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 and OBE

(OBE)

(For those students admitted during the Academic Year 2019-20 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- 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 Outcomes (POs)

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

P.No.	Programme Outcome	Description
PO1	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.
PO2	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.
PO3	Social Interaction and Problem Solving	Elicit views of others, mediate disagreements and help reach conclusions in group settings
PO4	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.
PO5	Professional Ethics and Human Values	Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
PO6	Environment and Sustainability	Understand the issues of environmental contexts and Sustainable development
PO7	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 Analysis	Identify, formulate research literature and analyse 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.	**Head**
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	**Head**

		health and safety, and the cultural, societal, and environmental considerations.	
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 Understanding 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 Understanding 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 PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**
PEO 1					
PEO 2					
PEO 3					
PEO 4					
PEO 5					

Mapping of PO with GA

	GA 1	**GA 2**	**GA 3**	**GA 4**	**GA 5**	**GA 6**	**GA 7**	**GA 8**	**GA 9**	**GA 10**
PO 1										
PO 2										
PO 3										
PO 4										
PO 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, Allied &Elective)

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 (SBS-Skills Based Subjects)

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 (Non Major Elective, 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

Total	**75 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 SBS)	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

FIRST SEMESTER

Part	Study Component	Course Code	Course Title	Hours	Credits	CIA Marks	ESE Marks	Total Marks
I	Tamil	P1CT11	Ikkalak Kavithaiyum Urainadaiyum	6	3	25	75	100
II	English	P2LE11 / P2CE11	**English for Communication Skills–I**	6	3	25	75	100
III	Core	10CT11	Programming In C	4	4	25	75	100
	Core	10CT12	Digital Principles and Computer Organization	4	4	25	75	100
	Core	10CP13	Lab -I C Programming Lab	4	2	40	60	100
	Allied	10AT11	Discrete Mathematics	4	5	25	75	100
IV	Non Major Elective	10NE11	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	P1CT21	Ikkalak Kadhai Ilakkiyamum Makkal Thagavaliyalum	6	3	25	75	100
II	English	P2LE21 / P2CE21	**English for Communication Skills–II**	6	3	25	75	100
III	Core	10CT21	Object Oriented Programming with C++	4	4	25	75	100
	Core	10CT22	Data Structure	4	4	25	75	100
	Core	10CP23	Lab II: C++ & Data Structure	4	2	40	60	100
	Allied	10AT21	Statistics & Probability	4	5	25	75	100
IV	Non Major Elective	10NE21	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	Kappiyamum Pakthi Ilakkiyamum Nadagamum	6	3	25	75	100
II	English	P2LE31 / P2CE31	English for Academic and Professional Excellence–I	6	3	25	75	100
III	Core	10CT31	Computer Networks	4	4	25	75	100
	Core	10CT32	Computer Graphics	4	4	25	75	100
	Core	10CP33	Lab III: Computer Graphics & Animation	4	2	40	60	100
	Allied	10AT31	Operations Research	4	5	25	75	100
IV	Skill Based	10SB31	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	P1CT41	Sanga Ilakkiyamum Neethi Ilakkiyamum	6	3	25	75	100
II	English	P2LE41/ P2CE41	English for Academic and Professional Excellence – II	6	3	25	75	100
III	Core	10CT41	Relational Database Management System	4	4	25	75	100
	Core	10CT42	Dot NET Programming	4	4	25	75	100
	Core	10CP43	Lab IV: Client Server Programming	4	2	40	60	100
	Allied	10AT41	Numerical Methods For Computer Science	4	5	25	75	100
IV	Skill Based	10SB41	Unix and Shell Programming	2	2	25	75	100
			TOTAL	**30**	**23**			

FIFTH SEMESTER

Part	Study Component	Course Code	Course Title	Hours	Credit	CIA Marks	ESE Marks	Total Marks
III	Core	10CT51	Python Programming	5	4	25	75	100
	Core	10CT52	Java Programming	5	4	25	75	100
	Core	10CT53	Software Engineering	5	4	25	75	100
	Core	10CP54	Lab V – Java and Python Programming	6	2	40	60	100
	Elective	10EP5A 10EP5B	Cloud Computing Internet of Things	5	5	25	75	100
IV	Skill Based	10SB51	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	10CT61	Web Programming	4	4	25	75	100
	Core	10CP62	Lab VI: Web Programming Lab	5	2	40	60	100
	Elective	10EP6A/ 10EP6B	Data Mining and Data Warehousing / Digital Image Processing	5	5	25	75	100
	Elective	10PV61	Project and Viva-Voce	8	5	-	100	100
IV	Skill based	10SB61	DTP	2	2	40	60	100
IV	Skill based	10SB62	Cyber security	2	2	25	75	100
	Skill based	10SB63	Open Source Tool	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
தமிழ்த்துறை
Programme : B.A., BSc., (CBCS and Outcome Based Education (OBE)
(For those students admitted during the Academic Year 2019 – 2022 and after)
பாடத்திட்டத்தின் கட்டமைப்பு

PART – I: **TAMIL**		SEMESTER : I
Course Title : இக்காலக் கவிதையும் உரைநடையும;		
Course Code **: P1LT11**	Hours per week **: 6**	Credit **: 3**
CIA Marks : **25**	ESE Marks : **75**	Total Marks : 100

முன்னுரை (Preamble)

1. மரபின் பழம்பெருமையினை உணர்தல்.
2. புதுக்கவிஞர்களின் படைப்பாக்கங்கள் வழி பொருள், கட்டமைப்பு அறிவித்தல்.
3. தனி மனித ஒழுக்கம் கடைபிடித்தல்.
4. தமிழ் எழுத்துக்களின் வகைமைகளை அறிதல்.
5. தமிழிலக்கியத்தின் மரபு மற்றும் புதுக்கவிதையின் வரலாற்றினை அறிவித்தல்.

பாடதிட்டத்தின் முடிவுகள் (Course 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	உரைநடை இலக்கியத்தின் வாயிலாகவும், மரபுக்கவிதை - புதுக்கவிதையின் வாயிலாகவும் தனி மனித மற்றும் சமூக ஒழுக்கங்கள் குறித்து வரையறை செய்தல்.	K_1, K_2
CO 2	உயிர் எழுத்துக்கள், மெய்யெழுத்துக்கள், உயிர்மெய்யெழுத்துக்கள், சார்பெழுத்துக்கள் ஆகியன குறித்தும் அவற்றை எழுதும் விதங்கள் குறித்தும் வகைப்படுத்தும் திறன் அறிதல்.	K_2, K_3
CO 3	மரபுக்கவிதை வாயிலாக படைப்பாளர்களின் காலகட்டத்தையும், படைப்பின் வழியாக அக்காலகட்ட மக்களின் வாழ்க்கை நிகழ்வுகளின் வரலாற்றினையும் விவரித்தல்.	K_2, K_3
CO 4	தாய் மொழியின் சிறப்பு, பொதுவுடைமை சிந்தனை, அறியாமை நீக்கல், உண்மைத்துறவு நிலை குறித்த சமூக நிலைகளை கலந்துரையாடுதல்	K_2
CO 5	மொழியினைப் பிழையின்றி எழுதுதல் - பேசுதல், ஒலி வேறுபாட்டினை அறிந்து மயக்கம் நீக்குதல் போன்ற ஒரு மொழியின் பயன்பாட்டுத் தன்மையைத் தெளிவுறுத்தல்.	K_1, K_2, K_3

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

Mapping of CO and PO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	9	3	3	9	3	1	9
CO2	9	3	9	3	3	1	9
CO3	9	3	9	9	9	3	9
CO4	3	9	3	9	9	-	9

CO5	9	3	3	3	3	-	9
Weightage of the course	39	21	27	33	27	03	45
Weighted percentage of Course contribution to POs							

பாடத்திட்டம; (Syllabus)

அலகு - 1	தமிழ்ச்செய்யுள் : மரபுக்கவிதைகள் 1.பாரதியார் கவிதைகள் 1. தமிழ் (நான்கு பத்தி) 2. நடிப்புச் சுதேசிகள் 2. பாரதிதாசன் கவிதைகள் 1. நீங்களே சொல்லுங்கள் 2. புதியதோர் உலகம் செய்வோம் 3. நாமக்கல் கவிஞர் வெ.இராமலிங்கம் பிள்ளை 1.குருதேவர் இராமகிரு‘ணர் (3 பாடல்கள்) 4. கவிமணி தேசிய விநாயகம் பிள்ளை 1.கோவில் வழிபாடு 5. அரசஞ்சண்முகனார் 1.மதுரை ஸ்ரீமீனாட்சியம்மைத் திருவடிப்பத்து (முதல் ஐந்து பாடல்கள்)	18மணிநேரம்
அலகு - 2	தமிழ்ச்செய்யுள் : புதுக்கவிதைகள் 6. அன்னை - கவிஞர் கண்ணதாசன் 7. கிழக்கு விழிக்கும் நேரம் - கவிஞர் வைரமுத்து (கொடிமரத்தின் வேர்கள்) 8. அவர்கள் வருகிறார்கள் - மு.மேத்தா (சுதந்திர தாகம்) 9. புதுக்கவிதைகள் - க.நா.சுப்ரமண்யம் (கவிதை) 10. நாம் இருக்கும் நாடு - தமிழன்பன் (வாக்கு வரம் தரும் தெய்வம்) 11. தீர்த்தக்கரையினிலே - முருகு சுந்தரம் (ஒலிபெருக்கி) 12. ஹைக்கூ பூக்கள் - க.ராமச்சந்திரன்	18மணிநேரம்
அலகு - 3	தமிழ் உரைநடை இலக்கியம் சுவாமி சித்பவானந்தரின்சிந்தனைகள்	18மணிநேரம்
அலகு - 4	தமிழ் இலக்கணம் - எழுத்து 1. முதல் எழுத்துக்கள்,சார்பெழுத்துக்கள் 2. மொழி முதல் எழுத்துக்கள்,மொழி இறுதி எழுத்துக்கள் 3. வல்லெழுத்து மிகும் இடங்கள்,வல்லெழுத்து மிகா இடங்கள்	18மணிநேரம்

அலகு - 5	தமிழ் இலக்கிய வரலாறும் பயன்பாட்டுத் தமிழும் அ) 1. புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும் 2. மரபுக்கவிதையின் தோற்றமும் வளர்ச்சியும் ஆ) மரபுப்பிழை நீக்குதல் - பிறமொழிச் சொற்களை நீக்குதல் - பிழையற்ற தொடரைத் தேர்ந்தெடுத்தல் - ஒருமை பன்மை மயக்கம் - ஓர் எழுத்து ஒரு மொழிக்குரிய பொருள் - ஒலி வேறுபாடுகளும் பொருள் வேறுபாடுகளும் - பொருத்தமான பொருள் - பொருத்தமான தொடர் அறிதல்.	18மணிநேரம்

பாட நூல்கள் (Text books)

1. தமிழ்ச் செய்யுள் தொகுப்பு (தமிழ்த்துறை வெளியீடு)
2. சுவாமி சித்பவானந்தரின் சிந்தனைகள் (தமிழ்த்துறை வெளியீடு)

பார்வை நூல்கள் (Reference Books)

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

2.தமிழ் இலக்கிய வரலாறு- மு.வரதராசனார்,
சாகித்திய அகாடமி,தலைமை அலுவலகம்,
ரவீந்திர பவன்,35,பெரோஸ்'ா சாலை,புதுதில்லி.

கற்பிக்கும் முறைகள் (Pedagogy)

விரிவுரை கொடுத்தல், கலந்துரையாடல், காட்சிப் பதிவுகளின் வழியாக புலப்படுத்துதல்.

கற்பிக்க உதவுதல் (Teaching Aids)

கரும்பலகை பயன்படுத்துதல், காட்சி திரைவழியாகப் புலப்படுத்துதல்.

UG Programme, Part -II English (CBCS-OBE) - SEMESTER I
(For those students who joined in the academic year 2019-2020 onwards)

PART II		
Course Title : **English for Communication Skills–I**		
Course Code: P2LE11 / P2CE11	Hours per week: **6**	Credit: **3**
Sessional Marks: **25**	Summative Marks: **75**	Total Marks: **100**

Preamble:
The students are expected to inculcate English socio-linguistic competence and moral values through world literature in English for communication skills.

Course Outcome (CO):
On the successful completion of the course, the students will be able to:

State One	**Course Outcome**	**Knowledge Level (according to Bloom's Taxonomy)**		
CO1	Recognize listening, and reading proficiency through prose discourse	K1	K2	K3
CO2	Use and interpret imaginative and creative skill through poetry	K1	K2	K3
CO3	State socio-linguistic influence of authors found in Short Stories	K1	K2	K3
CO4	Demonstrate acquired grammar skill in listening, speaking, reading and writing	K1	K2	K3
CO5	Execute and exercise English communication skills for academic excellence	K1	K2	K3

K1- Remembering K2 – Understanding K3 – Applying

Programme Outcome

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	9	9	9	9	3	-	9
CO2	3	9	3	3	9	-	3
CO3	9	9	9	9	9	-	3
CO4	9	3	3	-	-	-	9
CO5	9	9	9	3	3	-	9
	39	39	33	24	24	-	33

Strong-9 Medium -3 Low -1

SYLLABUS

Unit-1 Prose

1. *The Secret of Work*- Swami Vivekananda
2. *Uncle Podger Hangs a Picture* – Jerome K. Jerome
3. *What Kind of Peace Do We Want?* – J.F. Kennedy

Unit-2 Poetry

1. *The Paradox of our Times* – Dalailama
2. *Mirror* – Sylvia Plath
3. *Goodbye Party for Miss Pushpa T.*S – Nissim Ezekiel

Unit-3 Short Stories

1. *The Romance of a Busy Broker* - O Henry
2. *A Shadow* – R K Narayan
3. *The Plastic God Box* – C S Lakshmi alias Ambai

Unit-4 Grammar

1. Parts of Speech
(Noun, adjective, pronoun, verb, adverb, preposition, conjunction and interjection)
2. Tenses and their Usages

(for the three Sessional Exam)

Unit-5 Composition

1. Letter Writing: Formal/informal
2. Paragraph Writing
3. Hints Development

Course Texts:

1. Swami Vivekananda. "Work and Its Secret: The Secret of Work*."Links: Indian Prose in English.* Ed. G.S.Balarama Gupta. New Delhi: Macmillan Indian Limited, 1989.
2. Dr.P.C.James Daniel, ed. *Gateway to English: An Anthology of Prose*. Chennai: Harrows Publications, 2018.
3. Dr.M.Moovendhan, ed.*Wings of Poesy*. Chennai: Thamarai Publications, 2018 (or)

<https://bhoomicollege.org/sites/default/files/The%20Paradox%20of%20our%20Times%202012.pdf > *The Paradox of our Times*

<https://allpoetry.com/poem/8498499-Mirror-by-Sylvia-Plath> *Mirror*

<https://www.poemhunter.com/poem/goodbye-party-for-miss-pushpa-t-s/> *Goodbye Party for Miss Pushpa T.*S

4. Abhijit Acharijee, and Rakesh Ramamoorthy, ed. *Frontiers of Communication: An Anthology of Short Stories and Prose*. Chennai: Cambridge University Press, 2018.
5. KV Joseph and Ae Augustine. *Trinity Grammar a Handbook*. New Delhi: Trinity Press, (or) G.Radhakrishna Pillai. *Emerald English Grammar and Composition*. Emerald Publisher.

References:

1. Swami Vivekananda. "Work and Its Secret: The Secret of Work*." The Complete Works of Swami Vivekananda*. Vol-II. Kolkata: Advaita Ashrama, 1989.
2. Board of Editors. *Pearls in a String: English for Communication*. Chennai: Emerald Publishers, 2009.
3. Steuart H King, ed. *New Vistas in English Prose*. Bombay: Blackie & Sons Publishers, 1980.
4. MG Narasimha Murthy, ed. *Famous Indian Stories*. Mumbai: Orient BlackSwan, 2009.
5. Raymond Murphy and Louise Hashemi. *English Grammar in Use Supplementary Exercises*. Cambridge: CUP, 2004.
6. K.V.Joseph. *A Textbook of English Grammar and Usage*. New Delhi: TATA McGraw Hill Education Private Limited, 2012.
7. Mary Ellen Guffey, and Richard Almonte. *Essentials of Business Communication*. Toronto: Nelson Education, 2007.

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. [*Either 8.45 am to 9.30 am or 5.00 pm to 5.45 pm*]).

TEACHING AIDS: Course Texts, Reference books, Writing Board, and Online Sources.

DEPARTMENT OF COMPUTER SCIENCE

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

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

Part-III: **Core Theory**		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 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	Understanding the basic concepts of C,constants,variables and data types and to Applying the concept of decision making and looping	K1 K2 K3
CO 2	Understanding the concept of array and String .Develop C programs for arrays and string	K1 K2 K3
CO 3	Understanding and Applying the concept of function ,Category of function, Nesting of function	K1 K2 K3
CO 4	Understanding and Applying the concept of structure and union	K1 K2 K3
CO 5	Understanding and Applying the concept of pointers and file management	K1 K2 K3

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

Mapping of CO with PO

	PO 1	PO 2	PO 3	PO 4	PO 5	PO6	PO7
CO 1	9	-	9	-	-	3	-
CO 2	9	-	9	-	-	3	-
CO 3	9	-	9	-	-	-	-
CO 4	9	-	9	-	-	3	-
CO 5	9	-	9	-	-	3	-
TOTAL	45	-	45	-	-	12	-

9-Strong 3-Medium 1-Low

Mapping of CO with PSO

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	9	9	9	9	-
CO 2	-	-	9	9	-
CO 3	9	9	9	9	-
CO 4	9	9	9	-	-
CO 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	**(12 HRS)**

	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.	
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 Function**s: 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, LCD Projector, Interactive White Board

DEPARTMENT OF COMPUTER SCIENCE

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

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

Part-III: **Core Theory**		SEMESTER – **I**
Course Title: **DIGITAL PRINCIPLES AND COMPUTER ORGANIZATION**		
Course Code: **10CT12**	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. Implement simple logical operations using combinational and logic circuits. Determine the function and performance of given combinational and sequential circuits.

Course Outcomes (CO)

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Define the basic concepts of number system and discrete logic	K1 K2 K3
CO 2	Understand and apply the concepts of Boolean Algebra, Boolean law & theorems, Sum of product, K-Map simplifications, Multiplexers, Demultiplexers, Decoders, Encoders, Binary Addition and subtraction.	K1 K2 K3
CO 3	Explain the functional unit, Bus structure, software performance	K1 K2 K3
CO 4	Explain the addressing mode, DMA, Hardwired control	K1 K2 K3
CO5	Explain the Basic concepts of Microprocessor and Instruction set	K1 K2 K3

K1-knowledge K2-Understand K3-Apply

Mapping of CO with PO

	PO 1	PO 2	PO 3	PO 4	PO 5	PO6	PO7
CO 1	9	-	9	-	-	-	-
CO 2	9	-	9	-	-	-	-
CO 3	9	-	9	-	-	-	-
CO 4	9	-	9	-	-	-	-
CO 5	9	-	9	-	-	-	-
TOTAL	45	-	45	-	-	-	-

9-Strong 3-Medium 1-Low

Mapping of CO with PSO

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	9	9	9	-	-
CO 2	9	9	9	9	-
CO 3	9	-	-	-	-
CO 4	9	-	-	-	-
CO 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 - De-multiplexers – Encoders – Decoders – 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 III	Functional Units - Basic Operational Concepts - Bus Structures – Software – Performance - Stack and Queue.	**(12 HRS)**
UNIT IV	Addressing Modes - Fetching a word from memory - Execution of a complete instruction - Hardwired control - Micro Programmed Control - DMA.	**(12 HRS)**
UNIT V	**Introduction to microprocessor:** Architecture of Microprocessor - Evolution of Microprocessors - 8085 Microprocessor Programming Model - 8085 Instruction Set - 8085 Pin Function - 8085 Architecture	**(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.
3. **"Microprocessor Architecture programming and applications with 8085"** Ramesh Gaonkar PRI publications.

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 OBE)

(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: **4/60(Semester)**	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 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	Solving Simple Problems using basic concepts	K2 K3
CO 2	Solving Problems based on mathematical formulas and expressions	K2 K3
CO 3	To write programs to perform multiple tasks.	K2 K3 K4
CO 4	To write program using structure and union for problem solving.	K2 K3 K4
CO 5	To develop program using pointers and files for problem solving.	K2 K3 K4

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

Mapping of CO with PO

	PO 1	PO 2	PO 3	PO 4	PO 5	PO6	PO7
CO 1	9	-	9	-	3	3	3
CO 2	9	-	9	-	3	3	3
CO 3	9	-	9	-	3	3	3
CO 4	9	-	9	-	3	3	3
CO 5	9	-	9	-	3	3	3
TOTAL	45	-	45	-	15	15	15

9-Strong 3-Medium 1-Low

Mapping of CO with PSO

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO 1	9	-	-	-	-
CO 2	9	9	-	-	-
CO 3	-	-	9	9	-
CO 4	-	-	9	9	-
CO 5	-	-	-	9	9
TOTAL	18	9	18	27	9

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 OBE)

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

Part-III: Allied Theory		SEMESTER – **I**
Course Title: **DISCRETE MATHEMATICS**		
Course Code: **10AT11**	Hours per week: **4**	Credits: **5**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **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 Outcomes (CO)

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Define the basic concepts of set theory. Understanding and Applying the concepts of functions, relations, mathematical induction and permutation, combination	K1 K2 K3
CO 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
CO 3	Prove implication problems using truth table method, Obtain PCNF and PDNF of given logical expression	K1 K2 K3
CO 4	Applying the concepts of Induction, Recursions and Recurrence relations	K1 K2 K3
CO5	Applying the concepts of graph theory	K1 K2 K3

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

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	9	-	-	3	-
CO 2	9	-	9	-	-	-	-
CO 3	9	-	9	-	-	3	-
CO 4	9	-	9	-	-	-	-
CO 5	9	-	9	-	-	3	-
TOTAL	45	-	45	-	-	9	-

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

Mapping of CO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO 1	3	9	3	-	-
CO 2	-	9	3	-	-
CO 3	-	9	3	-	-
CO 4	-	9	3	-	-
CO 5	-	9	3	-	-

TOTAL	3	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 – Eulerian and Hamiltonian graphs – euler circuits – trees – application of trees – binary search trees – decision trees – traversal trees – infix, prefix and postfix notation – Trees And Sorting – 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, LCD Projector, Interactive White Board

DEPARTMENT OF COMPUTER SCIENCE

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

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

Part-IV: Non –Major Elective		SEMESTER – **I**
Course Title: **INTRODUCTION TO INFORMATION TECHNOLOGY**		
Course Code: **10NE11**	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 Outcomes (CO)

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Define the basic concepts of Information Technology	K1 K2 K3
CO 2	Understanding the concepts of computer system and CPU	K1 K2 K3
CO 3	Understanding the Applying the concepts of Input and output devices, Secondary storage	K1 K2 K3
CO 4	Understanding Applying the concepts of Operating systems, File Management	K1 K2 K3
CO 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 **Printers Secondary Storage**: The foundation of modern storage: How Data is stored, Storage Characteristics – Storage Media: Floppy Disk, Hard Disk, Drives, and Optical Disk – Back up data.	**(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

Pedagogy

Chalk & Talk, Group Discussion, PPT

Teaching Aids

Green Board, LCD Projector, Interactive White Board

விவேகானந்த கல்லூரி

தமிழ்த்துறை

Programme : B.A., BSc., (CBCS and Outcome Based Education (OBE)

(For those students admitted during the Academic Year 2019 – 2022 and after)

PART – I : **TAMIL**		SEMESTER : **II**
Course Title : இக்காலக் கதை இலக்கியமும் மக்கள் தகவலியலும்		
Course Code **: P1LT21**	Hours per week **: 18**	Credit **: 03**
CIA Marks : **25**	ESE Marks : **75**	Total Marks : **100**

Preamble

1. சமூக வெளிப்பாடுகளை உணர்த்துதல்
2. தனிமனித நேர்மை உணர்த்துதல்
3. இதழ்கள் பற்றிய அடிப்படை அறிவை புகட்டுதல்
4. சொற்களின் வகைமை அறிதல்
5. சிறுகதை - புதின வரலாற்றினைத் தெளிவுபடுத்துதல்

Course 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	சிறுகதைகள் மற்றும் புதினத்தின் வாயிலாக தனி மனித மற்றும் சமூக ஒழுக்கங்கள் குறித்து தன்மையினை வரையறை செய்தல்.	K_1, K_2
CO 2	இதழ்கள், பேட்டி வகைகள், நிர்வாக அமைப்பு முறைகள் ஆகியன குறித்த செய்திகளை கலந்துரையாடுதல்.	K_2, K_3
CO 3	சிறுகதை, புதினம் போன்ற இக்கால இலக்கியத்தின் தன்மைகளையும், அதனைப் படைத்த படைப்பாளர்களின் வரலாற்றினையும் விவரித்தல்.	K_2, K_3
CO 4	பெயர், வினை, இடை, உரி, வினா, விடை, வேற்றுமை, தொகைகள் ஆகியன குறித்த தெளிவும், அவற்றை வகைப்படுத்தும் திறன் குறித்தும் அறிதல்.	K_2
CO 5	வாக்கியங்களைக் கண்டறிதல், சொற்களை ஒழுங்குபடுத்துதல், ஆங்கிலத்திற்கு நிகரான தமிழ்ச்சொற்களை கண்டறிதல், வழுவுச்சொற்களை நீக்குதல் போன்ற ஒரு மொழியின் பயன்பாட்டுத் தன்மையை தெளிவுறுத்தல்.	K_1, K_2, K_3

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

பாடத்திட்டம் (Syllabus)

அலகு - 1	தமிழ்ச் சிறுகதை இலக்கியம் பூ மலரும் காலம் (ஜி.மீனாட்சி)	(18 மணிநேரம்)
அலகு - 2	தமிழ் நாவல் இலக்கியம் வேரில் பழுத்த பலா (சு.சமுத்திரம்)	(18மணிநேரம்)
அலகு - 3	மக்கள் தகவலியல் 1. இதழ்கள் தொடங்குவதற்குரிய வழிமுறைகள் -செய்தி நிறுவனம் தொடங்குவதற்கான முறைமை கூறல். 2. செய்தித்தாள் நிர்வாக அமைப்பு - நிர்வகிக்கும் முறை 3. பேட்டி - அதன் வகைகள் - செய்தி திரட்டும் கலையை அறிதல் 4. செய்தி - செய்தி விளக்கம் - செய்தியின் விளக்கம் மற்றும் வகைமை அறிதல் 5. பல்வேறு வகையான செய்திகள்	(18மணிநேரம்)
அலகு - 4	தமிழ் இலக்கணம் - சொல் 1 நான்கு வகைச் சொற்கள் 3. வினா - விடை வகைகள் 4. வேற்றுமைகள் 5. தொகைகள் வேற்றுமைத் தொகை, வினைத்தொகை, பண்புத்தொகை, உவமைத்தொகை, உம்மைத்தொகை, அன்மொழித்தொகை	(18மணிநேரம்)
அலகு - 5	தமிழ் இலக்கிய வரலாறும் பயன்பாட்டுத்தமிழும் அ) 1. சிறுகதையின் தோற்றமும் வளர்ச்சியும். 2. புதின இலக்கியத்தின் தோற்றமும் வளர்ச்சியும். ஆ) தொடரும் தொடர்பும் அறிதல் - பிரித்து எழுதுதல் பொருந்தாச் சொல்லைக் கண்டறிதல் - வழுவுச்சொற்களை நீக்கிய தொடரைக் குறிப்பிடுதல்- சொற்களை அகர வரிசைப்படுத்தல்- வேர்ச்சொல்லைத் தேர்வு செய்தல் - எவ்வகை வாக்கியம் எனக் கண்டு எழுதுதல் - சொற்களை ஒழுங்குபடுத்திச் சொற்றொடர் ஆக்குதல் - ஆங்கிலச்சொல்லுக்கு நிகரான தமிழ்ச் சொல் அறிதல்.	(18மணிநேரம்)

Mapping of CO and PO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	9	3	9	9	3	3	9
CO2	9	3	9	9	3	3	9
CO3	9	9	3	3	3	3	9
CO4	9	9	1	9	9	-	9
CO5	9	3	3	3	9	-	9
Weightage of the course	45	27	25	33	27	09	45
Weighted percentage of Course contribution to POs							

பாட நூல்கள்

1. சிறுகதைகள் பத்து - ஜி. மீனாட்சி
   நியூ செஞ்சுரி புக் ஹவுஸ்(பி)லிட்,41-பி, சிட்கோ இண்டஸ்டிரியல் எஸ்டேட்,அம்பத்தூர், சென்னை- 600 098.
2. நாவல் - வேரில் பழுத்த பலா - சு.சமுத்திரம்
   அறிவுப்பதிப்பகம் (பி) லிட்., 16(142),ஜானி ஜான்கான் சாலை,இராயப்பேட்டை, சென்னை - 600 014.
3. இதழியல் கலை (டாக்டர்.மா.பா.குருசாமி)
   தாயன்பகம்,6-வது தெரு, ஏ.கே.எம்.ஜி.நகர்,
   திண்டுக்கல் - 624 001.
4. தமிழ் இலக்கிய வரலாறு - முனைவர்பாக்யமேரி
   நியூ செஞ்சுரி புக் ஹவுஸ்(பி)லிட்,41-பி, சிட்கோ இண்டஸ்டிரியல் எஸ்டேட்,அம்பத்தூர், சென்னை- 600 098.

பார்வை நூல்கள்

1. மக்கள் தகவல் தொடர்பியல் அறிமுகம் (டாக்டர் கி. இராசா)
2. இதழியல் (ச.ஈஸ்வரன்)
3. இதழியல் (டாக்டர் இரா.கோதண்டபாணி)
4. இதழியல் ஓர் அறிமுகம் (டாக்டர் அந்தோணி இராசு)
5. தமிழ் இலக்கிய வரலாறு (மு.வரதராசனார்)

Pedagogy

விரிவுரை கொடுத்தல்,கலந்துரையாடல், காட்சிப் பதிவுகளின் வழியாக புலப்படுத்துதல், கதை எழுதப் பயிற்சி கொடுத்தல், இதழ் ஒன்றை உருவாக்கக் கற்றுக்கொடுத்தல்

Teaching Aids

கரும்பலகை பயன்படுத்துதல், காட்சி திரைவழியாக புலப்படுத்துதல்.

UG Programme, Part -II English (CBCS-OBE) - **SEMESTER II**
(For those students who joined in the academic year 2019-2020 onwards)

PART II		
Course Title : **English for Communication Skills–II**		
Course Code: P2LE21 / P2CE21	Hours per week: **6**	Credit: **3**
Sessional Marks: **25**	Summative Marks: **75**	Total Marks: **100**

Preamble:
The students are expected to inculcate English socio-linguistic competence and moral values through world literature in English for communication skills.

Course Outcome (CO):
On the successful completion of the course, the students will be able to:

State One	**Course Outcome**	**Knowledge Level (according to Bloom's Taxonomy)**		
CO1	Repeat listening, and reading proficiency through prose discourses	K1	K2	K3
CO2	Interpret philosophical thoughts found in poetry	K1	K2	K3
CO3	Discuss characters and their psychological behaviour found in One-Act Plays	K1	K2	K3
CO4	Demonstrate acquired grammar skill in listening, speaking, reading and writing	K1	K2	K3
CO5	Create and develop creative writing through composition exercises	K1	K2	K3

K1- Remembering K2 – Understanding K3 – Applying

Programme Outcome

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	9	3	9	9	9	-	9
CO2	9	3	9	3	9	3	9
CO3	9	9	9	3	9	3	9
CO4	9	3	3	-	-	-	9
CO5	9	9	9	3	3	-	9
	45	39	39	18	30	06	45

Strong-9 Medium -3 Low -1

SYLLABUS

Unit-1 Prose

1. Swami Vivekananda - *Sisters and Brothers of America,*
   (Chicago address at the World Parliament of Religions, 11th Sep, 1893.)
2. A.P.J. Abdul Kalam - The Power of Prayer
3. Martin Luther King Jr. – I Have a Dream

Unit-2 Poetry

1. Robert Browning – *Incident of the French Camp*
2. Robert Frost – *Stopping by Woods on a Snowy Evening*
3. Kamala Das – *My Grandmother's House*

Unit-3 One-Act Plays

1. Allan Noble – *The King of Barvender*
2. Charles Wells – *Hijack*
3. Rabindranath Tagore – *Chitra*

Unit-4 Grammar

1. Voices
2. Direct and Indirect Speech

(for the three Sessional Exam)

Unit-5 Composition

1. Note Making
2. Report Writing
3. Transcoding (interpreting graphs, diagrams, Charts and data)

Course Texts:

1. 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>
2. Dr.P.C.James Daniel, ed. *Gateway to English: An Anthology of Prose*. Chennai: Harrows Publications, 2018.
3. Abhijit Acharijee, and Rakesh Ramamoorthy, ed. *Frontiers of Communication: An Anthology of Short Stories and Prose*. Chennai: Cambridge University Press, 2018.
4. Dr.M.Moovendhan, ed. *Wings of Poesy*. Chennai: Thamarai Publications, 2018 (or)
   <https://www.poemhunter.com/poem/incident-of-the-french-camp/ >
   <https://www.poetryfoundation.org/poems/42891/stopping-by-woods-on-a-snowy-evening >
   < https://www.poemhunter.com/poem/my-grandmother-s-house/ >
5. T. Maruthanayagam and M.sindhu, ed. *Curtain Raisers: An Anthology of One Act Plays*. Chennai: New Century Book House, 2018.
6. KV Joseph and Ae Augustine. *Trinity Grammar a Handbook*. New Delhi: Trinity Press,(OR)
   G.Radhakrishna Pillai. *Emerald English Grammar and Composition*. Emerald Publisher.

References:

1. The Art Institute of Chicago, "Sisters and Brothers of America!"
   <https://www.artic.edu/articles/710/sisters-and-brothers-of-america>
2. Steuart H King, ed. *New Vistas in English Prose*. Bombay: Blackie & sons Publishers, 1980.
3. Dr.A.Shanmugakani, ed. *Prose for Communication: An Anthology of Prose*. Madurai: Manimekala Publishing House, 2008.
4. Jagdish Chander, ed. *Eight Short Plays*. Chennai: OUP, 1978.
5. Allan Noble. *The King of Barvender*: London: Gowans & Gray, 1927.
6. Rabindranath Tagore. *Chitra - A Play in One Act*. New Delhi: Read Books Ltd., 2013.
7. K.V.Joseph. *A Textbook of English Grammar and Usage*. New Delhi: TATA McGraw Hill Education Private Limited, 2012.
8. Raymond Murphy and Louise Hashemi. *English Grammar in Use Supplementary Exercises*. Cambridge: CUP, 2004.
9. A. J. Thomson and A. V. Martinet. *A Practical English Grammar*. New Delhi: OUP, 1986.
10. Mary Ellen Guffey, and Richard Almonte. *Essentials of Business Communication*. Toronto: Nelson Education, 2007.

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. [*Either 8.45 am to 9.30 am or 5.00 pm to 5.45 pm*]).

TEACHING AIDS: Course Texts, Reference books, Writing Board, and Online Sources.

DEPARTMENT OF COMPUTER SCIENCE

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

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

Part-III: **Core Theory**		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 Outcomes (CO)

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

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

K1-knowledge K2-Understand K3-Apply

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	9	-	-	3	-
CO 2	9	-	9	-	-	3	-
CO 3	9	-	9	-	-	3	-
CO 4	9	-	9	-	-	3	-
CO 5	9	-	9	-	-	3	-
TOTAL	45	-	45	-	-	15	-

9-Strong; 3-Medium; 1-Low

Mapping of CO with PSO

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

Syllabus

UNIT I	**RINCIPLES OF OBJECT ORIENTED PROGRAMMING : 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, CLASS, OBJECTS: 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:** **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, POINTERS AND POLYMORPHISM** **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 BOOKS

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.

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 OBE)

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

Part-III: **Core Theory**		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 Outcomes (CO)

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

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

K1-knowledge K2-Understand K3-Apply

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	9	-	-	3	-
CO 2	9	-	9	-	-	3	-
CO 3	9	-	9	-	-	3	3
CO 4	9	-	9	-	-	3	3
CO 5	9	-	9	-	-	3	3
TOTAL	45	-	45	-	-	15	09

9-Strong; 3-Medium; 1-Low

Mapping of CO with PSO

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

Syllabus

DATA STRUCTURES

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.

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 OBE)

(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: **4/60(Semester)**	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 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	Solving Simple Problems using basic concepts in C++	K2 K3
CO 2	Solving Problems using constructors, overloading concepts and functions	K2 K3
CO 3	To write a C++ programs using all the OOPS concepts	K2 K3
CO 4	Solving problems, applying concepts and algorithm of primitive data structures and perform different operations.	K2 K3 K4
CO 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 CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	9	-	3	3	3
CO 2	9	-	9	-	3	3	3
CO 3	9	-	9	-	3	3	3
CO 4	9	-	9	-	3	3	3
CO 5	9	-	9	-	3	3	3
TOTAL	45	-	45	-	15	15	15

9-Strong 3-Medium 1-Low

Mapping of CO with PSO

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

Syllabus

C++ 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 OBE)

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

Part-III: Allied Theory		SEMESTER – **II**
Course Title: **STATISTICS & PROBABILITY**		
Course Code: **10AT21**	Hours per week: **4**	Credits: **5**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **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 Outcomes (CO)

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Applying and basic concepts of frequency distribution, mean, median & mode	K1, K2, K3
CO 2	Basic concepts and Applying the mean deviation, standard deviation and root mean square deviation, coefficient of dispersion, coefficient variation, measure of dispersion	K1, K2, K3
CO 3	Applying the basic concepts of theory of probability, Bays Theorem	K1, K2, K3
CO 4	Identify an Applying the random variables & distribution function	K1, K2, K3
CO 5	Applying the exact sampling distribution	K1, K2, K3

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

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	9	-	-	3	-
CO 2	9	-	9	-	-	3	3
CO 3	9	-	9	-	-	3	-
CO 4	9	-	9	-	-	3	-
CO 5	9	-	9	-	-	3	3
TOTAL	45	-	45	-	-	15	06

9-Strong; 3-Medium; 1-Low

Mapping of CO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO 1	9	-	-	9	-
CO 2	3	3	-	-	-
CO 3	9	-	-	9	-
CO 4	9	-	-	9	-
CO 5	9	-	-	9	-
TOTAL	37	03	-	36	-

Syllabus

UNIT I	**FREQUENCY DISTRIBUTION AND MEASURES OF CENTRAL TENDENCY:** Frequency distributions - Graphic representation of a frequency	(12 HRS)

	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.	
UNIT II	**MEASURES OF DISPERSION:** Dispersion – characteristics for an ideal measure of dispersion – measures of dispersion – range – quartile deviation – mean deviation – standard deviation and root mean square deviation – coefficient of dispersion - coefficient variation.	(12 HRS)
UNIT III	**THEORYOF 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 IV	**RANDOM VARIABLES AND 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 V	**EXACT SAMPLING DISTRIBUTION:** Chi-square variant – derivation of the chi-square distribution – M.G.F. of Distribution – chi square test of goodness of fit - Student's 't' (definition) – fisher's 't' (definition) – applications of t distribution – F-static (definition) – application of F-distribution – F-test for equality of population variance.	(12 HRS)

Text Book

Elements of mathematical statistics: 3rd edition by S.C Gupta and V.K. Kapoor

Chapters

2, 3, 4, 5, 9, 13, 14.

Reference Book:

1. Probability and Statistics by A.M. MATHAI.
2. Statistics and its Application by Sankaranarayanan.

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 OBE)

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

Part-IV: **Non-Major Elective**		SEMESTER – **II**
Course Title: **WEB PROGRAMMING**		
Course Code: **10NE21**	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.

Pedagogy

Chalk & Talk, Group Discussion, PPT

Teaching Aids

Green Board, LCD Projector, Interactive White Board

விவேகானந்த கல்லூரி
தமிழ்த்துறை
Programme : B.A., BSc., (CBCS and Outcome Based Education (OBE)
(For those students admitted during the Academic Year 2019 – 2022 and after)

PART – I **TAMIL**		SEMESTER : **III**
Course Title : **காப்பியமும் பக்தி இலக்கியமும் நாடகமும்**		
Course Code **: P1LT31**	Hours per week **: 06**	Credit **: 3**
CIA Marks : **25**	ESE Marks : **75**	Total Marks : **100**

Preamble

1. வாழ்க்கையின் உறுதிப்பொருள்களான அறம், பொருள், இன்பம் வீடுபேறு ஆகியனவற்றை உணர்த்துதல்.
2. இறைவழிபாட்டு சிந்தனைகளை வளர்த்தல்.
3. புராண இதிகாச கருத்துக்களை நாடகம் வாயிலாக எளிமைப்படுத்தி தனிமனித நிலைகளை எடுத்துக்காட்டல்.
4. மரபுக்கவிதைகளின் வகைமைகளை அறிதல்.
5. காப்பியம் மற்றும் பக்தி இலக்கியத்தின் வரலாற்றினை அறிவித்தல்.

Course 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 உணர்த்துதல்.	K_1, K_2
CO 2	மரபு இலக்கணங்களான அணிகள், பாவகைகளின் வாயிலாக மாணவர்களின் இலக்கியச்சுவை உணர்வினை வளர்த்து, கற்பனைத் திறன்களை அறிவித்தல்.	K_2, K_3
CO 3	பக்தி இலக்கியங்களின் வாயிலாக இறைவழிபாட்டுச் சிந்தனைகளை தனிமனித வாழ்க்கை நிகழ்வுகளின் வழி வெளிப்படுத்தி, உலக இயல்புகளை மொழிந்து, பரம்பொருளை அடையக்கூடிய வழிவகைகளையும், சமரச சன்மார்க்க நெறிகளையும் தெளிவுறுத்துதல்.	K_2, K_3
CO 4	புராண, இதிகாச நாடக கதைகளின் வழி அக்காலகட்ட மக்களின் சமூக நிலைகளைக் கலந்துரையாட செய்தல்.	K_2
CO 5	காப்பியம் மற்றும் பக்தி இலக்கியம் தோன்றிய காலகட்ட வரலாற்றினை விவரித்தல். இதழ்கள் தொடர்பான சிந்தனைகள் வளர கற்றுக்கொடுத்தல்.	K_1, K_2, K_3

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

பாடத்திட்டம் (Syllabus)

அலகு - 1	**தமிழ்க் காப்பிய இலக்கியம்** 1. சிலப்பதிகாரம் (வழக்குரை காதை) 2. மணிமேகலை (ஆபுத்திரன் திறம் அறிவித்த காதை) 3. கம்பராமாயணம் (வாலி வதைப்படலம்) 4.வில்லிப்புத்துரார் பாரதம் (கண்ணன் தூதுச்சருக்கம்)	**18மணிநேரம்**

	5. கந்த புராணம் (அயனைச் சிறை நீக்கும் படலம்)	
அலகு - 2	**தமிழ் பக்தி இலக்கியம்** 1. தேவாரம் - திருஞானசம்பந்தர் (திருவேடகப் பதிகம்) 2. திருவாசகம் - மாணிக்கவாசகர் (பிடித்த பத்து) 3. திருமந்திரம் - திருமூலர் (10 பாடல்கள்) 4. திருப்பாவை - ஆண்டாள் (10 பாசுரங்கள் தெரிவு செய்யப்பெற்றவை) 5. பராபரக்கண்ணி - தாயுமானவர் (10 கண்ணிகள் தெரிவு செய்யப்பெற்றவை)	**18மணிநேரம்**
அலகு - 3	**நாடகம்** 1. வைகையில் வெள்ளம் வரும் - சேதுபதி	**18மணிநேரம்**
அலகு - 4	**தமிழ் இலக்கணம் - அணிகள்** 1.அணிகள் - உவமை - உருவகம் - பிறிது மொழிதல் - தற்குறிப்பேற்றம் வஞ்சப்புகழ்ச்சி - சிலேடை - வேற்றுமை அணி 2.பாவகைகள் - வெண்பா - ஆசிரியப்பா 3.கடிதம் வரைதல் - விண்ணப்பம் - புகார்க் கடிதம் - பாராட்டுக் கடிதம்	**18மணிநேரம்**
அலகு - 5	**தமிழ் இலக்கிய வரலாறும் பயன்பாட்டுத் தமிழும்** அ) 1. காப்பிய இலக்கிய வரலாறு 2. பக்தி இலக்கிய வரலாறு ஆ) பத்திரிக்கைச் செய்தி எழுதுதல் - நேர்காணல் எடுத்; - துணுக்குகள் எழுதுதல்.	**18மணிநேரம்**

Mapping of CO and PO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	9	9	3	3	9	3	9
CO2	9	3	3	9	9	3	9
CO3	9	3	9	9	3	3	9
CO4	9	3	3	3	9	-	9
CO5	9	3	3	9	3	-	9
Weightage of the course	45	21	21	33	33	09	45
Weighted percentage of Course contribution to POs							

பாட நூல்கள்

1. தமிழ்ச் செய்யுட் தொகுப்பு - தமிழ்த்துறை வெளியீடு
2. நாடகம் - வைகையில் வெள்ளம் வரும் - சேதுபதி.
   பாவை பப்ளிகே'ன்ஸ் - சென்னை - 14.

பார்வை நூல்கள்

1.தமிழ் இலக்கிய வரலாறு - பேரா.முனைவர் பாக்யமேரி,
நியூ செஞ்சுரி புக் ஹவுஸ்(பி)லிட்,41-பி, சிட்கோ இண்டஸ்டிரியல் எஸ்டேட்,
அம்பத்தூர், சென்னை- 600 098.
2.தமிழ் இலக்கிய வரலாறு- மு.வரதராசனார்
சாகித்திய அக்காதெமி,தலைமை அலுவலகம்,ரவீந்திர பவன்,
35,பெரோஸ்'ா சாலை,புதுதில்லி.

Pedagogy

விரிவுரை கொடுத்தல், கலந்துரையாடல், காட்சிப் பதிவுகளின் வழியாக புலப்படுத்துதல்.

Teaching Aids

கரும்பலகை பயன்படுத்துதல், காட்சி திரைவழியாகப் புலப்படுத்துதல்.

UG Programme, Part -II English (CBCS-OBE) **- SEMESTER III**
(For those students who joined in the academic year 2018-2019 onwards)

PART II		
Course Title : **English for Academic and Professional Excellence-I**		
Course Code: P2LE31 / P2CE31	Hours per week: **6**	Credit: **3**
Sessional Marks: **25**	Summative Marks: **75**	Total Marks: **100**

Preamble:
The students are expected to inculcate English socio-linguistic competence and moral values through world literature in English for communication skills.

Course Outcome (CO):
On the successful completion of the course, the students will be able to:

State One	**Course Outcome**	**Knowledge Level (according to Bloom's Taxonomy)**		
CO1	Appraise various authors' socio-linguistic interests through prose discourses	K1	K2	K3
CO2	Develop comprehension skills through poetry	K1	K2	K3
CO3	Critique the discourses, characters and their psychological behaviour found in a English novel	K1	K2	K3
CO4	Demonstrate acquired grammar skill in listening, speaking, reading and writing	K1	K2	K3
CO5	Design and Repeat creative writing through composition exercises	K1	K2	K3

K1- Remembering K2 – Understanding K3 – Applying

Programme Outcome

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	9	9	9	9	9	-	9
CO2	9	3	9	9	9	-	3
CO3	9	9	9	3	9	1	3
CO4	3	9	3	-	-	-	9
CO5	9	9	9	1	-	-	3
	39	39	39	22	27	1	27

Strong-9 Medium -3 Low -1

SYLLABUS

Unit-1 Prose

1. *The Indian National Education* - Swami Chidbhavananda
   Educating the Adult (*Chapter I*)
2. *Women not the Weaker Sex* (gender) – Mahatma Gandhi
3. *Travel by Train* – John Boynton Priestley

Unit-2 Poetry

1. *The Toys* – Coventry Patmore
2. *The Soul's Prayer* – Sarojini Naidu
3. *Where the mind is Without Fear* - Rabindranath Tagore

Unit-3 Novel

Oliver Twist - Charles Dickens [*Abridged*]
(For the three Sessional Exam)

Unit-4 Grammar

1. Concord and Question Tag
2. Spotting Errors

(For the three Sessional Exam)

Unit-5 Composition

1. Covering Letter and Résumé Preparation -1 (UK)
2. Interview skills
3. Dialogue Writing

Course Texts:

1. Swami Chidbhavananda. *The Indian National Education*. Tirupparaithurai: Sri Ramakrishna Tapovanam, 2017.
2. Dr.P.C.James Daniel, ed. *Gateway to English: An Anthology of Prose*. Chennai: Harrows Publications, 2018.
3. *Poetry*. Chennai: Main Spring Publishers, (or)
   < https://www.poetryfoundation.org/poems/44845/the-toys-56d22417d5e2e>
   < https://www.poemhunter.com/poem/the-soul-s-prayer/>
   <https://www.poetryfoundation.org/poems/45668/gitanjali-35>
4. Charles Dickens, *Oliver Twist.* London: Wordsworth Classic, 1992.
5. Abhijit Acharijee, and Rakesh Ramamoorthy, ed. *Frontiers of Communication: An Anthology of Short Stories and Prose*. Chennai: Cambridge University Press, 2018.
6. KV Joseph and Ae Augustine. *Trinity Grammar a Handbook*. New Delhi: Trinity Press… (or)
   G.Radhakrishna Pillai. *Emerald English Grammar and Composition*. Emerald Publisher. (or)
   Owen Hargie, David Dickson, and Dennis Tourish. *Communication Skills for Effective Management*. New York: Palgrave Macmillan, 2004.
7. Hari Mohan Prasad, and Uma Rani Sinha. *Objective English for Competitive Examinations*. New Delhi: McGraw Hill Education, 2016. (Prescribed chapters will be given.)

References:

1. Swami Chidbhavananda. *Vedanta Society*. <https://sfvedanta.org/authors/swami-chidbhavananda/>
2. Dr.A.Shanmugakani, ed. *Prose for Communication: An Anthology of Prose*. Madurai: Manimekala Publishing House, 2008.
3. Charles Dickens, *Oliver Twist* (*the Parish Boy's Progress).* London: Richard Bentley, 1839.
4. K.V.Joseph. *A Textbook of English Grammar and Usage*. New Delhi: TATA McGraw Hill Education Private Limited, 2012.
5. A. J. Thomson, and A. V. Martinet. *A Practical English Grammar*. New Delhi: OUP, 1986.
6. Books by Dickens, Charles (sorted by popularity). <http://www.gutenberg.org/ebooks/author/37>
7. Mary Ellen Guffey, and Richard Almonte. *Essentials of Business Communication*. Toronto: Nelson Education, 2007.
8. Edgar Thorpe, and Showick Thorpe. *Objective English for Competitive Examinations*. New Delhi: Pearson India Education, 2017.

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. [*Either 8.45 am to 9.30 am or 5.00 pm to 5.45 pm*]).

TEACHING AIDS: Course Texts, Reference books, Writing Board, and Online Sources.

DEPARTMENT OF COMPUTER SCIENCE

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

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

Part-III: **Core Theory**		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 Outcomes (CO)

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Basic concept of Data Communication & networking	K1, K2, K3
CO 2	Summarize the Concepts of physical layer in networks	K1, K2, K3
CO 3	Explain the concept of Data link layer	K1, K2, K3
CO 4	Explain the concepts of Transport & Network layer	K1, K2, K3
CO5	Explain the Application layer & Network security	K1, K2, K3

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

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	3	9	-	-	3	3
CO 2	9	3	9	-	-	3	-
CO 3	9	-	9	-	-	3	-
CO 4	9	-	9	-	-	3	-
CO 5	9	3	9	-	-	3	3
TOTAL	45	09	45	-	-	15	06

9-Strong; 3-Medium; 1-Low

Mapping of CO with PSO

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

Syllabus

	Overview Data Communication and Networking	

UNIT I	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

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 OBE)

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

Part-III: **Core Theory**		SEMESTER – **III**
Course Title: **COMPUTER GRAPHICS**		
Course Code: **10CT32**	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 computer graphics leading to the ability to Understanding contemporary terminology, progress, issues and trends. Focusing on 2D &3D modelling, image synthesis, shading & mapping.

Course Outcomes (CO)

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Define basic concept of graphics, A Survey of Computer Graphics, Input Devices, Hard Copy Devices & Graphics Software	K1,K2,K3
CO 2	Explain the various algorithms in graphics	K1,K2,K3
CO 3	Explain about transformation and its function	K1,K2,K3
CO 4	Design 2D & 3D geometrical transformations, 3 D display methods, Clipping Operation	K1,K2,K3
CO5	Design the 3D display methods ,graphical packages and its transformation	K1,K2,K3

K1-Remembering **K2**-Understanding **K3**-APPLYING

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	9	-	-	3	3
CO 2	9	-	9	-	-	3	-
CO 3	9	-	9	-	-	3	-
CO 4	9	-	9	-	-	3	-
CO 5	9	-	9	-	-	3	-
TOTAL	45	-	45	-	-	15	03

9-Strong; 3-Medium; 1-Low

Mapping of CO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO 1	3	-	-	-	-
CO 2	-	9	9	3	-
CO 3	-	9	9	9	-
CO 4	-	9	9	9	-
CO 5	-	3	-	-	-
TOTAL	03	30	27	21	-

Syllabus

UNIT I	**A Survey of Computer Graphics:**Computer Aided Design, Presentation Graphics, Computer Art, Entertainment, Education and Training, Visualization, Image Processing, Graphical User Interfaces –**Overview of Graphics System:** Video Display Devices – **Input Devices:** Keyboards, Mouse, Trackball and Space ball, Joysticks, Data Glove, Digitizers, Image Scanners, Touch Panels, Light Pens, Voice Systems – **Hard Copy Devices** – **Graphics Software:** Coordinate Representations, Graphics Functions, Software Standards, PHIGS Workstations.	(12 HRS)
UNIT II	**Points and lines** – **Line Drawing Algorithms:** DDA Algorithm, Bresenham's Line Algorithm – **Circle Generation Algorithms:** Properties of Circles, Mid-Point Circle Algorithm – **Other Curves:** Conic Sections, Polynomials and Spline Curves– **Line Attributes:** Line Types, Line Width, Pen and Brush Options, Line Color – **Area Filling Attribute:** File Styles, Pattern Fill, Soft Fill –**Character Attributes:** Text Attributes, Marker Attribute –**Bundled Attributes:** Bundled Line Attributes, Bundled Area Fill Attributes, Bundled Text Attributes, Bundled Marker Attributes	(12 HRS)
UNIT III	**Basic Transformations:** Translations, Rotation, Scaling – **Matrix Representation and HomogenousCo–ordinates** – **Composite Transformations:** Translations, Rotations, Scaling, General Pivots Point Rotations, General Fixed Point Scaling, General Scaling Directions, Concatenation Properties, General Composite Transformations and Computational Efficiency – **Other Transformation:** Reflection and Shear – **Transformation Functions** –**Raster Methods for Transformations.**	(12 HRS)
UNIT IV	**The Viewing Pipeline** – **Viewing Coordinate Reference Frame** – **Window to Viewport Coordinate Transformation** – **Clipping Operation:** Point Clipping, Line Clipping, Polygon Clipping, Curve Clipping, Text Clipping, Exterior Clipping **Input Function:** Input Modes, Request Modes, Locator and Stroke Input in Request Mode, String Input in Request Mode, Valuator Input in Request Mode, Sample Mode, Event Mode, Concurrent use of Input Mode – **Interactive Picture Construction Techniques:** Basic Positioning Methods, Constraints, Grids, Gravity Field, Rubber Band Methods, Dragging, Painting and Drawing.	(12 HRS)
UNIT V	**Three Dimensional Display Methods:** Parallel Projection, Perspective Projection, Depth Cueing, Visible Line and Surface Identification, Surface Rendering, Exploded and Cutaway Views, Three Dimensional and Stereoscopic Views – **Three Dimensional Graphics Packages**. **Three Dimensional Transformation:**Translation, Rotation, Scaling – **Other Transformations:** Reflection and Shear.	(12 HRS)

Text Book

Computer Graphics C Version – Donald D. Hearn and M.Panline Baker, 2nd Edition, Prentice Hall of India

Reference Books

1. Computer Graphics – A programming Approach – S.Harrington, Tata McGraw – Hill Book Company
2. Principles of interactive Computer Graphics -W.M.Newmann& R.F. Sproull -Tata McGraw – Hill Book Company

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 OBE)

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

Part-III: **Core Practical**		SEMESTER – **III**
Course Title: **LAB III: COMPUTER GRAPHICS & ANIMATION**		
Course Code: **10CP33**	Hours per week: **4/60(Semester)**	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,C++ and Macromedia Flash to solve given problems.

Course 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	Solving Simple Problems using basic concepts in Graphics using C and C++	K2 K3
CO 2	Solving Problems using Algorithms	K2 K3
CO 3	To write C programs using graphical Functions	K2 K3
CO 4	Solving Problems using basic concepts in Animations	K2 K3
CO 5	Develop an Animation programs using Flash.	K2 K3

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

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	9	-	3	-	-
CO 2	9	-	9	9	3	-	-
CO 3	9	-	9	9	3	-	-
CO 4	9	-	9	9	3	-	-
CO 5	9	-	9	9	3	-	-
TOT	45	-	45	36	15	-	-

9-Strong 3-Medium 1-Low

Mapping of CO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO 1	9	-	3	9	-
CO 2	9	-	3	9	-
CO 3	9	-	3	9	-
CO 4	9	-	3	9	-
CO 5	9	-	3	9	-
TOT	45	-	15	36	-

Syllabus

COMPUTER GRAPHICS: Practical Lab List

1. Car animation.
2. Bounce a ball.
3. Pie chart.

4. Bar chart.
5. a) 3-leaf, 4-leaf, polygon.
6. Line clipping (Cohen Sutherland).
7. DDA Line algorithm.
8. Bresnhem circle.
9. Midpoint circle.
10. Boundary fill.
11. Clock.
12. Polar ellipse, polar circle.
13. Flood fill.
14. Chessboard.

ANIMATION Practical Lab List

1. Write a program to Move a Car using C
2. Write a program Clock using C.
3. Write a program to Flying Kite using C
4. Write a program for Bounce a ball using C.
5. Blinking Lights Graphics using CPP.
6. Mickey Mouse Programming using CPP.
7. Pari man walk and jumping using CPP.
8. Write a program to display shapes using CPP.
9. Write a program to display A Flag using CPP.
10. Write a program to display a Circle in Circle using CPP.
11. Develop an animation for Rocket Lunch using Flash
12. Develop an animation for Traffic Signal using Flash
13. Develop an animation for Flag Waving using Flash
14. Develop an animation for Festival Celebration using Flash
15. Develop an animation Flying of Birds using Flash

DEPARTMENT OF COMPUTER SCIENCE

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

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

Part-III: **Allied Theory**		SEMESTER – **III**
Course Title: **OPERATIONS RESEARCH**		
Course Code: **10AT31**	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 Understanding 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 Outcomes (CO)

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Basic concept of operation research, Characteristics, phases, tools, techniques, methods and scope of OR	K1,K2,K3
CO 2	Applying linear programming model as Stack & Surplus variable, Graphical solution	K1,K2,K3
CO 3	Applying the various methods of LPP	K1,K2,K3
CO 4	Applying the mathematical formulation of assignment problem	K1,K2,K3
CO5	Applying the mathematical formulation of transportation problem	K1,K2,K3

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

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	9	-	-	3	3
CO 2	9	-	9	-	-	3	-
CO 3	9	-	9	-	-	3	-
CO 4	9	-	9	-	-	3	-
CO 5	9	-	9	-	-	3	-
TOTAL	45	-	45	-	-	15	03

9-Strong; 3-Medium; 1-Low

Mapping of CO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO 1	3	3	-	-	-
CO 2	9	-	9	9	-
CO 3	9	-	9	9	-
CO 4	9	-	9	9	-
CO 5	9	-	9	9	-
TOTAL	39	03	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)

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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.

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 OBE)

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

Part-III: **Skill Based Theory**		SEMESTER – **III**
Course Title: **OPERATING SYSTEM**		
Course Code: **10SB31**	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.

Pedagogy

Chalk & Talk, Group Discussion, PPT

Teaching Aids

Green Board, LCD Projector, Interactive White Board

விவேகானந்த கல்லூரி
தமிழ்த்துறை
Programme : B.A., BSc., (CBCS and Outcome Based Education (OBE)
(For those students admitted during the Academic Year 2019 – 2022 and after)

PART – I **TAMIL**		SEMESTER : **IV**
Course Title : **சங்க இலக்கியமும் நீதி இலக்கியமும்**		
Course Code **: P1LT41**	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 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	பண்டைத் தமிழர்களில் ஒரு சமூகம் சார்ந்த ஒழுக்கங்கள் குறித்த நிலையினை வரையறை செய்தல்.	K_1, K_2
CO 2	ஐந்திணை மக்களின் அகஒழுக்கங்கள் குறித்த செய்திகளை கலந்துரையாடுதல்.	K_2, K_3
CO 3	சங்க இலக்கியம் மற்றும் நீதி இலக்கிய காலகட்டங்களில் வாழ்ந்த மக்கள் மற்றும் அவர்களின் வாழ்க்கையினை பதிவுசெய்த படைப்பாளர்கள் ஆகியோரின் வரலாற்றினை விவரித்தல்.	K_2, K_3
CO 4	பழங்கால மக்களின் அகம், புறம் தொடர்பான வாழ்க்கை நிகழ்வுகளின் மரபுநிலைகள் குறித்த திறன்களை அறிவித்தல்.	K_2
CO 5	வாக்கியங்களைக் கண்டறிதல், சொற்களை ஒழுங்குபடுத்துதல், ஆங்கிலத்திற்கு நிகரான தமிழ்ச்சொற்களை கண்டறிதல், வழுவுச்சொற்களை நீக்குதல் போன்ற ஒரு மொழியின் பயன்பாட்டுத் தன்மையை தெளிவுறுத்தல்.	K_1, K_2, K_3

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

பாடத்திட்டம் (syllabus)

அலகு - 1	தமிழ்ச் சங்க இலக்கியம் (பத்துப்பாட்டு) 1. முல்லைப்பாட்டு	**(18 மணிநேரம்)**
அலகு - 2	தமிழ்ச் சங்க இலக்கியம் (எட்டுத்தொகை) 1.நற்றிணை - (3பாடல்கள்) 2.குறுந்தொகை - (5பாடல்கள்) 3.கலித்தொகை - (2பாடல்கள்) 4.அகநானூறு - (2பாடல்கள்) 5.புறநானூறு - (3பாடல்கள்)	**(18 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)	**(18 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)	**(18 மணிநேரம்)**
அலகு - 5	தமிழ் இலக்கிய வரலாறும் பயன்பாட்டுத்தமிழும் 1. சங்க இலக்கிய வரலாறு 2. நீதி இலக்கிய வரலாறு 3. புத்தக மதிப்புரை, தமிழ்த் திரைப்பட விமர்சனம், கவிதை படைத்தல்.	**(18 மணிநேரம்)**

Mapping of CO with PO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	9	3	9	9	9	9	9
CO2	9	9	9	9	9	3	9
CO3	9	9	9	9	9	9	9
CO4	9	3	3	9	9	9	9
CO5	9	3	9	9	9	3	9
Weightage of the course	45	27	39	45	45	33	45
Weighted percentage of Course contribution to POs							

பாட நூல்கள் (Text Books)

1.jkpo; nra;Al; njhFg;G (jkpo;j;Jiw ntspaPL)

பார்வை நூல்கள் (Reference Books)

1. தமிழ் இலக்கிய வரலாறு - சி.சேதுராமன்
பாவை பப்ளிகே'ன்ஸ்,16(142)ஜானிஜான்கான் சாலை,
இராயப்பேட்டை, சென்னை - 600014.

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

Pedagogy

விரிவுரை கொடுத்தல், கலந்துரையாடல், காட்சிப் பதிவுகளின் வழியாக புலப்படுத்துதல், பயிற்சி கொடுத்தல;.

Teaching Aids

கரும்பலகை பயன்படுத்துதல், காட்சி திரைவழியாக புலப்படுத்துதல்.

UG Programme, Part -II English (CBCS-OBE) **- SEMESTER IV**
(For those students who joined in the academic year 2018-2019 onwards)

PART II		
Course Title : **English for Academic and Professional Excellence-II**		
Course Code: P2LE41/ P2CE41	Hours per week: **6**	Credit: **3**
Sessional Marks: **25**	Summative Marks: **75**	Total Marks: **100**

Preamble:
The students are expected to inculcate English socio-linguistic competence and moral values through world literature in English for communication skills.

Course Outcome (CO):
On the successful completion of the course, the students will be able to:

State One	**Course Outcome**	**Knowledge Level (according to Bloom's Taxonomy)**		
CO1	Examine authors' motivations on life-training through various discourses	K1	K2	K3
CO2	Demonstrate the power of rhetoric skills through dramatic interactions	K1	K2	K3
CO3	Identify and demonstrate language skill and proficiency through objective English for competitive examinations/methods	K1	K2	K3
CO4	Author effective discourses for Public Speaking through acquired grammar skills	K1	K2	K3
CO5	Weigh current global issues through soft skills trained lessons and create writing through composition tools	K1	K2	K3

K1- Remembering K2 – Understanding K3 – Applying

Programme Outcome

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	9	3	9	9	9	-	3
CO2	9	3	9	9	9	3	3
CO3	9	3	3	-	-	-	3
CO4	9	9	9	1	1	-	3
CO5	9	9	9	3	3	-	3
	45	27	39	22	22	3	15

Strong-9 Medium -3 Low -1

SYLLABUS

Unit-1 Prose

The Indian National Education by Swami Chidbhavananda

1. The Teacher
2. The Student
3. University Education on the Gurukula Pattern

Unit-2 Drama

1. William Shakespeare's *The Merchant of Venice*
   (Act-IV, Scene-I: Court scene)
2. Shakespeare's *Julius Caesar*
   (Act-III, Scene-II: Mark Antony and Brutus Speech)
3. Shakespeare's *Twelfth Night*
   (Act-V, Scene-I: Before Olivia's House)

Unit-3 English for Competitive Examinations

1. Synonyms and Antonyms
2. One word Substitution & Analogy
3. Foreign Words and Phrases in English

Unit-4 Art of Public Speaking Skills

1. Master of Ceremony/Anchoring Skills
2. Welcome Address, Introducing a Speaker,
3. Presidential Address, Keynote or Chief Guest's Address and Vote of Thanks

Unit-5 Soft-Skills for Capacity Building

1. Interpersonal skills (*Greetings* and Leave-taking Etiquette etc.)
2. Group Discussion for Placement
3. Covering Letter and Résumé Preparation -2 (USA)

Course Texts:

1. Swami Chidbhavananda. *The Indian National Education*. Tirupparaithurai: Sri Ramakrishna Tapovanam, 2017.
2. Richard Proudfoot, et al. *The Arden Shakespeare Complete Works*. London: Bloomsbury, 2016. (Prescribed Acts will be given.)
3. Bikram K. Das. *Functional Grammar & Spoken & Written Communication in English*. New Delhi: *Orient BlackSwan*, (or) Mary Ellen Guffey, and Richard Almonte. *Essentials of Business Communication*. Toronto: Nelson Education, 2007.
4. Dale Carnegie. *The Art of Public Speaking.* Massachusetts: Wyatt North Publishing, 2013.
5. Hari Mohan Prasad, and Uma Rani Sinha. *Objective English for Competitive Examinations*. New Delhi: McGraw Hill Education, 2016. (Prescribed chapters will be given.)

References:

1. Swami Chidbhavananda. *Vedanta Society*. <https://sfvedanta.org/authors/swami-chidbhavananda/>
2. Edgar Thorpe, and Showick Thorpe. *Objective English for Competitive Examinations*. New Delhi: Pearson India Education, 2017.
3. W M. Cullen Bryant, ed. *The Complete Works of Shakespeare.* New York: The Amies Publishing Company, 1888.
4. William James Craig, ed. *The Complete Works of William Shakespeare (The Oxford Shakespeare.* London: Oxford University Press, 1914.
5. Stephen E Lucal. *The Art of Public Speaking*. New York: McGraw-Hill Education, 2015.
6. K.V.Joseph. *A Textbook of English Grammar and Usage*. New Delhi: TATA McGraw Hill Education Private Limited, 2012.

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. [*Either 8.45 am to 9.30 am or 5.00 pm to 5.45 pm*]).

TEACHING AIDS: Course Texts, Reference books, Writing Board, and Online Sources.

DEPARTMENT OF COMPUTER SCIENCE

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

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

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

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Define the fundamental elements of database systems & RDBMS. Explain the Relational Algebra & data Modelling	K1,K2,K3
CO 2	Explain the Normalization & database programming	K1,K2,K3
CO 3	Explain the integrity, security and concurrency	K1,K2,K3
CO 4	Applying the oracle query like as basic function, Aggregate function	K1,K2,K3
CO5	Explain the basic concepts of PL/SQL,Cursor and Trigger	K1,K2,K3

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

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	9	-	3	3	-
CO 2	9	-	9	-	-	3	-
CO 3	9	-	9	-	-	3	-
CO 4	9	-	9	-	-	3	-
CO 5	9	-	9	-	-	3	-
Total	45	-	45	-	03	15	-

9-Strong; 3-Medium; 1-Low

Mapping of CO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO 1	9	-	3	-	-
CO 2	9	-	3	9	-
CO 3	9	-	-	-	-
CO 4	9	-	9	9	-
CO 5	9	-	-	-	-
Total	45	-	15	18	-

Syllabus

UNIT I	**Introduction and background** Introduction – The database concept – definition of database – Earlier forms of database – The relational database. **The relational data model** Overview – Data modeling – The relational model – Other	(12 HRS)

	relational concepts and terminology – Relational algebra – Relational views. **Data Modeling 1** Entry – relationship(ER) model – Many-to-many relationships. **Data Modeling 2** Introduction – ER diagrams and database design – Additional techniques Time varying attributes.	
UNIT II	**Normalization** Introduction – Overview of normalization process – normal forms 1NF, 2NFand 3NF – Boyce – codd normal form – 4NF – Higher forms : 5NFandDk/NF. **Database management system** Introduction – User interface – Database engine – Data dictionary. **Database programming** Introduction - Data definition language (DDL) – Data manipulation language (DML) – Data control language (DCL) – Query language – Generalized data access facilities.	(12 HRS)
UNIT III	**Physical design** Introduction – Choice of database – Design of tables – Indexing. **Integrity and security** Introduction – Data base integrity – Data validation – Transactions – Backups and recovery – Database privileges or permissions. **Concurrency : Overview –** Problems of concurrency – Serialization of transactions – Locking – Deadlock – Client – server systems	(12 HRS)
UNIT IV	**Oracle** Data types – Numbers, Strings, dates – Defining tables and column constraints – creating and modifying tables – Create, Alter, Drop-Select from and where clauses – Ordering, Group by, having in – updation, deletion, operating using sql – Union 7 intersection and minus operation – Nested queries in SQL (sub queries) – Aggregate function – Avg, min, max, sum & count.	(12 HRS)
UNIT V	**Programming with PL/SQL** Basics of PL/SQL – Retrieving Data with cursor – Database triggers – Managing user and role – Database Administration Tools.	(12 HRS)

Text Book

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

Pedagogy

Chalk & Talk, Group Discussion, PPT

Teaching Aids

Green Board, LCD Projector, Interactive White Board

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 OBE)

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

Part-III: **Core Theory**		SEMESTER – **IV**
Course Title: **DOT NET PROGRAMMING**		
Course Code: **10CT42**	Hours per week: **4**	Credits: **4**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **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 Outcomes (CO)

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Define the fundamental concepts of .NET	K1,K2,K3
CO 2	Explain the basic concepts of VB.Net	K1,K2,K3
CO 3	Explain the controls and menus of .NET	K1,K2,K3
CO 4	Summarize the concepts of server control, XML & Web services	K1,K2,K3
CO5	Applying the connection of database using ADO.Net	K1,K2,K3

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

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	9	-	-	3	-
CO 2	9	-	9	-	-	3	-
CO 3	9	-	9	-	-	3	-
CO 4	9	-	9	-	-	3	-
CO 5	9	-	9	-	-	3	-
TOTAL	45	-	45	-	-	15	-

9-Strong; 3-Medium; 1-Low

Mapping of CO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO 1	3	-	-	-	-
CO 2	3	3	9	-	-
CO 3	9	3	9	9	-
CO 4	3	-	3	3	-
CO 5	9	3	9	9	-
Total	27	09	30	21	-

Syllabus

UNIT I	**Introduction to .NET** Introduction to .NET - .NET Framework – Benefits of .NET – Common Language Runtime – Features of CLR – Compilation and MSIL-.NET Framework Libraries – Visual Studio IDE-Basic Elements of C#-Program structure and simple input and output operations-Operator and Expression – Statements – Array and Structures	(12 HRS)

UNIT II	**VB.NET** Introduction to VB.NET – VB.NET Fundamentals – Classes – Objects – Constructors – Overloading –Inheritance –Polymorphism – Interfaces – Exception – Delegates and Events	(12 HRS)
UNIT III	**CONTROLS** Building Windows Application – Creating a Windows Application using windows controls-Windows Forms – Text Boxes – Rich Text Boxes – Labels and Link labels- Buttons – Checkboxes – Radio Buttons – Panels and Group Boxes – List Boxes – Checked List Boxes – Combo boxes – Picture Boxes – Scroll bar – Calendar and timer control – Handling Menus-Dialog Boxes –Graphics	(12 HRS)
UNIT IV	**ASP.NET** ASP.NET Basics – Features of ASP.NET – ASP.NET page directives – Building form with web server control – Validation server control – Rich web control – Custom Control – Collection and List – XML- Web Services	(12 HRS)
UNIT V	**ADO.NET** Data Management with ADO.NET – Introducing ADO.NET – ADO.NET Features – Using SQL Server with VB.NET – Using SQL Server with ASP.NET	(12 HRS)

Text Books

1. Stephen C.Perry "Core C# and .NET", Pearson Education, 2006.
2. Jesse Liberty, Programming Visual Basic .net 2003,second Edition, O really, Shroff Publishers and Distributors Pvt Ltd

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 Ltd.

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 OBE)

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

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

Preamble

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

Course Outcomes

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Solving Simple Problems using basic concepts in .NET Programming	K2 K3
CO 2	Solving Problems using basic controls in .NET	K2 K3
CO 3	Solve Problems based on database connectivity using ADO.NET & Data Controls	K2 K3
CO 4	Solving Problems using DDL,DCL commands in Oracle	K2 K3
CO 5	Solving Problems using stored procedures, cursor & Trigger in Oracle	K2 K3

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

Mapping of CO with PO

	PO 1	PO 2	PO 3	PO 4	PO 5	PO6	PO7
CO 1	9	-	9	-	3	3	3
CO 2	9	-	9	-	3	3	3
CO 3	9	-	9	-	3	3	3
CO 4	9	-	9	-	3	3	3
CO 5	9	-	9	-	3	3	3
TOTAL	45	-	45	-	15	15	15

9-Strong 3-Medium 1-Low

Mapping of CO with PSO

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

Syllabus

DOT NET PROGRAMMING

1. A) Write a program to generate factorial operation
   B) Write a program to perform money conversion
   C) Write Quadratic equation
   D) Write Temperature conversion

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

ORACLE: Practical Lab List

1. A daily sales file contains record with the folLowing fields: Dept.No,Date,Item description,sales price for each item, quantity, quantity, cost of each item. Write a program using ORACLE to list all the input data. Compute total amount of sales and profit. The output contains Deptno, Item description, sales price, Quantity, Cost price and profit.

2. A hospital maintains blood donars records a file. The fields are Donar number, Name, Age, Address, Pin, Place of birth, Blood group (A,B,AB & C). Write a program to printout the number, Name & Address of the donors for the folLowing categories.
   (i) Blood donor having blood group AB.
   (ii) Blood donor in age group between16-25.
   (iii) Female donor having blood group 'O' and age in (20 to 25).

3. Write a program to compute the electricity charge of electric units with the folLowing conditions. For Domestic - Rs.0.55 for a unit when unit less than 100 and Rs.1.10 for a unit when units greater than 100. For Industry - Rs.1.10 for a unit when unit less than 1000 and Rs.1.40 for a unit when unit greater than 1000. Create a table having the structure code for Domestic and Industry current rate reading, previous rate readings.
   (i) Write a program to prepare report in the format given CODE PR CR AMT
   (ii) List out the Code and Amount, which are more than 100 units according to code wise.

4. Daily in the morning a newspaper vendor buys newspaper in whole sale from a distributor for 0.60 paise. He sells in retail for 0.75 paise. At the end of the day the unsold papers are returned to the distributor for a 0.30 paise rebate per paper. Write a program to prepare a report for the newspaper vendor in the folLowing format with 10 weeks data. WEEK BOUGHT SOLD RETURN PROFIT/LOSS

5. A salary statement contains Name, Basic pay, AlLowance, Total deduction including IT, Gross pay and Net pay. GP = BF + ALLOWANCE, ALLOWANCE = 20% OF BP, DEDUCTION = 10% OF BP. IT is calculated on the basics of annual income index with the folLowing condition.

ANNUAL SALARY

IT UPTO 30,000 >30,000 AND <=50,000 30% OF EXCESS OVER THE AMOUNT OF Rs.55,000.

ABOVE 55,000 50% OF EXCESS THE AMOUNT OF Rs.55,000.Total deduction = deduction + IT.

6. Write a program to prepare a salary report for five employees.7. An examination has been conducted for a class of 7 students based on the average score and list all the students regno, average, score, grade, minimum pass for each Course is 50 Grading system is given beLow.

AVG-SCORE	GRADE
90 - 100	A
75 - 89	B
60 - 74	C
50 - 59	D
0 - 49	F

8. Write a program to a hospital billing system having the folLowing fields Pno, Name, Age, Doctor attending, Patient type (in/out), consulting charge, Blood test charge, X-ray charge, other test charge and total fee. Write a report program for the folLowing condition.
   1) Patient who have undergone blood test.
   2) Patient who have taken x-ray.
   3) Patient who belong to a patient category.

4) List of patient with total fee.

5) Exit.

The common fields to be included in the above mentioned report are Pno, Name, Age, Corresponding charge and Total fees.

9. Write a program for canteen information system having two tables MENU & BILL. Menu table contains item and item rate. Assume that only the folLowing item are available at the canteen: tea,coffee & cool-drinks. The bill table contains the folLowing fields empno,name,date of issue,item1,no of tokens for item1,and rate1,item2, no of tokens for item2,rate2,item3, no of tokens for items,no of token,rate, total; rate=rate*no of tokens;

10. An airline reservation database contains the reservation table and personal table. The reservation table contains the folLowing fields namely flightno, passenger name, seatno, the personal table contains passenger name, sex, age, martial status, nationality.

Write a program to prepare the folLowing list.

1) List the passenger names with seatno, according to flight no wise.
2) Total number of married female candidate in a particular flight.
3) List out all female candidates between18-25 for all flights.

11. A company states monthly salary to its employee. It consists of basic pay, alLowance, deduction. DA = 43% of basic pay. HRA = 7% of basic pay. Deduction: PF - subscribed by a capital, LIC Premium - Payable by employee, Salary saving scheme. Loan recovery: If any payable by the employee. Create a main table with a records which is named as master which contains eno, ename, designation, basic pay, da, hra bank a/c no., LIC Premium number. A transaction table contains empno, pfsubscription, LIC Premium amount, loan recovery, create a program to prepare a report with the folLowing information serial number, Bank a/c number, name, basic, total alLowance, GP, total deduction, NP.

DEPARTMENT OF COMPUTER SCIENCE

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

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

Part-III: **Allied Theory**		SEMESTER – **IV**
Course Title: **NUMERICAL METHODS FOR COMPUTER SCIENCE**		
Course Code: **10AT41**	Hours per week: **4**	Credits: **5**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Preamble

. To Understanding the principles involved in solving linear, on linear, polynomials. To study the forward and backward interpolation techniques and to gain a Remembering of solving ordinary differential equations by various methods

Course Outcomes (CO)

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Applying the methods of Newton Raphson, Bisection, Iteration, Convergence, Gauss elimination & Gauss Seidel Iteration	K1,K2,K3
CO 2	Applying the methods of Gauss Jordan elimination, Matrix inversion, Gregory Newton Forward & backward interpolation formula	K1,K2,K3
CO 3	Understanding the Gauss forward & backward interpolation formula, Laplace everet formula, Lagrange's interpolation formula	K1,K2,K3
CO 4	Applying the Newton forward and backward differences to compute derivatives, Romberg's method, Simpson's 1/3 rule and 3/8 rule	K1,K2,K3
CO5	Applying the Taylor's series method, Euler's method, Runge kutta methods	K1,K2,K3

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

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	9	-	-	3	-
CO 2	9	-	9	-	-	3	-
CO 3	9	-	9	-	-	3	-
CO 4	9	-	9	-	-	3	-
CO 5	9	-	9	-	-	3	-
TOTAL	45	-	45	-	-	15	-

9-Strong; 3-Medium; 1-Low

Mapping of CO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO 1	9	-	-	-	-
CO 2	9	-	-	-	-
CO 3	3	-	-	-	-
CO 4	9	-	-	9	-
CO 5	9	-	-	9	-
TOTAL	39	-	-	18	-

Syllabus

UNIT I	Newton Raphson method – Regula False (False Position) method – Bisection method – Iteration method – Convergence method, System of linear equations – Gauss elimination method – Gauss-Seidel Iteration	(12 HRS)

	method	
UNIT II	Gauss Jordan elimination method – Matrix inversion – Gregory-Newton forward interpolation formula – Gregory-Newton backward interpolation formula – Equidistant terms with one or more missing values.	(12 HRS)
UNIT III	Gauss forward interpolation formula – Gauss backward interpolation formula – Laplace everet formula – Interpolation with unequal intervals – Divided differences – Newton divided differences formula – Lagrange's interpolation formula	(12 HRS)
UNIT IV	Newton forward and backward differences to compute derivatives – Derivatives using stirling formula – The Trapezoidal rule – Romberg's method – Simpson's 1/3 rule – Simpson's 3/8 rule	(12 HRS)
UNIT V	Numerical solution of ordinary differential equations – Power series approximations – Solutions by Taylor's series method – Picard's method of successive approximations – Euler's method – Improved and modified Euler method – Runge-Kutta Methods	(12 HRS)

Text Book

Numerical Methods – P.Kandasamy, K.Thilagavathy and K.Gunavathy - S. Chand & Company Ltd., New Delhi.

Chapters

3, 4, 6, 7, 8, 9, 11, 12

Reference Books:

1. Advanced Mathematics for Engineering Students – S.Narayanan, T.K.Manicavachagam pillay And Dr.G.Ramanath
2. Introduction to Numerical Analysis – F.B.Hildebrand

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 OBE)

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

Part-IV: **Skill Based Theory**		SEMESTER – **IV**
Course Title: **UNIX AND SHELL PROGRAMMING**		
Course Code: **10SB41**	Hours per week: **2**	Credits: **2**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Preamble

To Understanding the UNIX Architecture, File Systems and use of basic commands. Understanding Shell Programming and to write shell scripts. To analyze Process creation, Control & Relationship.

Syllabus

UNIT –I	Salient features of UNIX -UNIX system organization -the UNIX file system - creating files -listingfiles and directories - a bit of Mathematics	(6 hrs)
UNIT –II	The UNIX file system -Essential Unix commands -I/O Redirection and Piping.	(6 hrs)
UNIT –III	VI Editor -Processes in Unix – Communication _Unix style -Mail.	(6 hrs)
UNIT –IV	Shell programming: Shell variables-Shell keywords-system variables - User_defined variables - positional parameters - Arithmetic in shell script - control instructions in shell - Taking Decisions (if-then- else- if statement) -The Loop control structure (while, until, for, break and continue statement).	(6 hrs)
UNIT – V	Shell Meta characters-controlling terminal input -trapping signals -Functions - Executing multiple scripts -functions of a shell -variables revisited -exporting variables -controlling variable assignments -theeval command -Unix too1s(grep,sed,tr and awk).	(6 hrs)

Text Book

UNIX Shell programming by Yashavant. P..Kanetkar- BPB Publications - 2011.

Units	**Chapters**
I	1,2
II	3,4,5
III	6,7,8
IV	9,10,11
V	12,13,14

Reference Books:

ADVANCED UNIX -A Programmer's Guide. by Stephen Prata.

UNIX Programming Environment. By Brain w.Kernighan & Rob Pike

DEPARTMENT OF COMPUTER SCIENCE

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

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

Part-III: **Core Theory**		SEMESTER – **V**
Course Title: **PYTHON PROGRAMMING**		
Course Code: **10CT51**	Hours per week: **5**	Credits: **4**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **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 Outcomes (CO)

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Basic concept of Python Programming. Variable, Expression & Statements	K1, K2, K3
CO 2	Summarize the Concepts of Functions.	K1, K2, K3
CO 3	Explain the concept of Iteration & Strings	K1, K2, K3
CO 4	Explain the concepts of List & Tuples	K1, K2, K3
CO5	Explain the concepts of Dictionaries, Files and Exception.	K1, K2, K3

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

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	9	-	-	-	-
CO 2	9	-	9	-	-	-	-
CO 3	9	-	9	-	-	-	-
CO 4	9	-	9	-	-	-	-
CO 5	9	-	9	-	-	-	-
TOTAL	45	-	45	-	-	-	-

9-Strong; 3-Medium; 1-Low

Mapping of CO with PSO

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

Syllabus

UNIT I	**Introduction of Python Programming** Introduction –Python Programming language – Formal & natural languages – Debugging.	(15 HRS)

	Variables, Expression and Statements Values and types - Variables – Statements – Evaluating Expression – Operator and operands – Order of operations – Operations on Strings – Composition - Comments.	
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.	(15 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	(15 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.	(15 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	(15 HRS)

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.

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 OBE)

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

Part-III: **Core Theory**		SEMESTER – **V**
Course Title: **JAVA PROGRAMMING**		
Course Code: **10CT52**	Hours per week: **5**	Credits: **4**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **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 Outcomes (CO)

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Define basic concept of object-oriented programming, Datatypes, Array, Operator.	K1,K2,K3
CO 2	Explain the basic concepts of class, object, methods & constructors	K1,K2,K3
CO 3	Explain about the inheritance, interface & packages	K1,K2,K3
CO 4	Explain the concepts of Multithreading & Exception handling	K1,K2,K3
CO5	Explain the basic concepts of Applet & networking.	K1,K2,K3

K1-Remembering **K2**-Understanding **K3**-APPLYING

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	9	-	-	-	-
CO 2	9	-	9	-	-	-	-
CO 3	9	-	9	-	-	3	-
CO 4	9	-	9	-	-	3	-
CO 5	9	-	9	-	-	3	-
TOTAL	45	-	45	-	-	09	-

9-Strong; 3-Medium; 1-Low

Mapping of CO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO 1	3	3	3	-	-
CO 2	9	-	9	-	-
CO 3	9	-	9	-	-
CO 4	9	-	9	9	-
CO 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.	(15 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.	(15 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.	(15 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.	(15 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	(15 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.

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 OBE)

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

Part-III: **Core Theory**		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 Understanding of some ethical and professional issues those are important for software engineers.

Course Outcomes (CO)

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Basic concept of Software Engineering Process	K1, K2, K3
CO 2	Explain about the concept of Software Requirement Analysis and Specification	K1, K2, K3
CO 3	Explain about the concept of Software Design	K1, K2, K3
CO 4	Explain the concept Software Testing & Maintenance	K1, K2, K3
CO5	Basic concept of Project Management	K1, K2, K3

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

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	9	-	9	3	-
CO 2	9	9	9	-	3	3	-
CO 3	9	-	9	-	-	3	-
CO 4	9	-	9	-	3	3	3
CO 5	9	9	9	-	3	3	3
TOTAL	45	18	45	-	18	15	06

9-Strong; 3-Medium; 1-Low

Mapping of CO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO 1	3	3	-	-	-
CO 2	3	-	9	9	3
CO 3	-	-	9	9	-
CO 4	9	-	9	9	3
CO 5	9	-	9	9	9
TOTAL	24	03	36	36	15

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.

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

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 OBE)

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

Part-III: **Core Practical**		SEMESTER – **V**
Course Title: **LAB V: JAVA AND PYTHON PROGRAMMING**		
Course Code: **10CP54**	Hours per week: **6/90(Semester)**	Credits: **2**
CIA Marks: **40 Marks**	ESE Marks: **60 Marks**	Total Marks: **100 Marks**

Preamble

This course provides the ability to develop programs using JAVA and Python.

Course 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	Solving Simple Problems using basic concepts in JAVA	K2 K3
CO 2	Solving Problems using functions , classes & object, Inheritance in JAVA	K2 K3
CO 3	To write programs to implement Thread, Interface, Packages, and Applet & Networking.	K2 K3
CO 4	Solving Problems using basic concepts in Python.	K2 K3
CO 5	Solve Problems based on List, Tuples & Data Dictionary.	K2 K3

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

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	9	-	3	3	3
CO 2	9	-	9	-	3	3	3
CO 3	9	-	9	-	3	3	3
CO 4	9	-	9	-	3	3	3
CO 5	9	-	9	-	3	3	3
TOTAL	45	-	45	-	15	15	15

9-Strong 3-Medium 1-Low

Mapping of CO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO 1	9	-	3	-	-
CO 2	9	-	9	9	-
CO 3	9	-	9	9	-
CO 4	9	-	3	3	-
CO 5	9	-	9	9	-
TOTAL	45	-	33	30	-

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. Compute the GCD of two numbers using Python Programming
17. Find the square root of the number using Python Programming
18. Find the N number of Prime numbers using Python Programming
19. Multiply Matrices using Python Programming
20. Find the Maximum of a list of numbers using Python Programming

DEPARTMENT OF COMPUTER SCIENCE

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

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

Part-III: Elective Theory		SEMESTER – **V**
Course Title: **CLOUD COMPUTING**		
Course Code: **10EP5A**	Hours per week: **5**	Credits: **5**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **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 Outcomes (CO)

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Basic concept of Cloud Computing	K1, K2, K3
CO 2	Explain about the concept of delivery models in cloud computing and migrating to cloud	K1, K2, K3
CO 3	Explain about the concept of Standards And Business Models In Cloud	K1, K2, K3
CO 4	Explain the concept of Cloud Services And Tools	K1, K2, K3
CO5	Basic concept of Data Security management and cloud governance	K1, K2, K3

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

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	1	-	-	-	-
CO 2	9	-	9	-	-	-	-
CO 3	9	-	9	-	-	-	-
CO 4	9	-	9	-	-	3	-
CO 5	9	-	9	-	-	3	-
TOTAL	45	-	37	-	-	06	-

9-Strong; 3-Medium; 1-Low

Mapping of CO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO 1	3	3	-	-	-
CO 2	9	3	-	-	-
CO 3	9	3	-	-	-
CO 4	9	-	9	-	-
CO 5	9	-	3	3	3
TOTAL	39	9	12	3	3

Syllabus

CLOUD COMPUTING

	INTRODUCTION TO CLOUD COMPUTING	

UNIT I	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

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 OBE)

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

Part-III: Elective Theory		SEMESTER – **V**
Course Title: **INTERNET OF THINGS**		
Course Code: **10EP5B**	Hours per week: **5**	Credits: **5**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **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 Outcomes (CO)

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Basic concept of Internet of Things. IoT and M2M	K1, K2, K3
CO 2	Explain about the concept of Domain Specific IoTs	K1, K2, K3
CO 3	Explain about the concept of IoT platforms and Logical Design using Python.	K1, K2, K3
CO 4	Explain the concept of IoT Physical devices and Endpoints	K1, K2, K3
CO5	Understand the concept of Data Analytics for IoT and Tools.	K1, K2, K3

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

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	-	-	-	-	-
CO 2	9	-	-	-	-	-	-
CO 3	9	-	9	-	-	-	-
CO 4	3	-	3	-	-	-	-
CO 5	9	-	9	-	-	-	-
TOTAL	39	-	21	-	-	-	-

9-Strong; 3-Medium; 1-Low

Mapping of CO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO 1	3	3	-	-	-
CO 2	9	3	-	-	-
CO 3	3	3	3	-	-
CO 4	9	3	3	-	-
CO 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** 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.	(15 HRS)
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.

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 OBE)

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

Part-IV: Skill Based Theory		SEMESTER – **V**
Course Title: **COMPETITIVE EXAMINATION FOR IT**		
Course Code: **10SB51**	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)

Note:

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

Pedagogy

Chalk & Talk, Group Discussion, PPT

Teaching Aids

Green Board, LCD Projector, Interactive White Board

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 OBE)

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

Part-III: **Core Theory**		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 Outcomes (CO)

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Basic concept of HTML,CSS and its properties	K1,K2,K3
CO 2	Basic concept of JavaScript and its properties	K1,K2,K3
CO 3	Explain the concept of JavaScript documents and its various implements of objects	K1,K2,K3
CO 4	Basic concepts of PHP.	K1,K2,K3
CO5	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 CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	3	-	-	-	-
CO 2	9	-	3	-	-	-	-
CO 3	9	-	9	-	-	-	-
CO 4	9	-	9	-	-	-	-
CO 5	9	-	9	-	-	-	-
TOTAL	42	-	33	-	-	-	-

9-Strong; 3-Medium; 1-Low

Mapping of CO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO 1	3	3	-	-	-
CO 2	3	-	3	-	-
CO 3	9	-	9	9	-
CO 4	3	3	-	-	-
CO 5	9	-	9	9	-
TOTAL	30	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

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 OBE)

(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/Semester: **5/75**	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 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	Solving Simple Problems using HTML Formatting tags,Links, Frames, Lists and Tables	K2 K3
CO 2	Solving Problems using Cascading Style Sheets in web pages.	K2 K3
CO 3	To write programs to implement scripting and events using javascript.	K2 K3
CO 4	Solving Problems using PHP Scripting with components.	K2 K3
CO 5	Solve Problems based on database connectivity using MYSQL	K2 K3

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

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	9	-	3	3	3
CO 2	9	-	9	-	3	3	3
CO 3	9	-	9	-	3	3	3
CO 4	9	-	9	-	3	3	3
CO 5	9	-	9	-	3	3	3
TOTAL	45	-	45	-	15	15	15

9-Strong 3-Medium 1-Low

Mapping of CO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO 1	9	-	9	9	-
CO 2	9	-	9	9	-
CO 3	9	-	9	9	-
CO 4	9	-	9	9	-
CO 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 OBE)

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

Part-III: **Elective Theory**		SEMESTER – **VI**
Course Title: **DATA MINING AND DATA WAREHOUSING**		
Course Code: **10EP6A**	Hours per week: **5**	Credits: **5**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Preamble

This course covers the basics of Data mining and its functionalities. To Covers on line analytical processing. To covers the different types of techniques and tools.

Course Outcomes (CO)

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Basic concept of Data mining and its classification, functionalities of Data mining.	K1,K2,K3
CO 2	Basic concept of Data Warehouse and its architecture	K1,K2,K3
CO 3	Explain the concept of data generalization and association rules in large database.	K1,K2,K3
CO 4	Explain the concepts of Classification and Cluster analysis	K1,K2,K3
CO5	Explain the concept of application and trends in data mining	K1,K2,K3

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

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	-	-	-	-	-
CO 2	9	-	-	-	-	-	-
CO 3	9	-	9	-	-	-	-
CO 4	9	-	9	-	-	-	-
CO 5	9	-	9	-	-	-	-
TOTAL	45	-	27	-	-	-	-

9-Strong; 3-Medium; 1-Low

Mapping of CO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO 1	3	-	-	-	-
CO 2	3	-	-	-	-
CO 3	9	-	9	9	-
CO 4	9	-	9	9	-
CO 5	9	-	9	9	-
TOTAL	33	-	27	27	-

Syllabus

Unit I	**Introduction:** What motivated data mining? – What is data mining? -Data mining - on what kind of data? – Data mining functionalities – are all of the patterns interesting? – Classification of data mining systems – major issues in data mining	**(15 hrs)**

Unit II	**Data warehouse and OLAP technology for data mining:** What is data warehouse? – A multidimensional data model – data warehouse architecture – data warehouse implementations – further development of data cube technology - from data warehouse to data mining.	**(15 hrs)**
Unit III	**Concept description:** What is concept description? Data generalization and summarization based characterization – analytical characterization: analysis of attribute relevance – mining descriptive statistical measures in large databases. Mining association rules in large databases: Association rule mining – mining single dimensional Boolean association rules form transactional databases – mining multilevel association rules form transactional databases.	**(15 hrs)**
Unit IV	**Classification and prediction:** What is classification? - What is prediction? – Issues regarding classification and prediction – classification by decision tree induction – Bayesian classification – classification by back propagation – prediction – classifier accuracy. Cluster analysis:What is cluster analysis? – Types of data in cluster analysis – a categorization of major clustering methods.	**(15 hrs)**
Unit V	**Applications and trends in data mining** Data mining applications – data mining system products and research prototypes - additional themes on data mining – social impacts of data mining – trends in data mining. An introduction to DBMiner.	**(15 hrs)**

Text Book

Jiawei Han, Michelin Kamber, "Data mining : concepts and techniques ", Morgan Kaufmanns publishers – 2001.

Chapters

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

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 OBE)

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

Part-III: **Elective Theory**		SEMESTER – **VI**
Course Title: **DIGITAL IMAGE PROCESSING**		
Course Code: **10EP2B**	Hours per week: **5**	Credits: **5**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Preamble

This course covers the area of digital image processing. To covers the transformation methods. Gives the image segmentation and data compression and its techniques.

Course Outcomes (CO)

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

No.	Course Outcome	Knowledge Level (according to Bloom's Taxonomy)
CO 1	Basic concept of Digital image processing, application and its types	K1,K2,K3
CO 2	Explain the concept of Image transforms and Enhancement	K1,K2,K3
CO 3	Explain the concept of Edge detection	K1,K2,K3
CO 4	Explain the concepts of Region and Shape representation	K1,K2,K3
CO5	Explain the concept of Image segmentation and data compression	K1,K2,K3

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

Mapping of CO with PO

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO6**	**PO7**
CO 1	9	-	-	-	-	-	-
CO 2	9	-	-	-	-	-	-
CO 3	9	-	9	-	-	-	-
CO 4	9	-	9	-	-	-	-
CO 5	9	-	9	-	-	-	-
TOTAL	45	-	27	-	-	-	-

9-Strong; 3-Medium; 1-Low

Mapping of CO with PSO

	PSO 1	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**
CO 1	3	-	3	-	-
CO 2	9	-	-	-	-
CO 3	9	-	-	-	-
CO 4	9	-	3	-	-
CO 5	9	-	3	-	-
TOTAL	39	-	09	-	-

Syllabus

UNIT I	**Introduction:** Applications of digital image processing, Overview of image processing and computer vision systems, Different types of image representation and storage, Multimedia applications. **Image Perception:** Light, luminance, brightness and contrast, the visibility function, Monochrome vision models, Color coordinate systems, Color vision models.	**(15 hrs)**

UNIT II	**Image Transforms:** Two-dimensional spatial transforms, Intensity transforms, Morphological transforms, Image transform masks, Morphing and Warping. **Image Enhancement:** Point operations, Histogram modelling, Spatial operations, Transform operations, Multi spectral image enhancement.	**(15 hrs)**
UNIT III	**Edge detection:** Gradient operators, Laplace operators, Boundary representation, Boundary extraction.	**(15 hrs)**
UNIT IV	**Region and Shape representation:** Run-length codes, Quad-trees, Geometrical features, moment-based features, Fourier descriptors, Hough transforms.	**(15 hrs)**
UNIT V	**Image segmentation:** Amplitude thresholding and window slicing, Component labelling, Thresholding and clustering, Boundary based approaches, Template matching, Texture segmentation. **Image data compression** Pixel coding, Transform coding, Wavelet coding, JPEG and MPEG systems.	**(15 hrs)**

References

1. A.K.jain, Fundamentals of Digital Image Processing, Prentice-Hall (1990).
2. D. Phillips, Image Processing in C, R&D Publications Inc., (1997).
3. W.K. Pratt, Digital Image Processing, John Wiley.

E.L. Hall, Computer Image Processing and Recognition, Academic Press.

Pedagogy

Chalk & Talk, Group Discussion, PPT

DEPARTMENT OF COMPUTER SCIENCE

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

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

Part-IV: Skill Based Theory		SEMESTER – **VI**
Course Title: **DTP**		
Course Code: **10SB61**	Hours per week: **2/30(Semester)**	Credits: **2**
CIA Marks: **40 Marks**	ESE Marks: **40 Marks**	Total Marks: **100 Marks**

Preamble

To provide the basic understanding on Desk top publishing and to work on tools in Corel draw

Syllabus

- Creating Photoshop File
- Correcting Backlight and Brightening Specific Spot
- Mixed Colors and Cropping an object
- Removing Red Eye and Mole
- Clean Background, Bokeh Effect, Zooming Effect and Watermark Using action
- Panorama and Text Effect
- Create a banner
- Design a LOGO for Coffee Shop Using CorelDraw
- Design a 3D button for a webpage Using CorelDraw Tools
- Design 3D looking text that can be used for heading or Slide presentation using Corel draw

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 OBE)

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

Part-III: Skill Based Theory		SEMESTER – **VI**
Course Title: **CYBER SECURITY**		
Course Code: **10SB62**	Hours per week: **2**	Credits: **2**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Preamble

To Understanding the principles of Hacking and Foot printing. To Understanding the basic concepts of Trojans, Backdoors, Viruses and Worms. To Understanding the concept of cryptography, how it was evolved and some algorithm techniques.

Syllabus

UNIT I	**Introduction to Hacking** Introduction to Ethical Hacking, Ethics, and Legality- Understanding Ethical Hacking Terminology - Identifying Different Types of Hacking Technologies - Understanding the Different Phases Involved in Ethical Hacking and Listing the Five Stages of Ethical Hacking - Phase 1: Passive and Active Reconnaissance - Phase 2: Scanning – Phase 3: Gaining Access - Phase 4: Maintaining Access-Phase 5: Covering Tracks	(6 HRS)
UNIT II	**Footprinting** **Footprinting** - Define the Term Footprinting -Describe the Information Gathering Methodology - Describe Competitive Intelligence - Understanding DNS Enumeration - Understanding Who is and ARIN Lookups -Identify Different Types of DNS Records - Understanding How Traceroute Is Used in Footprinting	(6 HRS)
UNIT III	**System Hacking** System Hacking - Understanding Password-Cracking Techniques - Understanding the LanManager Hash -Cracking Windows 2000 Passwords - Redirecting the SMB Logon to the Attacker - SMB Redirection -SMB Relay MITM Attacks and Countermeasures - NetBIOS DoS Attacks	(6 HRS)
UNIT IV	**Trojans, Backdoors, Viruses, and Worms** Trojans, Backdoors, Viruses, and Worms - What Is a Trojan?- List the Different Types of Trojans -Viruses and Worms- Understanding the Difference between a Virus and a Worm -Understanding the Types of Viruses -Understanding Antivirus Evasion Techniques - Understanding Virus Detection Methods .	(6 HRS)
UNIT V	**Cryptography** Cryptography - Overview of Cryptography and Encryption Techniques – Overview of the Play Fair Cipher – Rail Fence – Row Transposition – Ceaser Cipher Algorithms	(6 HRS)

Text Books

1. CEH official Certified Ethical Hacking Review Guide, Wiley India Edition, 2015.

Reference Books

1. Ankit Fadia “Ethical Hacking” second edition Macmillan India Ltd, 2006

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 OBE)

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

Part-III: Skill Based Theory		SEMESTER – **VI**
Course Title: **OPEN SOURCE TOOL**		
Course Code: **10SB63**	Hours per week: **2/30(Semester)**	Credits: **2**
CIA Marks: **25 Marks**	ESE Marks: **75 Marks**	Total Marks: **100 Marks**

Preamble

To understand the fundamentals of Open Source Tools and an exposure to Datamining Tools, Research Document Tool and Testing Tool.

Syllabus

OPEN SOURCE TOOL -1: Data Mining Tools

- To check Preprocessing
- To Classify, Cluster, Association and to select attributes
- To check Seed ROI Selection and the time series extraction
- To Design PPI Model
- To Implement SEM in Neuroimage.

1. **OPEN SOURCE TOOL-2: Research Document Tool**
2. **OPEN SOURCE TOOL-3: Testing Tool**

Pedagogy

Chalk & Talk, Group Discussion, PPT

Teaching Aids

Green Board, LCD Projector, Interactive White Board

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-violence and the 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

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.