<https://www.cambridgeenglish.org/test-your-english/>

CLIL (Content & Language Integrated Learning) – Module by TANSCHE

NOTE: *(Text: Prescribed chapters or pages will be given to the students by the department and the college)*

REFERENCE BOOKS

The Norton Anthology English Literature. New York/London: W.W.Norton, 2012.

Dr.P.C. James Daniel, ed. *Gateway to English: An Anthology of Prose*. Chennai: Harrows Publications, 2018.

Abhijit Acharijee, and Rakesh Ramamoorthy, ed. *Frontiers of Communication: An Anthology of Short Stories and Prose*. Chennai: Cambridge University Press,2018.
Michael Swan and Catherine Walter. *How English Works: A Grammar Practice Book.* Oxford: OUP, 1997.

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2018-19 and after)

Part-III: **Core Course**		SEMESTER – **III**
Course Title: **COMPUTER NETWORKS**		
Course Code: **10CT31**	Hours per week: **4**	Credits: **4**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Preamble

To provide the data communication and familiar with various types of computer networks. Have experience in designing communication protocol. Be exposed to the TCP/IP protocol suite.

Course Learning Outcomes (CLO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Basic concept of Data Communication & networking	K1, K2, K3
CLO 2	Summarize the Concepts of physical layer in networks	K1, K2, K3
CLO 3	Explain the concept of Data link layer	K1, K2, K3
CLO 4	Explain the concepts of Transport & Network layer	K1, K2, K3
CLO 5	Explain the Application layer & Network security	K1, K2, K3

K1-Remembering **K2**-Understanding **K3**-Applying

Mapping of CLO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO6**	**PLO7**
CLO 1	9	3	9	-	-	3	3
CLO 2	9	3	9	-	-	3	-
CLO 3	9	-	9	-	-	3	-
CLO 4	9	-	9	-	-	3	-
CLO 5	9	3	9	-	-	3	3
TOTAL	45	9	45	-	-	15	6

9-Strong; 3-Medium; 1-Low

Mapping of CLO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO 1	3	-	-	-	-
CLO 2	3	-	9	3	-
CLO 3	3	-	9	3	-
CLO 4	3	-	9	3	-
CLO 5	3	-	9	3	-
TOTAL	15	-	36	12	-

Syllabus

UNIT I	**Overview Data Communication and Networking:** Uses of Computer Networks-Network Hardware-Network Software- -OSI and TCP/IP Reference models	**(12 HRS)**
UNIT II	**Physical Layer:** Theoretical basis for data communication-Guided Transmission Media –Public Switched telephone network - Multiplexing - Switching	**(12 HRS)**

UNIT III	**Data Link Layer:** Design issues-Error Detection and Correction-Elementary Data Link Protocols-Sliding Window Protocols	**(12 HRS)**
UNIT IV	**Network Layer & Transport Layer:** Design issues-Routing algorithms-IP Protocol-IP Addresses – User Datagram Protocol (UDP) – Transmission Control Protocol (TCP)	**(12 HRS)**
UNIT V	**Application Layer and Network Security:** Domain Name System- E-Mail – Worldwide Web-Cryptography-Public key algorithms-Digital signature	**(12 HRS)**

Text Book

COMPUTER NETWORKS By Andrew S.Tenenbaum , IV Edition, PHI

Chapters

1, 2,3,4,5,6,7,8

Reference Books:

1. Computer Communication and Network - John Fuer,Pitman
2. Data Communication and Networking - Behrouz A Forouzn III edition. Tata Mc Graw Hill
3. 3. Data and Computer Communications – E. Stallings,PHI

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2018-19 and after)

Part-III: **Core Course**		SEMESTER – **III**
Course Title: **JAVA PROGRAMMING**		
Course Code: **10CT32**	Hours per week: **4**	Credits: **4**
CIA: **25 Marks**	ESE: **75 Marks**	Total: **100 Marks**

Preamble

This course provides an introduction to object-oriented programming (OOP) using the Java programming language. Its main objective is to teach the basic concepts and techniques which form the object oriented programming paradigm. The model of object-oriented programming: abstract data types, encapsulation, inheritance and polymorphism. Fundamental features of an object-oriented language like Java: object classes and interfaces, exceptions and libraries of object collections. How to take the statement of a business problem and from this determine suitable logic for solving the problem, then be able to proceed to code that logic as a program written in Java.

Course Learning Outcomes (CLO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Define basic concept of object-oriented programming, Datatypes, Array and Operator.	K1,K2,K3
CLO 2	Explain the basic concepts of class, object, methods & constructors	K1,K2,K3
CLO 3	Explain about the inheritance, interface & p ackages	K1,K2,K3
CLO 4	Explain the concepts of Multithreading & Exception handling	K1,K2,K3
CLO 5	Explain the basic concepts of Applet & networking.	K1,K2,K3

K_1-Remembering **K_2**-Understanding **K_3**-Applying

Mapping of CLO with PLO

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO6	PLO7
CLO 1	9	-	9	-	-	-	-
CLO 2	9	-	9	-	-	-	-
CLO 3	9	-	9	-	-	3	-
CLO 4	9	-	9	-	-	3	-
CLO 5	9	-	9	-	-	3	-
TOTAL	45	-	45	-	-	9	-

9-Strong; 3-Medium; 1-Low

Mapping of CLO with PSO

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CLO 1	3	3	3	-	-
CLO 2	9	-	9	-	-
CLO 3	9	-	9	-	-
CLO 4	9	-	9	9	-
CLO 5	9	-	9	9	-
TOTAL	39	3	39	18	-

Syllabus

UNIT – I	**Over view of Java:** Object oriented programming - two control statements using blocks of code - lexical issues - java libraries. Data types, variables and arrays: simple types-integers-floating point types-characters-Booleans-liberals-variables-type conversion & casting – automatic type in experience – arrays. Operators: different types of operators- operator precedence. Control statements: selection-iteration-jump-statements.	**(12 HRS)**
UNIT – II	**Introducing classes:** Class fundaments – declaring objects-assigning objects-assigning objects reference variables-introducing methods-constructors-this keyword-garbage collection-finalize () method- overloading methods-object parameters-returning objects-recursion-access control-static methods-final method-arrays revisited-nested class-string class-command line arguments.	**(12 HRS)**
UNIT – III	**Inheritance:**Basics-using super-creating a multilevel hierarchy-method overriding-dynamic method dispatch-abstract classes-final with inheritance-object class. Packages & interfaces- access protection-importing packages-interfaces.	**(12 HRS)**
UNIT – IV	**Multithreaded programming:** The java thread model – main thread – creating a thread – creating multiple threads- thread priorities – synchronization – inter thread communication – suspending, resuming and stopping thread – using multithreading. Exception handling: fundamentals-types-uncaught exception-using try and catch multiple catch classes-nested try-throw-throws-java built in expressions – your own exceptions.	**(12 HRS)**
UNIT – V	**I/O applets and other topics:** I/O basics – reading console input writing console output – the print writer class – reading and writing files - applets fundamentals – RMI –Servlets – JSP	**(12 HRS)**

Text Book

Programming with Java: A Primer 4th Edition by E Balagurusamy-Tata McGraw Hill-2009

Unit	Chapters
I	1, 3, 4,5,6,7
II	8.1-8.10, 9.1-9.5
III	8.11-8.16, 10, 11
IV	12, 13
V	14, 16

Reference Book:

1. The Complete Reference of Java 2: Fifth Edition Herbert Schildt. Tata McGraw-Hill-2002
2. The complete reference of Java: Seven Edition Herbert Schildt. Tata McGraw-Hill-2006
3. Core java volume II - Advanced features – cay S.Horstmann, Garucornell
4. Java GUI development - Vardtanpiroumian, Sames series.
5. Java servlet programming - Jason hunter, O'reilly series.
6. Java RMI - Troy Bryan downing.

E-Resources

https://www.cs.cmu.edu/afs/cs.cmu.edu/user/gchen/www/download/java/LearnJava.pdf
https://mrcet.com/downloads/digital_notes/CSE/II%20Year/JAVA%20PROGRAMMING_19.11.2018.pdf
https://www.iitk.ac.in/esc101/share/downloads/javanotes5.pdf
https://www.tutorialspoint.com/java/java_tutorial.pdf

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2022-23 and after)

Part-III: **Core Practical**		SEMESTER – **III**
Course Title: **LAB III: JAVA PROGRAMMING**		
Course Code: **10CP33**	Hours per week: **4/Semester:60**	Credits: **2**
CIA: **40 Marks**	ESE: **60 Marks**	Total: **100 Marks**

Preamble

This course provides the ability to write programs in JAVA to solve given problems.

Course Learning Outcomes (CLOs)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Solving Simple Problems using basic concepts in JAVA	K2 K3
CLO 2	Solving Problems using method overloading and functions	K2 K3
CLO 3	To write Java programs using all the OOPS concepts	K2 K3
CLO 4	Solving Problems using single, multilevel and Interface concepts	K2 K3
CLO 5	Solving Problems using Multithreading, Exception Handling and Applet.	K2 K3

K1-Remembering **K2-**Understanding **K3-**Applying

Mapping of CLO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO6**	**PLO7**
CLO 1	9	-	9	-	3	3	3
CLO 2	9	-	9	-	3	3	3
CLO 3	9	-	9	-	3	3	3
CLO 4	9	-	9	-	3	3	3
CLO 5	9	-	9	-	3	3	3
TOTAL	45	-	45	-	15	15	15

9-Strong 3-Medium 1-Low

Mapping of CLO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO 1	9	3	-	-	-
CLO 2	9	-	9	9	-
CLO 3	9	-	9	-	-
CLO 4	9	-	9	9	-
CLO 5	9	-	9	9	-
TOTL	45	03	36	27	-

Syllabus

Practical Exercise List

1. Student mark list using Class and Object
2. Prime Number checking
3. ArmStrong number checking
4. Decimal to binary

5. Type casting
6. Print pattern
7. Palindrome number checking
8. Multiplication Table
9. Matrix Manipulation
10. Ascending order using Command line arguments
11. Method overloading for Geometric shapes
12. Factorial using Recursive Function
13. Student mark list using Single Inheritance
14. Student mark list using Multilevel Inheritance
15. Student mark list using Multiple Inheritance
16. Exception Handling
17. Multithreading
18. Applet

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2018-19 and after)

Part-III: **Ability Enhancement Course**		SEMESTER – **III**
Course Title: **OPERATIONS RESEARCH**		
Course Code: **10AE31**	Hours per week: **4**	Credits: **5**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Preamble

. To provide the basic concept and an Understandinging of Operations Research. To analysis and modelling in Computer Applications. To Understanding, develop and solve mathematical model of Transport, Assignment and Linear programming problems.

Course Learning Outcomes (CLO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Basic concept of operation research, Characteristics, phases, tools, techniques, methods and scope of OR	K1,K2,K3
CLO 2	Applying linear programming model as Stack & Surplus variable, Graphical solution	K1,K2,K3
CLO 3	Applying the various methods of LPP	K1,K2,K3
CLO 4	Applying the mathematical formulation of assignment problem	K1,K2,K3
CLO 5	Applying the mathematical formulation of transportation problem	K1,K2,K3

K1-Remembering **K2-**Understanding **K3-**Applying

Mapping of CLO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO6**	**PLO7**
CLO 1	9	-	9	-	-	3	3
CLO 2	9	-	9	-	-	3	-
CLO 3	9	-	9	-	-	3	-
CLO 4	9	-	9	-	-	3	-
CLO 5	9	-	9	-	-	3	-
TOTAL	45	-	45	-	-	15	3

9-Strong; 3-Medium; 1-Low

Mapping of CLO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO 1	3	3	-	-	-
CLO 2	9	-	9	9	-
CLO 3	9	-	9	9	-
CLO 4	9	-	9	9	-
CLO 5	9	-	9	9	-
TOTAL	39	3	36	36	-

Syllabus

Unit I	Development of OR – Definition of OR – Modelling – Characteristics & Phases – tools, techniques & methods – Scope of OR.	**(12 HRS)**
Unit II	Linear Programming Problem – Formulation – Slack & Surplus Variables – Graphical Solution of LPP.	**(12 HRS)**
Unit III	Simplex method – Computational procedure – Artificial variables techniques – Big M Method.	**(12 HRS)**
Unit IV	Mathematical formulation of assignment problem – Method for solving the assignment problems.	**(12 HRS)**
Unit V	Mathematical formulation of transportation problem – Method for solving the transportation problem.	**(12 HRS)**

Text Book

1. "Operation Research". S.D.Sharma, Kanthi Swarup Sultan Chand & Sons, New Delhi, 1996.

Chapters Pedagogy

Unit- I: 1.1 to 1.7
Unit-II: 2.1, 2.2, 3.1 to 3.5
Unit-III: 3.6, 4.2 to 4.4
Unit-IV: 11.1 to 11.3
Unit-V: 10.2 to 10.3, 10.7, 10.8.

Reference Book

Hamdy S.Taha, Operations Research, TMH.

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2018-19 and after)

Part-III: **Skill Enhancement Course**		SEMESTER – **III**
Course Title: **OPERATING SYSTEM**		
Course Code: **10SE31**	Hours per week: **2**	Credits: **2**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Preamble

To provide the basic concepts of Operating System. To analysis and learning the memory management Techniques. To Understanding the processor, Device Management Techniques and File Structure in Physical form.

Syllabus

Unit-I	Importance of operating systems -Basic concepts and terminology -System resource manager -An operating system process view point.	**(6 HRS)**
Unit II	Memory management -Single contiguous allocation -Introduction to multiprogramming -partitioned allocation -Relocatable partitioned memory management - paged memory management - Demand - paged memory management - segmented memory management- and Demand - paged memory management.	**(6 HRS)**
Unit III	Processor management -State model- Job scheduling -Process scheduling - multiprocessor systems - process synchronization.	**(6 HRS)**
Unit IV	Device management -Techniques for device management -Device characteristics - channels and control units -Device allocation considerations -I/O traffic controller -I/O scheduler -I/O device handlers.	**(6 HRS)**
Unit V	Information management -A simple file system –General model of a file system - Symbolic file system -Basic file system -Access control verification -logical file system - Physical file system.	**(6 HRS)**

Text Book

Operating Systems- Stuart E.Madnick & John J.Donovan Tata McGraw-Hill Publication Company Ltd.

UNITS	**CHAPTERS**
I	1
II	3
III	4
IV	5
V	6

Reference Book:

Operating system concepts – Silber schatz Galvin.

தமிழ்த்துறை, விவேகானந்த கல்லூரி, திருவேடகம் மேற்கு.
Programme : B.A., BSc., (CBCS and LOCF)
(For those students admitted during the Academic Year 2018 – 2020 and after)
பாடத்திட்டத்தின் கட்டமைப்பு (PROGRAMME STRUCTURE)

UG Language PART – I TAMIL		SEMESTER : IV
Subject Title : **சங்க இலக்கியமும் நீதி இலக்கியமும்**		
Course Code :P1LT41/P1CT41	**Hours per week : 18**	**Credit : 03**
CIA Marks : 25	ESE Marks : 75	Total Marks : 100

Preamble

1. பண்டைத் தமிழர்களில் ஒரு சமூகம் சார்ந்த வாழ்க்கை முறையினை உணர்த்துதல்.
2. தனிமனித வாழ்க்கைகளின் வழி களவு- கற்பு ஒழுக்க நெறிமுறைகளை வெளிப்படுத்துதல்.
3. வாழ்வில் கடைபிடிக்க வேண்டிய நீதிநெறிகளைப் புகட்டுதல்.
4. அகம், புறம் சார்ந்த வாழ்க்கைக்கான இலக்கண வரம்புகளை தெளிவுபடுத்துதல்.
5. சங்கஇலக்கிய மற்றும் நீதிஇலக்கிய காலகட்டங்களின் வரலாற்றினை விவரித்தல்.

Course Learning Outcomes (CLOs)

On the successful completion of the course, students will be able to

NO	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	பண்டைத் தமிழர்களில் ஒரு சமூகம் சார்ந்த ஒழுக்கங்கள் குறித்த நிலையினை வரையறை செய்வர்.	K_1, K_2
CLO 2	ஐந்திணை மக்களின் அகஒழுக்கங்கள் குறித்த செய்திகளை கலந்துரையாடுவர்.	K_2, K_3
CLO 3	சங்க இலக்கியம் மற்றும் நீதி இலக்கிய காலகட்டங்களில் வாழ்ந்த மக்கள் மற்றும் அவர்களின் வாழ்க்கையினை பதிவுசெய்த படைப்பாளர்கள் ஆகியோரின் வரலாற்றினை விவரிப்பர்.	K_2, K_3
CLO 4	பழங்கால மக்களின் அகம், புறம் தொடர்பான வாழ்க்கை நிகழ்வுகளின் மரபுநிலைகள் குறித்த திறன்களை அறிவர்.	K_2
CLO 5	படைப்பாக்கத் திறன்களை வெளிப்படுத்துவர்.	K_1, K_2, K_3

K_1-Knowledge **K_2-Understand** **K_3-Apply**

Mapping of CLO with PLO

CLO – PLO Mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7
CLO1	9	3	9	9	9	9	9
CLO2	9	9	9	9	9	3	9
CLO3	9	9	9	9	9	9	9
CLO4	9	3	3	9	9	9	9
CLO5	9	3	9	9	9	3	9
Weightage of the course	45	27	39	45	45	33	45
Weighted percentage of Course contribution							

to PLOs							

பாடத்திட்டம்(syllabus)

அலகு - 1	தமிழ்ச் சங்க இலக்கியம் (பத்துப்பாட்டு) 1. முல்லைப்பாட்டு முழுவதும்	**(15 மணிநேரம்)**
அலகு - 2	தமிழ்ச் சங்க இலக்கியம் (எட்டுத்தொகை) 1.நற்றிணை - (பாடல் எண் : 36, 70, 45) 2.குறுந்தொகை - (பாடல் எண் : 58, 167, 8, 49, 283) 3.கலித்தொகை - (நெய்தற்கலி-133, பாலைக்கலி - 9) 4.அகநானூறு - (பாடல் எண் : 122, 86) 5.புறநானூறு - (பாடல் எண் : 73, 183, 189)	**(15 மணிநேரம்)**
அலகு - 3	தமிழ் நீதி இலக்கியம் 1. திருக்குறள் (செய்நன்றி அறிதல், காலம் அறிதல், குறிப்பு அறிதல்) 2. பழமொழி நானூறு (கல்வி அதிகாரம்) 3. கொன்றை வேந்தன் (10 பாடல்கள்) 4. மூதுரை (10 பாடல்கள்)	**(15 மணிநேரம்)**
அலகு - 4	தமிழ் இலக்கணம் - பொருள் 1. அகப்பொருள் (அகத்திணைகள் - முதல், கரு, உரிப்பொருள்) 1. புறப்பொருள் (புறத்திணைகள் - வெட்சி முதல் பெருந்திணை வரையுள்ள 12திணைகள்) 2. மரபியல் (பெயர் மரபுகள் - ஆண்பால்பெயர், பெண்பால்பெயர், இளமைப்பெயர்)	**(15 மணிநேரம்)**
அலகு - 5	தமிழ் இலக்கிய வரலாறும் பயன்பாட்டுத்தமிழும் 1. சங்க இலக்கிய வரலாறு 2. நீதி இலக்கிய வரலாறு 3. புத்தக மதிப்புரை, தமிழ்த் திரைப்பட விமர்சனம், கவிதை படைத்தல்.	**(15 மணிநேரம்)**

பாட நூல் (Text Book)

1.தமிழ் செய்யுட் தொகுப்பு தமிழ்த்துறை வெளியீடு,
விவேகானந்த கல்லூரி, திருவேடகம் மேற்கு.

பார்வை நூல்(Reference Book)

தமிழ் இலக்கிய வரலாறு
முனைவர் கி.இராசா
நியூ செஞ்சுரி புக் ஹவுஸ்(பி)லிட்,
41-பி, சிட்கோ இண்டஸ்டிரியல் எஸ்டேட்,
அம்பத்தூர், சென்னை- 600 098.

DEPARTMENT OF ENGLISH

(For the students of the Academic Year 2022-23 onwards)

Programme: B.A., & B.Sc.,(CBCS & LOCF)

PART – II **: English**		SEMESTER–**IV**
Course Title: P2LE41/ P2CE41 English for Environmental Communication Skills		
Course Code: **P2LE41/ P2CE41**	Hours per week: **6**	Credit: **3**
CIA Marks: **25**	ESE Marks: **75**	Total Marks: **100**

Preamble:

The students are expected to inculcate English language proficiency and its socio-linguistic competency along with environmental consciousness.

Course Learning Outcomes (CLO):

On the successful completion of the course, the students would be able to:

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO1	Appraise various authors' socio-linguistic and environmental values through the prose discourses	K1, K2, K3
CLO2	Develop comprehension skills of poetic diction/usage through the poetry which are concerned with nature	K1, K2, K3
CLO3	Discuss the socio-linguistic and Environmental observation of author, and other natural elements found in the Environmental Writing	K1, K2, K3
CLO4	Examine the functions of English language and its grammar in transactions	K1, K2, K3
CLO5	Execute and exercise LSRW skills in everyday interactions	K1, K2, K3

K1-Remembering **K2 – Understanding** **K3 –Applying**

Mapping of CLO and PLO

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7
CLO1	9	9	9	9	9	9	9
CLO2	9	9	9	9	9	9	9
CLO3	9	9	9	9	9	9	9
CLO4	9	9	3	-	-	-	9
CLO5	9	9	3	-	3	1	9
	45	45	33	27	30	28	45

Strong-9 **Medium -3** **Low -1**

Syllabus

Unit-I Prose

1. C.Rajagopalachary – Tree Speaks
2. C.V.Raman – Water-The Elixir of Life
3. William and Stella Nida – The Story of the Sea

Unit-II Poetry

1. A.K. Ramanujan – The River
2. Sarojini Naidu – The Coromandel Fishers
3. William Brighty Rands – Great, Wide, Beautiful, Wonderful World

Unit-III Environmental Writing

Ben Lerwill – Climate Rebels

(For all the Continuous Internal Assessment [CIA] Tests)

Unit-IV Grammar & Language Practical Workbook Exercise for Capacity Building

1. Simple, Compound and Complex Sentences
2. Expansion of Proverbs
3. Direct Speech and Indirect/Reported Speech

Workbook: Cycle-4, Dave Willis, and Jon Wright. *Basic English Grammar & Practice*. London: HarperCollins Publishers, 1997.

Unit-V Communicative Skills (LSRW)

Listening – Comprehension practice from Prose, Poetry**,** Novel, and Grammar,
Online Oral Presentation and Listening to Online Ecology Presentations,
Observing Guest/Invited Lectures/ E-content (with subtitles),
Conference/Seminar Presentations, on Environment and Literature,
Viewing DD National News Live, BBC, etc.

Speaking – PTI on the Role of English in Environmental Studies/Protection,
AIF in Classroom on role of students and institutions in Environment protection,
GDF in Classroom on the Role of world Leaders on Global Warming,
Seminar Presentations on Classroom-Assignments/Projects/Public Speech.

Reading – Extensive Reading of Reports, Literature, Film, related to Earth and Space,
Reading different types of texts: Argumentative, Narrative, Descriptive, Expository, etc.

Writing – Enhancing Cohesion and Coherence in Essay/Letter/Report/Research writing,
Notion of correctness and attitude to error correction at the Punctuation Marks,
Writing and editing different Types of Letters (applications, complaints, appreciation, conveying sympathies, etc.), and Résumé, Preparing and rehearsing Public Speech like Master of Ceremony/Anchoring, Welcome Address/Vote of Thanks, Keynote Speech, etc.

(For all the Continuous Internal Assessment [CIA] Tests)

Text Books

John Fiske. *Introduction to Communication Studies.* London: Routledge, 1982.
Janet S.Hyden et al. Communicating for Success. New York: South-Western Educational Publishing,1999.
Sharon J. Gerson and Steven M. Gerson. *Technical Communication: Process and Product*. New Delhi: Pearson, 2014.
Rudolph F. et al. *Communicate!*. London:Thomson and Wadswoth, 2005.
Cary J Green. *Leadership and Soft Skills for Students*. Indiana: Dog Ear Publishing. 2015. Bruce Tulgan. *Bridging the Soft Skills Gap: How to Teach the Missing Basics to Today's Young Talent*: New Jersey: John Wiley & Sons Inc., 2015.
Owen Hargie, David Dickson, and Dennis Tourish. *Communication Skills for Effective Management*. New York: Palgrave Macmillan, 2004.
Dale Carnegie. *The Art of Public Speaking.* Massachusetts: Wyatt North Publishing, 2013.
https://ia800204.us.archive.org/34/items/olivertwist01dickrich/olivertwist01dickrich.pdf
British Council | LearnEnglish<https://learnenglish.britishcouncil.org/skills>
BBC News <https://www.bbc.com/news> VOA Learning English <https://learningenglish.voanews.com/>
University Grants Commission (UGC), New Delhi <https://www.ugc.ac.in/subpage/EContent-URL.aspx> British Council | LearnEnglish<https://www.youtube.com/channel/UCOtnu-KKoAbN47IuYMeDPOg> Cambridge Assessment English <https://www.cambridgeenglish.org/test-your-english/>
CLIL (Content & Language Integrated Learning) – Module by TANSCHE
NOTE: *(Text: Prescribed chapters or pages will be given to the students by the department and the college)*

Pedagogy

Teacher made aids and Mechanical (ITC) Aids, Chalk and Talk with interactive session.
Note: (Additional online sources, presentation, and test will be given by the respective teachers in the English Language Lab)

Teaching Aids

Course Texts, Reference books, Writing Board, Guest Lecture/Invited Lecture, Group Discussion Forum and Online Sources.

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2020-21 and after)

Part-III: **Core Course**		SEMESTER – **IV**
Course Title: **RELATIONAL DATABASE MANAGEMENT SYSTEM**		
Course Code: **10CT41**	Hours per week: **4**	Credits: **4**
CIA: **25 Marks**	ESE: **75 Marks**	Total: **100 Marks**

Preamble

. To provide the fundamental concepts of database management. To Understanding the aspects of database design, database languages and implementation, the role of DBMS & RDBMS in the organization.

Course Learning Outcomes (CLO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Define the fundamental elements of database systems Explain the Relational Algebra & data Modelling	K1,K2,K3
CLO 2	Explain the SQL and Constraints	K1,K2,K3
CLO 3	Explain the Relational Database Design and File Structure	K1,K2,K3
CLO 4	Explain the Indexing and Hashing and Transaction Concept	K1,K2,K3
CLO 5	Explain the basic concepts of Concurrency control and Database System Architecture	K1,K2,K3

K_1-Remembering **K_2**-Understanding **K_3**-Applying

Mapping of CLO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO6**	**PLO7**
CLO 1	9	-	9	-	3	3	-
CLO 2	9	-	9	-	-	-	-
CLO 3	9	-	9	-	-	-	-
CLO 4	9	-	-	-	-	-	-
CLO 5	9	-	9	-	-	3	-
TOTAL	45	-	36	-	3	3	-

9-Strong; 3-Medium; 1-Low

Mapping of CLO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO 1	9	-	3	-	-
CLO 2	9	-	-	-	-
CLO 3	9	-	9	9	-
CLO 4	9	-	-	-	-
CLO 5	9	-	3	3	-
TOTAL	45	-	15	12	-

Syllabus

Unit- I	**Introduction and Database Model:** Purpose of Database Systems - View of Data - Data Models - Database Languages - Transaction Management - Storage Management -Database Administrator - Database Users - Overall System Structure. Entity - Relationship Model - Basic Concepts - Design Issues - Mapping Constraints- Keys – Entity - Relationship Diagram — Weak Entity Sets - Extended E-R Features	**(12 HRS)**

	- .Design of an E-R Database Schema - Reduction of an E-R Schema to Tables. Relational Model- Structure of Relational Databases - The Relational Algebra -The Tuple Relational Calculus - The Domain Relational Calculus - - Extended Relational-Algebra Operations - Modification of the Database – Views	
Unit –II	**SQL and Constraints:** SQL – Background – Basic Structure – Set Operation – Aggregate Functions - Null Values - Nested Subqueries - Derived Relations –Views- Modification of the Database - Joined Relations - Data-Definition Language- Embedded SQL - Other SQL Features Integrity Constraints - Domain Constraints - Referential Integrity – Assertions – Triggers - Functional Dependencies	**(12 HRS)**
Unit-III	**Relational Database Design and File Structure:** Relational Database Design: Normalization Using Functional Dependencies – Normalization Using Multivalued Dependencies – Normalization Using Join Dependencies – Domain-Key normal form. Storage and File Structure: Overview of Physical Storage Media – Magnetic Disks – RAID – Teritary Storage – Storage Access – File Organization – Data Dictionary Storage.	**(12 HRS)**
Unit – IV	**Indexing and Hashing and Transaction Concept:** Indexing and Hashing: Basic concepts – Ordered Indices – B^+ Tree Index Files – B^- Tree Index Files – Static Hashing – Dynamic Hashing – Comparison of Ordered Indexing and Hashing. Query Processing: Selection operation – Sorting – Joining Operation – Other Operation-Transactions: Transaction Concept – Transaction State – Implementation of atomicity and durability – Concurrent Executions – Serializability – Recoverability.	**(12 HRS)**
Unit – V	**Concurrency Control and Database System Architectures:** Concurrency Control: Lock-Based Protocols – Timestamp-Based Protocols – Validation-Based Protocols- Database System Architectures: Centralized Systems – Client-Server Systems – Parallel Systems – Distributed Systems – Network Types.	**(12 HRS)**

Text Book

1. Database System Concepts – Abraham Silberschatz, Henry F.Korth, S.Sudarshan-3rd Edition – McGraw Hill

Reference

1. Relational Database Principles – 2nd edn. – Colin Ritchie
2. Developing personal Oracle 7 for Windows 95 appln. – David Lockmen

E-Resources

https://www.youtube.com/watch?v=rBjo4USiqEs (Information and Secondary storage device)
https://www.youtube.com/watch?v=FLQBAe0gkRA (Information and Secondary storage device)
https://www.youtube.com/watch?v=p8gtklh5t6E (Files file organization and file structure)
https://www.youtube.com/watch?v=9kU1SPORaoI (Files file organization and file structure)
https://www.youtube.com/watch?v=G-6qDY8UltU (Software Development life Cycle)
https://slideplayer.com/slide/5932114/ (Database Development Cycle)
https://www.youtube.com/watch?v=Wv1c9K4788A (Entity – Relationship (E-R) modeling)
https://www.youtube.com/watch?v=9rjJDHAkitY (Data Normalization)
https://www.youtube.com/watch?v=mjpbSjTQ1SQ (Oracle data types)

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2019-20 and after)

Part-III: **Core Course**		SEMESTER – **IV**
Course Title: **PYTHON PROGRAMMING**		
Course Code: **10CT42**	Hours per week: **4**	Credits: **4**
CIA: **25 Marks**	ESE: **75 Marks**	Total: **100 Marks**

Preamble

To learn basic kinds of python programming. To develop Python programs with conditionals and loops. To define Python functions and call them. To use python data structures – lists, tuples and dictionaries.

Course Learning Outcomes (CLO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Basic concept of Python Programming. Variable, Expression & Statements	K1, K2, K3
CLO 2	Summarize the Concepts of Functions.	K1, K2, K3
CLO 3	Explain the concept of Iteration & Strings	K1, K2, K3
CLO 4	Explain the concepts of List & Tuples	K1, K2, K3
CLO 5	Explain the concepts of Dictionaries, Files and Exception.	K1, K2, K3

K_1-Remembering **K_2**-Understanding **K_3**-Applying

Mapping of CLO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO6**	**PLO7**
CLO 1	9	-	9	-	-	-	-
CLO 2	9	-	9	-	-	-	-
CLO 3	9	-	9	-	-	-	-
CLO 4	9	-	9	-	-	-	-
CLO 5	9	-	9	-	-	-	-
TOTAL	45	-	45	-	-	-	-

9-Strong; 3-Medium; 1-Low

Mapping of CLO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO 1	3	-	-	-	-
CLO 2	-	-	9	-	-
CLO 3	9	-	9	-	-
CLO 4	9	-	3	-	-
CLO 5	9	-	3	-	-
TOTAL	30	-	24	-	-

Syllabus

UNIT I	**Introduction of Python Programming:** Introduction –Python Programming language – Formal & natural languages – Debugging. **Variables, Expression and Statements:** Values and types - Variables – Statements – Evaluating Expression – Operator and operands – Order of operations – Operations on Strings – Composition - Comments.	**(12 HRS)**
UNIT II	**Functions:** Function calls – Math functions – Composition – Adding new functions – Definition and uses – Flow of executions – parameters and arguments - Stack diagrams - Conditionals and Recursions – Fruitful functions.	**(12 HRS)**
UNIT III	**Iterations and Strings:** Multiple assignments – While Statements – Tables – Encapsulation and generalization – Functions – A compound data type – Length – Traversal and the for loop – String slices – String comparison – Strings are immutable – A find function – Looping and counting – The String Module – Character Classification	**(12 HRS)**
UNIT IV	**Lists and Tuples:** List values – Accessing elements – List length – List membership – Lists and For loop – List Operations – List Slices – Lists are mutable – List deletion – Objects and values – Aliasing – Cloning lists – List parameters – Nested lists- Matrixes – String and Lists. Tuples: Mutability and Tuples – Tuple assignment – Tuples as return values – Random numbers – Counting – Many buckets – A single pass solution	**(12 HRS)**
UNIT V	**Dictionaries, Files and Exceptions:** Dictionary Operations – Dictionary Methods – Aliasing and copying – Sparse matrices – Hints – Long integers – Counting letters – Text files – Writing variables – Directories – Pickling - Exceptions	**(12 HRS)**

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Text Book

"Learning with Python: How to Think Like a Computer Scientist "– Allen Downey, Jeffrey Elkner, Chris Meyers – Green Tea Press - First Edition – April 2002.

Chapters

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11

Reference Books:

1. Allen B.Downey, "Think Python: How to Think like a Computer Scientist", 2nd Edition, Updated for python 3, Shroff/ O'Reilly Publishers, 2016.
2. Guido Van Rossum and Fred L Drake Jr – An Introduction to Python – Revised and updated for python 3.2, Network Theory Ltd., 2011.

E-Resources

https://geosci.uchicago.edu/~rtp1/PythonSupport/PythonNotes.pdf
https://mrcet.com/downloads/digital_notes/CSE/III%20Year/PYTHON%20PROGRAMMING%20NOTES.pdf
https://www.stat.berkeley.edu/~spector/python.pdf
https://bugs.python.org/file47781/Tutorial_EDIT.pdf

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2022-23 and after)

Part-III: **Core Practical**		SEMESTER – **IV**
Course Title: **LAB IV: PYTHON PROGRAMMING WITH MYSQL**		
Course Code: **10CP43**	Hours per week: **4/Semester:60**	Credits: **2**
CIA: **40 Marks**	ESE: **60 Marks**	Total: **100 Marks**

Preamble

This course provides the ability to develop and execute programs in Python and MYSQL to solve given problems.

Course Learning Outcomes (CLOs)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Solving Simple Problems using basic concepts in Python Programming	K2 K3
CLO 2	Solving Problems using Data types and Operators.	K2 K3
CLO 3	To write Python programs using String,Lists and Tuples concepts	K2 K3
CLO 4	Solving Problems using Dictionary and Exception Handling.	K2 K3
CLO 5	Solve Problems based on database connectivity using MYSQL.	K2 K3

K1-Remembering **K2**-Understanding **K3**-Applying

Mapping of CLO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO6**	**PLO7**
CLO 1	9	-	9	-	3	3	3
CLO 2	9	-	9	-	3	3	3
CLO 3	9	-	9	-	3	3	3
CLO 4	9	-	9	-	3	3	3
CLO 5	9	-	9	-	3	3	3
TOTAL	45	-	45	-	15	15	15

9-Strong 3-Medium 1-Low

Mapping of CLO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO 1	9	3	9	-	-
CLO 2	9	3	9	-	-
CLO 3	9	3	9	-	-
CLO 4	9	-	9	-	-
CLO 5	9	-	9	-	-
TOTAL	45	9	45	-	-

Syllabus

Practical Exercise List

1. Compute the GCD of two numbers using Python Programming
2. Find the square root of the number using Python Programming
3. Find the N number of Prime numbers using Python Programming
4. Multiply Matrices using Python Programming

5. Find largest among the three numbers using Python Programming
6. Find the Maximum of a list of numbers using Python Programming
7. Display Current date and time using Python Programming
8. Data types and Operators in Python Programming.
9. Implenting Operations in Stack.
10. String Manipulation
11. Write programs using List and Tuples in Python Programming.
12. Dictionary Operations
13. Exception Handling
14. An inventory program to demonstrate Insertion, Updation and deletion of rows in MYSQL tables.
15. Forms to display Employee records stored in MYSQL.
16. College application form using MYSQL table

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2022-23 and after)

Part-III: **Ability Enhancement Course**		SEMESTER – **IV**
Course Title: **BUSINESS DATA ANALYTICS**		
Course Code: **10AE41**	Hours per week: **4**	Credits: **5**
CIA: **25 Marks**	ESE: **75 Marks**	Total: **100 Marks**

Preamble

This course provides the fundamental concepts and tools needed to understand the emerging role of business analytics in organizations to apply business analytics tools in spreadsheet environment, and to communicate with Analytics Professionals to effectively use and interpret analytic models and results for making better business decisions.

Course Learning Outcomes (CLO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	To understand the basic concept of Business analytics	K1, K2, K3
CLO 2	Summarize the Concepts of analytics on spreedsheets	K1, K2, K3
CLO 3	Explain the concept of Visualizing and Exploring Data	K1, K2, K3
CLO 4	Explain the concepts of Descriptive Statistical Measures	K1, K2, K3
CLO 5	Explain the concepts of Trend lines and Regression Analysis	K1, K2, K3

K_1-Remembering **K_2**-Understanding **K_3**-Applying

Mapping of CLO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO6**	**PLO7**
CLO 1	9	-	-	-	-	-	-
CLO 2	9	-	9	-	-	-	-
CLO 3	9	-	9	-	-	3	-
CLO 4	9	-	9	-	-	3	-
CLO 5	9	-	-	-	-	-	-
TOTAL	45	-	27	-	-	9	-

9-Strong; 3-Medium; 1-Low

Mapping of CLO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO 1	9	-	-	-	-
CLO 2	9	-	-	-	-
CLO 3	9	-	9	-	-
CLO 4	9	-	9	9	-
CLO 5	9	-	9	9	-
TOTAl	45	-	27	18	-

Syllabus

Unit I	**INTRODUCTION TO BUSINESS ANALYTICS:** What is Business Analytics?- Evolution of Business Analytics-Scope of Business Analytics- Data for Business Analytics-Models in Business Analytics-Problem solving with Analytics.	**(12 HRS)**
Unit II	**ANALYTICS ON SPREADSHEETS:** Basic Excel skills - Basic Excel Functions - Using Excel Lookup functions for Database Queries - Spreadsheet Add-Ins for Business Analytics.	**(12 HRS)**
Unit III	**DESCRIPTIVE ANALYTICS – Visualizing and Exploring Data:** Data Visualization - Creating charts in Microsoft Excel - Other Excel visualization tools - Data queries: Tables, Sorting and Filtering – Statistical Methods for Summarizing Data.	**(12 HRS)**
Unit IV	**DESCRIPTIVE STATISTICAL MEASURES:** Population and Samples - Measures of Location - Measures of Dispersion - Measures of Association - Measures of Shape - Excel Descriptive Statistical Tool - Statistical thinking in Business Decisions.	**(12 HRS)**
Unit V	**PREDICTIVE ANALYTICS –Trend lines and Regression Analysis:** Trend Lines and Regression Analysis: Modeling Relationships and trends in data-Simple Linear Regression- Forecasting Techniques: Qualitative and Judgmental forecasting-Historical Analogy – The Delphi Method – Statistical Forecasting models – Forecasting models for stationary time series.	**(12 HRS)**

Text Book

1. "Business Analytics", James R. Evans, Second Edition, Pearson Education, 2016. Indian Edition 2017, Pearson India Services.

Reference Books:

1. "Essentials of Business Analytics", CAMM, COCHRAN, FRY, OHLMANN, ANDERSON, SWEENEY, WILLIAMS, 2015, CENGAGE LEARNING

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2020-21 and after)

Part-IV: **Skill Enhancement Course**		SEMESTER – **IV**
Course Title: **COMPUTER SKILLS LAB**		
Course Code: **10SE41**	Hours per week: **2/Semester:30**	Credits: **2**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Preamble

This course provides personal productivity skills using MS-OFFICE.

Syllabus

- MS-Word: Starting Word, Creating Documents, Opening a Word document, Cutting, Copying and Pasting Text , Modifying Font, Aligning Text, Indenting Paragraphs and modifying line spacing, Setting and Modifying Tabs, Inserting Numbers and bullets in the word document, Inserting Bullets
- Inserting Header and Footer to the document, Creating Page Breaks, Using AutoCorrect, Setting Auto Text, Spelling Check and Grammar Tool, Changing default settings, Thesaurus
- Find Text, Find and Replace Text, Closing the Document, Splitting Window, Arranging Windows, Working with Columns, Saving and Protecting the Document, Protecting documents with Password, Protecting document without password
- Creating Table, Adding Columns and Rows to the table, Deleting columns or rows from the table, Splitting and merging cells, Text alignment within Tables, Changing text orientation, Adding Calculations
- Creating Main Document, Creating Data Source
- MS- Excel - Create a workbook called Lab1? - Enter the text “Radiant Software” on Cell A1 - Similarly enter the text - Entering Numbers - Formatting the Text - Increasing Font size – Changing the Font Format - Setting Alignments of text - Selecting Multiple Cells
- Writing Simple Formula - Inserting a Column
- Writing Complex Formula
- Applying Formatting features to numbers
- Formatting the Text
- Creating Charts
- Microsoft PowerPoint: Starting PowerPoint - Creating Presentation using blank Presentation - Create the Second slide
- Creating a Presentation using AutoContent Wizard - Using Design Templates
- Making Handouts - Setting the Slide Timings
- Insert Objects and graphics
- MS-ACCESS – Create Database – Create Table – Connect Database Connection

Pedagogy

Chalk & Talk, Group Discussion, PPT

Teaching Aids

Green Board, LCD Projector, Interactive White Board

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2020-21 and after)

Part-III: **Core Course**		SEMESTER – **V**
Course Title: **CLOUD COMPUTING**		
Course Code: **10CT51**	Hours per week: **5**	Credits: **4**
CIA: **25 Marks**	ESE: **75 Marks**	Total: **100 Marks**

Preamble

To provide an Understanding of Cloud computing concepts, to provide a thorough Remembering on basic concepts of cloud types, their services, methods to migrate to cloud and to provides an exposure on the governance in Cloud computing environment.

Course Learning Outcomes (CO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Basic concept of Cloud Computing	K1, K2, K3
CLO 2	Explain about the concept of delivery models in cloud computing and migrating to cloud	K1, K2, K3
CLO 3	Explain about the concept of Standards And Business Models In Cloud	K1, K2, K3
CLO 4	Explain the concept of Cloud Services And Tools	K1, K2, K3
CLO 5	Basic concept of Data Security management and cloud governance	K1, K2, K3

K_1-Remembering **K_2**-Understanding **K_3**-Applying

Mapping of CLO with PLO

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO6	PLO7
CLO 1	9	-	1	-	-	-	-
CLO 2	9	-	9	-	-	-	-
CLO 3	9	-	9	-	-	-	-
CLO 4	9	-	9	-	-	3	-
CLO 5	9	-	9	-	-	3	-
TOTAL	45	-	37	-	-	6	-

9-Strong; 3-Medium; 1-Low

Mapping of CLO with PSO

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CLO 1	3	3	-	-	-
CLO 2	9	3	-	-	-
CLO 3	9	3	-	-	-
CLO 4	9	-	9	-	-
CLO 5	9	-	3	3	3
TOTAL	39	09	12	03	03

Syllabus

UNIT-I	**INTRODUCTION TO CLOUD COMPUTING:** Introduction to cloud computing- evolution and History of cloud computing-Various models of cloud computing-Types of clouds-Private-Public-Hybrid clouds-Building blocks of cloud computing-Challenges and Usage of clouds-Advantages of Cloud computing – Beyond Cloud computing	(15 HRS)

UNIT-II	**DELIVERY MODELS IN CLOUD COMPUTING AND MIGRATING TO CLOUD:** Cloud Computing Architecture-Delivery models in cloud computing and their services-Obstacles for cloud technology-Approaches to migrate into the cloud-seven –step model of migration into cloud-Virtualization- Types of virtualization-Programming Languages and tools	(15 HRS)
UNIT-III	**STANDARDS AND BUSINESS MODELS IN CLOUD:** Layers of cloud implementation and standards-Emerging standards in cloud computing-Standard development organization-SLA-Types of cloud service players-various services in cloud implementation-cost models-Pricing model-stages of Cloud adoption-Considerations of Adopting cloud model-Opportunities and challenges of cloud adoption.	(15 HRS)
UNIT-IV	**DISCOVERING CLOUD SERVICES AND TOOLS:** IBM smart Cloud Enterprise-Amazon –Google App Engine-sales force.com-Pros and cons of cloud service development	(15 HRS)
UNIT-V	**CLOUD DATA SECURITY MANAGEMENT AND GOVERANCE:** Cloud Goverance –Risks and security concerns of cloud-organizational security Policies-Security design Principle- Industry security standards for cloud based infrastructure- Cloud Security concerns and Mirigation Strategies-Steps to Ensure Cloud Security-Key management and Encryption	(15 HRS)

Text Books:

1. Cloud Computing and Beyond- A Managerial Perspective, Sanjiva Shankar Dubey, Second Edition, Dreamtech Press, Wiley Publications.
2. Cloud Computing- Web-based Applications that change the way you work and collaborate online, Michael Miller, Pearson Publications.
3. Security in Computing (Fourth Edition), Charles P.Fleeger,Shari lawernce Pfleeger, Pearson Education

References:

1. Brief Guide to Cloud Computing, Christopher Barnett, Constable & Robinson Limited, 2010
2. Handbook on Cloud Computing, Borivoje Furht, Armando Escalante, Springer, 2010
3. Cloud Computing: Principles and Paradigms, Rajkumar Buyya, James Broberg, Andrzej M. Goscinski, John Wiley and Sons Publications, 2011

E-Resources

1. https://azure.microsoft.com
2. https://www.pcmag.com
3. https://www.techradar.com
4. https://www.cisco.com

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2019-20 and after)

Part-III: **Core Course**		SEMESTER – **V**
Course Title: **INTERNET OF THINGS**		
Course Code: **10CT52**	Hours per week: **5**	Credits: **4**
CIA: **25 Marks**	ESE: **75 Marks**	Total: **100 Marks**

Preamble

To provide the concepts and principles of IoT, IoT Technology, Creative thinking Technique, Co-creation techniques. To learn and understand the different IoT Technologies. To find innovative applications of combinations of various technologies in real-life sciences.

Course Learning Outcomes (CO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Basic concept of Internet of Things. IoT and M2M	K1, K2, K3
CLO 2	Explain about the concept of Domain Specific IoTs	K1, K2, K3
CLO 3	Explain about the concept of IoT platforms and Logical Design using Python.	K1, K2, K3
CLO 4	Explain the concept of IoT Physical devices and Endpoints	K1, K2, K3
CLO 5	Understand the concept of Data Analytics for IoT and Tools.	K1, K2, K3

K_1-Remembering **K_2**-Understanding **K_3**-Applying

Mapping of CLO with PLO

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO6	PLO7
CLO 1	9	-	-	-	-	-	-
CLO 2	9	-	-	-	-	-	-
CLO 3	9	-	9	-	-	-	-
CLO 4	3	-	3	-	-	-	-
CLO 5	9	-	9	-	-	-	-
TOTAL	39	-	21	-	-	-	-

9-Strong; 3-Medium; 1-Low

Mapping of CLO with PSO

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CLO 1	3	3	-	-	-
CLO 2	9	3	-	-	-
CLO 3	3	3	3	-	-
CLO 4	9	3	3	-	-
CLO 5	3	-	-	-	-
TOTAl	27	12	06	-	-

Syllabus

UNIT I	**Introduction to IoT:** Introduction to Internet of Things: Introduction – Physical Design of IoT – Logical Design of IoT – IoT Enabled Technologies – IoT Levels and Deployment Templates. IoT and M2M: Introduction – M2M – Difference between IoT and M2M – SDN and NFV for IoT	**(15 HRS)**
UNIT II	**Domain Specific IoTs:**	**(15 HRS)**

	Domain Specific IoTs: Introduction – Home Automation – Cities – Environment – Energy – Retail – Logistics – Agriculture – Industry – Health – and Lifestyle. IoT System Management: Need for IoT System Management – SNMP – Network Operator Requirements.	
UNIT III	**IoT Platforms:** IoT Platforms Design Methodology: Introduction – IoT Design Methodology – Motivation for Using Python. IoT Systems – Logical Design Using Python: Introduction – Installing Python – Python Data types and Data Structure – Control Flow – Functions – Modules – Packages – File Handling – Date/Time Operations – Python Packages of Interest for IoT.	**(15 HRS)**
UNIT IV	**IoT Physical Devices and Endpoints:** IoT Physical Devices and Endpoints: IoT devices – Exemplary Device: Raspberry Pi- About the Board – Linux on Raspberry Pi – Raspberry Pi Interfaces – Programming Raspberry pi with Python – Other IoT devices.	**(15 HRS)**
UNIT V	**Data Analytics for IoT and Tools:** Case Studies Illustrating IoT Design – Data Analytics for IoT : Introduction – Apache Hadoop - Using Hadoop Map Reduce for Batch Data Analysis – Apache Oozie – Apache Spark - Apache Storm – Using Apache Storm for real time data analysis- Tools: Chef - Puppet	**(15 HRS)**

Text Book

Arshdeep Bahga, Vijay Madisetti, 2015, "Internet of Things – A Hands on Approach", University Press.

Reference Books

1. Ian G.Smith, 2012 " The Internet of Things-2012 New Horizons", IREC- Internet of Things European Research Cluster.

E-Resources

https://www.qorvo.com/design-hub/ebooks/internet-of-things-for-dummies
https://www.tableau.com/learn/articles/internet-of-things-books
https://jpl-nasa.libguides.com/subject-guides/internet-of-things-iot/ebooks
https://www.upchain.com/blog/26-iot-resources/
https://innovationatwork.ieee.org/internet-of-things/
https://www.gsma.com/iot/iot-resources/

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2019-20 and after)

Part-III: **Core Course**		SEMESTER – **V**
Course Title: **SOFTWARE ENGINEERING**		
Course Code: **10CT53**	Hours per week: **5**	Credits: **4**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Preamble

To provide the Remembering of basic SW engineering methods and practices, and their appropriate application. A general Understanding of software process models such as the waterfall and evolutionary models. An Understanding of the role of project management including planning, scheduling, risk management, etc. An Understanding of implementation issues such as modularity and coding standards. An Understandinging of some ethical and professional issues those are important for software engineers.

Course Learning Outcomes (CO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Basic concept of Software Engineering Process	K1, K2, K3
CLO 2	Explain about the concept of Software Requirement Analysis and Specification	K1, K2, K3
CLO 3	Explain about the concept of Software Design	K1, K2, K3
CLO 4	Explain the concept Software Testing & Maintenance	K1, K2, K3
CLO 5	Basic concept of Project Management	K1, K2, K3

K1-Remembering **K2**-Understanding **K3**-Applying

Mapping of CLO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO6**	**PLO7**
CLO 1	9	-	9	-	9	3	-
CLO 2	9	9	9	-	3	3	-
CLO 3	9	-	9	-	-	3	-
CLO 4	9	-	9	-	3	3	3
CLO 5	9	9	9	-	3	3	3
TOTAL	45	18	45	-	18	15	6

9-Strong; 3-Medium; 1-Low

Mapping of CLO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO 1	3	3	-	-	-
CLO 2	3	-	9	9	3
CLO 3	-	-	9	9	-
CLO 4	9	-	9	9	3
CLO 5	9	-	9	9	9
TOTAL	24	3	36	36	18

Syllabus

Unit I	**Software Process:** Introduction to Software Engineering, Software Process, Perspective and Specialized Process Models	**(15 HRS)**
Unit II	**Requirement Analysis and Specification:** Software Requirements: Functional and Non-Functional, User requirements, System requirements, Software Requirements Document – Requirement Engineering Process: Feasibility Studies, Requirements elicitation and analysis, requirements validation, requirements management-Classical analysis: Structured system Analysis, Petri Nets- Data Dictionary.	**(15 HRS)**
Unit III	**Software Design:** Design process – Design Concepts-Design Model– Design Heuristic – Architectural Design -Architectural styles, Architectural Design, Architectural Mapping using Data Flow	**(15 HRS)**
Unit IV	**Testing and Maintenance:** Software testing fundamentals-Internal and external views of Testing-white box testing – basis path testing-control structure testing-black box testing- Regression Testing – Unit Testing – Integration Testing – Validation Testing – System Testing and Debugging –Software Implementation Techniques: Coding practices-Refactoring-Maintenance and Reengineering-BPR model-Reengineering process model-Reverse and Forward Engineering.	**(15 HRS)**
Unit V	**Project Management:** Software Project Management: Estimation – LOC, FP Based Estimation, Make/Buy Decision COCOMO I & II Model – Project Scheduling – Scheduling, Earned Value Analysis Planning – Project Plan, Planning Process, RFP Risk Management – Identification, Projection – Risk Management-Risk Identification-RMMM Plan .	**(15 HRS)**

Text Book

Roger S.Pressman, "Software Engineering – A Practitioner's Approach", Seventh Edition, MC Graw- Hill International Edition, 2010.

Ian Sommerville, "Software Engineering", 9th Edition, Pearson Education Asia, 2011

Chapters

1, 2, 3, 4, 5, 8 & 9.

Reference Books

1. Rajib Mall, "Fundamentals of Software Engineering", Third Edition, PHI Learning Private Limited, 2009.
2. Principles of Object – oriented Software Development - A.Eliens Addison Wesley

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2022-23 and after)

Part-III: **Core Practical**		SEMESTER – **V**
Course Title: **LAB V: VISUAL PROGRAMMING LAB**		
Course Code: **10CP54**	Hours per week: **6/Semester:75**	Credits: **2**
CIA: **40 Marks**	ESE: **60 Marks**	Total: **100 Marks**

Preamble

This course provides the ability to develop GUI programs using VB.Net and ADO.Net and to solve given problems.

Course Learning Outcomes (CLOs)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Solving Simple Problems using GUI window applications	K2 K3
CLO 2	Solving Problems using .NET controls	K2 K3
CLO 3	To write programs to implement classes and objects.	K2 K3
CLO 4	Solving Problems using Grid Controls to display data using SQL Server.	K2 K3
CLO 5	Solve Problems based on database connectivity using ADO.NET and SQL Server	K2 K3

K1-Remembering **K2**-Understanding **K3**-Applying

Mapping of CLO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO6**	**PLO7**
CLO 1	9	-	9	-	3	3	3
CLO 2	9	-	9	-	3	3	3
CLO 3	9	-	9	-	3	3	3
CLO 4	9	-	9	-	3	3	3
CLO 5	9	-	9	-	3	3	3
TOTAL	45	-	45	-	15	15	15

9-Strong 3-Medium 1-Low

Mapping of CLO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO 1	9	-	9	9	-
CLO 2	9	-	9	9	-
CLO 3	9	-	9	9	-
CLO 4	9	-	9	9	-
CLO 5	9	-	9	9	-
TOTAL	45	-	45	45	-

Syllabus

Practical Exercise List

1. Write a program to generate factorial operation
2. Write a program to perform money conversion
3. Write Quadratic equation
4. Write Temperature conversion

5. Write a program using Basic controls
6. Design a form to create a calculator
7. Create Traffic signal applications
8. Design Logon form and validate
9. Write a program to display the holiday in calendar
10. Write a program to display the selected date in the calendar
11. Write a program to perform tree view operation
12. Write a program validation operation
13. Write a program using Data grid
14. Write a program ADO.net using SQL server with vb.net
15. Write a program using SQL Server with ASP.net

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2020-21 and after)

Part-III: **Discipline Specific Elective**		SEMESTER – **V**
Course Title: **VISUAL PROGRAMMING**		
Course Code: **10DS5A**	Hours per week: **5**	Credits: **5**
CIA: **25 Marks**	ESE: **75 Marks**	Total: **100 Marks**

Preamble

. To provide the concepts of ASP.Net, VB.Net, ADO.Net. To identify the difference between the procedural and event driven language. To Understanding the connection of database.

Course Learning Outcomes (CLO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Define the fundamental concepts of .NET	K1,K2,K3
CLO 2	Explain the basic concepts of Control Structures and Functions	K1,K2,K3
CLO 3	Explain the Object Oriented Programming Paradigm	K1,K2,K3
CLO 4	Summarize the concepts of .Net Controls	K1,K2,K3
CLO 5	Applying the connection of database using ADO.Net	K1,K2,K3

K_1-Remembering **K_2**-Understanding **K_3**-Applying

Mapping of CLO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO6**	**PLO7**
CLO 1	9	-	9	-	-	3	-
CLO 2	9	-	9	-	-	3	-
CLO 3	9	-	9	-	-	3	-
CLO 4	9	-	9	-	-	3	-
CLO 5	9	-	9	-	-	3	-
TOTAL	45	-	45	-	-	15	-

9-Strong; 3-Medium; 1-Low

Mapping of CLO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO 1	3	-	-	-	-
CLO 2	3	3	-	-	-
CLO 3	9	3	9	9	-
CLO 4	9	-	3	-	-
CLO 5	9	9	9	9	-
TOTAL	33	15	21	18	-

Syllabus

Unit- I	**Introduction to .NET:** Introduction: .Net Framework overview - Components of the .Net framework – Language in .NET – Our first VB.NET Program - Data types & Operators – Control Statements.	**(15 HRS)**
Unit-II	**.Net Controls and Array:** Intrinsic Control List – Form Control – Events – Label – Textbox – Group Box Control – Check Box Control – Radio Button Control – VB Code for Radio Button and Text Box Control – Scroll Bar Control – Ctype – Track Bar – Timer – Picture Box – Link label – Date	**(15 HRS)**

	Time Picker – Month Calendar - Array	
Unit-III	**Object Oriented Concepts in VB.Net & Procedures – Structures:** Boxing and Unboxing – Read –only & Write –only Properties – Adding methods to classes – Classes with constructor – Assemblies – Namespaces – Inheritance – Overriding Properties and Methods – Polymorphism. **Procedures & Structures:** Subroutine , Function & Property Procedure – Functions – Value returned by its function name – return statement – calling a function – call by reference – Function with array – function overloading – Sub Procedure – Structure – Message Box function – Input Box function.	**(15 HRS)**
Unit-IV	**Creating Menus, Exception Handling and Web services:** Creating Menus and using Dialog boxes – Events, Delegates and Exception Handling - Web applications with VB.NET and ASP.NET –Web services with VB.NET - Library Function in VB.NET	**(15 HRS)**
Unit-V	**ADO .Net:** What is Database –What is Relational Database – Table Creation – Record insertion – Displaying Data – Deleting data – Modifying data – Drop table – Special features of ADO.NET – Difference between ADO and ADO.NET – Connection – Commands – Data Reader – Data Set – Using Data Grid – Using Data Adapter configuration wizard.	**(15 HRS)**

Text Books

1. VB.NET P.RadhaGanesan – SCITECH PUBLICATIONS PVT.LTD

Unit – I – Chapter 1,2,3,4 Unit II: Chapter 4, 5 Unit III: 6, 8 Unit IV: 7, 9, 11, 12, 14 Unit V: 10

Reference

1. S.Thamarai Selvi and R.Murugesan "A Textbook on C#", Pearson Education, 2003.
2. Herbert Schildt,"The Complete Reference C#:,Tata McGraw Hill,2004
3. Steven Holzner,Visual Basic .NET Programming Black Book,2005 Edition,Paragiyph press USA &Dreamtech Press,Indi
4. Bil Evjen,Jason Beres,et al "Visual Basic .NET Programming Bible,2002 Edition,Wiley India Pvt Ltd002E

E-Resources

https://ecomputernotes.com/csharp/dotnet
https://samples.jblearning.com
https://www.msuniv.ac.in
https://visualstudiomagazine.com
https://docs.microsoft.com

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2022-23 and after)

Part-III: **Discipline Specific Elective**		SEMESTER – **V**
Course Title: **DEVOPS**		
Course Code: **10DS5B**	Hours per week: **5**	Credits: **5**
CIA: **25 Marks**	ESE: **75 Marks**	Total: **100 Marks**

Preamble

. To give a strong foundation of the Development and its Operations.

Course Learning Outcomes (CLO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	To understand the basic concepts of Rise Of Agile Methodologies	K1,K2,K3
CLO 2	To understand the basic concepts of DEVOPS	K1,K2,K3
CLO 3	To understand the concepts of Operations and Architecture	K1,K2,K3
CLO 4	To apply the concepts in Building and Testing	K1,K2,K3
CLO 5	To apply the concepts of Monitoring and Security	K1,K2,K3

K_1-Remembering **K_2**-Understanding **K_3**-Applying

Mapping of CLO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO6**	**PLO7**
CLO 1	9	-	9	-	-	-	-
CLO 2	9	-	-	-	-	-	-
CLO 3	9	-	-	-	-	-	-
CLO 4	9	-	9	-	-	3	-
CLO 5	9	-	9	-	-	3	-
TOTAL	45	-	27	-	-	06	-

9-Strong; 3-Medium; 1-Low

Mapping of CLO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO 1	9	3	-	-	-
CLO 2	9	3	-	-	-
CLO 3	9	3	-	-	-
CLO 4	9	-	9	9	-
CLO 5	9	-	9	9	-
TOTAL	45	09	18	18	-

Syllabus

Unit-I	**RISE OF AGILE METHODOLOGIES:** Agile movement in 2000 - Agile Vs Waterfall Method - Iterative Agile Software Development - Individual and team interactions over processes and tools - Working software over-comprehensive documentation - Customer collaboration over contract negotiation - Responding to change over following a plan	**(15 HRS)**
Unit-II	**DEFINITION OF DEVOPS:** Introduction to DevOps - DevOps and Agile – DevOps Perspective - Team Structure – Coordination – Barriers - The Cloud as a Platform - Realworld application of DevOps – Case Studies.	**(15 HRS)**
Unit-III	**OPERATIONS AND ARCHITECTURE**:	**(15 HRS)**

	Introduction – Operations Services – IT functions – Service Operation function – Continual Service Improvement – Operations and Devops – Architecture	
Unit-IV	**BUILDING AND TESTING:** Introduction – Deployment Pipeline – Crosscutting Aspects – Development and Precommit Testing – Build and Integration Testing – Performance Testing – Deployment.	**(15 HRS)**
UNIT- V	**MONITORING AND SECURITY:** Introduction – When to change the Monitoring Configuration – Interpreting Monitoring Data – Tools – Security and Security Audits- Case Studies: Supporting Multiple Datacenters – Future of DevOps.	**(15 HRS)**

Text Books

1. DevOps: A Software Architect's Perspective - by Len Bass, Ingo Weber, Liming Zhu.-Addison Wesley

Reference

1. What is DevOps? - by Mike
2. The DevOps Handbook - Book by Gene Kim, Jez Humble, Patrick Debois, and Willis Willis

E-Resources

1.http://alecoledelavie.com/accueil/vie_uploads/Portfolio_Programs_Projects_and%20BAU/PortFolio_stuff/Courses%20resources%20stuff/DELF%20cours/DevOps/DevOps%20Delf/Outils_devops/use_case_chapitre13/DevOps_%20A%20Software%20Architect's%20Perspective.pdf

2. http://images.itrevolution.com/documents/DevOps_Handbook_Intro_Part1_Part2.pdf

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2018-19 and after)

Part-IV: **Skill Enhancement Course**		SEMESTER – **V**
Course Title: **COMPETITIVE EXAMINATION FOR IT**		
Course Code: **10SE51**	Hours per week: **2**	Credits: **2**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Preamble

To provide the Remembering of quantitative aptitude for competitive exams.

Syllabus

Unit-I	H.C.F & L.C.M of Numbers – Problems on Ages – Profit & Loss – Ratio & Proportion	**(6 HRS)**
Unit-II	Time & Work – Time & Distance – Problems on Trains	**(6 HRS)**
Unit-III	Calendar – Permutations & Combinations – Probability	**(6 HRS)**
Unit-IV	Test of Reasoning (Verbal) (1 to 50 Exercise Questions) – Analytical Reasoning (1 to 20 Questions) – Test of Reasoning (Non-Verbal) (I- 1 to 20 Questions, II- 1 to 20 Questions, III- 1 to 20 Questions, I- Figure Analogy Test- 1 to 10 Questions, II- Figure Classification Test- 16 to 26 Questions)	**(6 HRS)**
Unit-V	Logical Reasoning (1 to 50 Questions & 101 to 110 Questions) – Computer Literacy (Objective Type): (1 to 500 Questions)	**(6 HRS)**

Notes

Unit-I & Unit-II: 1 to 20 Exercise Questions from each Topic

Unit-III: 1 to 15 Exercise Questions from each Topic

Text Books

1) Unit-I to Unit-III: Quantitative Aptitude for Competitive Examinations – R.S. Aggarwal Seventh Revised Edition – S.Chand & Company Pvt. Ltd., New Delhi
1) Unit-IV & Unit-V: TANCET MCA (Anna University) – V.V.K. Subburaj (Edition – 2014) – Sura College of Competition, Chennai

SEMESTER – V

(For those who joined in June 2014 and after)

Part – IV **: Common Course Theory**		
Course Title : **ENVIRONMENTAL STUDIES**		
Course Code: **ESUG51**	Hours per week: **2**	Credits: 2
CIA Marks**: 25 Marks**	ESE Marks**: 75 Marks**	Total Marks: **100**

Objectives

- *Disseminate information of Environment of national and international issues*
- *Environmental consciousness creation among the students*
- *Facilitation of environmental leadership among students*

Syllabus

Unit-I	Introduction – Nature, scope and importance of Environmental studies – Natural Resources and conservation – forest, water and energy.	**(6 HRS)**
Unit-II	Ecosystem – concept – structure and function, energy flow, food chain, food web and ecological pyramids	**(6 HRS)**
Unit-III	Biodiversity – definition, types – values – India, a mega diversity zone – Hotspots – Endangered and endemic species – threat to biodiversity and conservation	**(6 HRS)**
Unit-IV	Environmental pollution – Air pollution- causes and effect – Ozone depletion – Global warming – acid rain – Water pollution – Noise pollution – Solid waste management – Nuclear hazard	**(6 HRS)**
Unit-V	Human population and the environment – Population growth – variation among nations – effects of population explosion – family welfare programme – environment and human health.	**(6 HRS)**

Text books

1. Environment studies – R.Murugesan (2009), Milleneum Publication. Madurai-16
2. T.Ramesh and P.Rajendran (2017) Environmental studies, Dart Publication, Madurai, Tamil Nadu, India
3. Murugeshan, R (2013) Environmental studies. Millennium publication and Distributions, Madurai, Tamil Nadu, India.
4. Bharucha.E (2019) Textbook of environmental studies for undergraduate courses, universities Press (India) Private Limited, Hyderabad, India.

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2018-19 and after)

Part-III: **Core Course**		SEMESTER – **VI**
Course Title: **WEB PROGRAMMING**		
Course Code: **10CT61**	Hours per week: **4**	Credits: **4**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Preamble

To study the fundaments of Internet programming. To learn Markup Languages. To design a web page and implementing interactive web pages. To study about advanced web designing tools

Course Learning Outcomes (CLO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Basic concept of HTML,CSS and its properties	K1,K2,K3
CLO 2	Basic concept of JavaScript and its properties	K1,K2,K3
CLO 3	Explain the concept of JavaScript documents and its various implements of objects	K1,K2,K3
CLO 4	Basic concepts of PHP.	K1,K2,K3
CLO 5	Explain the concept of function in PHP and how to connect the database connectivity with PHP	K1,K2,K3

K1-Remembering **K2**-Understanding **K3**-Applying

Mapping of CLO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO6**	**PLO7**
CLO 1	9	-	3	-	-	-	-
CLO 2	9	-	3	-	-	-	-
CLO 3	9	-	9	-	-	-	-
CLO 4	9	-	9	-	-	-	-
CLO 5	9	-	9	-	-	-	-
TOTAl	45	-	33	-	-	-	-

9-Strong; 3-Medium; 1-Low

Mapping of CLO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO 1	3	3	-	-	-
CLO 2	3	-	3	-	-
CLO 3	9	-	9	9	-
CLO 4	3	3	-	-	-
CLO 5	9	-	9	9	-
TOTAL	27	06	21	18	-

Syllabus

UNIT I	Internet Basic – Introduction to HTML – List – Table – Linking Documents – Frames –Cascading Style Sheet –Basic Style Sheet – Style sheet Rules – Style Sheet Properties – Font – Text – List – Color and Background Color – Box Model – Display properties.	**(12 HRS)**
UNIT II	Introduction to JavaScript – Advantage of JavaScript – JavaScriptSyntax – Datatype – Variable – Array – Operator and Expression – Looping – Function – Dialog Box.	**(12 HRS)**

UNIT III	JavaScriptDocument Object Model – Introduction – Object in HTML – Event Handling – Browser Object – Form Object – Build in Object – User Defined Objects– Cookies.	**(12 HRS)**
UNIT IV	Introducing PHP – Basic of PHP – Datatype – Variable – Operators – Arrays – Conational Statement – Iterations	**(12 HRS)**
UNIT V	Functions – Working with Forms – Regular Expressions – Debugging and Errors –Project specifications for PHP – Login form, Sub Registration Form with in a Database Connection in MySQL and Validation	**(12 HRS)**

Text Book

Web Enable Commercial Application Development Using HTML, DHTML, JavaScript, PHP, CGI – Ivan Bayross, 4th Revised Edition, BPB Publications, 2000

Reference books:

1. The Complete Reference HTML and XHTML, 4th Edition, Thomas A. Powell,TataMcGraw Hall

Mastering PHP 4.1, Jeremy Allen and Charles Hornberger, BPB Publications

Green Board, LCD Projector, Interactive White Board

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2018-19 and after)

Part-III: **Core Practical**		SEMESTER – **VI**
Course Title: **LAB VI: WEB PROGRAMMING LAB**		
Course Code: **10CP62**	Hours per week: **5/Semester:75**	Credits: **2**
CIA Marks: **40 Marks**	ESE Marks: **60 Marks**	Total Marks: **100 Marks**

Preamble

This course provides the ability to design and write programs for web based applications.

Course Learning Outcomes (CLOs)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Solving Simple Problems using HTML Formatting tags,Links, Frames, Lists and Tables	K2 K3
CLO 2	Solving Problems using Cascading Style Sheets in web pages.	K2 K3
CLO 3	To write programs to implement scripting and events using javascript.	K2 K3
CLO 4	Solving Problems using PHP Scripting with components.	K2 K3
CLO 5	Solve Problems based on database connectivity using MYSQL	K2 K3

K1-Remembering **K2**-Understanding **K3**-Applying

Mapping of CLO with PLO

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO6	PLO7
CLO 1	9	-	9	-	3	3	3
CLO 2	9	-	9	-	3	3	3
CLO 3	9	-	9	-	3	3	3
CLO 4	9	-	9	-	3	3	3
CLO 5	9	-	9	-	3	3	3
TOTAL	45	-	45	-	15	15	15

9-Strong 3-Medium 1-Low

Mapping of CLO with PSO

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CLO 1	9	-	9	9	-
CLO 2	9	-	9	9	-
CLO 3	9	-	9	9	-
CLO 4	9	-	9	9	-
CLO 5	9	-	9	9	-
TOTAL	45	-	45	45	-

Syllabus

HTML

1. Create a simple webpage
   a. Heading Element
   b. Text Element
   c. Logical Styles

   d. Physical Styles
   e. Ordered, Unordered and Definition List
2. Hyper Links
   a. Image Link → Link to page containing Images and Video
   b. File Link → Time Table
   c. Single Link → Ex. No. 1 HTML Page
3. Use frames
   a. Navigation Frame
   b. Floating Frame
   c. Inline Frame
4. Registration Form with Table

CSS

5. Add a Cascading Style sheet for designing the web page
   a. Inline Style Sheet
   b. Internal Style Sheet
   c. External Style Sheet

Script Language

6. Use user defined function to get array of values and sort them in ascending order
7. Calendar Creation: Display all month
8. Event Handling
   a. Validation of Registration Form
   b. Change Colour of background at each click of button or refresh of a page
   c. Display calendar for the month and year selected from combo box
   d. OnMourseOver event

PHP and MySQL

9. User Authentication using Cookies
   a. Create a Cookie and add these four user ID's and passwords to this Cookie.
   b. Read the user id and password entered in the Login Form and authenticate with the values available in the cookies
10. User Registration
   a. Creating a folLowing field:
   Name, Password, E-mail ID, Phone Number, Sex, DOB, Language and Address from webpage
   b. Store the information in a database and Modify and Delete for a Registration with the specified by the user

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2021-22 and after)

Part-III: **Discipline Specific Elective**		SEMESTER – **VI**
Course Title: **FUNDAMENTALS OF ARTIFICIAL INTELLIGENCE**		
Course Code: **10DS6A**	Hours per week: **5**	Credits: **5**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Preamble

The goal is to acquire knowledge on intelligent system and agents, formalization of knowledge, reasoning with and without uncertainty, machine learning and applications at a basic level.

Course Learning Outcomes (CO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	Fundamental concept of AI and Intelligent Agent	K1,K2,K3
CLO 2	Concepts of Problem solving Methods and Game playing in AI	K1,K2,K3
CLO 3	Concepts of Knowledge Representation in AI	K1,K2,K3
CLO 4	Analyze the concepts of learning methods in AI	K1,K2,K3
CLO 5	To study the Application of AI.	K1,K2,K3

K_1-Remembering **K_2**-Understanding **K_3**-Applying

Mapping of CLO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO6**	**PLO7**
CLO 1	9	-	-	-	-	-	-
CLO 2	9	-	9	-	-	3	-
CLO 3	9	-	9	-	-	9	-
CLO 4	9	-	9	3	-	3	-
CLO 5	9	-	-	-	-	-	-
TOTAL	45	-	27	3	-	15	-

9-Strong; 3-Medium; 1-Low

Mapping of CLO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO 1	9	-	9	-	-
CLO 2	9	9	9	-	-
CLO 3	9	-	9	-	-
CLO 4	-	-	9	9	-
CLO 5	9	-	9	9	-
TOTAL	36	9	45	18	-

Syllabus

UNIT I	Introduction–Definition – Foundation of Artificial Intelligence – History of Artificial Intelligence - Intelligent Agents– Agents and Environment – Rationality – Nature of Environment – Structure of Agents..	**(15 HRS)**
UNIT II	Problem solving Methods – Search Strategies- Uninformed – Informed – Heuristics – Local Search Algorithms and Optimization Problems -Searching with Partial Observations – Game Playing – Optimal Decisions in Games – Alpha – Beta Pruning – Stochastic Games	**(15 HRS)**
UNIT III	Knowledge Representation First Order Predicate Logic – Prolog Programming – Unification – Forward Chaining-Backward Chaining – Resolution – Knowledge Representation – Ontological Engineering-Categories and Objects – Events – Mental Events and Mental Objects – Reasoning Systems for Categories -Reasoning with Default Information	**(15 HRS)**
UNIT IV	Learning – Forms of Learning – Supervised Learning – Decision Tree – Reinforcement learning – passive reinforcement learning – Active Reinforcement learning – Application of Reinforcement learning.	**(15 HRS)**
UNIT V	AI applications – Language Models – Information Retrieval- Information Extraction – Natural Language Processing – Machine Translation – Speech Recognition – Robot – Hardware –Perception – Planning – Moving	**(15 HRS)**

Text Book

1. Stuart Russel and Peter Norvig, “Artificial Intelligence: A Modern Approach”, Fourth Edition, Pearson Education, 2020

Reference

1. Dan W. Patterson, “Introduction to AI and ES”, Pearson Education, 2007
2. Kevin Night, Elaine Rich, and Nair B., “Artificial Intelligence”, McGraw Hill, 2008
3. Patrick H. Winston, "Artificial Intelligence", Third edition, Pearson Edition, 2006
4. Deepak Khemani, “Artificial Intelligence”, Tata McGraw Hill Education, 2013 (http://nptel.ac.in/)
5. Artificial Intelligence by Example: Develop machine intelligence from scratch using real artificial intelligence use cases - by Dennis Rothman, 2018

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2022-23 and after)

Part-III: **Discipline Specific Elective**		SEMESTER – **VI**
Course Title: **CYBER SECURITY**		
Course Code: **10DS6B**	Hours per week: **5**	Credits: **5**
CIA: **25 Marks**	ESE: **75 Marks**	Total: **100 Marks**

Preamble

This course provides basic understanding of cyber security and concepts of security in terms of data and network. It also provides an insight of security and privacy aspects in cloud.

Course Learning Outcomes (CLO)

On the successful completion of the course, students will be able to

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CLO 1	To understand the basic concept of Cyber security, Information security, Data and network security.	K1,K2,K3
CLO 2	To understand the concept of Intrusion Detection systems.	K1,K2,K3
CLO 3	To understand the concept of Security in Cloud Computing	K1,K2,K3
CLO 4	To understand the concepts of Data Privacy	K1,K2,K3
CLO 5	To understand and apply the concept of Cryptography.	K1,K2,K3

K_1-Remembering **K_2**-Understanding **K_3**-Applying

Mapping of CLO with PLO

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO6**	**PLO7**
CLO 1	9	-	-	-	-	-	-
CLO 2	9	-	-	-	-	-	-
CLO 3	9	-	9	-	-	-	-
CLO 4	9	-	9	-	-	3	-
CLO 5	9	-	9	-	-	-	-
TOTAL	45	-	27	-	-	3	-

9-Strong; 3-Medium; 1-Low

Mapping of CLO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CLO 1	9	-	3	-	-
CLO 2	9	-	3	-	-
CLO 3	9	-	3	-	-
CLO 4	9	-	3	9	-
CLO 5	9	-	3	9	-
TOTAL	45	-	15	18	-

Syllabus

Unit -I	**INTRODUCTION:** Cyber-attacks - types of attacks- Introduction to cyber security-objectives of security - elements of cyber security -Introduction to Information Security -Introduction to Data and Network Security - Finding vulnerabilities and exploits.	**(15 HRS)**
Unit - II	**INTRUSION DETECTION SYSTEMS :** Overview of intrusions - system intrusion process - anomaly detection, types of IDS - the limitations and open problems of intrusion detection systems - Techniques for studying	**(15 HRS)**

	the Internet attacks - network based attacks, host based attacks	
Unit - III	**SECURITY IN CLOUD COMPUTING:** What is Cloud Computing - Essential Characteristics - Cloud security challenges - Software as a service security - secure software development life cycle - data usage - data privacy - identity access management - physical security.	**(15 HRS)**
Unit-IV	**DATA PRIVACY:** Fundamental Concepts – Definitions - Data Privacy Attacks - Data linking and profiling - access control models - role based access control - privacy in different domains- medical, financial, etc	**(15 HRS)**
Unit-V	**CRYPTOGRAPHY:** Services - mechanisms and attacks - the OSI security architecture - Network security Model - classical Encryption techniques, Private and Public Key Cryptography.	**(15 HRS)**

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Text Box

1. Michael T. Goodrich and Roberto Tamassia, “Introduction to Computer Security”, Addison Wesley, 2011.
2. B. Raghunathan, “The Complete Book of Data Anonymization: From Planning to Implementation”, Auerbach Pub, 2013.
3. John W. Rittinghouse, “Cloud Computing: Implementation Management & Security”, CRC Press.
4. Roberto Di Pietro, Luigi V. Mancini, “Intrusion Detection System”, Springer ,2008
5. William Stallings-“Cryptography and Network Security”, Pearson education, 6th edition, SBN 10: 0133354695, 2013.

Chapters

Chapter 1, 2, 4, 5, 7, 8,9,10, 11, 12, 14

References

1. Mark Stamp, “Information Security – Princples and Practice” – Second editon – John Wiley Inc., Publications
2. Russell Dean Vines and Ronald L. Krutz ,”Cloud Security: A Comprehensive Guide To Secure Cloud Computing”, Wiley India Pvt Ltd, 2010.
3. Anderson, James P., "Computer Security Threat Monitoring and Surveillance," Washing, PA, James P. Anderson Co., 1980.
4. L. Sweeney, “Computational Disclosure Control: A Primer on Data Privacy Protection”, MIT Computer Science, 2002.

E-Resources

https://youtu.be/AxsuKn2bDLQ
https://youtu.be/YbjoaMN67Hw
https://youtu.be/JoeiLuFNBc4
https://www.digit.in/technology-guides/fasttrack-to-cyber-crime/the-12-types-of-cyber-crime.html
https://www.slideshare.net/amdadam5/cyber-security-importance-of-cyber-security
https://www.slideshare.net/Thushara92/network-security-cryptography-ppt
https://www.slideshare.net/patisa/cryptography-and-network-security-27006194

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2022-23 and after)

Part-IV: **Skill Enhancement Course**		SEMESTER – **VI**
Course Title: **Open Source Software Lab**		
Course Code: **10SE61**	Hours per week: **2/Semester:30**	Credits: **2**
CIA Marks: **40 Marks**	ESE Marks: **40 Marks**	Total Marks: **100 Marks**

Preamble

This course build skills to work on Selenium IDE, a open source and a testing framework software which helps the tester to test their web applications in different scenarios and different browsers like chrome, firefox, safari, etc. Students will gain significance of Selenium along with its tools like Selenium Web Control, Testing, etc..

Syllabus

Practical Exercise List

1. Selenium Introduction
2. Overview of Selenium IDE and Selenium Commands
3. Recording and Run Settings.
3. Selenium IDE –Installation
4. Using Selenium IDE, Write a test suite containing minimum 4 test cases.

   Conduct a test suite for any two web sites
6. Write and test a program to update 10 student records into table into Excel file.
7. Write and test a program to select the number of students who have scored more than 60 in any one subject (or all subjects).
8. Selenium with Python.
9. Selenium with Java

Pedagogy

Chalk & Talk, Group Discussion, PPT

Teaching Aids

Green Board, LCD Projector, Interactive White Board

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

(For those students admitted during the Academic Year 2021-22 and after)

Part-III: **Skill Enhancement Course**		SEMESTER – **VI**
Course Title: **Professional Ethics for Computer Science**		
Course Code: **10SE62**	Hours per week: **2**	Credits: **2**
CIA: **25 Marks**	ESE: **75 Marks**	Total: **100 Marks**

Preamble

This course is universally adaptable, involving a systematic and Inter-relationship of technology growth and social, economic and cultural growth. It is free from any dogma or value prescriptions. This subject mainly deals with workmanship culture, social and ethical responsibilities of Computer Science Students

Syllabus

Unit- I	**SOCIAL AND PROFESSIONAL ACTIVITIES**: Science, Technology and Engineering as knowledge and as social and professional activities - Inter-relationship of technology growth and social, economic and cultural growth- historical perspective -Ancient, medieval and modern technology/industrial revolution and its impact - the Indian Science and Technology.	**(6 HRS)**
Unit-II	**SOCIAL AND HUMAN CRITIQUES OF TECHNOLOGY:** Social and human critiques of technology - Rapid technological growth and Depletion of resources - reports of the club of Rome -limits to growth; sustainable development - Energy crisis - renewable energy resources - Environmental degradation and pollution - ecofriendly Technologies - environmental regulations - environmental ethics.	**(6 HRS)**
Unit-III	**TECHNOLOGY AND THE DEVELOPING NATIONS:** Technology and the developing nations - problems of technology transfer –technology - Assessment/impact analysis -Human operator in projects and industries –problems of Man-machine interaction -impact of assembly line and automation - human centered technology -Industrial hazards and safety	**(6 HRS)**
Unit - IV	**POLITICS AND TECHNOLOGY:** Politics and technology- authoritarian versus democratic control of technology -social and ethical audit of industrial organizations..	**(6 HRS)**
Unit-V	**PROFESSION:** Conflicts between business demands and professional ideals - social and ethical responsibilities of the students - codes of professional ethics - whistle blowing and beyond - case studies.	**(6 HRS)**

Text Books

1. 1. Baum, R.J., ed, Ethical Problems in Engineering

Reference Books

Beabout, G.R., Wennemann, D.J., Applied Professional Ethics

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(For those students admitted during the Academic Year 2022-23 and after)

Part-III: **Skill Enhancement Course**		SEMESTER – **VI**
Course Title: **R Programming Lab**		
Course Code: **10SE63**	Hours per week: **2/Semester:30**	Credits: **2**
CIA: **40 Marks**	ESE: **60 Marks**	Total: **100 Marks**

Preamble

This course to provide basics concepts and features of R Programming

Syllabus

1. Introduction of R Programming
2. R Programming Environment
3. How to Create and execute the R Programming file.
4. Lexical Structure of R Programming
5. Data types, Variables, I/O commands and Operators in R Programming

Program List:

1. Write a R Program to take input from the user(name and age) and display the values
2. Write a R program to get the details of the objects in memory.
3. Write a R Program to get the first 10 Fibonacci numbers.
4. Write a R Program to get all Prime numbers up to a given number
5. Write a R Program to find the factors of a given number.
6. Write a R program to compute sum, mean and product of a given vector elements

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

SEMESTER – VI

(For those who joined in June 2014 and After)

PART – IV : Common Course Theory		
Course Title **: Value Education**		
Course Code: **VEUG61**	Hours per week: **2**	Credit: **2**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Syllabus

UNIT I	**The heart of Education:** Introduction – Eternal Value – Integrated approach to value education - one for all and all for one – Responsibilities of a citizen – Habit Vs wisdom – purifying mind pollution – Respect for all Religions – Parents, teachers and felLow students – The need and benefit of exercise and meditation for students.	**(6 HRS)**
UNIT II	**The Value of Body and Life Energy:** Introduction – what are the causes for paid, Disease and death? Three Basic needs for all living Beings – Personal Hygeine Five Factors of Balance in Life – The need and benefits of physical Exercise – The value and Base of Life energy – The value and Base of Bio-magnetism - You are your own best caretaker. **The Marvelous nature of mind:** Introduction- Bio-magnetism – The base of the mind – characterisation of the Genetic Centre – metal frequency – practice for a creative mind - benefits of meditation.	**(6 HRS)**
UNIT III	**Analysis of Thought:** Introduction – An Explosition on the nature of thought– six roots for thoughts – Introspection for analysis of thoughts-practical techniques for analysis of thoughts. Benefits of Blessings Effects of good vibrations – Make Blessing a Daily Habit	**(6 HRS)**
UNIT IV	**Moralisation of Derive:** Introduction – moralization of desire - Analyse your desires – Summary of practice. **Neutralision of Anger:** Introduction – meaning – characteristics of Anger – Anger is a Destructive emotion – Anger spoils our relationship with others – Some common misconception about anger – will power and method success through awareness – method of neutralisation of anger.	**(6 HRS)**
UNIT V	**Eradication of Worries:** Worry is a mental disease – Nature's Law of cause and effect – factors beyond our control – How to deal with problems – analyse your problem and eradicate worry Harmonious Relationships Introduction – Three angles of life – The value of harmony in personal relations – Love and Compassion – pleasant face and loving words – appreciation and gratitude to parents and teachers – Bringing needed reforms in educational institutions Why should we serve others? Brotherhood – A scientific Basis for Universal Brotherhood protection of the environment – non-violenceandthe five fold moral culture.	**(6 HRS)**

Text Book Value Education for Health, Happiness and Harmony

Based on the Philosophy and Teachings of Swami Vethanthiri Maharisi) Published By: Brain Trust, Aliyar A Wing of World Community Service Centre

DEPARTMENT OF COMPUTER SCIENCE

Programme: B.Sc., Computer Science (Under CBCS and LOCF)

SEMESTER – VI

(For those who joined in June 2008 and after)

PART – V : Common Course Theory		
Course Title **: EXTENSION ACTIVITIES**		
Course Code: **EAUG61**	Hours per week:	Credit: **1**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Syllabus

UNIT-I	**Community Development-I:** definition – structure and composition – community based issues – need for awareness – Developmental Programmes.	
UNIT – II	**Community Development–II:** Rural Scenario – need of the Community – need for the community service – role of youth in community building – communal harmony – literacy – Educational Recreation.	
UNIT – III	**Volunteer Empowerment:** Women's Emancipation – formation of Youth Clubs – Self-Help Groups – Youth and Development.	
UNIT – IV	**Social Analysis:** Social issues – cultural invasion – media infiltration – human rights Education/Consumer Awareness – Adolescents Reproductive – HIV/AIDS/STD – Social harmony/National integration – Blood Donation.	
UNIT – V	**Introduction to NSS**: Basic Concepts – profile – aims – objectives – symbol – Motto – structure – Regular activities – Special Camping Programme – Adventure Programme – National Days and Celebrations.(Applicable to NSS Students) **(OR)** **NCC:** Origin – Organisation – Ministry of Defence – Armed forces – commands – Defence establishments in Tamil Nadu Civil Defence – Aid to civil authorities – Disaster management – Leadership – Man management – Adventure activities – Social service	

Reference

National Service Scheme Manual (Revised), Ministry of Human Resources Development, government of India.