SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
(AFFILIATED TO MADURAI KAMARAJ UNIVERSITY, MADURAI
RE-ACCREDITED WITH 'A' GRADE (THIRD CYCLE) BY NAAC WITH CGPA 3.11)

Programme Scheme, Scheme of Examination and Syllabi

(From 2021-2022 Batch onwards)

Department of Computer Applications

UG Programme

Approved in the Academic Council – XIII held on 11/08/2021

Curriculum Design and Development Cell
Annexure H

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI

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Curriculum Design and Development Cell

HOD	Dean of Applied Science	Dean of Academic Affairs	Principal

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
MEMBERS OF BOARD OF STUDIES

S.No.	Board Members	Name and Designation
1.	Chairman of the Board	**Ms. R. Muthulakshmi,** Head & Associate Professor of Computer Applications, Sri Kaliswari College (Autonomous), Sivakasi.
2.	University Nominee	**Dr. K. Perumal,** Professor, Department of Computer Applications, School of Information Technology, Madurai Kamaraj University, Madurai -625021.
3.	Academic Expert 1	**Dr. K. Suthendran,** Head & Associate Professor of Information Technology, Kalasalingam Academy of Research and Education, Anand Nagar, Krishnankoil – 626126
4.	Academic Expert 2	**Dr. G. Marimuthu**, Head & Assistant Professor of Computer Science Yadava College, Madurai.
5.	Industrialist	**Mr. B. Durai Prasanna,** Managing Director, Srimax Software Solutions, Sivakasi.
6.	Alumni	**Mr. A. Mano,** Project Associate, Cognizant Technology Solutions, Chennai.
Members		
7.	Mrs. M. Guru Maheswari	Assistant Professor of Computer Applications
8.	Mr. K. Ganeshbabu	Assistant Professor of Computer Applications
9.	Mr. R. Prabakaran	Assistant Professor of Computer Applications
10.	Mr. M. Muthusrinivasan	Assistant Professor of Computer Applications
11.	Mr. S. V. Pasupathi	Assistant Professor of Computer Applications
12.	Mr. R. Srijanakiraman	Associate Professor of Computer Applications

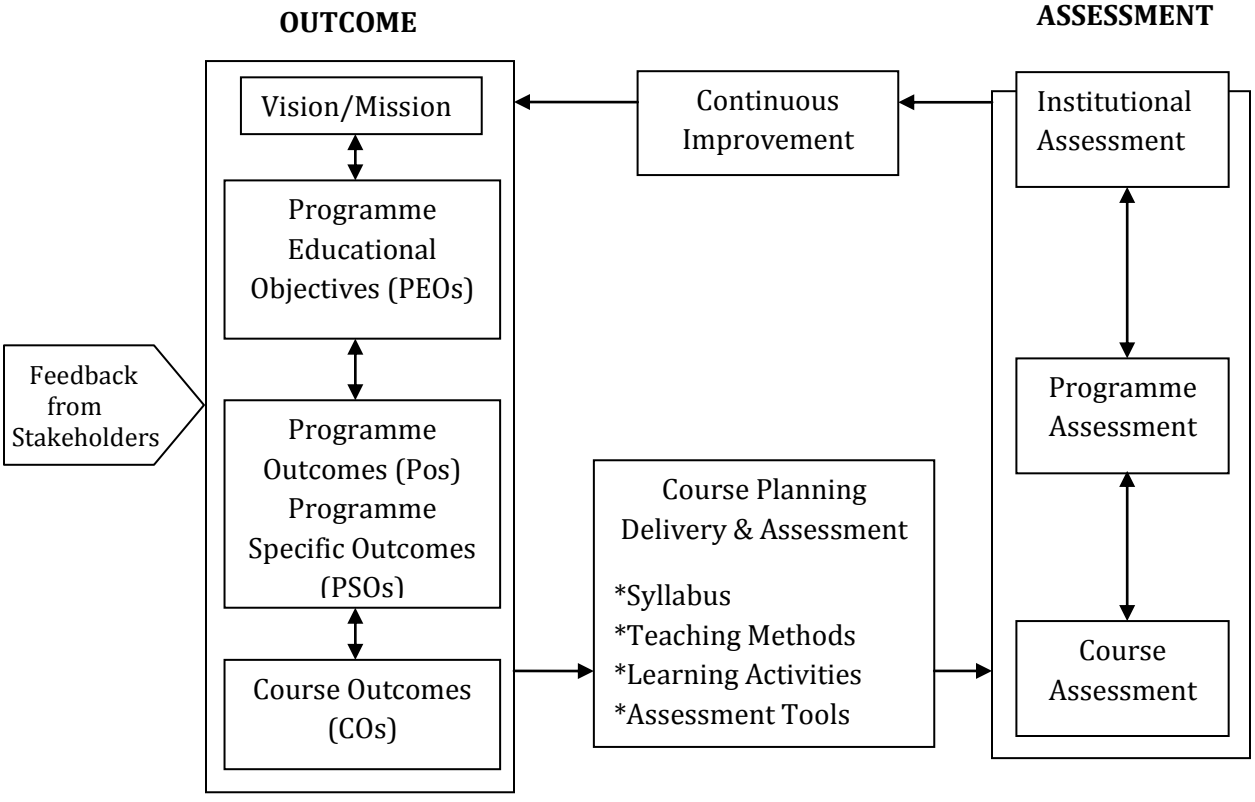
SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
(Affiliated to Madurai Kamaraj University, Re-accredited with A Grade (CGPA 3.11) by NAAC)
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
GUIDELINES FOR OUTCOME-BASED EDUCATION WITH CHOICE BASED CREDIT SYSTEM
(From 2021-2022 Batch onwards)

INTRODUCTION

Sri Kaliswari College in its pursuit of imparting quality education has been marked a remarkable growth in terms of academic excellence, infrastructure, student strength, ICT facilities, library and placement records since its establishment in 2000-2001.This institution constitutes an academic community that is committed to encourage the student community to experience and share knowledge, identify their potential, enhance the employability skills and enable them to pursue their goals. After the conferment of autonomous status in the year 2012, the college has so far gone for revision of the syllabi three times and is continually updating the syllabi to meet the needs and demands of the student community.

The institution in its success journey of imparting quality education has been Re-Accredited with A grade (CGPA 3.11) in its third cycle of accreditation by NAAC. As an added feather to its cap, the institution has taken a giant leap to embrace the Outcome-Based Education system to enable the student community to develop their knowledge, skill and attitude simultaneously through a focussed learning and help the graduates to compete with their global counterparts and prepare them for life.

I. OUTCOME-BASED EDUCATION (OBE) FRAMEWORK



II. VISION OF THE INSTITUTION

- To impart quality higher education to produce highly talented youth capable of developing the nation

III. MISSION OF THE INSTITUTION

- Ensuring quality in all aspects of the activities
- Developing the latent skills of the rural youth
- Providing value - based education to instill courage and confidence
- Nurturing the entrepreneurial skills of the rural youth
- Creating competency to meet global challenges
- Imbibing social awareness and social responsibilities

IV. VISION OF THE DEPARTMENT

- To groom the students technically and ethically so that they remains a preferred choice of the software industry.
- To set up the students for a globalized technological society and orient them towards serving the general public.

V. MISSION OF THE DEPARTMENT

- To train interpersonal and communication skills for the rural students.
- To accomplish employability in programming industry and other industrial areas and furthermore elevate understudies to turn into a successful entrepreneur.
- To prepare young minds in the field of recent technologies through education, research and industry-institute interaction to serve society, the nation and beyond.

VI. PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

The Graduates will

PEO1: ensure employability and exponential career growth of students.

PEO2: sharpen decision making skills to ensure sustainability in rapidly changing Software Industry.

PEO3: exhibit the skills and abilities effectively as a team member and/or leader by adhering to ethical standards in the profession.

PEO4: apply Software Industry practices to model and analyze the real life problems and interpret the results.

PEO5: build and lead cross-functional teams, upholding the professional responsibilities & ethical values.

VII. PROGRAMME OUTCOMES (POs)

PO1: Disciplinary Knowledge

Acquire the knowledge of computing, algorithmic principles with mathematical foundations to meet the desired needs.

PO2: Critical Thinking, Problem Solving and Analytical Reasoning

Acquire skills to analyze and identify the customer requirements in multidisciplinary domains, create high level design and implement robust software applications using latest technologies.

PO3: Scientific Reasoning and Research Related Skills

Ability to analyze, draw conclusions from qualitative/quantitative data and critically evaluate ideas and also acquire necessary research skills to carry out an experiment or investigation.

PO4: Communication Skills and Digital Literacy

Communicate effectively and articulate clearly the technical information in written and oral form and make use of ICT Tools to disseminate knowledge.

PO5: Ethics, Values and Multicultural Competence

Implant ethical responsibilities, human and professional values and capability to engage in a multi-diverse society.

PO6: Team Work, Leadership and Employability Skills

Work effectively in groups with enhanced inter-personal skills and exhibit qualities associated with leadership to build a team and achieve the vision and show proficiency in professional, employability and soft skills required for placements and higher education.

PO7: Self-directed and Life-long Learning

Recognize the need and have the ability to engage in independent learning and be self-motivated and acquire knowledge and skills to attain personal development needed in work place/society through self-paced and self-directed learning.

VIII. PROGRAMME SPECIFIC OUTCOMES (PSOs) – BCA

On successful completion of BCA, the students will

PSO1: comprehend, explore and build up computer programs in the allied areas like Algorithms, System Software, Multimedia, Web Design and Data Analytics for efficient design of computer-based systems of varying complexity.

PSO2: explore technical knowledge in diverse areas of Computer Applications and cultivate skills for successful career, entrepreneurship and higher studies.

PSO3: clarity on both conceptual and application oriented skills in computer technologies with quantitative and qualitative techniques.

PSO4: build technical, professional, practical and communicative skills to face the industrial with clarity.

PSO5: design and develop reliable software applications for social and industry needs.

PSO6: manage project work effectively as an individual member or as a leader in project being a team player with uplifting demeanor in a speculated time.

PSO7: explore new technologies and update their skills with an attitude towards independent and lifelong learning.

IX. PO-PSO Mapping Matrix – BCA

PO / PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
PO1	✓						
PO2		✓					
PO3			✓				
PO4				✓			
PO5					✓		
PO6						✓	
PO7							✓

X. PO-PEO Mapping Matrix – BCA

PO / PEO	PEO1	PEO2	PEO3	PEO4	PEO5
PO1	✓	✓	✓	✓	✓
PO2		✓		✓	
PO3			✓	✓	✓
PO4	✓	✓		✓	
PO5			✓	✓	✓
PO6	✓		✓	✓	✓
PO7		✓	✓		

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DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications

REGULATIONS

Duration of the Programme **:** Three years (equivalent to six semesters)

Eligibility

Candidate should have studied +2 Mathematics / Physics / Commerce / Economics with Computer Science/ Computer Applications / Biology in the 10 + 2 stream, passed the Higher Secondary Examinations conducted by the Board of Higher Secondary Education, Government of Tamil Nadu or any other examination accepted by the Syndicate of the Madurai Kamaraj University, Madurai as its equivalent.

Medium of Instruction : English

Age Limit

Maximum age limit : 21 Years

Age Relaxation

SC/ SCA/ST/BC/BCM/MBC/DNC & Women : 3 years age relaxation
Differently-Abled Students : 5 years age relaxation

Transitory Permission

Students joined from 2021 - 2024 may be permitted to write their examinations in this pattern up to April 2029.

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SCHEME OF EXAMINATION

For UG Programme, the internal and external marks are distributed as follows:

For all Theory Courses : Internal Marks: 40; External Marks: 60

For all Practical Courses, Project and Internship : Internal Marks: 50; External Marks: 50

Internal Mark Distribution for Theory Courses

Assessment Type	Marks	Scheme of Assessment
Internal Test	15 marks	Two Internal Tests and 1 Model Exam will be conducted and average of the best two will be considered
Written Assignment	5 marks	One Written Assignment will be given
E-Assignment/ Case Studies/ Reviews/ Field Assignments/ Poster Presentations/ Portfolios	5 marks	Any one of the Assignments will be given
Quiz	5 marks	One Quiz Test will be conducted
Viva/ Oral Exam/ Group Discussion/ Role Play	10 marks	Test will be conducted in any one of the Oral Mode

Internal Mark Distribution for Practical Courses

Assessment Type	Marks	Scheme of Assessment
Lab work /Program Execution	40 marks	Two Internal Tests will be conducted and the average of the two will be considered
Observation/Record Notebook	5 marks	Assessment will be done during every practical class
Viva –Voce / Lab Quiz	5 marks	Two Lab Quiz Tests/viva-voce will be conducted and the average of the two will be considered

External Mark Distribution for Practical Courses

Assessment Type	Marks	Scheme of Assessment
Lab work/Program Execution	40 marks	End result of the Practical
Viva –Voce	10 marks	Oral Mode Test

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
QUESTION PAPER PATTERN

Internal Test – 30 Marks – 1 hr Duration

S.No	Type of Questions	Marks
1.	Objectives type Questions: Multiple Choice – 4 questions Answer in a Word/Sentence – 4 questions	 04 04
2.	Short Answer–3 questions –either or type	3x4=12
3.	Long Answer–1 question – either or type	1x10=10

Summative Examinations – 60 Marks -3 hrs Duration

S.No	Type of Questions	Marks
1.	Objective type Questions: Multiple Choice – 5 questions Answer in a Word/Sentence – 5 questions	 05 05
2.	Short Answer 5 questions – either or type	5x4=20
3.	Long Answer 3 questions – either or type	3x10=30

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications

Attainment of Course outcomes

Attainment of Course outcomes is computed using Direct and Indirect assessment methods. Direct Method of Assessment is based on performance of the students in the Continuous Internal Assessment Tests, Summative Examinations and supporting activities such as Seminar, Assignment, Case study, Group Discussion, Quiz, etc., and Indirect Method of Assessment is based on periodical feedback from the students at the end of each course.

Weightage of Direct and Indirect Assessment in computation of attainment of each course is 70% for Direct Assessment and 30% for Indirect Assessment.

Direct Assessment of Course outcome attainment

i) Rubrics:

Internal Assessment contributes 60% and Summative Examinations Assessment contributes 40% to the Direct Assessment of a course outcome for Theory Courses. For the Practical Courses, Internal Assessment contributes 70% and Summative Examinations Assessment contributes 30% to the Direct Assessment of a course outcome.

ii) Setting of Target:

50% of the maximum mark is set as target of Internal Assessment tools and the average mark of the class is set as target of Summative Examinations Assessment.

Formula for calculating percentage attainment of each course outcome

Based on the result of Summative Examinations and Internal Assessment tools, the number of students scoring more than the target is found out.

For each Internal Assessment Tools,

$$\text{Percentage attainment of each course outcome} = \frac{\text{No. of. Students who scored more than the target in the concerned course outcome}}{\text{Total Number of Students}} \times 100$$

Percentage attainment of each Course outcome for Internal Assessment tools = Average of percentage attainment of all Internal Assessment tools

For Summative Examinations,

$$\text{Percentage attainment of each Course outcome} = \frac{\text{No. of. Students who scored more than the target in the concerned co}}{\text{Total Number of Students}} \times 100$$

Formula for calculating Attainment Percentage of Course outcome of a course

Percentage Attainment of Course outcome for Internal Assessment tools	=	Average of percentage attainment of all COs
Percentage Attainment of Course outcome for Summative Examinations	=	Average of percentage attainment of all COs

Final Direct Assessment of Course outcome Attainment

For Theory Courses

Percentage Attainment of Course outcome through Direct Assessment	=	(0.6 x percentage attainment of CO for internal assessment tool) + (0.4 x percentage attainment of CO for summative examinations)

For Practical Courses

Percentage Attainment of Course outcome through Direct Assessment	=	(0.7 x percentage attainment of CO for Internal Assessment tools) + (0.3 x percentage attainment of CO for Summative Examinations)

Indirect Assessment of CO Attainment

The course outcome feedback is conducted at the end of every semester by distributing structured feedback questionnaire to the students. The analysis of this feedback questionnaire is done on the following score. The feedback forms will be sorted with various scores and feedbacks with a score more than 5.5 are considered as satisfactory level for calculations for indirect attainment.

A : 10-8.5 **B :** 8.4-7.0 **C :** 6.9-5.5 **D :** 5.4-4.0 **E :** 3.9-0

$$\text{Percentage attainment for each CO} = \frac{\text{Satisfaction Number}}{\text{Response Received}} \times 100$$

Percentage Attainment of CO of a course = Average of percentage attainment of all COs

Final Assessment of CO attainment

Average course attainment = 0.7 x Direct assessment of CO attainment + 0.3 x Indirect assessment of CO attainment

Expected Level of Attainment for each of the Course Outcomes

CO	Level of Attainment
Above 70%	Excellent
60 -70 %	Very good
50-60 %	Good
40 – 50 %	Satisfactory
Below 40%	Not Satisfactory

Assessment of PO attainment

At the end of the each programme, the Direct PO Assessment is done from the CO Attainment of all courses. The Direct PO Attainment for a particular course is determined from the attainment values obtained for each course outcome related to that PO and the CO-PO mapping values.

$$\text{Weighted contribution of the course in attainment of each PO} = \frac{\text{Weighted Percentage of contribution of the course in attainmentof each PO}}{\text{average course attainment}} \times 100$$

Expected Level of Attainment for each of the Programme Outcomes

PO	Level of Attainment
Above 70%	Excellent
60 -70 %	Very good
50-60 %	Good
40 – 50 %	Satisfactory
Below 40%	Not Satisfactory

Attainment of Programme Educational Objectives (PEO)

PEOs are assessed after 3 to 4 years of graduation. Attainment is measured based on the Feedback from Stakeholders

1. Alumni
2. Parents
3. Employer

The analysis of this feedback questionnaire is done on the following score. The feedback forms will be sorted with various scores and feedbacks with a score more than 5.5 are considered as satisfactory level for calculations for Indirect Attainment.

A : 10-8.5 **B :** 8.4-7.0 **C :** 6.9-5.5 **D :** 5.4-4.0 **E :** 3.9-0

$$\text{Percentage attainment of PEOs} = \frac{\text{Satisfaction number}}{\text{Response Received}} \times 100$$

Expected Level of Attainment for each of the Programme Educational Objectives

PEO	Level of Attainment
Above 70%	Excellent
60 -70 %	Very good
50-60 %	Good
40 – 50 %	Satisfactory
Below 40%	Not Satisfactory

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DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
CURRICULUM STRUCTURE
OUTCOME-BASED EDUCATION WITH CHOICE BASED CREDIT SYSTEM
(From 2021-2022 Batch onwards)

S. No	Courses	Sem I	Sem II	Sem III	Sem IV	Sem V	Sem VI	Credits
I	Tamil / Hindi / French	6 (3)	6 (3)	6 (3)	6 (3)	-	-	12
II	English	6 (3)	6 (3)	6 (3)	6 (3)	-	-	12
III	Core Courses	5 (5) 5P (4)	5 (5) 5P (4)	5 (5) 5P (4)	5 (5) 5P (3)	5 (5) 5 (5) 5P (4) 5P (4)	5(5) 5(5) 5(5) 5P (4) 4P (4)	76
	Allied Courses	4 (4)	4 (4)	4 (4)	4 (4)		-	16
	Major Elective Courses	-	-	-		4(3) 4(3)	4(3)	9
	Self-paced Learning (Swayam Course)	-	-	-	(2)	-		2
IV	Ability Enhancement Compulsory Course (AECC) 1. Environmental Studies	2(1)	-	-	-	-	-	1
	2. Value Education	-	1(1)	-	-	-	-	1
	Non-Major Elective Courses	-	-	2 (1)	2 (1)	-	-	2
	Skill Enhancement Courses	2P (1)	2P (1)	2P (1)	2 (1)	2P (1)	2P (1)	6
	Internship					(1)		1
	Disaster Management		1(1)					1
V	Extension	-	-	-	(1)	-	-	1
Total Hours (Per week)/ Credits		**30(21)**	**30(22)**	**30(21)**	**30(23)**	**30(26)**	**30(27)**	**140 / 180**

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DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
CURRICULUM PATTERN
OUTCOME-BASED EDUCATION WITH CHOICE BASED CREDIT SYSTEM
(From 2021-2022 Batch onwards)
PROGRAMME CODE – UCA

Semester	Part	Course Code	Course Name	Hours	Credits
I	I	21UTAL11	Tamil/Hindi/French – I	6	3
	II	21UENL11	Communicative English – I	6	3
	III	21UCAC11	**Core Course - I:** Programming in C	5	5
		21UCAC1P	**Core Course - II:** Practical: C Programming	5	4
		21UCAA11	**Allied Course - I:** Mathematical Foundations	4	4
	IV	21UESR11	**Ability Enhancement Compulsory Course – I:** Environmental Studies	2	1
		21UCAS1P	**Skill Enhancement Course - I:** Practical: Office Automation	2	1
	Total			**30**	**21**
II	I	21UTAL21	Tamil/Hindi/French – II	6	3
	II	21UENL21	Communicative English – II	6	3
	III	21UCAC21	**Core Course - III:** Object Oriented Programming with C++	5	5
		21UCAC2P	**Core Course - IV:** Practical: Object Oriented Programming with C++	5	4
		21UCAA21	**Allied Course - II:** Operations Research	4	4
	IV	21UVED21	**Ability Enhancement Compulsory Course - II:** Value Education	1	1
		21UCAS2P	**Skill Enhancement Course - II:** Practical : PrePress Designing	2	1
		21UDMG21	Disaster Management	1	1
	Total			**30**	**22**

III	I	21UTAL31	Tamil/Hindi/French – III	6	3
	II	21UENL31	Communicative English – III	6	3
	III	21UCAC31	**Core Course - V:** Object Oriented Programming with JAVA	5	5
		21UCAC3P	**Core Course - VI:** Practical: Object Oriented Programming with JAVA	5	4
		21UCAA31	**Allied Course - III:** Digital Principles And Computer Organization	4	4
	IV	21UCAN31	**Non-Major Elective Course - I:** Basics of Computers	2	1
		21UCAS3P	**Skill Enhancement Course – III:** Practical: Digital Electronics	2	1
			Total	**30**	**21**
IV	I	21UTAL41	Tamil/Hindi/French – IV	6	3
	II	21UENL41	Communicative English – IV	6	3
	III	21UCAC41	**Core Course - VII:** Open Source Technology And RDBMS	5	5
		21UCAC4P	**Core Course - VIII:** Practical : Open Source Technology And RDBMS	5	3
		21UCAA41	**Allied Course – IV :** Basics of Financial Accounting	4	4
		21UCAM41 21UCAM42	**Self-paced Learning (Swayam/NPTEL Course)** 1. Soft Skills 2. Cloud Computing	-	2
	IV	21UCAN41	**Non-Major Elective Course - II:** Web Programming	2	1
		21UCAS41	**Skill Enhancement Course - IV:** Numerical Aptitude	2	1
	V		**Extension**	**-**	1
			Total	**30**	**23**
V	III	21UCAC51	**Core Course - IX:** Computer Graphics And Image Processing	5	5
		21UCAC5P	**Core Course - X:** Practical: Computer Graphics And Image Processing	5	4
		21UCAC52	**Core Course - XI:** Software Engineering	5	5
		21UCAC5Q	**Core Course - XII:** Practical: Android Applications & Virtual Gaming	5	4

		21UCAO51 21UCAO52 21UCAO53	**Major Elective Course - I:** 1. Computer Networks 2. E - Commerce Technologies 3. Artificial Intelligence and Expert Systems	4	3
		21UCAO54 21UCAO55 21UCAO56	**Major Elective Course - II:** 1. Data Structures and Algorithms 2. Cyber Security 3. Soft Computing	4	3
	IV	21UCAS5P	**Skill Enhancement Course – V:** Practical: Accounting Package	2	1
		21UCAJ51	**Internship**	-	1
			Total	**30**	**26**
VI	III	21UCAC61	**Core Course - XIII:** System Software and Operating Systems	5	5
		21UCAC62	**Core Course - XIV:** Programming in Python	5	5
		21UCAC6P	**Core Course - XV:** Practical: Python and R Programming	5	4
		21UCAC63	**Core Course - XVI:** Advanced Computing	5	5
		21UCAJ61	**Core Course - XVII:** Project	4	4
		21UCAO61 21UCAO62 21UCAO63	**Major Elective Course - III:** 1. Data Mining and Warehousing 2. Bigdata Analytics 3. Internet of Things	4	3
	IV	21UCAS6P	**Skill Enhancement Course - VI:** Practical: Shell Programming	2	1
			Total	**30**	**27**

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UG Programme – Bachelor of Computer Applications
OUTCOME-BASED EDUCATION WITH CHOICE BASED CREDIT SYSTEM
(From 2021-2022 Batch onwards)

PROGRAMME ARTICULATION MATRIX (PAM)

Semester	Course Code	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7
I	21UTAL11	Tamil / Hindi – I	10	7	2	8	2	2	2
	21UENL11	Communicative English – I	10	7	2	8	2	2	3
	21UCAC11	**Core Course - I:** Programming in C	11	10	8	7	6	5	0
	21UCAC1P	**Core Course - II:** Practical: C Programming	12	9	7	9	3	4	2
	21UCAA11	**Allied Course - I:** Mathematical Foundations	11	13	7	4	0	3	3
	21UESR11	**Ability Enhancement Compulsory Course – I:** Environmental Studies	8	5	1	7	8	5	5
	21UCAS1P	**Skill Enhancement Course - I:** Practical: Office Automation	10	8	6	5	3	3	2
II	21UTAL21	Tamil / Hindi – II	10	8	2	8	2	2	2
	21UENL21	Communicative English – II	10	8	2	8	2	2	3
	21UCAC21	**Core Course - III:** Object Oriented Programming with C++	12	11	8	6	6	4	1
	21UCAC2P	**Core Course - IV:** Practical: Object Oriented Programming with C++	12	11	10	8	3	3	2
	21UCAA21	**Allied Course - II:** Operations Research	9	13	7	4	0	4	4
	21UVED21	**Ability Enhancement Compulsory Course - II:** Value Education	8	5	1	5	9	4	7
	21UCAS2P	**Skill Enhancement Course - II:** Practical : PrePress Designing	12	8	6	6	2	3	2
	21UDMG21	Disaster Management	7	8	2	5	2	4	8
III	21UTAL31	Tamil / Hindi– III	10	8	2	8	2	2	2
	21UENL31	Communicative English – III	10	8	3	9	3	3	2
	21UCAC31	**Core Course - V:** Object Oriented Programming with JAVA	12	10	9	8	5	4	3
	21UCAC3P	**Core Course - VI:** Practical: Object Oriented Programming with JAVA	14	10	7	6	4	5	4

	21UCAA31	**Allied Course - III:** Digital Principles And Computer Organization	13	12	11	6	3	2	1
	21UCAN31	**Non-Major Elective Course - I:** Basics of Computers	9	5	0	8	0	5	5
	21UCAS3P	**Skill Enhancement Course – III:** Practical: Digital Electronics	11	9	6	3	3	3	1
IV	21UTAL41	Tamil / Hindi – IV	10	8	2	9	2	2	2
	21UENL41	Communicative English – IV	10	9	3	8	2	3	3
	21UCAC41	**Core Course - VII:** Open Source Technology And RDBMS	14	9	8	7	2	8	3
	21UCAC4P	**Core Course - VIII:** Practical : Open Source Technology And RDBMS	13	10	8	7	3	6	5
	21UCAA41	**Allied Course – IV :** Basics of Financial Accounting	11	10	8	7	3	6	5
	21UCAM41 21UCAM42	**Self-paced Learning (Swayam/NPTEL Course)** 1. Soft Skills 2. Cloud Computing	13	10	5	9	1	2	7
	21UCAN41	**Non-Major Elective Course - II:** Web Programming	9	5	0	8	0	5	5
	21UCAS41	**Skill Enhancement Course - IV:** Numerical Aptitude	11	9	5	5	3	4	2
		Extension	8	2	1	7	9	8	5
V	21UCAC51	**Core Course - IX:** Computer Graphics And Image Processing	13	10	12	5	5	4	2
	21UCAC5P	**Core Course - X:** Practical: Computer Graphics And Image Processing	12	10	9	5	5	4	3
	21UCAC52	**Core Course - XI:** Software Engineering	13	12	9	8	5	4	3
	21UCAC5Q	**Core Course - XII:** Practical: Android Applications & Virtual Gaming	10	6	9	7	6	7	6
	21UCAO51 21UCAO52 21UCAO53	**Major Elective Course - I:** 1. Computer Networks 2. E-Commerce Technologies 3. Artificial Intelligence and Expert Systems	13	12	6	9	5	4	3
	21UCAO54 21UCAO55 21UCAO56	**Major Elective Course - II:** 1. Data Structures and Algorithms 2. Cyber Security 3. Soft Computing	13	12	6	9	5	4	3
	21UCAS5P	**Skill Enhancement Course – V:** Practical: Accounting Package	10	8	6	5	4	4	3

	21UCAJ51	**Internship**	8	12	4	7	1	5	8
VI	21UCAC61	**Core Course - XIII:** System Software and Operating Systems	12	10	9	8	5	5	4
	21UCAC62	**Core Course - XIV:** Programming in Python	13	11	5	8	4	5	4
	21UCAC6P	**Core Course - XV:** Practical: Python and R Programming	12	10	9	6	5	4	3
	21UCAC63	**Core Course - XVI:** Advanced Computing	10	8	7	10	4	5	4
	21UCAJ61	**Core Course - XVII:** Project	9	12	4	10	3	8	5
	21UCAO61 21UCAO62 21UCAO63	**Major Elective Course - III:** 1. Data Mining and Warehousing 2. Bigdata Analytics 3. Internet of Things	13	12	6	8	5	3	3
	21UCAS6P	**Skill Enhancement Course - VI:** Practical: Shell Programming	10	4	6	5	4	5	4
Total Weightage of all Courses Contributing to PO			**501**	**414**	**256**	**323**	**161**	**189**	**159**

SRI KALISWARI COLLEGE (AUTONOMOUS), Sivakasi
(Affiliated to Madurai Kamaraj University, Re-accredited with A Grade (CGPA 3.11) by NAAC)
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
OUTCOME-BASED EDUCATION WITH CHOICE BASED CREDIT SYSTEM
(From 2021-2022 Batch onwards)

PROGRAMME ARTICULATION MATRIX – WEIGHTED PERCENTAGE

Semester	Course Code	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7
I	21UTAL11	Tamil / Hindi – I	2	1.69	0.78	2.48	1.24	1.06	1.26
	21UENL11	Communicative English – I	2	1.69	0.78	2.48	1.24	1.06	1.89
	21UCAC11	**Core Course - I:** Programming in C	2.2	2.42	3.13	2.17	3.73	2.65	0
	21UCAC1P	**Core Course - II:** Practical: C Programming	2.4	2.17	2.73	2.79	1.86	2.12	1.26
	21UCAA11	**Allied Course - I:** Mathematical Foundations	2.2	3.14	2.73	1.24	0	1.59	1.89
	21UESR11	**Ability Enhancement Compulsory Course – I:** Environmental Studies	1.6	1.21	0.39	2.17	4.97	2.65	3.14
	21UCAS1P	**Skill Enhancement Course - I:** Practical: Office Automation	2	1.93	2.34	1.55	1.86	1.59	1.26
II	21UTAL21	Tamil / Hindi – II	2	1.93	0.78	2.48	1.24	1.06	1.26
	21UENL21	Communicative English – II	2	1.93	0.78	2.48	1.24	1.06	1.89
	21UCAC21	**Core Course - III:** Object Oriented Programming with C++	2.4	2.66	3.13	1.86	3.73	2.12	0.63
	21UCAC2P	**Core Course - IV:** Practical: Object Oriented Programming with C++	2.4	2.66	3.91	2.48	1.86	1.59	1.26
	21UCAA21	**Allied Course - II:** Operations Research	1.8	3.14	2.73	1.24	0	2.12	2.52
	21UVED21	**Ability Enhancement Compulsory Course - II:** Value Education	1.6	1.21	0.39	1.55	5.59	2.12	4.4
	21UCAS2P	**Skill Enhancement Course - II:** Practical : PrePress Designing	2.4	1.93	2.34	1.86	1.24	1.59	1.26
	21UDMG21	Disaster Management	1.4	1.93	0.78	1.55	1.24	2.12	5.03
III	21UTAL31	Tamil / Hindi– III	2	1.93	0.78	2.48	1.24	1.06	1.26
	21UENL31	Communicative English – III	2	1.93	1.17	2.79	1.86	1.59	1.26
	21UCAC31	**Core Course - V:** Object Oriented Programming with JAVA	2.4	2.42	3.52	2.48	3.11	2.12	1.89
	21UCAC3P	**Core Course - VI:** Practical: Object Oriented Programming with JAVA	2.79	2.42	2.73	1.86	2.48	2.65	2.52

	21UCAA31	**Allied Course - III:** Digital Principles And Computer Organization	2.59	2.9	4.3	1.86	1.86	1.06	0.63
	21UCAN31	**Non-Major Elective Course - I:** Basics of Computers	1.8	1.21	0	2.48	0	2.65	3.14
	21UCAS3P	**Skill Enhancement Course – III:** Practical: Digital Electronics	2.2	2.17	2.34	0.93	1.86	1.59	0.63
IV	21UTAL41	Tamil / Hindi – IV	2	1.93	0.78	2.79	1.24	1.06	1.26
	21UENL41	Communicative English – IV	2	2.17	1.17	2.48	1.24	1.59	1.89
	21UCAC41	**Core Course - VII:** Open Source Technology And RDBMS	2.79	2.17	3.13	2.17	1.24	4.23	1.89
	21UCAC4P	**Core Course - VIII:** Practical : Open Source Technology And RDBMS	2.59	2.42	3.13	2.17	1.86	3.17	3.14
	21UCAA41	**Allied Course – IV :** Basics of Financial Accounting	2.2	2.42	3.13	2.17	1.86	3.17	3.14
	21UCAM41 21UCAM42	**Self-paced Learning (Swayam/NPTEL Course)** 1. Soft Skills 2. Cloud Computing	2.59	2.42	1.95	2.79	0.62	1.06	4.4
	21UCAN41	**Non-Major Elective Course - II:** Web Programming	1.8	1.21	0	2.48	0	2.65	3.14
	21UCAS41	**Skill Enhancement Course - IV:** Numerical Aptitude	2.2	2.17	1.95	1.55	1.86	2.12	1.26
		Extension	1.6	0.48	0.39	2.17	5.59	4.23	3.14
V	21UCAC51	**Core Course - IX:** Computer Graphics And Image Processing	2.59	2.42	4.69	1.55	3.11	2.12	1.26
	21UCAC5P	**Core Course - X:** Practical: Computer Graphics And Image Processing	2.4	2.42	3.52	1.55	3.11	2.12	1.89
	21UCAC52	**Core Course - XI:** Software Engineering	2.59	2.9	3.52	2.48	3.11	2.12	1.89
	21UCAC5Q	**Core Course - XII:** Practical: Android Applications & Virtual Gaming	2	1.45	3.52	2.17	3.73	3.7	3.77
	21UCAO51 21UCAO52 21UCAO53	**Major Elective Course - I:** 1. Computer Networks 2. E-Commerce Technologies 3. Artificial Intelligence and Expert Systems	2.59	2.9	2.34	2.79	3.11	2.12	1.89
	21UCAO54 21UCAO55 21UCAO56	**Major Elective Course - II:** 1. Data Structures and Algorithms 2. Cyber Security 3. Soft Computing	2.59	2.9	2.34	2.79	3.11	2.12	1.89
	21UCAS5P	**Skill Enhancement Course – V:** Practical: Accounting Package	2	1.93	2.34	1.55	2.48	2.12	1.89
	21UCAJ51	**Internship**	1.6	2.9	1.56	2.17	0.62	2.65	5.03
VI	21UCAC61	**Core Course - XIII:** System Software	2.4	2.42	3.52	2.48	3.11	2.65	2.52

		and Operating Systems							
	21UCAC62	**Core Course - XIV:** Programming in Python	2.59	2.66	1.95	2.48	2.48	2.65	2.52
	21UCAC6P	**Core Course - XV:** Practical: Python and R Programming	2.4	2.42	3.52	1.86	3.11	2.12	1.89
	21UCAC63	**Core Course - XVI:** Advanced Computing	2	1.93	2.73	3.1	2.48	2.65	2.52
	21UCAJ61	**Core Course - XVII:** Project	1.8	2.9	1.56	3.1	1.86	4.23	3.14
	21UCAO61 21UCAO62 21UCAO63	**Major Elective Course - III:** 1. Data Mining and Warehousing 2. Bigdata Analytics 3. Internet of Things	2.59	2.9	2.34	2.48	3.11	1.59	1.89
	21UCAS6P	**Skill Enhancement Course - VI:** Practical: Shell Programming	2	0.97	2.34	1.55	2.48	2.65	2.52
Total Weighted Percentage of Course Contribution to Pos			**100**	**100**	**100**	**100**	**100**	**100**	**100**

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF TAMIL
UG Programme - B.A./B.SC./BCA
SEMESTER - I
பொதுத்தமிழ் - I (21UTAL11)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 6 **INT.MARKS : 40**
CREDITS : 3 **EXT.MARKS : 60**
DURATION : 90 hrs **MAX.MARKS : 100**

நோக்கம்

தற்கால இலக்கிய வகைமைகளை அறிமுகப்படுத்தும் நோக்கில் இத்தாள் வடிவமைக்கப்பட்டுள்ளது.

கற்றலின் பயன்கள்

இத்தாளை வெற்றிகரமாக முடித்தவுடன் மாணவர்கள்,

CO1[K1]: நவீன இலக்கிய வகைமைகளை அடையாளம் காண்பர்.
CO2[K2]: மொழி இலக்கண அறிவினைப் புரிந்துகொண்டு பிழை இன்றி எழுதும் திறன்பெறுவர்.
CO3[K3]:இக்கால இலக்கியங்களின் கருத்தம்சங்களைதம் வாழ்நிலையோடு பொருத்திப் பார்ப்பர்.
CO4[K5]: நவீன இலக்கியங்கள் படைப்பதற்கு அடிப்படையாக அமைந்த முறைமை குறித்துமதிப்பீடு செய்து அவற்றை விமர்சிப்பர்.
CO5[K6]: உலகளாவிய கவிதை நாடகப் படைப்புகளைக் கற்றுப் படைப்பர்.

CO-PO Mapping Table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	2	-	2	-	-	-
CO2[K2]	2	2	-	2	-	-	-
CO3[K3]	2	1	-	2	1	-	-
CO4[K5]	2	1	1	1	1	1	1
CO5[K6]	2	1	1	1	-	1	1
Weightage of the course	10	7	2	8	2	2	2
Weighted percentage of Course Contribution to POs	2	1.69	0.78	2.48	1.24	1.06	1.26

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

கூறு I **(18hrs)**

மரபுக்கவிதை: மரபுக்கவிதையின் தோற்றமும் வளர்ச்சியும், **பாரதியார்**:யாமறிந்த மொழிகளிலே, பகைவனுக்கு அருள்வாய். **பாரதிதாசன்**:வீரத்தமிழன், தொழிலாளர் விண்ணப்பம். **கவிமணி**:ஒற்றுமையே உயிர்நிலை. **நாமக்கல் கவிஞர்:**பெண் மனம். **முடியரசன்**:தமிழ் தான் என் பேர். **கண்ணதாசன்:**யாத்திரை. **பட்டுக்கோட்டை:**சின்னப்பயலே.....

கூறு II **(18hrs)**

புதுக்கவிதை:புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும் - ஹைக்கூவின் தோற்றமும் வளர்ச்சியும். **அப்துல் ரகுமான்** - பாருக்குள்ளே நல்லநாடு. **நா.காமராசர்:**கண். **மு.மேத்தா:**கால்களால் நடந்த கதை.**வைரமுத்து:**ஐந்து பெரிது ஆறு சிறிது, **பா.விஜய்:**பேனாபேசுச்சு. **கனிமொழி**:கருவறைவாசனை. **ஹைக்கூ கவிதை:** இ.பரிமளம் - அமுதபாரதி - பா.உதயகண்ணன் - இ.ரா.இரவி - மணிவேலன்-புதுவைசீனு.தமிழ்மணி-புதுவைத்தமிழ்நெஞ்சன் - அறிவுமதி- ஸ்ரீரசா-தங்கம் மூர்த்தி - புதுக்கவிதை - ஹைக்கூ படைப்பதற்குப் பயிற்சிஅளித்தல்.

கூறு III **(18hrs)**

நாடகம்:நாடகத்தின் தோற்றமும் வளர்ச்சியும்,புராண இலக்கிய நாடகங்கள் - **ஜெயந்தி நாகராஜன்:**திருநாவுக்கரசர் - திருஞானசம்பந்தர்.

கூறு IV **(18hrs)**

நாடகம்:புராண இலக்கிய நாடகங்கள் - ஜெயந்தி நாகராஜன் 1. மாணிக்கவாசகர் 2. கண்ணப்பநாயனார் 3. மெய்ப்பொருள் நாயனார்,நாடகம் படைப்பதற்குப் பயிற்சிஅளித்தல்.

கூறு V **(18hrs)**

இலக்கணம் :முதல், சார்பெழுத்துக்கள் - மொழிமுதல், மொழி இறுதி எழுத்துக்கள் - வல்லினம் மிகும், மிகா இடங்கள்.

பாடநூல்கள்

1. *தொகுப்பு நூல்*,தமிழியல்துறை,ஸ்ரீ காளீஸ்வரிகல்லூரி (தன்னாட்சி),சிவகாசி.
2. ஜெயந்திநாகராஜன்.*புராண இலக்கிய நாடகங்கள்*, தாமரை பப்ளிகேஷன்ஸ், சென்னை, 2014.
3. வாசுதேவன்,கா .*பன்முகநோக்கில் தமிழ் இலக்கிய வரலாறு,* தேவன் பதிப்பகம், திருச்சிராப்பள்ளி, 2017.

பார்வை நூல்கள்

1. சுதந்திரமுத்து, மு.*படைப்புக் கலை*,அறிவுப் பதிப்பகம்,சென்னை,2008.
2. பாக்கியமேரி.*தமிழ் இலக்கிய வரலாறு*,நியூ செஞ்சுரி புக் ஹவுஸ்,சென்னை,2011.
3. ஸ்ரீதரன்,என்.*பிழையின்றித் தமிழ் எழுதுவோம்*,ஸ்ரீ நந்தினிபதிப்பகம்,சென்னை, 2008.

வலைப்பதிவுகள்(Web Sources)

1. https://youtu.be/6mrdbprILo8
2. https://youtu.be/QYizo6YwBXl
3. https://youtu.be/-oUmlDvHvQg
4. https://youtu.be/3sY76BTiqPQ
5. https://youtu.be/xLosPsqJ6W0

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF ENGLISH
UG Programme - B.A./B.Com./ B.B.A./B.SC./BCA
SEMESTER- I
COMMUNICATIVE ENGLISH - I (21UENL11)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 6 **INT. MARKS : 40**
CREDITS : 3 **EXT. MARKS : 60**
DURATION : 90 hrs **MAX. MARKS: 100**

Preamble

This course helps the learners to develop their communication skills in English through listening, speaking, reading, and writing practices.

Course Outcomes (CO)

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

CO1[K1]: relate and state ideas by reading and listening to simple recorded conversations and fables

CO2[K2]: demonstrate communicative skills through simple Descriptions, requests and Instructions

CO3[K3]: apply knowledge of word power and grammar rules in Formal and informal letter writings

CO4[K4]: analyze fairy tales and folk tales to develop language skills through literature

CO5[K6]: construct grammatically correct and meaningful simple sentences in english

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	2	-	2	-	-	-
CO2[K2]	2	2	-	2	-	-	-
CO3[K3]	2	1	-	2	1	-	1
CO4[K4]	2	1	1	1	1	1	1
CO5[K6]	2	1	1	1	-	1	1
Weightage of the course	10	07	02	08	02	02	03
Weighted percentage of Course contribution to Pos	2	1.69	0.78	2.48	1.24	1.06	1.89

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I - LISTENING AND SPEAKING **(18 hrs)**

A. Listening

Listening to simple conversations in everyday contexts

Listening to fables

Listening to News Bulletin

B. Speaking

Introducing oneself and others

Describing persons, places, things, daily routines, health and symptoms

Asking for time and date

Asking for directions and giving directions

Giving instructions and seeking clarifications

Making requests and responding to requests

Thanking someone and responding to thanks

UNIT II - READING AND WRITING **(18 hrs)**

A. Reading

Interpreting pictures/maps/pie-charts/tables/flow charts /diagrams

Skimming or scanning through the texts

B. Writing

Hints Developing

Story Completion/ completing the story based on given outline.

Letter Writing: Informal letters- Family, Friends and Relatives

Formal letters: Leave letters and Apology Letter

UNIT III - WORD POWER **(18 hrs)**

Prefixes and Suffixes

Homophones and Homonyms

Words related to Parts of the Body & their functions, Cries of Animals, Young Ones of Animals

Connotative and Denotative words

Contextual Usage of words

Puzzles and Anagrams

UNIT IV - GRAMMAR **(18 hrs)**

Nouns-Kinds, Number and Gender

Pronouns-Kinds

Adjectives- Kinds

Verbs-Regular and Irregular verbs, Transitive and Intransitive Verbs

Adverbs- Kinds and Position of Adverbs

UNIT V - LANGUAGE THROUGH LITERATURE (18 hrs)

Fairy Tales, Folk Tales and Legendary Heroes

Fairy Tales

The Pied Piper of Hamelin
The Ugly Duckling
Hansel and Gretel

Folk Tales

Alibaba and the Forty Thieves
Aladdin and the Magic Lamp
The Town Mouse and the Country Mouse

Legendary Heroes

Chhatrapati Shivaji Maharaj- Shivaji's great escape
Mahatma Gandhi- Mohandas takes a spelling test
Tenali Raman- The Stolen Brinjal
Akbar and Birbal- Re-Union

TEXTBOOKS

1. Carthy Mc., and Felicity O'Dell. *English Vocabulary in Use (Upper intermediate)*. UK: Cambridge University Press, 2005.
2. Pillai, Radhakrishna, and K.Rajeevan. *Spoken English for You (Level One)*. Chennai: Emerald Publishers, 2009.
3. Sreelekshmi. *Folk Tales- A WonderWorld of 150 Stories for Children*. Kerala: SL Publishers, 2004.

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1. Babu, Sundara. *Leo's Tenali Raman Stories*. Chennai: Leo Book Publishers, 2015.
2. Kalyani V. *Fairy Tales 1*. Kerala: Sisco Publishers, 2004.
3. *Life Skills* (Jeevan Kaushal) *Facilitators' Guidelines*. New Delhi: University Grants Commission, 2021.
4. Sadanand, Kamalesh and Susheela Punitha. *Spoken English- A Foundation Course for Speakers of Tamil*. Mumbai: Orient Blackswan, 2009.
5. Taylor, Grant. *English Conversation Practice*. New Delhi: Tata McGraw Hill Publishers, 2001.

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3. https://www.infoplease.com/dictionary/brewers/animals-cries
4. https://www.zooborns.com/zooborns/baby-animal-names.html

5. https://learnenglish.britishcouncil.org/general-english/stories
6. https://www.talkenglish.com/lessonindex.aspx
7. https://www.englishhelper.com/
8. https://www.englishpage.com/

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - I
CORE COURSE – I: PROGRAMMING IN C (21UCAC11)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 5 **INT. MARKS : 40**
CREDITS : 5 **EXT. MARKS : 60**
DURATION : 75 hrs **MAX. MARKS: 100**

Preamble

This course enables the learners to write C programs to solve computational problems that they may have to solve in their professional life.

Course Outcomes (CO)

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

CO1[K1]: identify the fundamentals of C, tokens and basic input/output operations

CO2[K2]: demonstrate conditional, iterative statements to write C programs

CO3[K3]: perform data storage, retrieval to/from memory location and basic graphic functions

CO4[K4]: classify the usage of character arrays, structure and union to solve complex computations

CO5[K4]: examine the importance of user defined functions and file management operations

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	3	1	1	1	1	-
CO2[K2]	2	2	1	2	1	1	-
CO3[K3]	2	2	2	2	-	-	-
CO4[K4]	2	2	2	1	2	2	-
CO5[K4]	2	1	2	1	2	1	-
Weightage of the course	11	10	08	07	06	05	0
Weighted percentage of Course contribution to POs	**2.2**	**2.42**	**3.13**	**2.17**	**3.73**	**2.65**	**0**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(15 hrs)**

Overview of C : History of C - Importance of C - Basic Structure of C Programs - Programming Style - Constants, Variables and Data types - Operators and Expressions -Managing Input and Output Operations.

UNIT II **(15 hrs)**

Control Statements and Arrays: Decision Making and Branching - Decision Making and Looping – Arrays - Character Arrays and Strings.

UNIT III **(15 hrs)**

Functions: Need for User - Defined Function – Definition- Function Calls - Function Declaration - Category of Functions - Nesting of Functions – Recursion. **Structures and Unions**: Introduction - Defining, Declaring, Accessing and Initializing Structure - Array of Structure - Structure within Structure - Structures and Functions – Unions.

UNIT IV **(15 hrs)**

Pointers: Introduction-Declaring Pointers in Variables - Initialization of Pointer Variables - Accessing a Variable through its Pointer - Pointer Expression - Array of Pointers. **File Management in C:** Introduction – Defining and Opening a File - Closing a File - Input/Output Operations on Files - Error handling I/O Operations - Random Access to Files.

UNIT V **(15 hrs)**

Graphics Programming: All Lines are not Same – Stylish Lines - Drawing and Filling Images – Outputting Text – Justifying Text – Bit of Animation.

TEXTBOOKS

1. E.Balagurusamy. *Programming in ANSI C.* Tata McGraw Hill Education Private Ltd. 8th Edition, 2017.
2. Yashvant Kanetkar. *Let Us C.* BPB Publications, 3rd Edition, 1999.

REFERENCES

Books

1. Byron S.Gottfried. *Programming with C (Schaum's Outline Series)*. Tata McGraw Hill, 2nd Edition, 2006.
2. Yashavant Kanetkar. *Pointers in C.* BPB Publications, 2nd Edition, 2007.

Web Sources

1. https://nptel.ac.in/courses/106/105/106105151/
2. https://nptel.ac.in/noc/courses/noc19/SEM2/noc19-cs42/
3. https://beginnersbook.com/2015/02/simple-c-programs
4. https://www.tutorialspoint.com/cprogramming/index.htm

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - I
CORE COURSE - II: PRACTICAL: C PROGRAMMING (21UCAC1P)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 5 **INT. MARKS : 50**
CREDITS : 4 **EXT. MARKS : 50**
DURATION : 75 hrs **MAX. MARKS: 100**

Preamble

This course introduces the learners to identify, formulate and solve real world problems that require usage of algorithms in C.

Course Outcomes (CO)

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

CO1[K2]: illustrate the programs for the designed algorithm with simple problems and control structures
CO2[K3]: develop C programs through arrays, pointers and string
CO3[K4]: classify user defined function and structures
CO4[K4]: examine the file handling functions
CO5[K5]: evaluate the graphics program using C

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K2]	2	1	1	1	-	-	-
CO2[K3]	2	2	2	1	-	1	-
CO3[K4]	3	2	1	2	-	2	1
CO4[K4]	3	2	2	2	1	-	-
CO5[K5]	2	2	1	3	2	1	1
Weightage of the course	12	09	07	09	03	04	02
Weighted percentage of Course contribution to POs	**2.4**	**2.17**	**2.73**	**2.79**	**1.86**	**2.12**	**1.26**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

1. Perform Arithmetic Operations.
2. Simple Interest Calculation.
3. Temperature Conversions.
4. Decimal to Binary & Binary to Decimal Conversion.
5. Quadratic Equations.
6. Positive or Negative Number Checking.
7. Biggest of Three Numbers.
8. Vowels Checking.
9. Fibonacci Series Generations.
10. Adam Number Checking
11. Palindrome Number Checking.
12. Sum of Digits.
13. Prime Number Checking.
14. Implementation of Linear Search.
15. Implementation of Bubble sort.
16. Matrix Manipulation.
17. Sum of N Numbers Using Functions.
18. String Manipulations.
19. Factorial Using Recursion.
20. Create and Calculate Pay Bill Using Structure.
21. Call by Value and Call by Reference.
22. Student Mark List Using File.
23. Sort the Numbers Using Pointer.
24. Design a Home Using Graphics Functions.

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF MATHEMATICS
UG Programme – B.Sc. (COMPUTER SCIENCE/INFORMATION TECHNOLOGY)/BCA
SEMESTER- I
ALLIED COURSE-I: MATHEMATICAL FOUNDATIONS
(21UCSA11/21UITA11/21UCAA11)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 4 **INT. MARKS : 40**
CREDITS : 4 **EXT.MARKS : 60**
DURATION : 60 hrs **MAX. MARKS: 100**

Preamble

This course introduces the learners to some concepts and notations that are useful in studying and describing objects and problems in branches of Computer Science and applications.

Course Outcomes (CO)

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

CO1[K1]: define the discrete objects in the context of mathematical structures for computer science and applications
CO2[K2]: recognize the properties of set operations and types of functions
CO3[K3]: calculate the rank, inverse matrix of a matrix
CO4[K4]: analyze the truth values of statements with reference to propositional logic
CO5[K5]: determine the appropriate algorithm to solve graph optimization problems

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	2	-	-	-	-	-
CO2[K2]	2	2	1	1	-	-	-
CO3[K3]	2	3	2	1	-	1	1
CO4[K4]	2	3	2	1	-	1	1
CO5[K5]	2	3	2	1	-	1	1
Weightage of the course	11	13	07	04	-	03	03
Weighted percentage of Course contribution to POs	2.2	3.14	2.73	1.24	0	1.59	1.89

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low, '-' No Correlation)

UNIT I **(12 hrs)**

Set Theory: Introduction – Sets – Notation and Description of Sets – Subsets – Venn-Euler Diagram – Operations on Sets – Properties of Set Operations. **Relations:** Cartesian Product of Two Sets – Relations – Representation of a Relation – Operations on Relations – Equivalence Relations. **Functions:** Functions and Operators – One-to-one, Onto Functions – Special Types of Functions – Invertible Functions.

UNIT II **(12 hrs)**

Matrix Algebra: Introduction – Matrix Operations – The Inverse of a Square Matrix–Elementary Operations and Rank of a Matrix.

UNIT III **(12 hrs)**

Logic: Introduction – TF - Statements – Connectives – Atomic and Compound Statements – Well-Formed (Statement) Formulae – The Truth Table of a Formula – Tautology – Tautological Implications and Equivalence of Formulae – Replacement Process.

UNIT IV **(12 hrs)**

Graphs : Graph – Finite and Infinite Graphs – Directed and Undirected Graphs – Basic Terminologies – Matrix Representation of Graphs – Subgraph – Walks – Closed Walk – Open Walk – Path – Length of the Path – Circuit or Cycle or Elementary Cycle, Circular Path – Connected – Eulerian Graphs – Operations of Graphs – Hamiltonian Graph – Complete Undirected Graph – Weighted Graph – Graph Optimisation Problems.

UNIT V **(12 hrs)**

Trees : Acyclic Graph – Tree – Forest – Some Properties of Trees – Pendant Vertices in a Tree – Distance in a Tree – Eccentricity of a Vertex – Center of a Tree – Rooted Tree – Subtree – Binary Trees – Properties of Binary Trees – Counting Trees – Spanning Trees – Weighted Graph – Minimum Spanning Tree.

TEXTBOOKS

1. M.K.Venkataraman, N.Sridharan and N.Chandrasekaran. *Discrete Mathematics.* Chennai: The National Publishing Company, 2011. **(UNITS I, II & III)**
2. P. Geetha. *Graph Theory.* Chennai: Scitech Publications (India) Pvt. Ltd, 2009. **(UNITS IV & V)**

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Books

1. G.Shanker Rao. *Discrete Mathematical Structures.* New Delhi: New Age International (P) Limited Publishers, 2002.
2. N.G.Goudru. *Discrete Mathematical Structures.* Mumbai: Himalaya Publishing House, 2003.
3. B.S.Vatsa and Suchi Vatsa. *Discrete Mathematics.* New Delhi: New Age International (P) Limited Publishers, Fourth Revised Edition, 2012.

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1. https://byjus.com/maths/tautology/
2. https://courses.lumenlearning.com/math4libarts/chapter/cardinality/
3. https://www.whitman.edu/mathematics/higher_math_online/section04.01.html
4. https://www.google.co.in/books/edition/Discrete_Mathematics/guhzzPyUxggC?hl=en&gbpv=1&dq=discrete+mathematics+with+graph+theory&printsec=frontcover
5. https://www.google.co.in/books/edition/DISCRETE_MATHEMATICS_AND_GRAPH_THEORY/1ZBeBAAAQBAJ?hl=en&gbpv=1&dq=discrete+mathematics+with+graph+theory&printsec=frontcover
6. https://www.youtube.com/watch?v=hbk01uhgsos

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI

UG PROGRAMME

SEMESTER- I

ABILITY ENHANCEMENT COMPULSORY COURSE-I: ENVIRONMENTAL STUDIES (21UESR11)

(From 2021 - 2022 Batch onwards)

HOURS/WEEK : 2 **INT. MARKS: 40**

CREDIT : 1 **EXT. MARKS: 60**

DURATION : 30 hrs **MAX. MARKS :100**

Preamble

This course familiarizes the learners with the essentials of Environmental Studies by focusing on variety of environmental issues and factors affecting environment.

Course Outcomes (CO)

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

CO1[K1]: recognize the importance of environment and role of Individuals in its protection.

CO2[K2]: explain the key concepts of Ecosystem, Food Web and Bio geochemical.

CO3[K3]: apply the right measures for the sustainable use of natural resources.

CO4[K4]: analyse the ethical, cross-cultural, and historical context of environmental issues and the links between Human and Natural Systems.

CO5[K4]: examine the impact of human action on the biological environment

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1 [K1]	2	1	-	2	2	1	1
CO2 [K2]	2	1	-	2	1	1	1
CO3 [K3]	2	1	-	1	1	1	1
CO4 [K4]	1	1	1	1	2	1	1
CO5 [K4]	1	1	-	1	2	1	1
Weightage of the course	08	5	1	7	08	05	05
Weighted percentage of Course contribution to Pos	1.6	1.21	0.39	2.17	4.97	2.65	3.14

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(6 hrs)**

Structure of earth and its components: Atmosphere – Lithosphere – Hydrosphere – Biosphere. Renewable and non-renewable resources – Forest, water and energy resources.

UNIT II **(6 hrs)**

Ecosystem: Concept of ecosystem – Terrestrial and aquatic. Structure and function – Energy flow in the ecosystem – Food chain and food web – Ecological pyramids – Bio-geo chemical cycle – carbon and nitrogen cycle.

UNIT III **(6 hrs)**

Biodiversity: Introduction – Definition: genetic, species and ecosystem diversity. Indian Biodiversity Hotspots. Threats to biodiversity – Conservation of Biodiversity – In-situ and Ex-situ conservation strategies. IUCN Red list Categories.

UNIT IV **(6 hrs)**

Pollution: Definition – causes – effects and control measures of Air – Water – Noise – soil – nuclear pollution. Global issues – Global warming – acid rain – Ozone layer depletion. Water conservation – rain water harvesting and water recycling – solid waste management.

UNIT V **(6 hrs)**

Human Population and Environment: Population growth, variation among nations. Road safety awareness. Environment and human health. Human Rights. HIV/AIDS. Women and Child Welfare. Role of Information Technology in Environment and human health. Contribution of students and teachers in adoption of villages and steps to be taken for green villages.

TEXTBOOKS

1. Dharmaraj,J. *Text book of Environmental studies*, S. Chand and Co. New Delhi, 1995.
2. Susila Appadurai. *Environmental Studies*, New Century Book House, 2012.

REFERENCES

Books

1. Agarwal, K.C.*Environmental Biology*, Nidi publication Ltd, Bikaner, 2001.
2. Odum, E.P. *Fundamentals of Ecology*, W.B. Saunders Co. USA, 1971.
3. Miller, T.G. *Environmental sciences*, Wadsworth Publishing Co, New Delhi. 2004.

Web Sources

1. https://www.adcidl.com/pdf/India-Road, Traffic-Signs.pdf.
2. https://www.youtube.com/watch?v=QewEi2U1jLs
3. https://byjus.com/biology/endemic-species/

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - I
SKILL ENHANCEMENT COURSE – I: PRACTICAL: OFFICE AUTOMATION
(21UCAS1P)
(For those who joined from June 2021 and later)

HOURS/WEEK: 2 **INT. MARKS: 50**
CREDIT : 1 **EXT. MARKS: 50**
DURATION : 30 hrs **MAX. MARKS: 100**

Preamble

This course enables the learners in creating professional word documents excel spread sheets, power point presentations using the office tools.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K1]: identify the formatting tools in word, excel and impress
CO2[K2]: demonstrate a problem in an excel sheet by using math functions
CO3[K3]: organize chart tools to present a table data
CO4[K4]: examine a presentation using slideshow
CO5[K4]: simplify all the tools to create an advertisement

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	2	1	1	-	-	-
CO2[K2]	2	2	2	1	-	-	-
CO3[K3]	3	1	2	2	1	1	-
CO4[K4]	1	2	-	1	1	1	1
CO5[K4]	2	1	1	-	1	1	1
Weightage of the course	10	08	06	05	03	03	02
Weighted percentage of Course contribution to POs	**2**	**1.93**	**2.34**	**1.55**	**1.86**	**1.59**	**1.26**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

WRITER

1. Preparing a Leave Letter.
2. Resume Preparation.
3. Formatting feature of Document.
4. Create the Time Table.
5. Mail merging feature of writer.

CALC

6. Presentation of data using charts.
7. Perform Student's Mark statement.
8. Employee Details using Formulas.
9. Usage of Functions in Excel.

IMPRESS

10. Slide show presentation for your Bio data.
11. Displaying College details.
12. Displaying Advertisement Presentation.

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF TAMIL
UG Programme - B.A/B.SC/BCA
SEMESTER - II
பொதுத்தமிழ் - II (21UTAL21)
(From 2021-2022 Batch onwards)

HOURS / WEEK: 6 **INT. MARKS : 40**
CREDITS : 3 **EXT. MARKS : 60**
DURATION : 90 hrs **MAX. MARKS: 100**

நோக்கம்

சமய இலக்கியம் தோன்றியதற்கானகாலப்பின்னணிமற்றும் சமயம் சார்ந்த இலக்கியங்களைமாணவர்களுக்குஅறிவுறுத்தலும்,பல்வேறுகாலகட்டசிறுகதை இலக்கியங்களைஎடுத்துரைக்கும் நோக்கோடுஅமைக்கப்பட்டுள்ளது.

கற்றலின் பயன்கள்

இத்தாளை வெற்றிகரமாக முடித்தவுடன் மாணவர்கள்,

CO1[K1]: பல்வேறுசமயம் சார்ந்த இலக்கியவரலாற்றினைஅறிவர்.
CO2[K2]:இறைஉருவங்களையும் புராணக்கருத்துக்களையும் கூறுவர்.
CO3[K3]:சமயப்பாடல்களின் அமைப்பினையும் நோக்கத்தினையும் தெளிவாக விளக்குவர்.
CO4[K4]:தமிழ்ச் சிறுகதைகளின் பொருண்மைகளைப்பாகுபடுத்துவர்.
CO5[K4]:சொல்லிலக்கணத்தைப் புரிந்துகொண்டுபிழையின்றிஎழுதும் திறனைப் பெறுவர்.

CO-PO Mapping Table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	1	-	1	-	-	-
CO2[K2]	2	1	-	1	1	-	-
CO3[K3]	2	2	-	2	-	1	-
CO4[K4]	2	2	1	2	1	-	1
CO5[K4]	2	2	1	2	-	1	1
Weightage of the Course	10	8	2	8	2	2	2
Weighted percentage of Course Contribution to POs	2	1.93	0.78	2.48	1.24	1.06	1.26

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

கூறுI **(18hrs)**

சைவ இலக்கியவரலாறு - **திருஞானசம்பந்தர்**: முதல் திருமுறை- திருப்பிரமபுரம் - தோடுடையசெவியன் (10 பாடல்கள்). **திருநாவுக்கரசர்:**நான்காம் திருமுறை - திருவதிகைவீரட்டானம் - கூற்றாயினவாறுவிலக்ககலீர் (10 பாடல்கள்).**சுந்தரர்:**ஏழாம் திருமுறை - திருவெண்ணெய்நல்லூர் பதிகம் - பித்தாபிறைசூடி (10 பாடல்கள்). **மாணிக்கவாசகர்:**குயிற்பத்து (10 பாடல்கள்).

கூறு II **(18hrs)**

வைணவ இலக்கியவரலாறு - **ஆண்டாள்**: திருப்பாவைமுழுவதும் (30 பாடல்கள்) - **நம்மாழ்வார்**: நான்காம் திருமொழி - நான்காம் பத்து - மண்ணையிருந்துதுழாவி.

கூறுIII **(18hrs)**

கிறிஸ்தவ, இஸ்லாமிய இலக்கியவரலாறு - **கண்ணதாசன்:**இயேசுகாவியம் - மலைப்பொழிவு (முழுவதும்) - **குணங்குடியார்:**நந்தீஸ்வரக்கண்ணி (51 பாடல்கள்).

கூறுIV **(18hrs)**

சிறுகதைதோற்றம் வளர்ச்சி (தேர்ந்தெடுக்கப்பட்ட 10 சிறுகதைகள்) - **புதுமைப்பித்தன்:** அகல்யை.. பி.எஸ். ராமையா: நட்ஷத்திரக் குழந்தைகள் **த.ஜெயகாந்தன்:**அக்ரஹாரத்துப் பூனை .**வண்ணதாசன்**: ஒரு சிறு இசை. **வண்ணநிலவன்:** கரையும் உருவங்கள்.. **கு.அழகிரிசாமி**: அன்பளிப்பு. **விஞ்ஞானி**: முன்னை இட்டதீ. **ஆதவன்:** கறுப்பு அம்பாகதை. **மேலாண்மை பொன்னுச்சாமி**: அன்பெழுத்து. **நாஞ்சில் நாடன்**: சூடியபூ சூடற்க

கூறுV **(18hrs)**

இலக்கணம்: சொல்விளக்கம்,சொற்பாகுபாடு (பெயர்ச்சொல்,வினைச்சொல், இடைச்சொல்,உரிச்சொல்) - அறுவகைவினா - எண்வகைவிடை - மொழிப்பயிற்சி: மயங்கொலிப்பிழைகள் (லகர,ளகர,ழகரவேறுபாடு,ரகர,றகரவேறுபாடு - ணகர, னகரவேறுபாடு).

பாடநூல்கள்

1. *தொகுப்புநூல்,*தமிழியல்துறை ,ஸ்ரீ காளீஸ்வரிகல்லூரி (தன்னாட்சி),சிவகாசி.
2. வாசுதேவன்,கா.*பன்முகநோக்கில் தமிழ் இலக்கிய வரலாறு,* தேவன் பதிப்பகம்,திருச்சிராப்பள்ளி,பன்னிரெண்டாம் பதிப்பு: 2017.

பார்வை நூல்கள்

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SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF ENGLISH
UG Programme - B.A./B.Com./ B.B.A./B.SC./BCA
SEMESTER- II
COMMUNICATIVE ENGLISH - II (21UENL21)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 6 **INT. MARKS : 40**
CREDITS : 3 **EXT. MARKS : 60**
DURATION : 90 hrs **MAX. MARKS: 100**

Preamble

This course helps the learners to develop their communication skills in English through listening, reading, speaking and writing practices.

Course Outcomes (CO)

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

CO1[K1]: relate and state ideas by reading and listening to recorded interviews and news

CO2[K2]: demonstrate effective speaking skills by offering suggestions, seeking permission and reporting ongoing activities

CO3[K3]: apply knowledge of word power and grammar rules through proverb expansion and paragraph writings

CO4[K4]: analyze simple poems and short stories to develop language skills through literature

CO5[K6]: construct grammatically correct and logically coherent paragraphs

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1 [K1]	2	1	-	1	-	-	-
CO2 [K2]	2	2	-	1	1	-	1
CO3 [K3]	2	2	-	2	-	1	-
CO4 [K4]	2	2	1	2	1	-	1
CO5 [K6]	2	1	1	2	-	1	1
Weightage of the course	10	08	02	08	02	02	03
Weighted percentage of Course contribution to POs	2	1.93	0.78	2.48	1.24	1.06	1.89

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I - LISTENING AND SPEAKING **(18 hrs)**

A. Listening

Listening to interviews

Listening to news reading

Listening to instructions-download apps in mobile handsets, cooking, sending e-mail

B. Speaking

Inviting person, offering suggestion and seeking permission

Making complaints and asking apology

Expressing likes, dislikes, hopes, wishes, regrets, sympathy, offering condolences, compliments and praising

Reporting conversations, facts, meetings/interviews, ongoing activities and future plans

Talking about the weather, past &future events, interesting plans and arrangements

UNIT II - READING AND WRITING **(18 hrs)**

A. Reading

Reading advertisements

Reading notices

Reading short passages

B. Writing

Proverb Expansion

Paragraph Writing

Essay writing

UNIT III - WORD POWER **(18 hrs)**

Synonyms & Antonyms

Misspelt words

Words related to- House, Clothing, Food, Education, Speaking, Holidays and Sports

UNIT IV - GRAMMAR **(18 hrs)**

Preposition and its kinds

Conjunction and its kinds

Articles

Tenses

UNIT V - LANGUAGE THROUGH LITERATURE **(18 hrs)**

A. Poetry

Sarojini Naidu	-	The Queen's Rival
John Masefield	-	Laugh and be Merry
Alfred Noyes	-	The Highwayman

B. Short Story

Somerset Maugham	-	The Ant and the Grasshopper
Katherine Mansfield	-	A Cup of Tea

TEXTBOOKS

1. Carthy Mc., and Felicity O'Dell. *English Vocabulary in Use (Upper intermediate)*. UK: Cambridge University Press, 2005.
2. Pillai, Radhakrishna and K.Rajeevan. *Spoken English for You (Level One)*. Chennai: Emerald Publishers, 2009.
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1. *Life Skills (Jeevan Kaushal) Facilitators' Guidelines*. New Delhi: University Grants Commission, 2021.
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5. Taylor, Grant. *English Conversation Practice*. New Delhi: Tata McGraw Hill Publishers, 2001.
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2. https://lincolnprep.wildapricot.org/resources/Reading%20Selections%20for%20Reading%20Competion/The%20Highwayman.pdf
3. https://learnenglish.britishcouncil.org/general-english/stories
4. https://www.talkenglish.com/lessonindex.aspx
5. https://www.englishhelper.com/
6. https://www.englishpage.com/

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - II
Core Course - III: OBJECT ORIENTED PROGRAMMING WITH C++ (21UCAC21)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 5 **INT. MARKS : 40**
CREDITS : 5 **EXT. MARKS : 60**
DURATION : 75 hrs **MAX. MARKS: 100**

Preamble

This course introduces the learners to write C++ programs to solve computational problems in their professional life.

Course Outcomes (CO)

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

CO1[K1]: identify the principles of Object-oriented programming, C++, tokens and control structures

CO2[K2]: demonstrate classes and objects using C++

CO3[K3]: compute the concept of inheritance, overloading and constructor

CO4[K4]: simplify the use of OOP's concept to write a C++ program

CO5[K4]: examine the importance of virtual functions, Polymorphism, Exception handling

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	3	1	1	1	1	-
CO2[K2]	3	2	1	2	1	1	-
CO3[K3]	2	3	2	2	-	-	-
CO4[K4]	2	2	2	1	2	1	-
CO5[K4]	2	1	2	-	2	1	1
Weightage of the course	12	11	08	06	06	04	01
Weighted percentage of Course contribution to POs	**2.4**	**2.66**	**3.13**	**1.86**	**3.73**	**2.12**	**0.63**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(15 hrs)**

Principles of Object Oriented Programming: A Look at Procedure Oriented Programming - Benefits of OOPs - Applications of OOP. **Beginning with C++:** A Simple C++ Program - Creating the Source file - Compiling & Linking. **Tokens, Expressions & Control Structures:** Tokens – Control Structures.

UNIT II **(15 hrs)**

Functions in C++: The Main Function-Function Overloading - **Classes and Objects:** Specifying a Class - Returning Object. **Constructors and Destructors:** Constructors - Destructors.

UNIT III **(15 hrs)**

Operator Overloading & Type Conversions: Introduction - Rules for Overloading Operators. **Inheritance Extending Classes**: Introduction - Constructors in Derived Classes – Member Classes - Nesting of Classes.

UNIT IV **(15 hrs)**

Pointers, Virtual Functions and Polymorphism: Introduction - Pointers- Pointer to Objects – "this" Pointer – Pointers to Derived Classes – Virtual Functions - Pure Virtual Functions. **Managing Console I/O Operations:** C++ Streams – C++ Stream Classes – Unformatted I/O Operations - Formatted Console I/O Operations.

UNIT V **(15 hrs)**

Working with files: Introduction - Command Line Arguments. **Templates**: Class Templates - Class Templates with Multiple Parameters - Function Templates - Function Templates with Multiple Parameters**. Exception Handling:** Introduction - Basics of Exception Handling - Exception Handling Mechanism - Throwing Mechanism - Catching Mechanism - Re-throwing Exception - Specifying Exception.

TEXTBOOK

1. E.Balagurusamy. *Object Oriented Programming with C++.* Tata McGraw Hill Publishing Company Limited, 6th Edition.

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1. Herbert Schildt. *C++ The Complete Reference.* Tata McGraw-Hill Publishing Company Limited, 3rd edition, 1999.
2. D.Ravichandran. *Programming with C++.* Tata McGraw – Hill Publishing Company Limited.
3. Stanley B. Lippman, Josee Lajoie, and Barbara E. Moo. *C++ Primer.* Addison - Wesley Professional.

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3. https://www.tutorialspoint.com/cplusplus/index.html
4. https://www.javatpoint.com/cpp-tutorial
5. https://www.cplusplus.com/doc/tutorial/

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - II
CORE COURSE - IV: PRACTICAL: OBJECT ORIENTED PROGRAMMING WITH C++ (21UCAC2P)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 5 **INT. MARKS : 50**
CREDITS : 4 **EXT. MARKS : 50**
DURATION : 75 hrs **MAX. MARKS:100**

Preamble

This course introduces the learners to identify, formulate and solve real world problems using object oriented programming concepts in C++.

Course Outcomes (CO)

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

CO1[K2]: illustrate the programs for the designed algorithm with simple problems using classes and objects
CO2[K3]: perform C programs through array of objects, functions and constructors
CO3[K3]: utilize object oriented programming concepts to write a C++ program
CO4[K4]: inspect on file concepts
CO5[K6]: construct a C++ program using exception handling

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K2]	2	3	1	1	-	-	-
CO2[K3]	2	2	2	1	-	1	-
CO3[K3]	3	3	3	1	-	1	-
CO4[K4]	3	2	3	2	1	-	1
CO5[K6]	2	1	1	3	2	1	1
Weightage of the course	12	11	10	08	03	03	02
Weighted percentage of Course contribution to POs	**2.4**	**2.66**	**3.91**	**2.48**	**1.86**	**1.59**	**1.26**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

CLASSES AND OBJECTS

1. Arithmetic Operations.
2. Count the occurrence of Positive, Negative and Zero.
3. Palindrome Number Checking.
4. Matrix Addition and Subtraction.
5. Sum of digits.
6. Sorting an array element.
7. Fibonacci Series and Factorial Calculation.

ARRAY OF OBJECTS

8. Students Mark List Preparation.

FUNCTIONS & CONSTRUCTORS

9. Find the biggest of three numbers using Inline Function.
10. Book details using Friend Function.
11. Swapping of two numbers using call by value and call by reference.
12. Library details using Constructor & Destructor.

OVERLOADING

13. Area of Shapes using Function Overloading.
14. Volume Calculation using Constructor Overloading.
15. Unary Operator Overloading.
16. Binary Operator Overloading.

INHERITANCE

17. Staff Details using Single Inheritance.
18. Employee Payroll Calculation using Multilevel Inheritance.
19. Bank Transaction using Multiple Inheritance.
20. Electricity Bill Calculation using Hierarchical Inheritance.

FILE OPERATION

21. Merging and extracting details from employee file.

TEMPLATES

22. Biggest among three numbers using Class Template.
23. Swapping of two numbers using Function Template.

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF MATHEMATICS
UG Programme - B.Sc. (COMPUTER SCIENCE/INFORMATION TECHNOLOGY)/BCA
SEMESTER - II
ALLIED COURSE - II: OPERATIONS RESEARCH
(21UCSA21/21UITA21/21UCAA21)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 4 **INT. MARKS : 40**
CREDITS : 4 **EXT. MARKS : 60**
DURATION : 60 hrs **MAX. MARKS: 100**

Preamble

This course introduces the learners to the importance of Operations Research and some techniques to arrive at optimal solutions to complex decision-making problems.

Course Outcomes (CO)

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

CO1[K1]: state the scope, phases of operations Research and the classification of optimization models

CO2[K2]: explain the computational algorithms for various optimization methods

CO3[K3]: compute optimum solution of the linear programming, transportation, and assignment problems

CO4[K4]: examine the solutions of the optimization problems

CO5[K6]: formulate the mathematical expression of the linear programming model from the study of the situation and derive solutions to the problem

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	1	1	-	-	-	-	-
CO2[K2]	2	3	1	1	-	-	-
CO3[K3]	2	3	2	1	-	1	1
CO4[K4]	2	3	2	1	-	1	1
CO5[K6]	2	3	2	1	-	2	2
Weightage of the course	09	13	07	04	-	04	04
Weighted percentage of Course contribution to POs	1.8	3.14	2.73	1.24	0	2.12	2.52

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low, '-' No Correlation)

UNIT I **(12 hrs)**

Origin and Development of OR: Introduction – Definitions – Scope of Operations Research – Phases of OR – Models in Operations Research – Advantages of a Model – Classification of Models. **Linear Programming:** Introduction –Formulation of LP Problems.

UNIT II **(12 hrs)**

Graphical Method: Procedure of Solving LPP by Graphical Method – General Formulation of LPP – Matrix Form of LPP – Some Important Definitions – Canonical or Standard Forms of LPP. **Simplex Method:** Introduction – Definition – Simplex Algorithm.

UNIT III **(12 hrs)**

Artificial Variables Technique: Introduction – The Big M Method – Two phase Simplex Method – Degeneracy – Unbounded Solution.

UNIT IV **(12 hrs)**

Transportation Problem: Introduction –Mathematical Formulation – Definitions – Optimal Solution – Optimality Test.

UNIT V **(12 hrs)**

Assignment Problem: Introduction – Definition – Hungarian Method Procedure – Unbalanced Assignment Problem–Maximisation in Assignment Problem.

TEXTBOOK

1. S.Kalavathy. *Operations Research.* NewDelhi: Vikas Publishing House Pvt Ltd, Second Edition, 2007.

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1. S.Arumugam and A.Thangapandi Isaac. *Operations Researchs Volume (Linear Programming).* Palayamkottai: New Gamma Publishing House, 2003.
2. S.D.Sharma. *Operations Research.* Meerut: Kedar Nath Ram Nath & Co, 2000.
3. R.Panneerselvam. *Operations Research.* New Delhi:Prentice Hall of India Private Limited, Second Edition, 2006.

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SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
UG PROGRAMME
SEMESTER –II
ABILITY ENHANCEMENT COMPULSORY COURSE: II -VALUE EDUCATION
(21UVED21)
(From 2021 - 2022 Batch onwards)

HOURS/WEEK: 1 **INT. MARKS : 40**
CREDIT : 1 **EXT. MARKS : 60**
DURATION : 15 hrs **MAX. MARKS: 100**

Preamble

This course aims to promote the values of peace, non-violence, religious tolerance and secular thinking among the learners and equip the learners for a harmonious living in the multi-cultural pluralistic society.

Course Outcomes (CO)

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

CO1[K1]: identify the basic human values and ethics necessary for harmonious Human relationship

CO2[K2]: explain the significance of social values and religious tolerance to live in Peace

CO3[K3]: articulate the life-changing principles of brotherhood, honesty, loyalty and community solidarity

CO4[K4]: analyse emotional, social, spiritual attribute to acquire well balanced Personality

CO5[K4]: examine the importance of harmonious living in the multi-cultural Pluralistic society.

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1 [K1]	2	1	-	1	1	-	2
CO2 [K2]	2	1	-	1	2	1	2
CO3 [K3]	2	1	-	1	2	1	1
CO4 [K4]	1	1	1	1	2	1	1
CO5 [K4]	1	1	-	1	2	1	1
Weightage of the course	08	05	01	05	09	04	07
Weighted percentage of Course contribution to POs	1.6	1.21	0.39	1.55	5.59	2.12	4.4

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I – VALUES AND INDIVIDUAL (3 hrs)

Meaning of values – classification of values – Need for value education – Personal values like adaptability, courage, cheerfulness, dignity of labour and self control – Self discipline - Self Confidence - Self initiative - Social values like sacrifice, forgiveness, Honesty, good manners, tolerance, friendship, hospitality, cooperation and civic sense – Moral values like purity, dedication, punctuality, loyalty, truthfulness and sense of duty.

UNIT II – VALUES AND SOCIETY (3 hrs)

Definition of society – democracy – secularism – socialism – Human rights – social integration – Social Justice – Role models: Akbar, Balagangadhar Tilak, Abdul Kalam, Mother Teresa.

UNIT III – VALUES AND RELIGIONS (3 hrs)

Values in Hinduism, Christianity, Islam and Buddhism – Need for religious harmony inter faith dialogue – Role Models: Vivekananda, Narayana Guru, Aravindar, Tagore, Vallalar Ramalingar, Gandhi.

UNIT IV – VALUES AND NATIONAL INTEGRATION (3 hrs)

Secularism and National Integration – Message from the life of Gandhiji, Nehru, Bharathi, Subash Chandra Bose, Sarojini Naidu etc.

UNIT V – VALUES AND SCIENCE (3 hrs)

Indian Gurus – Indian Scientists – Indian Universities – Indian Mathematicians and World Scientists – Science and Religion – Science, Technology development and values – Science and Human values.

TEXTBOOK

1. Pitchaikani Prabhaharan, A. Babu Franklin, M.Archanadevi, *Value education*, Sri Kaliswari college (Autonomous), Sivakasi, 2017.

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1. Subramanyam, K. *Values in Education*, Ramana Publications, 1995
2. Swamy Chidbhavananda, *Indian National Education*, Publication by Ramakirshna Tapovanam.
3. அறிஞர் குழு (தொகுப்பு). *வாழ்வியல் விழுமியங்கள்*, உலக சமுதாய சேவா சங்கம், ஆழியாறு.

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SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - II
SKILL ENHANCEMENT COURSE – II: PRACTICAL: PREPRESS DESIGNING
(21UCAS2P)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 2 **INT. MARKS : 50**
CREDIT : 1 **EXT. MARKS : 50**
DURATION : 30 hrs **MAX. MARKS : 100**

Preamble

This course enables the learners to create logos, flexes, brochures, invitation cards and improve the photo improvements including collages, retouching, color correcting, removing unwanted parts of a photo.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K1]: list out all the tools for designing
CO2[K2]: trace the shapes and patterns
CO3[K3]: make use of the tools to create flowchart
CO4[K4]: compare the image editing tools to create the banner
CO5[K5]: choose the tools for applying color to the images

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	2	1	2	-	-	1
CO2[K2]	3	2	2	1	-	-	-
CO3[K3]	2	1	1	2	1	1	1
CO4[K4]	2	2	2	1	-	1	-
CO5[K5]	2	1	-	-	1	1	-
Weightage of the Course(w)	12	08	06	06	02	03	02
Weighted percentage of Course Contribution to Pos	**2.4**	**1.93**	**2.34**	**1.86**	**1.24**	**1.59**	**1.26**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

1. Draw Any 4 Shapes.
2. Draw Any 4 Shapes by Using Nodes.
3. Design Any Pattern.
4. Design Advertisement Using Fit Text To Path.
5. Draw a Flow Chart.
6. Design Your Personal Visiting Card.
7. Draw Our College Logo.
8. Design an Invitation.
9. Banner Designing.
10. Photo Editing.
11. Scenery Creation.
12. Coloring the Image.
13. Collaging the Image.

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
UG PROGRAMME
SEMESTER – II
DISASTER MANAGEMENT (21UDMG21)
(From 2021-2022 Batch onwards)

HOURS/WEEK	**: 1**		**INT. MARKS**	**:**	**40**
CREDIT	**: 1**		**EXT. MARKS**	**:**	**60**
DURATION	**: 15 hrs**		**MAX. MARKS**	**:**	**100**

Preamble

This course introduces the learners to know the causes and impact of disasters and the agencies for disaster management in India.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K1]: outline the causes and impact of disasters.
CO2[K2]: explain the features of national policy on disaster management.
CO3[K3]:present the issues in rehabilitation.
CO4[K4]:classify the mitigation measures.
CO5[K5]:assess the role of the agencies for disaster management.

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	1	1	1	-	2	2
CO2[K2]	2	1	-	1	-	-	1
CO3[K3]	1	2	1	1	-	-	2
CO4[K4]	1	2	-	1	1	2	2
CO5[K5]	1	2	-	1	1	-	1
Weightage of the course	07	08	02	05	02	04	08
Weighted percentage of Course contribution to POs	1.4	1.93	0.78	1.55	1.24	2.12	5.03

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(3 hrs)**

Introduction – Disaster – Hazards – Causes and Impact of Disasters – Levels ofDisaster – Casual Factors of Disaster – Phases of a Disaster.

UNIT II **(3 hrs)**

Disaster Mitigation – Risk Reduction Measures – Mitigation Actions – DisasterManagement Cycle – Classification of Mitigation Measures.

UNIT III **(3 hrs)**

Disaster Preparedness and Planning – Objectives – Strategies – Elements of DisasterPreparedness – Principles of Disaster Planning.

UNIT IV **(3 hrs)**

Disaster Rehabilitation – Issues in Rehabilitation – Objectives – Approaches –Elements of a Rehabilitation Programme.

UNIT V **(3 hrs)**

Framework Disaster Management in India – Features of National Policy on DisasterManagement – Primary and Secondary Relief Functions of Central Government – DisasterManagement Act 2005 – Agencies for Disaster Management: India Red Cross Society,NIDM – Bharat Scouts and Guides, India Paramilitary Forces.

TEXTBOOK

1. Satish Modh. *Introduction to Disaster Management*. New Delhi: Macmillan Publishers India Limited, 1st Edition, 2015.

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1. Balamurugan P K and Ajith Kumar S. *Disaster Management*. Chennai: New Century Book House Private Limited, 1st Edition, 2020.
2. Dasgupta R.*Disaster Management and Rehabilitation.* New Delhi: Mittal Publications, 1st Edition, 2010.
3. NarayananB.*Disaster Management*. NewDelhi: A.P.H. Publishing Corporation,1st Edition, 2009.

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2. https://nidm.gov.in/

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF TAMIL
UG Programme - B.A/B.Sc/BCA
SEMESTER - III
பொதுத்தமிழ் - III (21UTAL31)
(From 2021-2022 Batch onwards)

HOURS / WEEK : 6 **INT. MARKS : 40**
CREDITS : 3 **EXT. MARKS : 60**
DURATION : 90 hrs **MAX. MARKS: 100**

நோக்கம்

காப்பியம்,சிற்றிலக்கியம்,உரைநடை உள்ளிட்ட இலக்கிய வகைகளை அறிமுகம் செய்து, அவற்றைச் சமூக,சமயச் சூழலில் விளங்க வைத்து,யாப்பு, அணி உள்ளிட்ட மொழிக் கட்டமைப்புகளை உணர்த்தி,உரைநடை மூலம் படைப்பாளராகும் தகுதியைப் பெறவைத்து, பல்வேறு நிகழ்வுகளில் நடைபெறும் போட்டிகளில் பங்கேற்கச் செய்யும் வகையில் இத்தாள் வடிவமைக்கப்பட்டுள்ளது.

கற்றலின் பயன்கள்

இத்தாளைவெற்றிகரமாகமுடித்தவுடன் மாணவர்கள்,

CO1[K1]:காப்பியங்களில் கூறப்பட்டுள்ளவாழ்வியல் நெறிகளாகிய அறம்,பொருள், இன்பம், வீடு ஆகியவற்றைப் பற்றி அறிவர்.

CO2[K2]:செய்யுட்களில் இடம்பெறும் அணிநலன்களைக் காண்பர்.

CO3[K3]:யாப்பு மரபைக் கற்றுணர்ந்து கவிதையை இனம் காணும் ஆற்றலைப் பெறுவர்.

CO4[K4]:சிற்றிலக்கியங்கள் உணர்த்தும் சமூகத்தையும் விழுமியத்தையும் விவாதிக்கும் திறனைப் பெறுவர்.

CO5[K4]:சமயங்கள் உணர்த்தும் அறக்கருத்துக்களைப் பகுப்பாய்வுசெய்வர்.

CO-PO Mapping Table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	1	-	1	-	-	-
CO2[K2]	2	1	-	1	-	-	-
CO3[K3]	2	2	-	2	1	-	-
CO4[K4]	2	2	1	2	-	1	1
CO5[K4]	2	2	1	2	1	1	1
Weightage of the Course	10	8	2	8	2	2	2
Weighted percentage of Course Contribution to POs	2	1.93	0.78	2.48	1.24	1.06	1.26

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

கூறுI **(18 hrs)**

காப்பியம்I:காப்பிய இலக்கியவரலாறு,சிலப்பதிகாரம் - அடைக்கலக்காதை (முழுவதும்) - மணிமேகலை - பளிக்கறைபுக்ககாதை (முழுவதும்) - சீவகசிந்தாமணி - காந்தர்வதத்தையார் இலம்பகம் (தேர்ந்தெடுக்கப்பட்ட 15 பாடல்கள்) - சிலைத்தொழிற் (657),கருங்கொடிப் புருவம் (658),திருமலர்க் கமலத் (662),விடுகணைவிசையின் (701),கழித்தவேலேறு (715),தடங்கணாள் பணியினால் (716),சுரந்துவானம் (717),நீர்நின் றளகிற் (718),கல்சேர் பூண்கொள் (719), இருநிலமடந்தை (720),தீந்தொடைநரம்பின் (721),பணிவரும் (722),விண்ணவர் வியப்ப (729),பருந்தும் நிழலும் (730),பண்ணொன்றுபாட (735)

கூறு II **(18 hrs)**

காப்பியம் II:திருவிளையாடற்புராணம் - கடல் சுவறவேல்விட்டபடலம் முழுவதும் - (19 பாடல்கள்) - கம்பராமாயணம் - ஆரணியகாண்டம் - சவரிபிறப்புநீங்குபடலம் முழுவதும் (9 பாடல்கள்) - பாரதிதாசன் - சஞ்சீவிபர்வதத்தின் சாரல் (முழுவதும்)

கூறு III **(18 hrs)**

சிற்றிலக்கியம்:சிற்றிலக்கியவரலாறு, காரைக்காலம்மையார் - அற்புதத் திருவந்தாதி - (1-15 பாடல்கள்) - மீனாட்சியம்மை பிள்ளைத்தமிழ்-வருகைப்பருவம் (10 பாடல்கள்) - முக்கூடற்பள்ளு - குடிமை - பெருமை (12-22 பாடல்கள்)

கூறு IV **(18 hrs)**

உரைநடை:உரைநடையின் தோற்றமும் வளர்ச்சியும்,சொல்லின்செல்வன் - க.நஞ்சையன்,படிப்பதுஎப்படி? - ம.திருமலை,தொல்காப்பியத்தில் கோளியல் நெறி - ச.பாரிஜாதம்,பாவேந்தரின் சமுதாயப் பார்வை - பாக்கியமேரி, இசையும் இயல்பும் - கி.ஈஸ்வரி,கம்பராமாயணத்தில் உறவுகள் - பெ.மகேஸ்வரி

கூறு V **(18 hrs)**

யாப்பு:பாவின் பொதுவிலக்கணமும் வகைகளும்(வெண்பா - ஆசிரியப்பா - கலிப்பா - வஞ்சிப்பா) **அணிகள்:**உவமையணி - உருவகஅணி - பிறிதுமொழிதல் அணி - வேற்றுமையணி - தற்குறிப்பேற்றஅணி - சிலேடைஅணி

பாடநூல்

1. *தொகுப்பு நூல்*,தமிழியல்துறை,ஸ்ரீ காளீஸ்வரிகல்லூரி (தன்னாட்சி),சிவகாசி.

பார்வைநூல்கள்

1. சீனிவாசன், ரா. *சீவகசிந்தாமணி,* அணியகம், சென்னை, 2000.
2. தமிழண்ணல்.*புதியநோக்கில் தமிழ் இலக்கியவரலாறு*, மீனாட்சிபுத்தகநிலையம், மதுரை,2008.
3. ஜகந்நாதன். கி.வா. *தமிழ்க் காப்பியங்கள் (ஆராய்ச்சி),*அமுதநிலையம் லிமிடெட்,சென்னை, 1991.

வலைப்பதிவுகள்(Web Sources)

1. https://youtu.be/AY7R2D2GGQA
2. https://youtu.be/hmqTbZjrnu0
3. www.tamilvu.org/ta/courses-degree-c031-c0313-html-c03132I1-18030
4. https://ta.m.wikipedia.org/wiki/தமிழில்சிற்றிலக்கியங்கள்
5. https://youtu.be/Q7du9EglmBg

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF ENGLISH
UG Programme - B.A./B.SC./BCA
SEMESTER- III
COMMUNICATIVE ENGLISH - III (21UENL31)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 6 **INT. MARKS : 40**
CREDITS : 3 **EXT. MARKS : 60**
DURATION : 90 hrs **MAX. MARKS : 100**

Preamble

This course helps the learners to develop their communication skills in English through listening, speaking, reading and writing practices.

Course Outcomes (CO)

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

CO1[K1]: relate and state ideas by reading simple poems and listening to telephonic conversations

CO2[K2]: demonstrate effective speaking skills by making speech presentations, discussing television programmes and sports events

CO3[K3]: apply knowledge of word power and grammar rules through diary writing, dialogue writing and writing newspaper reports

CO4[K4]: analyze short fiction to develop language skills through literature

CO5[K6]: construct grammatically correct and logically coherent essays on global problems and environmental issues

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	1	-	2	-	-	-
CO2[K2]	2	2	-	2	1	1	-
CO3[K3]	2	2	1	2	1	1	-
CO4[K4]	2	2	1	2	-	-	1
CO5[K6]	2	1	1	1	1	1	1
Weightage of the course	10	08	03	09	03	03	02
Weighted percentage of Course contribution to POs	2	1.93	1.17	2.79	1.86	1.59	1.26

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I -LISTENING AND SPEAKING **(18 hrs)**

A. Listening

Listening to short speech

Listening to telephonic conversation

Listening to poetry

B. Speaking

Telephone etiquette in telephone conversation

Answering the Telephone and asking for someone

Making enquiries on the phone, Leaving messages

Presentation: Global Warming, Pollution, Women Empowerment, Communicable Diseases, System of Education, Economy, Industry, Government etc

Discussion: Television Programmes, Lessons, College facilities, Local facilities, Sports-watching or Playing, Types of food, Types of transport.

UNIT II - READING AND WRITING **(18 hrs)**

Reading: Comprehension Passages: Newspaper articles, Reports and Paraphrase Stories.

Writing: Diary Writing**,** Dialogue Writing**,** Report Writing: Newspaper Reports, Field visits, Meetings and Future Plans

UNIT III - WORD POWER **(18 hrs)**

Portmanteau words

Idioms & Phrases

Words related to- Work, Time, Distance and Dimension, Environment, The Natural World and Global Problems

UNIT IV - GRAMMAR **(18 hrs)**

Sentence-Subject and Predicate

Kinds of Sentences

Sentence Patterns

Question Words and Framing Questions

Question Tags

Degrees of Comparison

Voice

UNIT V - LANGUAGE THROUGH LITERATURE **(18 hrs)**

Abridged version of Fiction

Alexandre Dumas	- The Count of Monte Cristo
Charles Dickens	- Oliver Twist
R.M.Ballantyne	- The Coral Island

TEXTBOOKS

1. Dickens, Charles. *Oliver, Twist*. Chennai: Nesting Books Publishing and Distributors (p) Ltd, 2018.
2. Dumas, Alexandre. The *Count of Monte Cristo*. Chennai: Nesting Books Publishing and Distributors (p) Ltd, 2018.
3. Carthy Mc., and Felicity O'Dell. *English Vocabulary in Use (Upper intermediate)*. UK: Cambridge University Press, 2005.
4. Pillai, Radhakrishna and K.Rajeevan. *Spoken English for You (Level One)*. Chennai: Emerald Publishers, 2009.

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Books

1. *Life Skills* (Jeevan Kaushal) *Facilitators' Guidelines*. New Delhi: University Grants Commission, 2021.
2. Dickens, Charles. *Oliver Twist*. Bangalore: Vasan Publications, 2011.
3. Sadanand, Kamalesh and Susheela Punitha. *Spoken English- A Foundation Course for speakers of Tamil*. Mumbai: Orient Blackswan, 2009.
4. Taylor, Grant. *English Conversation Practice*. New Delhi: Tata McGraw Hill Publishers, 2001.

Web Sources

1. https://www.cleverism.com/skills-and-tools/presentation-skills/
2. https://www.vappingo.com/word-blog/86-great-examples-of-portmanteau/
3. https://blog.hubspot.com/service/phone-etiquette
4. https://www.talkenglish.com/lessonindex.aspx
5. https://www.englishhelper.com/
6. https://www.englishpage.com/

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - III
CORE COURSE - V: OBJECT ORIENTED PROGRAMMING WITH JAVA
(21UCAC31)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 5 **INT.MARKS : 40**
CREDITS : 5 **EXT.MARKS : 60**
DURATION : 75 hrs **MAX.MARKS: 100**

Preamble

This course familiarizes the learners with the concepts of Java Programming and to create wide range of applications and applets using Java.

Course Outcomes (CO)

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

CO1[K1]: describe the basic OOPs concept such as Class, Inheritance, Encapsulation and Polymorphism
CO2[K2]: demonstrate the knowledge of OOPs concept in Java programming
CO3[K3]: perform the program using procedures, packages and multithreads
CO4[K4]: analyze differences between application program and applets programming
CO5[K5]: assess the simple project using all java libraries

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	3	1	1	-	-	-
CO2[K2]	2	2	2	2	-	1	-
CO3[K3]	3	2	3	2	1	1	-
CO4[K4]	3	1	2	2	2	1	2
CO5[K5]	2	2	1	1	2	1	1
Weightage of the course	12	10	0.9	0.8	0.5	0.4	0.3
Weighted percentage of Course contribution to POs	**2.4**	**2.42**	**3.52**	**2.48**	**3.11**	**2.12**	**1.89**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(15 hrs)**

The Genesis of Java: Java's Magic: The Byte Code - The Java Buzzwords. **An Overview of Java:** Lexical Issues. **Data types, Variables and Arrays**: Java is a Strongly Typed Language - The Simple Types – Integers - Floating-Point Types – Characters - Booleans – Variables -Type Conversion and Casting - Arrays. **Introducing Classes**: Class Fundamentals - Declaring Objects - Assigning Object Reference Variables - Introducing Methods- Constructor - Garbage Collection - The Finalize() Method.

UNIT II **(15 hrs)**

A Closer Look at Methods and Classes: Overloading Methods - Using Objects as Parameters –A Closer Look at Argument Passing - Returning Objects – Recursion - Introducing Access Control - Understanding Static - Introducing Final - Using Command Line Arguments. **Inheritance**: Inheritance Basics - Using Super - Creating a Multilevel Hierarchy - When Constructors are called - Method Overriding - Dynamic Method Dispatch - Using Abstract Classes - Using Final with Inheritance.

UNIT III **(15 hrs)**

Packages and Interfaces: Packages - Access Protection - Importing Packages – Interfaces. **Exception Handling**: Exception Handling fundamentals - Exception types - Uncaught Exception – Using try and catch - Multiple Catch Clauses - Nested Try Statements – Throw – Throws – Finally-Java's Built In Exception.

UNIT IV **(15 hrs)**

Multithreaded Programming: The Java Thread Model – The Main Thread – Creating a Thread – Creating Multiple. **String Handling**: The String Constructors – Special String Operations - Character Extraction - String Comparison - Searching Strings - Modifying Strings - Data Conversion Using Valueof() - String Buffer.

UNIT V **(15 hrs)**

Introducing the AWT: AWT Classes - Windows Fundamentals - Working with Graphics - Working with Color. **Using AWT Controls:** Control Fundamentals - Labels - Using Buttons - Using a Text Field.

TEXTBOOK

1. Herbert Schildt. *Java2 the Complete Reference.* Tata McGraw-Hill Publishing Company Limited, 54th reprint, 5th Edition.

REFERENCES

Books

1. E. Balagurusamy. *Programming with Java A Primer*. New Delhi : Tata McGraw Hill Publishing, 4th Edition.
2. Joshuh Bloch. *Effective Java: A Programming Language Guide, the Java Series*. Sun Micro Systems Inc, 2nd Edition.
3. Rashmi Kanta Das. *Core Java for Beginners.* Vikas Publishing, 3rd Edition.

Web Sources

1. https://nptel.ac.in/noc/courses/noc20/SEM1/noc20-cs08/
2. https://onlinecourses.swayam2.ac.in/aic20_sp13/preview
3. https://onlinecourses.nptel.ac.in/noc21_cs03/preview
4. https://www.w3schools.com/java/
5. https://www.tutorialspoint.com/java/java_tutorial.pdf

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - III
CORE COURSE - VI: PRACTICAL: OBJECT ORIENTED PROGRAMMING WITH JAVA (21UCAC3P)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 5 **INT.MARKS :50**
CREDITS : 4 **EXT.MARKS :50**
DURATION : 75 hrs **MAX.MARKS:100**

Preamble

This course enables the learners to the basic concepts about Object Oriented Programming, Java Packages, exceptions, multithreads and AWT.

Course Outcomes (CO)

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

CO1[K3]: apply the knowledge of OOPs concept in problem solving and develop basic program
CO2[K3]: develop the basic programs on inheritance
CO3[K3]: build the program using procedures, interfaces and multithreads
CO4[K4]: classify the concepts of application program and applets programming
CO5[K6]: design the simple project using java packages

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K3]	3	3	2	1	-	-	-
CO2[K3]	3	2	2	2	-	-	-
CO3[K3]	3	1	2	2	1	2	1
CO4[K4]	2	2	-	-	1	2	2
CO5[K6]	3	2	1	1	2	1	1
Weightage of the course	14	10	07	06	04	05	04
Weighted percentage of Course contribution to POs	**2.79**	**2.42**	**2.73**	**1.86**	**2.48**	**2.65**	**2.52**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

1. EB Bill calculation using Classes and Objects.
2. GCD calculation using Command line arguments.
3. String Sorting using Array.
4. Student Mark List using Multilevel Inheritance.
5. Time and distance calculation using Inheritance.
6. Area Calculation using Abstract class.
7. Implementing Stack concept using Interface.
8. Placement eligibility checking using Package.
9. Program to throw Built-in Exception.
10. Voting Eligibility checking using User Defined Exception.
11. String manipulation.
12. Multiplication Table generation using Thread Class.
13. Number Checking Using Thread Interface.
14. Login Creation using AWT Controls.

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - III
ALLIED COURSE - III: DIGITAL PRINCIPLES AND COMPUTER ORGANIZATION
(21UCAA31)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 4 **INT. MARKS : 40**
CREDITS : 4 **EXT. MARKS : 60**
DURATION : 60 hrs **MAX. MARKS: 100**

Preamble

This course introduces the learners to the fundamentals behind the digital logic design, basic architecture of the computer.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K1]: describe the basic logic gates, flip-flop concepts
CO2[K2]: classify the number system, instruction architecture, memory system in computers
CO3[K3]: employ the number conversion, addressing modes, bus operations
CO4[K4]: analyse fast adders, number representation, memory concepts
CO5[K5]: assess the operational concepts, compilers, interface circuits

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	2	2	1	-	-	-
CO2[K2]	3	2	3	-	2	-	
CO3[K3]	2	3	2	2	-	-	-
CO4[K4]	2	2	3	1	-	1	-
CO5[K5]	3	3	1	2	1	1	1
Weightage of the course	13	12	11	06	03	02	01
Weighted percentage of Course contribution to POs	**2.59**	**2.9**	**4.3**	**1.86**	**1.86**	**1.06**	**0.63**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(12 hrs)**

Digital Logic: The Basic Gates **-**NOT, OR, AND Universal Logic Gates – NOR, NAND. **Number system & codes:** Binary Number System, Binary to Decimal Conversion - Decimal to Binary Conversion – Octal Numbers - Hexadecimal Numbers - Binary Addition - Binary Subtraction – 2's Complement Representation - 2's Complement Arithmetic.

UNIT II **(12 hrs)**

Flipflops: RS Flipflops - Edge Triggered RS Flip flop - Edge Triggered D Flip flop - Edge Triggered JK Flip Flop. **Arithmetic :** Addition and Subtraction of Signed Numbers - Design of Fast Adders - Multiplication of Unsigned Number - Multiplication of Signed Numbers - Fast Multiplication.

UNIT III **(12 hrs)**

Basic Structure of Computers: Computer Types – Functional Units- Basic Operational Concepts – Number Representations and Arithmetic Operations - Character Representations - Performance. **Instruction Set Architecture:** Memory Location And Addresses - Memory Operations Instructions and Instruction Sequencing-Addressing Modes - Assembly Languages-Stacks – Subroutines - Additional instructions.

UNIT IV **(12 hrs)**

Basic Input/Output: Accessing I/O Devices-Interrupts-Software - The Assembly Process - Loading and Executing Object Programs - The Linker – Libraries - The Compiler-The Debugger. **Pipelining –** Basic concepts – Pipeline organization – pipeline issues – Data dependencies – Memory delays – Branch delays**.**

UNIT V **(12 hrs)**

Basic Processing Unit: Some Fundamental Concepts **-** Instruction Execution **-** Hardware Components **-**Instruction Fetch and Execution Steps - Control Signals - Hardwired Control. **Input/output Organization:** Bus Structure - Bus Operation – Arbitration - Interface Circuits - Interconnection Standards. **The Memory System:** Basic Concepts **–** Semiconductor – RAM memories - Read-only Memories – Direct Memory Access Memory Hierarchy - Cache Memories - Virtual Memory.

TEXTBOOKS

1. Donald P Leach, Albert Paul Malvino, Gautam Saha. *Digital Principles and Applications*. Tata McGraw Hill Publishing Company Limited, New Delhi, 6th Edition.
2. V.Carl Hamacher, Zvonko G.Vranesic, Safwat G. Zaky. *Computer Organization and Embedded Systems.* McgrawHill International, 6th Edition.

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1. William Stallings*. Computer Organization & Architecture* Pearson Publication, New Delhi: Prentice Hall of India private Limited. 6th Edition, 2003.
2. Thomas C.Bartee. *Computer Architecture and Logic Design.* Mc Graw Hill Edition, Hightown, 4th Edition.1991.
3. Anil K. Maini. *Digital Electronics Principles, Devices and Applications*, John Wiley & Sons, Ltd. 4th Edition.

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1. https://nptel.ac.in/courses/117/106/117106086/
2. https://onlinecourses.nptel.ac.in/noc19_ee51/preview
3. https://www.swayamprabha.gov.in/asset/new_team/images/course_files/E10-NPTEL_Digital%20Circuits_IITKGP%20.pdf
4. https://www.electronics-tutorials.ws/logic/logic_10.html
5. https://www.geeksforgeeks.org/bus-arbitration-in-computer-organization

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - III
NON MAJOR ELECTIVE COURSE - I: BASICS OF COMPUTERS (21UCAN31)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 2 **INT. MARKS : 40**
CREDIT : 1 **EXT. MARKS : 60**
DURATION : 30 hrs **MAX. MARKS:100**

Preamble

This course introduces the learners to basics of computers, I/O units, number systems, current technologies used at home and in the workplace and also to create an email and use the Internet effectively.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K1]: define the fundamental concepts of computers
CO2[K2]: explain the functional units and memory units of computer
CO3[K3]: determine the use of input and output devices
CO4[K4]: differentiate the various number systems used in computer
CO5[K4]: examine the importance of networks

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	1	-	1	-	-	2
CO2[K2]	2	1	-	2	-	1	1
CO3[K3]	2	1	-	1	-	2	1
CO4[K4]	2	1	-	2	-	1	-
CO5[K4]	1	1	-	2	-	1	1
Weightage of the course	09	05	0	08	0	05	05
Weighted percentage of Course contribution to POs	**1.8**	**1.21**	**0**	**2.48**	**0**	**2.65**	**3.14**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(6 hrs)**

Introduction to Computers: Introduction – The Computer Defined – Characteristics of a Computer – Generation of Computers – Classification of Computers – On the Basics of Working Principle – On the Basics of Size and Capacity.

UNIT II **(6 hrs)**

Basic Anatomy of a Computer: The Parts of a Computer System **-** Basic Functional Units of a Computer – Input Unit – Central Processing Unit (CPU) – Output Unit. **Memory Classifications :** Primary Memory - RAM – ROM – PROM – EPROM – EEPROM – Cache memory – Secondary Memory.

UNIT III **(6 hrs)**

Input and Output Devices: Hardware – Input Devices – Output Devices – Programming Languages – Types of Programming Languages – Software – Types of Software.

UNIT IV **(6 hrs)**

Number System: Introduction – Number System – Binary Number System – Octal Number System – Decimal Number System – Hexadecimal Number System – Number Base Conversion – Decimal to Binary Conversion - Binary to Decimal Conversion – Octal to Decimal Conversion – Decimal to Hexadecimal Conversion – Hexadecimal to Decimal Conversion.

UNIT V **(6 hrs)**

Computer Networks: Types of Networks – Local Area Network (LAN) – Wide Area Network (WAN) – Network Topology – Star – Ring – Bus – Tree. **Overview of Electronic Mail:** Introduction – Email Works – Use Email – Email Names and Addresses- Mailing Basics – Address Book – File Attachments.

TEXTBOOKS

1. Dr. P.Rizwan Ahmed. *Introduction to Information Technology*. Margham Publications, 2017.
2. Alexis Leon, Mathews Leon. *Fundamentals of Information Technology*. Vikas Publishing House Pvt. Ltd, 2nd Edition, 2009.

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1. V.Rajaraman. *Fundamentals of Computers.* PHI Learning Pvt. Ltd, 5th Edition, 2010.
2. Dennis P. Curtin, Kim Foley, Kunal Sen. *Information Technology the Breaking Wave.* Tata McGraw Hill Publication, 2000.
3. Bharihoke. *Fundamentals of Information Technology*. Excel Books, 2009.

Web Sources

1. https://nptel.ac.in/courses/106/105/106105084/
2. https://onlinecourses.swayam2.ac.in/nou20_cs04/preview
3. https://onlinecourses.swayam2.ac.in/cec20_cs05/preview
4. https://www.bcanotes.com/information-technology/
5. http://byte-notes.com/information-technology-definition-and-examples/

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - III
SKILL ENHANCEMENT COURSE - III: PRACTICAL: DIGITAL ELECTRONICS
(21UCAS3P)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 2 **INT. MARKS : 50**
CREDIT : 1 **EXT. MARKS : 50**
DURATION : 30 hrs **MAX. MARKS: 100**

Preamble

This course familiarizes the learners with the basic knowledge in digital electronics.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K1]: identify the functionality of gates
CO2[K2]: differentiate the NOR gates, NAND gate Circuits
CO3[K4]: distinguish the Electronic gates, Half Adder, Full Adder concepts
CO4[K4]: compare RS Flipflop, D flip flop circuits effectively
CO5[K5]: evaluate the Demorgan's Law in the area of Electronics

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	3	1	1	-	-	-
CO2[K2]	3	2	2	1	-	1	-
CO3[K4]	2	2	2	-	-	1	-
CO4[K4]	2	1	1	1	1	-	-
CO5[K5]	2	1	-	-	2	1	1
Weightage of the course	11	09	06	03	03	03	01
Weighted percentage of Course contribution to POs	**2.2**	**2.17**	**2.34**	**0.93**	**1.86**	**1.59**	**0.63**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

1. Study of logic gates.
2. Implementation of logic gates using NOR gate.
3. Implementation of logic gates using NAND gate.
4. Verification of EX-OR gates.
5. Verification of Demorgan's Law.
6. Half Adder.
7. Full Adder.
8. Half Subtractor.
9. Full Subtractor.
10. RS Flipflop
11. D FlipFlop

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF TAMIL
UG Programme - B.A./B.SC./BCA
SEMESTER-IV
பொதுத்தமிழ் - IV (21UTAL41)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 6 **INT. MARKS : 40**
CREDITS : 3 **EXT. MARKS : 60**
DURATION : 90hrs **MAX. MARKS: 100**

நோக்கம்

சங்க இலக்கியங்களின் மேன்மைகளையும் வாழ்வியல் அறங்களையும் மாணவர்களுக்கு எடுத்துரைப்பதையும் புதின இலக்கியத்தை அறிமுகப்படுத்துவதையும் நோக்கமாகக் கொண்டு இத்தாள் வடிவமைக்கப்பட்டுள்ளது.

கற்றலின் பயன்கள்

இத்தாளை வெற்றிகரமாக முடித்தவுடன் மாணவர்கள்,

CO1[K1]:புதின இலக்கிய வகைகளை அடையாளம் காண்பர்.
CO2[K2]:சங்க இலக்கியங்களில் உள்ள அறக்கருத்துக்களை எடுத்துரைப்பர்.
CO3[K3]: அக,புற இலக்கணங்களைக் கற்பர்.
CO4[K4]:சங்க இலக்கியங்களின் வாயிலாகமக்களின் வாழ்க்கை முறையினைப் பாகுபடுத்துவர்.
CO5[K5]:பண்டையதமிழ் இலக்கிய ஆளுமைகளை மதிப்பிடுவர்.

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	1	-	1	-	-	-
CO2[K2]	2	1	-	2	-	-	-
CO3[K3]	2	2	-	2	1	-	1
CO4[K4]	2	2	1	2	1	1	-
CO5[K5]	2	2	1	2	-	1	1
Weightage of the course	10	8	2	9	2	2	2
Weighted percentage of Course contribution to POs	2	1.93	0.78	2.79	1.24	1.06	1.26

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

கூறு I **(18 hrs)**

எட்டுத்தொகை இலக்கியவரலாறு - **குறிஞ்சித்திணை - நற்றிணை:**ஓங்குமலைநாட(55) - கழுதுகால்கிளர(255). **முல்லைத்திணை - குறுந்தொகை:**பெருந்தண் மாரிப்(94),மடவவாழிமஞ்ஞை(251). **மருதத்திணைகலித்தொகை:**அகன்துறைஅணிபெற(73), புள்இமிழ் அகல் வயல்(79). **நெய்தல் திணை -ஐங்குறுநூறு:**தாய்க்குஉரைத்தபத்து(10 பாடல்கள்).**பாலைத்திணை - அகநானூறு:** வளம்கெழுதிருநகர்ப்(17),கடல்முகந்துகொண்டகமஞ்சூல்(43). **பரிபாடல்**: வையை - வளிபொருமின்னொடு(12).**புறநானூறு**: இரும்பனைவெண்தோடு(45) - எமக்கேகலங்கல் (298),**பதிற்றுப்பத்து:**ஐந்தாம்பத்தில் மாமலைமுழக்கின்.

கூறு II **(18 hrs)**

பத்துப்பாட்டு இலக்கியவரலாறு- **பத்துப்பாட்டு:**குறிஞ்சிப்பாட்டு (முழுவதும்)

கூறு III **(18 hrs)**

சங்கமருவிய கால இலக்கியவரலாறு- **திரிகடுகம்:**தற்புகழ்ச்சிக்குக் கூடாதவை - தொல் அவையும்(8) -புகழுக்குரிய மூவர் - மண்ணின் மேல் வான்(16),வீடுபேறு அடையும் வழிகள் - பற்று(22) -கற்றறிந்தார் கடமை -நுண்மொழிநோக்கிப்பொருள்(32),நல்லோர் நெறி- சான்றாருள் சான்றான் எனப்படுதல்(82). **நாலடியார்**: கூடாநட்பு (231-240).**இனியவைநாற்பது**: உடையான் வழக்கினிது(2) -மானம் அழிந்தபின்(13) - குழவிதளர்நடை(14) -பிறன்கைப் பொருள்வெளவான்(21) - வருவாய் அறிந்து (22). **இன்னாநாற்பது:** உண்ணாதுவைக்கும்(16) -மாரிநாள் கூவும்(20) - யானையில் மன்னாக்(22) - சிறையில்லா மூதூரின்(23) - ஏமம்இல் மூதூர்(24).**திருக்குறள்**:அறத்துப்பால் - புகழ், இன்பத்துப்பால் - குறிப்பறிதல் (அதிகாரங்கள் முழுவதும்).

கூறு IV **(18 hrs)**

புதின இலக்கியவரலாறு,கூட்டுக்குஞ்சுகள் - இராஜம் கிருஷ்ணன்.

கூறு V **(18 hrs)**

இலக்கணம் - தொல்காப்பியர் குறிப்பிடும் திணைக்கோட்பாடுகள் - அகப்பொருள் - புறப்பொருள் - உள்ளுறை - இறைச்சி - விண்ணப்பம் - புகார் - பாராட்டுக் கடிதங்கள் - அறிக்கை - செய்திஎழுதுதல்.

பாடநூல்கள்

1. *தொகுப்பு நூல்*,தமிழியல்துறை,ஸ்ரீ காளீஸ்வரிகல்லூரி (தன்னாட்சி),சிவகாசி.
2. இராஜம் கிருஷ்ணன். *கூட்டுக்குஞ்சுகள்*,நியூ செஞ்சுரிபுத்தகநிலையம்,சென்னை, 2011.
3. வாசுதேவன்,கா. *பன்முகநோக்கில் தமிழ் இலக்கியவரலாறு*,தேவன் பதிப்பகம்,திருச்சிராப்பள்ளி, 2017.

பார்வை நூல்கள்

1. சுப்பிரமணியன், க. *சங்ககாலச் சமுதாயம்*,ஜனசக்திஅச்சகம்,சென்னை, 1993.
2. பாலசுப்பிரமணியன் சிற்பி&நீலபத்மநாபன் (பதி.),*புதியதமிழ் இலக்கியவரலாறு.* மணமலர்ப் பதிப்பகம்,சென்னை,2000.
3. பாலசுப்பிரமணியன்,சி.*தமிழ் இலக்கியவரலாறு,* மண்மலர்ப் பதிப்பகம், சென்னை,2003.
4. மோகன், இரா. *பத்துப்பாட்டு மூலமும் உரையும்*,நியூ செஞ்சுரி புத்தகநிலையம், சென்னை,2004.

வலைப்பதிவுகள்(Web Sources)

1. https://youtu.be/Gv84KCknV_g
2. https://youtu.be/B42bzKeb-aI
3. https://youtu.be/sLE4yH-7PeE
4. https://youtu.be/wdlw8CyEBP8

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF ENGLISH
UG Programme - B.A./B.SC./BCA
SEMESTER- IV
COMMUNICATIVE ENGLISH - IV (21UENL41)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 6 **INT. MARKS : 40**
CREDITS : 3 **EXT. MARKS : 60**
DURATION : 90 hrs **MAX. MARKS: 100**

Preamble

This course helps the learners to develop their communication skills in English through listening, reading, speaking and writing practices.

Course Outcomes (CO)

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

CO1[K1]: relate and state ideas by listening to lectures and reading narratives

CO2[K2]: demonstrate effective speaking skills through group discussions and answering interview questions

CO3[K3]: apply knowledge of word power and grammar rules through drafting Memorandum, Minutes of the meetings and Agenda

CO4[K4]: analyze tales from Shakespeare to develop language skills through literature

CO5[K6]: construct grammatically correct and meaningful sentences for Covering letters and Resume Writing and thereby preparing students towards employability

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	1	-	1	-	-	-
CO2[K2]	2	1	-	1	-	-	-
CO3[K3]	2	2	1	2	1	1	1
CO4[K4]	2	2	1	2	1	1	1
CO5[K6]	2	3	1	2	-	1	1
Weightage of the course	10	09	03	08	02	03	03
Weighted percentage of Course contribution to POs	2	2.17	1.17	2.48	1.24	1.59	1.89

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I - LISTENING AND SPEAKING (18 hrs)

LISTENING

Listening to lectures

Listening to commentaries

Listening to narratives

SPEAKING

Welcome address and Vote of Thanks

Role Play

Anchoring

Group discussion

Interview questions

UNIT II - READING AND WRITING (18 hrs)

Reading Newspaper- articles, letter to editor, sports and entertainment

WRITING

Drafting:

Memorandum

Minutes of the meeting

Agenda

Resume writing & Covering letter

UNIT III - WORD POWER (18 hrs)

Words often confused

Analogy

Words related to- Health and Medicine, Pleasant and Unpleasant feelings, Success and Failure, Science and Technology and Travel

UNIT IV - GRAMMAR (18 hrs)

Identify Phrases and Clauses

Transformation of Sentences: Reported speech, Simple, Compound and Complex Sentences

Error Spotting

UNIT V - LANGUAGE THROUGH LITERATURE (18 hrs)

TALES FROM SHAKESPEARE

Romeo and Juliet

A Midsummer Night's Dream

The Merchant of Venice

King Lear

Macbeth

TEXTBOOKS

1. Carthy Mc., and Felicity O'Dell. *English Vocabulary in Use (Upper intermediate)*. UK: Cambridge University Press, 2005.
2. Pillai, Radhakrishna G., and K.Rajeevan. *Spoken English for You (Level One)*. Chennai: Emerald Publishers, 2009.
3. Pillai, Radhakrishna G. *Emerald English Grammar and Composition.* Chennai: Emerald Publishers, 2016.

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1. *Life Skills (Jeevan Kaushal) Facilitators' Guidelines*. New Delhi: University Grants Commission, 2021.
2. Radha, Alamelu and Kasthuri Bai. *Situational Grammar and Composition.* Chennai: New Century Book House Pvt. Ltd, 2008.
3. Sadanand, Kamalesh and Susheela Punitha. *Spoken English- A Foundation Course for speakers of Tamil*. Mumbai: Orient Blackswan, 2009.
4. Taylor, Grant. *English Conversation Practice*. New Delhi: Tata McGraw Hill Publishers, 2001.

Web Sources

1. https://www.litcharts.com/how-to-guides/shakespeare-research-resources
2. https://steffesziri.files.wordpress.com/2019/04/illustrated-stories-from-shakespeare-0.pdf
3. https://www.talkenglish.com/lessonindex.aspx
4. https://www.englishhelper.com/
5. https://www.englishpage.com/

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - IV
CORE COURSE – VII: OPEN SOURCE TECHNOLOGY AND RDBMS (21UCAC41)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 5 **INT.MARKS : 40**
CREDITS : 5 **EXT.MARKS : 60**
DURATION : 75 hrs **MAX.MARKS : 100**

Preamble

This course familiarizes the learners with the core concepts of database systems, relation database, queries, modeling and database design.

Course Outcomes (CO)

On successful completion of the course, the learners should be able to
CO1[K1]: state the connection between PHP and databases
CO2[K2]: explain the Knowledge of Database architectures, query languages
CO3[K3]: apply the knowledge of handling large Database, tables and attributes
CO4[K4]: classify the concept of Relational Database design, cookies, sessions and files
CO5[K5]: evaluate the faster queries and serve as many users as possible concurrently in open source

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	2	3	2	-	-	-
CO2[K2]	3	2	2	3	-	1	-
CO3[K3]	3	1	2	2	-	3	-
CO4[K4]	3	2	-	-	1	2	1
CO5[K5]	2	2	1	-	1	2	2
Weightage of the course	14	09	08	07	02	08	03
Weighted percentage of Course contribution to POs	**2.79**	**2.17**	**3.13**	**2.17**	**1.24**	**4.23**	**1.89**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(15 hrs)**

Introduction to DBMS: Introduction – Database System Applications – Characteristics of database systems – Data Abstraction – Instances and Schemas – Data Models - Database Languages- Database Architecture - **Introduction to Relational Model:** Basic structure of relational Databases – Database schema – Keys - **Fundamentals of Relational Algebra Operations:** Select Project, Union, Set Difference Operation, The Cartesian Product, and Rename Operations.

UNIT II **(15 hrs)**

ER-Model: Introduction to ER model – Constraints- Mapping constraints - Keys– ER diagram – Weak entity sets. **Relational Database design**: Functional Dependency – Normalization – Atomic Domains and First Normal Form – Second Normal Form – Third Normal Form – BCNF - Fourth Normal Form – De-normalization.

UNIT III **(15 hrs)**

SQL: Data definition - Basic Domain Types- Basic Schema definition in SQL – Create and drop table- alter table – Insertion of rows in table – deletion of rows in Tables – basic structure of SQL queries- Set Operations – Aggregate Functions. **PL/SQL:** Cursor and Triggers – Procedures and Packages. **Other Relational Languages**: Relational Algebra - The Tuple Relational Calculus - Domain Relational Calculus.

UNIT IV **(15 hrs)**

Introducing PHP and MySQL: Server Side Application – The PHP story – The MySQL Story – Using Variables – statements and operators - Embedding PHP in HTML – Writing statements and comments – Storing values in variables – Understanding simple data types – Using Operators to Manipulate and Compare variables.

UNIT V **(15 hrs)**

Using Conditional Statements and Loops: Adding Decision Making Capabilities with conditional statements – Repeating Actions with loops. Arrays: Creating an Array – Modifying array elements – Processing array with loops. **Files, Sessions and Cookies:** Reading and Writing Files – Managing Sessions using Session's variables – storing data in cookies.

TEXTBOOKS

1. Abraham Silberschatz Henry F.Korth and S.Sudarshan. *Database System Concepts.* 5th Edition, McGRAW-Hill International Edition.
2. Alexis Leon & Mattews Leon. *Database Management System*. Leon Vikas Publishing pvt ltd, 1999.
3. Vikram Vaswani. *PHP & MySQL.* Tata McGRAW-Hill, New Delhi, 2005.

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1. Raghu Ramakrishnan & Johannes Gehrke. *Database Management Systems*. Mc Graw Hill International Edition, 3rd Edition, 2003.
2. Fred R.McFadden, Jeffrey A.Hoffer & Mary. B. Perscott. *Modern Database Management.* Pearson Education Asia, 5th Edition, 2001.
3. Micheal Glass, Yann Le Scournec and Elizabeth Naramore et al., *Beginning PHP, Apache, MySQL Web development*. New York, Wiley Publishing, Reprint 2004.

Web Sources

1. https://nptel.ac.in/noc/courses/noc20/SEM1/noc20-cs09/
2. http://www.nptelvideos.com/php/php_video_tutorials.php
3. https://nptel.ac.in/courses/106/104/106104135/
4. https://www.tutorialspoint.com/php/php_tutorial.pdf
5. https://www.db-book.com/db4/slide-dir/ch1.ppt

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - IV
CORE COURSE – VIII: PRACTICAL: OPEN SOURCE TECHNOLOGY AND RDBMS
(21UCAC4P)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 5 **INT. MARKS : 50**
CREDITS : 3 **EXT. MARKS : 50**
DURATION : 75 hrs **MAX. MARKS: 100**

Preamble

This course helps the students to learn and create web page using HTML, Java Script, and PHP with SQL

Course Outcomes (CO)

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

CO1[K1]: define the Knowledge of RDBMS, SQL & PHP

CO2[K3]: develop the Web page, Database, tables and attributes and apply SQL queries

CO3[K5]: evaluate the Relational operations in web page.

CO4[K6]: create the Web page with PL/SQL program

CO5[K6]: construct the dynamic web page using PHP with MySQL

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	2	2	2	-	1	1
CO2[K3]	3	2	2	3	-	-	1
CO3[K5]	3	2	2	2	-	1	2
CO4[K6]	2	2	1	-	2	2	-
CO5[K6]	2	2	1	-	1	2	1
Weightage of the course	13	10	08	07	03	06	05
Weighted percentage of Course contribution to POs	**2.59**	**2.42**	**3.13**	**2.17**	**1.86**	**3.17**	**3.14**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

HTML

1. Create your home page using HTML. The page should contain images, tables, frames, ordered and unordered lists, links, other text formatting elements.
2. Create an online student registration form using HTML.

CSS

1. Create web page/s showing the working of three different types of CSS.
2. Create a web page using the class and properties of CSS.

JAVASCRIPT

1. Create a user data validation form using JavaScript.
2. Write a user defined function in JavaScript to check if a string is palindrome or not. Do not use predefined function for the same.

PHP

1. Open, read and write a file (File Manipulations) using PHP.
2. Online shopping program with arrays.
3. Form validations using PHP.
4. Email id creation using PHP.
5. Creation of Cookies using PHP.
6. Creation of Session in PHP.
7. Student mark list using PHP and MySQL database.

DBMS

1. Table Creation.
2. Selection Queries.
3. Queries Using Aggregate Function.
4. Program Using Conditional Control and Sequential Control.
5. Program Using Exception Handling.
6. Program Using Implicit Cursor.
7. Program Using Database Triggers.

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - IV
ALLIED COURSE - IV: BASICS OF FINANCIAL ACCOUNTING (21UCAA41)
(From 2021-2022 Batch onwards)

HOURS/ WEEK: 4 **INT. MARKS : 40**
CREDITS : 4 **EXT. MARKS: 60**
DURATION : 60 hrs **MAX. MARKS: 100**

Preamble

This course introduces the learners to the practices and processes by which financial transactions are recorded, monitored, analyzed and managed.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K1]: define the objectives of book keeping, accounting functions
CO2[K2]: explain the accounting rules, accounting concepts and conventions
CO3[K3]: apply the accounting principles for recording the journals, posting to ledgers, prepare trial balance and subsidiary books
CO4[K4]: examine the rectification of errors and Bank reconciliation statements
CO5[K4]: analyze the procedure for preparing the final accounts

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	2	2	2	-	1	1
CO2[K2]	3	2	2	3	-	-	1
CO3[K3]	2	2	2	2	-	1	2
CO4[K4]	2	2	1	-	2	2	-
CO5[K4]	1	2	1	-	1	2	1
Weightage of the course	11	10	08	07	03	06	05
Weighted percentage of Course contribution to POs	**2.2**	**2.42**	**3.13**	**2.17**	**1.86**	**3.17**	**3.14**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(12 hrs)**

Introduction - Transaction - Definition of Book - Keeping - Objectives - Definition of Accounting – Functions of Accounting – Advantages - Limitations - System of Accounting - Book Keeping Vs Accounting – Double Entry System - Advantages – Disadvantages of Double Entry System – Single Entry System – Meaning – Advantages – Defects – Double Entry System Vs Single Entry System - Types of Accounts.

UNIT II **(12 hrs)**

Principles of Double Entry System - Accounting Rules - Accounting Principles - Accounting Concepts - Accounting Conventions –Meaning of Basic Terms - Journal – Compound Journal Entries - Ledger – Journal Vs Ledger - Trial Balance - Objectives - Limitations - Subsidiary Books – Types of Subsidiary Books.

UNIT III **(12 hrs)**

Errors - Meaning of Error - Types of errors - Suspense Account (Simple Problems Only).

UNIT IV **(12 hrs)**

Bank Reconciliation Statement - Meaning of Bank Reconciliation Statement - Reasons for Differences - Cash Book Vs Pass Book – Steps to be Followed for Preparing Bank Reconciliation Statement - Cash Book Favourable Model - Cash Book Overdraft Model - Pass Book Favourable Balance Model - Pass Book Overdraft Model (Simple Problems Only).

UNIT V **(12 hrs)**

Final Accounts - Meaning - Trading Account - Profit and Loss Account - Trading Account Vs Profit or Loss Account - Differences Between Gross Profit and Net Profit - Balance Sheet - Trial Balance Vs Balance Sheet - Treatment of Some Simple Adjustments (Simple Problems Only)**.**

(Note: Problems 60% Theory 40%)

TEXTBOOK

1. V.Sudhakar, M.Anbalagan and K.Jeyalakshmi. *Fundamentals of Financial Accounting.* S. Chand & Sons 1st Edition, 2009.

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1. R. L. Gupta and M. Radhasamy. Advanced *Accountancy.* Sultan Chand & sons, 10th Edition, 2001.
2. M. Arulanantham & Raman, Advanced *Accountancy*, Himalaya Publishing House, 5th Edition, 1999.

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2. https://onlinecourses.swayam2.ac.in/nce20_sc45/preview
3. https://onlinecourses.swayam2.ac.in/cec20_mg23/preview
4. https://onlinecourses.nptel.ac.in/noc19_mg37/preview
5. https://www.classcentral.com/course/swayam-secondary-accountancy-224-17765

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - IV
SELF-PACED LEARNING (SWAYAM COURSE): SOFT SKILLS(21UCAM41)
(From 2021-2022 Batch onwards)

CREDITS : 2 **EXT. MARKS : 100**
DURATION : 8 Weeks **MAX. MARKS : 100**

Preamble

This course provides the learners with an opportunity for a lifelong learning by meeting the demand in terms of knowledge, skills, and competencies.

Course outcomes(CO)

On successful completion of this course learners will be able to

CO1[K1]: identify the background and the key words in soft skill
CO2[K2]: demonstrate independent and self-paced learning for clear understanding of the concept
CO3[K3]: develop computer and communication skills to broaden their knowledge in the course
CO4[K3]: use high quality reading resources, communication tools and technology to send assignments and to take up test
CO5[K4]: analyse critically and apply technical skills to comprehend the ideas or theories in the video lectures

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	2	1	2	-	-	2
CO2[K2]	3	2	1	1	-	-	2
CO3[K3]	3	2	1	2	1	1	1
CO4[K3]	2	2	1	2	-	-	1
CO5[K4]	2	2	1	2	-	1	1
Weightage of the course	13	10	05	09	01	02	07
Weighted percentage of Course contribution to Pos	**2.59**	**2.42**	**1.95**	**2.79**	**0.62**	**1.06**	**4.4**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

COURSE PLAN

Week 1: Communication skills 1: The basics
Week 2: Communication skills 2: Presentation and interaction
Week 3: Communication skills 3: Visual, nonverbal and aural communication
Week 4: Interpersonal communication 1: Individuals, groups and cultures
Week 5: Interpersonal communication 2: Emotional and social skills
Week 6: Developing key traits 1: Creativity, critical thinking and problem solving
Week 7: Developing key traits 2: Motivation, persuasion, negotiation and leadership
Week 8: Essential and vocational skills: survival strategies

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - IV
SELF-PACED LEARNING (SWAYAM COURSE): CLOUD COMPUTING
(21UCAM42)
(From 2021-2022 Batch onwards)

CREDITS : 2 **EXT. MARKS : 100**
DURATION : 8 Weeks **MAX. MARKS : 100**

Preamble

This course provides the learners with an opportunity for a lifelong learning by meeting the demand in terms of knowledge, skills, and competencies.

Course outcomes(CO)

On successful completion of this course learners will be able to

CO1[K1]: identify the background and the key words in cloud computing
CO2[K2]: demonstrate independent and self-paced learning for clear understanding of the concept
CO3[K3]: develop computer and communication skills to broaden their knowledge in the course
CO4[K3]: use high quality reading resources, communication tools and technology to send assignments and to take up test
CO5[K4]: analyse critically and apply technical skills to comprehend the ideas or theories in the video lectures

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	2	1	2	-	-	2
CO2[K2]	3	2	1	1	-	-	2
CO3[K3]	3	2	1	2	1	1	1
CO4[K3]	2	2	1	2	-	-	1
CO5[K4]	2	2	1	2	-	1	1
Weightage of the course	13	10	05	09	01	02	07
Weighted percentage of Course contribution to POs	**2.59**	**2.42**	**1.95**	**2.79**	**0.62**	**1.06**	**4.4**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

COURSE PLAN

Week 1: Introduction to Cloud Computing
Week 2: Cloud Computing Architecture
Week 3: Service Management in Cloud Computing
Week 4: Data Management in Cloud Computing
Week 5: Resource Management in Cloud
Week 6: Cloud Security
Week 7: Open Source and Commercial Clouds, Cloud Simulator
Week 8: Research trend in Cloud Computing, Fog Computing

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - IV
NON MAJOR ELECTIVE COURSE - II: WEB PROGRAMMING (21UCAN41)
(From 2021-2022 Batch onwards)

HOURS/ WEEK: 2 **INT. MARKS : 40**
CREDIT : 1 **EXT. MARKS : 60**
DURATION : 30 hrs **MAX. MARKS: 100**

Preamble

This course helps the students to learn the fundamentals of web programming and create the basic web pages using HTML.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K1]: describe the basic tags design in static pages
CO2[K2]: express the basic functions of lists in web designing
CO3[K3]: develop web based application using suitable tags, links and images
CO4[K4]: analyze the Table tags usage in web page
CO5[K4]: dissect the web page using frames

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	1	-	1	-	-	2
CO2[K2]	2	1	-	2	-	1	1
CO3[K3]	2	1	-	1	-	2	1
CO4[K4]	2	1	-	2	-	1	-
CO5[K4]	1	1	-	2	-	1	1
Weightage of the course	09	05	0	08	0	05	05
Weighted percentage of Course contribution to POs	**1.8**	**1.21**	**0**	**2.48**	**0**	**2.65**	**3.14**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(6 hrs)**

Introduction to HTML: HTML Tags – Structure of HTML Program - Head Tag - Body Tag – Paragraph Tag – Formatting Tags (Bold, Underline, Italic, Strikethrough, Subscript, Superscript, Big, Small)

UNIT II **(6 hrs)**

List: Lists - Ordered List - Unordered List - Data Definition List - Marquee Tag - Break Tag - Ruler Tag - Font Tag.

UNIT III **(6 hrs)**

Table: Table - Table building Tags - Attributes of Table - Table Tag - Table Header Tag - Table Row Tag - Table Data Tag - Row Span - Column Span.

UNIT IV **(6 hrs)**

Links and Images: Links - Linking Pages Using Anchor Tag - Attributes of Anchor Tag -Image Tag and its Attributes - Frame Tag.

UNIT V **(6 hrs)**

Forms: Forms - Form Tag - Input Tag – Input Types (Textbox, Radio button, Checkbox, Password) - Selection Tag – Text Area Tag - Sample Web Page Creation.

TEXTBOOKS

1. Cheryle Applewood, Mariann Barsolo, Tracy Brown. *HTML Complete*. BPB publications, 2nd edition, 2006 .
2. Bryan Pfaffenberger, Steven M. Schafer, Chuck White, and Bill Karow. *HTML, XHTML, & CSS (Also covering Javascript, XML, Web Design & Publishing.* Bible, Wiley Publishing, Inc, 3rd edition, 2005.

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1. Ivan Bayross. *Web Enabled Commercial Applications Development Using HTML, DHTML, JavaScript, Perl CGI.* BPB Publicatons, 2nd Revised Edition, 2000.
2. John W.Gosney. *HTML Professional Project*. Thomoson Course Technology, 2004.
3. Eric Freeman & Elisabeth Robson. *A Brain-Friendly Guide Head First HTML5 Programming.* O'Reilly Media, Inc., 1st Edition.

Web Sources

1. https://nptel.ac.in/courses/106/105/106105084/
2. https://nptel.ac.in/courses/106/106/106106092/
3. https://onlinecourses.swayam2.ac.in/aic20_sp11/preview

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - IV
SKILL ENHANCEMENT COURSE - IV: NUMERICAL APTITUDE (21UCAS41)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 2 **INT. MARKS : 40**
CREDIT : 1 **EXT. MARKS : 60**
DURATION : 30 hrs **MAX. MARKS : 100**

Preamble

This course enables the learners to solve mathematical problems and utilize these mathematical skills both in their professional as well as personal life.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K1]: identify the number systems
CO2[K2]: demonstrate the relevance and need of quantitative methods
CO3[K3]: apply quantitative methods to solve the business problems
CO4[K4]: examine the importance of statistical problems
CO5[K5]: evaluate the probabilistic strategies

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	2	-	1	-	-	-
CO2[K2]	3	2	2	2	-	2	-
CO3[K3]	2	2	3	-	-	-	-
CO4[K4]	1	2	-	2	-	1	1
CO5[K5]	2	1	-	-	3	1	1
Weightage of the course	11	09	05	05	03	04	02
Weighted percentage of Course contribution to POs	**2.2**	**2.17**	**1.95**	**1.55**	**1.86**	**2.12**	**1.26**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(6 hrs)**

H.C.F and L.C.M of numbers – Decimal fractions.

UNIT II **(6 hrs)**

Problems on numbers – Problems on ages – Profit and loss.

UNIT III **(6 hrs)**

Time and work - Time and distance - Problems on trains.

UNIT IV **(6 hrs)**

Simple interest – Compound interest – Area.

UNIT V **(6 hrs)**

Permutations and Combinations – Probability.

TEXTBOOK

1. R.S.Agarwal. *Quantitative Aptitude.* Chand Publications, 7th Edition.

REFERENCES

Books

1. A.Abhijit. *Quantitative Aptitude for Competitive Examinations Paperback (English).* McGraw Hill Education, 5th Edition.
2. Prem Suri and Sudharshan Chopra. *Premier Digest – Arithmetic for Competitive Examinations.* Sulthan Chand Publications, New Delhi, 2nd Edition.
3. Sarvesh K Verma. *Quantitative Aptitude Quantum CAT.* Arihant Publication.

Web Sources

1. https://nptel.ac.in/courses/122/102/122102009/
2. https://www.faceprep.in/quantitative-aptitude/
3. https://www.indiabix.com/aptitude/questions-and-answers/
4. https://www.examstocks.com/quantitative-aptitude-questions-and-answers-pdf/

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
UG Programme
SEMESTER III & IV
PART V – EXTENSION
(From 2021 -2022 Batch Onwards)

HOURS/WEEK: 2
CREDIT : 1
DURATION : 60 hrs **INT. MARKS: 100**

Preamble

This course aims to promote holistic development among the youth by defining their roles and responsibilities towards ones family and their society and enables them to acquire professional skills and ethics.

Course Outcomes (CO)

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

CO1 [K1]: recognize the importance of community service through training and education

CO2 [K2]: interpret ecological concerns, consumer rights, gender issues & legal protection

CO3 [K3]: develop team spirit, verbal/non verbal communication and organizational ethics by participating in community service

CO4 [K4]: examine the necessity of professional skills & community-oriented services for a holistic development

CO5 [K6]: create awareness on human rights, legal rights, First Aid, Physical fitness and wellbeing

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1 [K1]	2	-	-	2	2	1	1
CO2 [K2]	2	1	-	2	1	1	1
CO3 [K3]	2	-	-	1	2	2	1
CO4 [K4]	1	1	1	1	2	2	1
CO5 [K6]	1	-	-	1	2	2	1
Weightage of the course	08	02	01	07	09	08	05
Weighted percentage of Course contribution to Pos	1.6	0.48	0.39	2.17	5.59	4.23	3.14

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

Details of the Courses

1. National Cadet Corps (NCC) – 190 hrs
2. National Service Scheme (NSS) – 240 hrs
3. Physical Education
4. Red Ribbon Club (RRC)
5. Youth Red Cross (YRC)
6. Fine Arts Club
7. Library and Information Service Club
8. Yoga Club
9. ECO Club
10. Consumer Club
11. Human Rights Club
12. Women Empowerment Cell
13. Legal Awareness League

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - V
CORE COURSE - IX: COMPUTER GRAPHICS AND IMAGE PROCESSING
(21UCAC51)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 5 **INT. MARKS : 40**
CREDITS : 5 **EXT. MARKS : 60**
DURATION : 75 hrs **MAX. MARKS : 100**

Preamble

This course introduces the learners to the various display devices, the basic algorithms, and the applications of computer graphics and image processing.

Course Outcomes (CO)

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

CO1[K1]: describe the concepts of graphics display devices, different types of graphics, drawing algorithms and image processing techniques
CO2[K2]: classify the theory of transformation such as scaling, rotation
CO3[K3]: build the ability to implement clipping operations
CO4[K4]: classify the interactive graphics applications using 2-dimensional attributes of output primitives
CO5[K4]: analyse the Image Sensing and Acquisition and Image Sampling

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	2	2	1	-	-	-
CO2[K2]	3	2	3	-	2	2	
CO3[K3]	2	3	2	1	1	-	-
CO4[K4]	2	2	3	2	1	1	1
CO5[K4]	3	1	2	1	1	1	1
Weightage of the course	13	10	12	05	05	04	02
Weighted percentage of Course contribution to POs	**2.59**	**2.42**	**4.69**	**1.55**	**3.11**	**2.12**	**1.26**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(15 hrs)**

Overview of Graphics Systems: Video Display Devices – Refresh Cathode - Ray Tubes - Raster Scan - Random Scan Displays – Color CRT Monitors – Direct View Storage Tubes – Flat Panel Displays - Raster Scan and Random Scan Systems – Input Devices.

UNIT II **(15 hrs)**

Output Primitives: Line Drawing - Circle Generating - Ellipse Generating Algorithms – Boundary Fill Algorithm – Flood Fill Algorithm – Character Generation.

UNIT III **(15 hrs)**

Attributes of Output Primitives: Line – Area – Fill – Character – Text - Marker and Bundled Attributes - Anti Aliasing Techniques.

UNIT IV **(15 hrs)**

Geometric Transformations: Basic Transformations - Reflection and Shear – Window – To - View Port Transformation – Point – Line – Polygon – Text - Exterior Clipping Operations.

UNIT V **(15 hrs)**

Digital Image Fundamentals: Introduction – Origin – Steps in Digital Image Processing – Components – Elements of Visual Perception – Image Sensing and Acquisition – Image Sampling and Quantization – Relationships between pixels – color models.

TEXTBOOKS

1. Donald Hearn and M.Pauline Baker. *Computer Graphics, C Version*. Pearson Education, second Indian reprint, 2003.
2. Rafael C. Gonzales, Richard E. Woods. *Digital Image Processing.* Third Edition, Pearson Education, 2010.

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1. N. Krishnamurthy. *Introduction to Computer Graphics.* Tata McGraw-Hill, 2002.
2. Rafael C. Gonzalez, Richard E. Woods, Steven L. Eddins. *Digital Image Processing Using MATLAB*. 3rd Edition Tata Mc Graw Hill Pvt. Ltd, 2011.

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2. https://www.javatpoint.com/computer-graphics-dda-algorithm

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - V
CORE COURSE - X: PRACTICAL: COMPUTER GRAPHICS AND IMAGE PROCESSING (21UCAC5P)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 5 **INT. MARKS : 50**
CREDITS : 4 **EXT. MARKS : 50**
DURATION : 60 hrs **MAX. MARKS: 100**

Preamble

This course introduces the learners to basic graphical functions and enables them to draw a line, animating 2D and 3D objects.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K1]: draw the basic shapes in graphics
CO2[K2]: demonstrate the boundary and flood fill algorithms
CO3[K3]: apply the DDA and bresenham's line concepts
CO4[K4]: distinguish how image processing techniques are practically used
CO5[K4]: differentiate various 2 dimensional transformations such as scaling, rotation, translation, reflection and shearing

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	2	2	1	-	-	-
CO2[K2]	3	2	2	-	2	1	
CO3[K3]	2	3	2	1	1	1	-
CO4[K4]	2	2	1	2	1	1	2
CO5[K4]	2	1	2	1	1	1	1
Weightage of the course	12	10	09	05	05	04	03
Weighted percentage of Course contribution to POs	**2.4**	**2.42**	**3.52**	**1.55**	**3.11**	**2.12**	**1.89**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

1. Draw a Basic Shapes and Colors using Fundamental Graphics Functions.
2. Screensaver Making.
3. Animating 2D Objects.
4. Move a person having Balloons.
5. Line Generation using Digital Differential Analyzer Algorithm.
6. Line Generation using Bresenham's Algorithm.
7. Circle Generation using Bresenham's Algorithm.
8. Boundary Fill Algorithm.
9. Flood Fill Algorithm
10. Implement of 2D Dimensional Transformation (Translation, Rotation and Scaling).
11. Implement of 2D Dimensional Other Transformation (Reflection and Shear).
12. To Display Images from Folder.
13. To perform Image Color Conversion.
14. To perform Adding and Removing Noises from Image.
15. To perform Image Transformation.
16. To perform Edge Detection

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - V
CORE COURSE - XI: SOFTWARE ENGINEERING (21UCAC52)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 5 **INT. MARKS : 40**
CREDITS : 5 **EXT. MARKS : 60**
DURATION : 75 hrs **MAX. MARKS: 100**

Preamble

This course prepares the learners to take up their career in software engineering with a thorough understanding of software process models.

Course Outcomes (CO)

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

CO1[K1]: describe the designing process of complex software systems
CO2[K2]: estimate efficient, reliable, robust and cost-effective solutions
CO3[K3]: articulate time, processes and resources effectively by prioritizing competing demands to achieve personal and team goals
CO4[K4]: analyse software requirements specifications for different projects and prepare documentations
CO5[K5]: choose appropriate techniques and skills on how to use modern software testing tools to support software testing projects

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	3	1	1	-	-	-
CO2[K2]	2	2	2	2	-	1	-
CO3[K3]	3	2	3	2	1	1	-
CO4[K4]	3	3	2	2	2	1	2
CO5[K5]	3	2	1	1	2	1	1
Weightage of the course	13	12	09	08	05	04	03
Weighted percentage of Course contribution to POs	**2.59**	**2.9**	**3.52**	**2.48**	**3.11**	**2.12**	**1.89**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(15 hrs)**

Computer-Based System Engineering: System Properties - Systems and their Environment - System Modeling - System Engineering Process. **Software Processes:** Software Process Models – Process Iteration –Software Specification - Software Design and Implementation Software Validation - Automated Process Support.

UNIT II **(15 hrs)**

Planning A Software Project: Defining Problem – Developing a Solution Strategy – Planning an Organizational Structure. **Software Cost Estimation:** Software Cost Factors – Software Cost Estimation Techniques - Staffing Level Estimation – Estimating Software Maintenance Costs.

UNIT III **(15 hrs)**

Software Requirements Definition: The Software Requirements Specification – Formal Specification Techniques – Relational Notations - State Oriented Notations -Structured Analysis and Design Technique (SADT).

UNIT IV **(15 hrs)**

Software Design: Introduction- Fundamentals Design Concept – Modules and Modularization Criteria - Coupling and Cohesion - Other Modularization Criteria - Design Notations – Design Techniques.

UNIT V **(15 hrs)**

Verification and Validation: Planning-Software Inspections - Automated Static Analysis – Cleanroom Software Development. **Software Testing:** Defect Testing – White box testing – Black box testing - Integration Testing – Object-Oriented Testing.

TEXTBOOKS

1. Richard E. Fairly. *Software Engineering Concepts*. McGrawHill Book Company, 34th reprint 2010.
2. Ian Sommerville. *Software Engineering.* Pearson Education private Limited, New Delhi, 6th Edition, 2014.

REFERENCES

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1. Roger S. Pressman. *Software Engineering A Practitioner's Approach*. McGrawHill private Limited, New Delhi, 7th Edition, 2014.
2. B.B. Agarwal, S.P. Tayal, M. Gupta. *Software Engineering & Testing*. Firewall/Laxmi Publications (P) Ltd, New Delhi, 1st Edition, 2010.
3. Boris Beizer. *Software Testing Techniques.* Dream tech press, New Delhi-110002, 2nd Edition, 2000.

Web Sources

1. https://nptel.ac.in/courses/106/105/106105182/
2. https://onlinecourses.nptel.ac.in/noc19_cs69/preview
3. https://www.javatpoint.com/software-project-planning
4. https://www.softwaretestingmaterial.com/verification-and-validation/
5. https://www.softwaretestingmaterial.com/software-testing/

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - V
CORE COURSE – XII: PRACTICAL: ANDROID APPLICATIONS AND VIRTUAL GAMING (21UCAC5Q)
(From 2021-2022 Batch onwards)

HOURS/ WEEK: 5 **INT. MARKS : 50**
CREDITS : 4 **EXT. MARKS : 50**
DURATION : 75 hrs **MAX. MARKS: 100**

Preamble

This course introduces the learners to know the components and structure of mobile applications and game development in android

Course Outcomes

On successful completion of the course, the learners will be able to
CO1[K2]: demonstrate an application that uses layout managers.
CO2[K3]: build an application that uses event listeners.
CO3[K4]: examine an application that implements navigation
CO4[K4]: simplify an application that makes use of database
CO5[K5]: evaluate 2D game applications

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K2]	3	1	2	2	2	3	-
CO2[K3]	2	1	2	2	2	-	2
CO3[K4]	2	2	2	-	-	1	1
CO4[K4]	2	1	2	-	1	1	1
CO5[K5]	1	1	1	3	1	2	2
Weightage of the course	10	06	09	07	06	07	06
Weighted percentage of Course contribution to POs	**2**	**1.45**	**3.52**	**2.17**	**3.73**	**3.7**	**3.77**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

1. Display a welcome message using basic control.
2. Demonstrate the check box and Radio button.
3. Display Today date using Date Picker controls.
4. Change the background color using buttons.
5. Perform addition and subtraction operations using simple controls.
6. Demonstrate various dialog boxes.
7. Display your name using Toast.
8. Create simple menu application for college course details.
9. Send a message using Intent.
10. Develop an actor animation.

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - V
MAJOR ELECTIVE COURSE - I: COMPUTER NETWORKS (21UCAO51)
(From 2021-2022 Batch onwards)

HOURS/ WEEK: 4 **INT. MARKS : 40**
CREDITS : 3 **EXT. MARKS : 60**
DURATION : 60 hrs **MAX. MARKS: 100**

Preamble

This course introduces the learners to the various levels of a packet switched computer network using the different stages of network layers in OSI, TCP/IP, and UDP protocol as the primary model.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K1]: describe the network protocols, services and network security
CO2[K2]: specify the OSI model and TCP/IP model in network layers
CO3[K3]: use the Connection services, switching and network applications
CO4[K4]: analyze the TCP Primitives, WWW, Digital Signature, and Service Security
CO5[K4]: differentiate the role of the layers and protocols in networking

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	3	1	1	-	-	-
CO2[K2]	2	2	2	2	-	1	-
CO3[K3]	3	3	2	2	1	1	-
CO4[K4]	3	2	-	2	2	1	2
CO5[K4]	3	2	1	2	2	1	1
Weightage of the course	13	12	06	09	05	04	03
Weighted percentage of Course contribution to POs	**2.59**	**2.9**	**2.34**	**2.79**	**3.11**	**2.12**	**1.89**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(12 hrs)**

Introduction: LAN, MAN, WAN - Wireless Networks - Home Networks - Internetwork. **Network Software:** Protocol Hierarchies - Design Issues For The Layers - Connection Oriented and Connectionless Services - Service Primitives. **Reference Models:** The OSI Reference Model - The TCP/IP Reference Model. **Physical Layer:** Guided Transmission Media - Magnetic Media - Twisted Pair - Coaxial Cable - Fiber Optics. **Wireless Transmission:** The Electronics Spectrum - Radio Transmission - Microwave Transmission.

UNIT II **(12 hrs)**

Data Link Layer – Data Link Layer Design Issues - Error Detection and Correction -Elementary Data Link Protocols - Sliding Window Protocol. **Network Layer: Network Layer Design Issues:** Store and Forward Packet Switching - Services Provided to The Transport Layer - Implementation of Connectionless Service - Implementation of Connection Oriented Service - Comparison of Virtual Circuit and Datagram Subnets.

UNIT III **(12 hrs)**

Transport Layer: The Transport Service - Services Provided to the Upper Layer – Transport Service Primitives **-** Elements of Transport Protocols - Internet Transport Protocols - UDP- Internet Transport Protocols - TCP.

UNIT IV **(12 hrs)**

Application Layer: Domain Name System - Electronic Mail - World Wide Web - Multimedia.

UNIT V **(12 hrs)**

Cryptography: Introduction - Symmetric Key Cryptography - Asymmetric Key Cryptography. **Network Security:** Security Services - Message Confidentiality - Message Integrity - Message Authentication - Digital Signature - Entity Authentication.

TEXTBOOKS

1. Andrew S.Tanenbaum. *Computer networks.* Prentice –Hall of India, New Delhi, 4th Edition , 2006.
2. Behrouz A.Forouzan. *Data Communications and Networking.* McGraw Hill International Edition, 4th Edition.

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Books

1. William Stallings. D*ata and Computer Communications.* Pearson Education, New Delhi, 8th Edition, 2009.
2. S.A Amutha Jeevakumari. *Elements of Data Communication and Networks.* Lakshmi Publications, Hyderabad, 1st Edition, 2010.

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1. https://nptel.ac.in/courses/106/105/106105081/
2. https://onlinecourses.swayam2.ac.in/cec21_cs04/preview
3. http://zai.lecturer.pens.ac.id/Kuliah/Komunikasi%20Data/Buku%20Referensi/Data%20Communications%20and%20Networking%20By%20Behrouz%20A.Forouzan.pdf

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - V
MAJOR ELECTIVE COURSE -I: E - COMMERCE TECHNOLOGIES (21UCAO52)
(From 2021-2022 Batch onwards)

HOURS/ WEEK: 4 **INT. MARKS : 40**
CREDITS : 3 **EXT. MARKS : 60**
DURATION : 60 hrs **MAX. MARKS: 100**

Preamble

This course introduces the learners to E-Commerce technologies and various security issues and solutions.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K1]: describe about the basics of E-Commerce
CO2[K2]: demonstrate the various approaches of secure transactions
CO3[K3]: present various security issues and solutions
CO4[K4]: analyse to acquire knowledge about various cards used for transactions
CO5[K4]: differentiate the internet applications for E-commerce

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	3	1	1	-	-	-
CO2[K2]	2	2	2	2	-	1	-
CO3[K3]	3	3	2	2	1	-	-
CO4[K4]	3	2	-	2	2	1	2
CO5[K4]	3	2	1	1	2	1	1
Weightage of the course	13	12	06	08	05	03	03
Weighted percentage of Course contribution to POs	**2.59**	**2.9**	**2.34**	**2.48**	**3.11**	**1.59**	**1.89**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(12 hrs)**

Electronic Commerce Environment and Opportunities: Background – the Electronic Commerce Environment - Electronic Marketplace Technologies. **Models of Electronic Commerce:** Overview – Electronic Data Interchange – Migration to Open EDI – Electronic Commerce with WWW/Internet – Commerce Net Advocacy – Web Commerce Going Forward.

UNIT II **(12 hrs)**

Approaches to Safe Electronic Commerce: Overview – Secure Transport Protocols – Secure Transactions – Secure Electronic Payment Protocol (SEPP) – Secure Electronic Transaction (SET) – Certificates for Authentication – Security on Web Servers and Enterprise Networks. **Electronic Cash and Electronic Payment Schemes:** Internet Monetary Payment and Security Requirements – Payment and Purchase Order Process – On-Line Electronic Cash.

UNIT III **(12 hrs)**

Internet/Intranet Security Issues and Solutions: The Need for Computer Security – Specific Intruder Approaches – Security Strategies – Security Tools – Encryption – Enterprise Networking and Access to the Internet – Antivirus Programs – Security Teams.

UNIT IV **(12 hrs)**

MasterCard/Visa Secure Electronic Transaction: Introduction – Business Requirements – Concepts – Payment Processing. **E-mail and Secure E-Mail Technologies for Electronic Commerce:** Introduction – The Means of Distribution a Model for Message Handling – How does E-Mail Work.

UNIT V **(12 hrs)**

MIME: Multipurpose Internet Mail Extensions. **S/MIME:** Secure Multipurpose Internet Mail Extensions. **MOSS:** Message Object - Security Services – Comparisons of Security Methods – MIME and Related Facilities for EDI Over The Internet. **Internet and Web Site Establishment:** Introduction – Technologies for Web Servers – Internet Tools Relevant to Commerce – Internet Applications for Commerce.

TEXTBOOK

1. Daniel Minoli and Emma Minoli. *Web commerce technology handbook.* Tata McGraw Hill, 1999.

REFERENCES

Books

1. Kenneth C. Laudon, Carol Guercio Traver. *E-commerce: Business Technology, Society.* Addison Wesley Publication, 2001.
2. Constance H. McLaren, Bruce J. McLaren. *E-commerce: Business on the Internet South*. Western Educational Publication, 1999.

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2. https://onlinecourses.swayam2.ac.in/cec20_mg25/preview
3. https://payu.in/
4. https://www.tutorialspoint.com/e_commerce/e_commerce_payment_systems.html

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - V
MAJOR ELECTIVE COURSE I: ARTIFICIAL INTELLIGENCE & EXPERT SYSTEMS
(21UCAO53)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 4 **INT. MARKS : 40**
CREDITS : 3 **EXT. MARKS : 60**
DURATION : 60 hrs **MAX. MARKS : 100**

Preamble

This course introduces the learners to various sources saved in different location in a distributed manner.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K1]: define the basics of artificial intelligence and concepts
CO2[K2]: explain the implementation of the logical agents and propositional theorems
CO3[K3]: determine the resource management in forward and backward chaining
CO4[K4]: analyse how objects are defined in knowledge representation
CO5[K4]: examine Natural language processing concepts and parsing techniques

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	3	1	1	-	-	-
CO2[K2]	2	2	2	2	-	1	-
CO3[K3]	3	3	2	2	1	-	-
CO4[K4]	3	2	-	2	2	1	2
CO5[K4]	3	2	1	1	2	1	1
Weightage of the course	13	12	06	08	05	03	03
Weighted percentage of Course contribution to POs	**2.59**	**2.9**	**2.34**	**2.48**	**3.11**	**1.59**	**1.89**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(12 Hrs)**

Artificial Intelligence: Introduction –The Foundations of Artificial Intelligence – The History of Artificial Intelligence – The State of Art. Intelligent Agents: Agents and Environments – Good Behavior: The Concept of Rationality – The Nature of Environments – The Structure of Agents.

UNIT II **(12 Hrs)**

Logical Agents: Knowledge - Based Agents – The Wumpus World – Logic - Propositional Logic: A Very Simple Logic –Propositional Theorem proving – Effective Propositional Model Checking – Agents based on Propositional Logic.

UNIT III **(12 Hrs)**

Inference in First order logic: Propositional vs. First Order Inference – Unification and Lifting – Forward Chaining – Backward Chaining – Resolution.

UNIT IV **(12 Hrs)**

Knowledge Representation : Ontological Engineering – Categories and objects – Events – Mental Events and Mental Objects – Reasoning Systems for Categories – Reasoning with Default Information – The Internet Shopping World.

UNIT V **(12 Hrs)**

Natural Language Processing: Introduction – Overview of Linguistics – Grammars and Languages – Basic Parsing Techniques – Semantic Analysis and Representation – Structures – Nature Language Generation – Natural Language Systems.

TEXTBOOKS

1. S. Russel and P. Norvig, *Artificial Intelligence – A Modern Approach*, Pearson Education, Second Edition, 2003.
2. Dan W.Patterson, *Introduction to Artificial Intelligence and Expert Systems*, Prentice Hall of India, 2003.

REFERENCES

Books

1. John Paul Mueller and Luca Massaron, *Machine Learning for Dummies, A Wiley brand, First Edition, 2018.*
2. Melanie Mitchell, *Artificial Intelligence: A Guide for Thinking Humans*, Macmillan Pubilshers 1st Edition.

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1. https://nptel.ac.in/courses/106/102/106102220/
2. https://nptel.ac.in/courses/106/105/106105077/
3. https://nptel.ac.in/courses/106/106/106106126/

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - V
MAJOR ELECTIVE COURSE - II: DATA STRUCTURES AND ALGORITHMS
(21UCAO54)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 4 **INT. MARKS : 40**
CREDITS : 3 **EXT. MARKS : 60**
DURATION : 60 hrs **MAX. MARKS: 100**

Preamble

This familiarizes the learners with the basic concepts and techniques of Linear and nonlinear data structures.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K1]: describe the data structures list and stack concepts
CO2[K2]: explain the applications of stack and queue
CO3[K3]: apply the tree traversal and expression trees concepts
CO4[K4]: simplify the prims and kruskal algorithms
CO5[K4]: differentiate the quick and merge sort algorithms

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	3	1	1	-	-	-
CO2[K2]	2	2	2	2	-	1	-
CO3[K3]	3	3	2	2	1	1	-
CO4[K4]	3	2	-	2	2	1	2
CO5[K4]	3	2	1	2	2	1	1
Weightage of the course	13	12	06	09	05	04	03
Weighted percentage of Course contribution to POs	**2.59**	**2.9**	**2.34**	**2.79**	**3.11**	**2.12**	**1.89**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(12 hrs)**

Introduction and Overview: Definition - Concepts of Data Structures - Overview of Data Structures. **Lists:** Introduction - Benefits of Linked list – Singly Linked lists - Doubly linked lists - Circularly linked lists – Examples - Circularly doubly Linked Lists. **Stacks:** The stack ADT - Stack Model - Implementation of Stack – Application - Tower of Hanoi Problem.

UNIT II **(12 hrs)**

Queues: The Queue ADT: Queue Model - Array implementation of Queues - application of Queues. **Trees:** Introduction - Binary Trees – Representations - Binary Tree Traversal - Expression Trees - Application of Trees.

UNIT III **(12 hrs)**

Graphs: Introduction - Graph Terminologies - Representation of Graphs – Set – Linked - Matrix Representation - Operation on Graphs - Traversal of Graphs – BFS - DFS.

UNIT IV **(12 hrs)**

Divide and Conquer: The General Method - Binary Search - Merge Sort – Quick Sort – Selection Sort. **Greedy Method:** The General Method - Knapsack Problem - Job Sequencing with Deadlines - Minimum Spanning Tree - Prim's Algorithm - Kruskal's Algorithm.

UNIT V **(12 hrs)**

Dynamic Programming: The General Method - Multistage Graph - All Pairs Shortest Paths - Traveling Salesman Problem. **Backtracking:** The General Method - The 8 Queens Problem - Hamiltonian Cycles.

TEXTBOOKS

1. A.Chitra, P.T. Rajan. *Data Structures.* Vijay Nicole Imprints Private Limited, Chennai, 2006.
2. Debasis Samantha. *Classic Data structures.* PHI Learning Private Limited, New Delhi, 2nd Edition.
3. Ellis Horowitz, Sartaj Sahni. *Fundamentals of Computer algorithms.* Galgottia Publications Pvt.Ltd, New Delhi, 2006.

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1. Mark Allen Weiss. *Data structure and Algorithm Analysis in C*. Addison Wesley publishing, New Delhi, 2nd Edition.
2. Gilles Brassard and Paul Bratley. *Fundamentals of Algorithms*. Prentice Hall of India Private Limited, New Delhi, Sixth Printing.

Web Sources

1. https://onlinecourses.swayam2.ac.in/cec19_cs04/preview
2. http://www.nptelvideos.in/2012/11/data-structures-and-algorithms.html
3. https://www.geeksforgeeks.org/prims-minimum-spanning-tree-mst-greedy-algo

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - V
MAJOR ELECTIVE COURSE – II: CYBER SECURITY (21UCAO55)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 4 **INT. MARKS : 40**
CREDITS : 3 **EXT. MARKS : 60**
DURATION : 60 hrs **MAX. MARKS: 100**

Preamble

This course enables the learners to protect computer systems, networks and data from cyber-attacks.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K1]: describe the basic functionality of networks and cyber security concepts
CO2[K2]: illustrate various types of attacker techniques
CO3[K3]: apply the concepts and theories of networking to various circumstances
CO4[K4]: examine several malicious attacks
CO5[K4]: analyze software vulnerabilities and security solutions to reduce the risk of exploitation

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	3	1	1	-	-	-
CO2[K2]	2	2	2	2	-	1	-
CO3[K3]	3	3	2	2	1	1	-
CO4[K4]	3	2	-	2	2	1	2
CO5[K4]	3	2	1	2	2	1	1
Weightage of the course	13	12	06	09	05	04	03
Weighted percentage of Course contribution to POs	**2.59**	**2.9**	**2.34**	**2.79**	**3.11**	**2.12**	**1.89**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(12 hrs)**

Cyber Security Fundamentals: Network and Security Concepts - Information Assurance Fundamentals - Basic Cryptography - Symmetric Encryption - Public Key Encryption - The Domain Name System (DNS) – Firewalls – Virtualization – Radio - Frequency Identification. **Microsoft Windows Security Principles:** Windows Tokens - Window Messaging - Windows Program Execution - The Windows Firewall.

UNIT II **(12 hrs)**

Attacker Techniques Motivations: How Hackers Cover Their Tracks (Antiforensics) - Attackers Use Proxies - Tunneling Techniques - Fraud Techniques: Phishing, Smishing, Vishing and Mobile Malicious Code - Rogue Antivirus - Click Fraud - Threat Infrastructure.

UNIT III **(12 hrs)**

Exploitation : Techniques to Gain a Foothold - Shellcode - Integer Overflow Vulnerabilities - Stack- Based Buffer Overflows - Format String Vulnerabilities - SQL Injection - Malicious PDF Files - Race Conditions - Web Exploit Tools - DoS Conditions - Brute Force and Dictionary Attacks – Misdirection. **Reconnaissance and Disruption Methods:** Cross-Site Scripting (XSS) - Social Engineering – WarXing - DNS Amplification Attack.

UNIT IV **(12 hrs)**

Malicious code : Self-Replicating Malicious Code - Evading Detection and Elevating Privileges – Obfuscation - Virtual Machine Obfuscation - Persistent Software Techniques – Rootkits – Spyware - Attacks against Privileged User Accounts and Escalation of Privileges - Token Kidnapping - Virtual Machine Detection - Stealing Information and Exploitation - Form Grabbing - Man-in-the-Middle Attacks - DLL Injection - Browser Helper Objects.

UNIT V **(12 hrs)**

Defense and Analysis Techniques: Memory Forensics– Honeypots - Malicious Code Naming - Automated Malicious Code Analysis Systems - Intrusion Detection Systems.

TEXTBOOK

1. James Graham, Richard Howard, Ryan Olson. *Cyber Security Essentials*. CRC Press (PDF).

REFERENCES

Books

1. Lawrence C. Miller. *Cyber Security for Dummies.* John Wiley & Sons, Inc.
2. Chuck Easttom. *Computer Security Fundamentals.* Pearson.

Web Sources

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SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - V
MAJOR ELECTIVE COURSE – II: SOFT COMPUTING (21UCAO56)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 4 **INT. MARKS : 40**
CREDITS : 3 **EXT. MARKS : 60**
DURATION : 60 hrs **MAX. MARKS: 100**

Preamble

This course familiarizes the learners with the emerging approach to soft computing techniques and their roles in building intelligent machines.

Course Outcomes (CO)

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

CO1[K1]: identify and describe soft computing techniques and their roles in building intelligent machines
CO2[K2]: explain fuzzy logic and reasoning to handle uncertainty and solve various complex problems
CO3[K3]: apply genetic algorithms to combinatorial optimization problems
CO4[K4]: examine the importance of ant colony optimization algorithm
CO5[K4]: analyze some applications of computational intelligence

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	3	1	1	-	-	-
CO2[K2]	2	2	2	2	-	1	-
CO3[K3]	3	3	2	2	1	1	-
CO4[K4]	3	2	-	2	2	1	2
CO5[K4]	3	2	1	2	2	1	1
Weightage of the course	13	12	06	09	05	04	03
Weighted percentage of Course contribution to POs	**2.59**	**2.9**	**2.34**	**2.79**	**3.11**	**2.12**	**1.89**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(12 hrs)**

Neural Networks: Adaptive Networks – Back propagation for Feed Forward Network – Supervised Learning Neural Networks – Radial Basis Function Networks – Learning for Reinforcement.

UNIT II **(12 hrs)**

Introduction To Neuro Fuzzy: Neuro – Fuzzy Control – Introduction – Feed Back Control system and Neuro Fuzzy Control – Expert Control – Inverse Learning – Specialized Learning – Reinforcement Learning Control – Gradient Free optimization – Gain Scheduling.

UNIT III **(12 hrs)**

Fuzzy Logic: Fuzzy Sets – Operations on Fuzzy Sets – Fuzzy Relations – Membership Functions-Fuzzy Rules and Fuzzy Reasoning – Fuzzy Inference Systems – Fuzzy Expert Systems – Fuzzy Decision Making.

UNIT IV **(12 hrs)**

Ant Colony Optimization: Ant Colony Optimization Meta Heuristic: Foraging Behavior of ANTS – Stigmergy and Artificial Pheromone – Simple Ant Colony Optimization – Ant System – Ant Colony System – Max – Min Ant System – Ant - Q - Fast Ant System.

UNIT V **(12 hrs)**

Genetic Algorithm: Basic concepts –Canonical Genetic Algorithm – Crossover - Mutation – Genetic Algorithm – Advanced Topics - Applications.

TEXTBOOKS

1. SJyh-Shing Roger Jang, Chuen-Tsai Sun, EijiMizutani. *Neuro-Fuzzy and Soft Computing*. Prentice-Hall of India, 2003.
2. H J Zimmermann. *Fuzzy Set Theory and Its Applications*. Springer Science, 4th Edition, 2001.
3. Engelbrecht, A.P. *Fundamentals of Computational Swarm Intelligence.* Wiley. 2007.

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1. David Kriesel. *A Brief Introduction to Neural Networks*. Tata McGraw Hill Publishing Company Limited.
2. Simon Haykin. *The Neural Networks and Learning Machines*. Pearson International, 3rd Edition.

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1. https://nptel.ac.in/courses/106/106/106106232/
2. https://nptel.ac.in/courses/106/105/106105173/
3. https://onlinecourses.nptel.ac.in/noc21_ma55/preview
4. https://www.javatpoint.com/fuzzy-logic
5. https://www.geeksforgeeks.org/genetic-algorithms/

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - V
SKILL ENHANCEMENT COURSE - V: PRACTICAL: ACCOUNTING PACKAGE
(21UCAS5P)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 2 **INT. MARKS : 50**
CREDIT : 1 **EXT. MARKS : 50**
DURATION : 30 hrs **MAX. MARKS: 100**

Preamble

This course enables the learners to use the type of application that records and processes accounting transactions within functional modules such as accounts payable, accounts receivable, journal, general ledger, payroll, and trial balance.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K1]: describe the purchase and sales entries in trial balance sheet
CO2[K2]: explain the types of vouchers
CO3[K3]: perform the fundamental concepts of accounting.
CO4[K4]: simplify the types of vouchers
CO5[K5]: assess the accrual adjustments, and also print financial statements

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	2	-	1	1	-	-
CO2[K2]	2	2	1	1	-	-	-
CO3[K3]	2	2	2	2	2	1	1
CO4[K4]	2	1	2	-	1	2	1
CO5[K5]	2	1	1	1	-	1	1
Weightage of the course	10	08	06	05	04	04	03
Weighted percentage of Course contribution to POs	**2**	**1.93**	**2.34**	**1.55**	**2.48**	**2.12**	**1.89**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

1. Purchase and Sales.
2. Cost Centre Cost Category.
3. Advanced Cost Category.
4. Bill wise Details.
5. Bill wise Materials.
6. Invoicing.
7. Interest Calculation.
8. To prepare a Budget.
9. To use Currencies.
10. Purchase Return and Sales Return.
11. To prepare a Price List.
12. Use different actual Billed Quantity.

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - V
INTERNSHIP (21UCAJ51)
(From 2021-2022 Batch onwards)

INT. MARKS : 50
CREDIT : 1 **EXT. MARKS : 50**
DURATION: 25 days **MAX. MARKS: 100**

Preamble

This course familiarizes the learners with work environment relevant to their area of study in an attempt to gain knowledge on productivity in, and respect for the workplace.

Course Outcomes (CO)

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

CO1[K1]: find the offer a framework for breaking down tasks and creating on job trainings
CO2[K2]: interpret and revise appropriate job search plans and materials
CO3[K3]: develop and execute effective informational job interviews
CO4[K4]: simplify the strategies to manage public information
CO5[K4]: inspect a process for ensuring training tricks long term

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1 [K1]	3	2	-	1	1	1	2
CO2 [K2]	2	3	-	1	-	1	2
CO3 [K3]	2	2	-	2	-	1	1
CO4 [K4]	-	2	1	-	-	1	1
CO5 [K4]	1	3	3	3	-	1	2
Weightage of the course	08	12	04	07	01	05	08
Weighted percentage of Course contribution to POs	**1.6**	**2.9**	**1.56**	**2.17**	**0.62**	**2.65**	**5.03**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

Guidelines

1. Each Student has to undergo minimum 25 days institutional/industry based training during the fourth semester summer vacation.
2. Internships could be undertaken in different organizations, industries and agencies approved by the department.
3. Students should keep a detailed record of activities performed and hrs spent in training and report the same to the Faculty Coordinator every week.
4. The Internship report should be of minimum 20 pages.
5. Attendance certificate from the organization has to be submitted to the HOD.
6. Two copies of the Internship report should be submitted.
7. The Internship carries 100 marks out of which 50 marks for Internal Assessment and 50 Marks for External Examination.
8. The student has to appear for Viva-voce.
9. The viva voce board shall consist of the Head of the Department and the Internal Examiner

The following rubrics will be taken into account for the evaluation of the Training Programme :

Internal Assessment (50 Marks)	**External Examination(50 Marks)**
Training Report & Review : 40 Marks	Training Report : 20 Marks
Daily Log Report/Attendance: 5 Marks	Viva Voce : 30 Marks
PPT Presentation : 5 Marks	

Internship report must contain the following details:

- Title Page
- College Certificate Page
- Internship Certificate provided by the internship institution
- Declaration Page
- Acknowledgement
- Company Profile
- Organizational structure of the concern
- Weekly work plan
- List of figures, List of Tables
- Index
- Chapters

List of Chapters

1. Introduction
2. Nature of work
3. Role in the organization
4. Observations about work and software used
5. Operating Environment
6. Detailed Description of Technology used

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - VI
CORE COURSE - XIII: SYSTEM SOFTWARE AND OPERATING SYSTEMS
(21UCAC61)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 5 **INT. MARKS : 40**
CREDITS : 5 **EXT. MARKS : 60**
DURATION : 75 hrs **MAX. MARKS: 100**

Preamble

This course introduces the learners to the internal operation system software and modern operating system.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K1]: describe the basic concepts of system software and Assemblers
CO2[K2]: classify various Scheduling algorithms
CO3[K3]: formulate the concept of Deadlocks
CO4[K4]: simplify the concept of Processes and Threads
CO5[K4]: analyze various memory management schemes

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	3	1	1	-	-	-
CO2[K2]	2	2	2	2	-	1	-
CO3[K3]	3	2	3	2	1	2	-
CO4[K4]	3	2	2	2	2	1	2
CO5[K4]	2	1	1	1	2	1	2
Weightage of the course	12	10	09	08	05	05	04
Weighted percentage of Course contribution to POs	**2.4**	**2.42**	**3.52**	**2.48**	**3.11**	**2.65**	**2.52**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(15 hrs)**

Introduction: System Software and Machine Architecture – The Simplified Instructional Computer – Traditional CISC Machines – RISC Machines. **Assemblers**: Basic Assembler Functions – Machine Dependent Assembler Features - Assembler Design Options.

UNIT II **(15 hrs)**

Introduction: Structure, Goals of OS - Basic Functions - System Calls - Types of System Calls. **Process Management:** Process Concept - Process Scheduling - Operations on Processes – IPC – Multithreading Models. **CPU Scheduling:** Basic Concepts - Scheduling Criteria - Scheduling Algorithms – Multiprocessor Scheduling.

UNIT III **(15 hrs)**

Process Synchronization: The Critical Section Problem - Peterson's Solution – Synchronization Hardware - Mutex Locks – Semaphores – Monitors – Synchronization Examples. **Deadlock**: System Model – Deadlock Characterization - Methods for Handling Deadlocks – Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock.

UNIT IV **(15 hrs)**

Main Memory: Swapping – Contiguous Memory Allocation – Segmentation – Page Table - Structures of the Page table. **Virtual Memory**: Demand paging - Page replacement – Allocation of Frames – Thrashing – Memory – Mapped files.

UNIT V **(15 hrs)**

File-System Interface: File concept – Access methods – Directory Structure – File sharing – File protection - File Allocation Methods - Free Space Management. **Mass - Storage Structure**: Disk Structure - Disk Scheduling – Disk Management – RAID Structure.

TEXTBOOKS

1. Leland L. Beck. *System Software – An Introduction to Systems Programming.* 3rd Edition, Pearson Education Asia, 2000.
2. Abraham Silberschatz, Peter B. Galvin, and Greg Gagne. *Operating System Concepts*. 8th Edition, Wiley Student Edition, 2013.

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1. D. M. Dhamdhere. *Systems Programming and Operating Systems.* 2nd Revised Edition, Tata McGraw-Hill, 1999.
2. John J. Donovan. *Systems Programming.* Tata McGraw-Hill Edition, 1992.
3. Deitel & Deitel Choffnes. *Operating Systems.* Pearson education, 3rd Edition.

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1. https://nptel.ac.in/courses/106/102/106102132/
2. https://onlinecourses.nptel.ac.in/noc21_cs88/preview
3. https://onlinecourses.nptel.ac.in/noc21_cs72/preview
4. https://www.youtube.com/watch?v=VG9VopzV_T0
5. https://www.tutorialspoint.com/operating_system/index.htm

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - VI
CORE COURSE - XIV: PROGRAMMING IN PYTHON (21UCAC62)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 5 **INT. MARKS : 40**
CREDITS : 5 **EXT. MARKS : 60**
DURATION : 75 hrs **MAX. MARKS: 100**

Preamble

This course familiarizes the learners with the python programming and its applications.

Course Outcomes (CO)

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

CO1[K1]: describe the basic knowledge about python variables, operators
CO2[K2]: illustrate the the study of various control structures
CO3[K3]: Utilize the various complex data types in python programming
CO4[K4]: analyse the Python files, databases and advanced python objects
CO5[K5]: evaluate the overall idea about various python packages and GUI programming

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1 [K1]	3	2	-	2	-	1	-
CO2 [K2]	3	2	1	2	-	1	-
CO3 [K3]	2	3	1	2	1	2	-
CO4 [K4]	2	3	1	1	1	-	2
CO5 [K5]	3	1	2	1	2	1	2
Weightage of the course	13	11	05	08	04	05	04
Weighted percentage of Course contribution to POs	**2.59**	**2.66**	**1.95**	**2.48**	**2.48**	**2.65**	**2.52**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(15 hrs)**

Introduction to Python: Python variables, Python basic Operators, Understanding python blocks. Python Data Types, Declaring and using Numeric data types: int, float etc.

UNIT II **(15 hrs)**

Python Program Flow Control Conditional blocks: if, else and else if, Simple for loops in python, For loop using ranges, string, list and dictionaries. Use of while loops in python, Loop manipulation using pass, continue, break and else. Programming using Python conditional and loop blocks.

UNIT III **(15 hrs)**

Python Complex data types: Using string data type and string operations, Defining list and list slicing, Use of Tuple data type. String, List and Dictionary, Manipulations Building blocks of python programs, string manipulation methods, List manipulation. Dictionary manipulation, Programming using string, list and dictionary in-built functions. Python Functions, Organizing python codes using functions.

UNIT IV **(15 hrs)**

Advanced Python Objects: map(),Advanced Python Lambda and List Comprehensions, Advanced Python Demonstration: The Numerical Python Library (NumPy), The Series Data Structure, Querying a Series, The DataFrame Data Structure, DataFrame Indexing and Loading, Querying a DataFrame, Indexing Dataframes, Missing Values.

UNIT V **(15 hrs)**

Understanding the Python Packages for Data Science:- SciKit Learn, MatPlotLib, Importing and Exporting Data in Python, Getting Started Analyzing Data in Python, Understanding the Data, Dealing with Missing Values in Python, Data Formatting in Python

TEXTBOOK

1. Wesley J. Chun, *Core Python Applications Programming*, 3rd Edition, Pearson Education, 2016.
2. Jeeva Jose & P.SojanLal, *Introduction to Computing and Problem Solving with Python,* Khanna Publishers, New Delhi, 2016.

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1. Mark Lutz. *Learning Python Powerful Object-Oriented Programming*. O'reilly Media 2018, 5th Edition.
2. Timothy A. Budd. *Exploring Python*. Tata McGraw Hill Education Private Limited 2011, 1st Edition.

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1. https://onlinecourses.swayam2.ac.in/aic20_sp33/preview
2. https://onlinecourses.nptel.ac.in/noc21_cs75/preview
3. https://onlinecourses.nptel.ac.in/noc21_cs78/preview
4. http://interactivepython.org/courselib/static/pythonds
5. http://spoken-tutorial.org/tutorialsearch/?search_foss=Python&search_language=English

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - VI
CORE COURSE - XV: PRACTICAL: PYTHON AND R PROGRAMMING (21UCAC6P)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 5 **INT. MARKS : 50**
CREDITS : 4 **EXT. MARKS : 50**
DURATION : 75 hrs **MAX. MARKS: 100**

Preamble

This course enables the learners to develop python programming and do a variety of programming tasks using Pygame.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K1]: describe the fundamental programming procedures
CO2[K2]: demonstrate the uses of structuring data using lists, dictionaries, tuples and sets
CO3[K3]: develop programs with conditionals and loops
CO4[K4]: simplify programs using arrays
CO5[K6]: construct simple graphical programs using Pygame

CO-PO Mapping table (Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	3	1	1	-	-	-
CO2[K2]	2	2	2	2	-	1	-
CO3[K3]	3	2	3	2	1	1	-
CO4[K4]	3	2	2	-	2	1	2
CO5[K6]	2	1	1	1	2	1	1
Weightage of the course	12	10	09	06	05	04	03
Weighted percentage of Course contribution to POs	**2.4**	**2.42**	**3.52**	**1.86**	**3.11**	**2.12**	**1.89**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

PYTHON

1. To compute biggest among three numbers.
2. To create slice, change, delete and index elements using Tuples, Lists and Dictionary.
3. Addition and Subtraction of two Matrices.
4. To read and write the contents from or to a file.
5. Demonstrate the use of Inheritance
6. Program to perform Operator Overloading.
7. Program to implement Run time polymorphism.
8. Draw an elliptical orbits using pygame.
9. Simulate a bouncing ball using pygame.

R PROGRAMMING

10. Using mathematical functions on console.
11. Write an R script to find basic descriptive statistics using summary, str, quartile function on datasets.
12. Write an R script to find subset of dataset by using subset (), aggregate () functions on iris dataset.
13. Reading different types of data sets (.txt, .csv) from web and disk and writing in file in specific disk location.
14. Find the outliers using plot.
15. Plot the histogram, bar chart and pie chart on sample data.

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - VI
CORE COURSE – XVI: ADVANCED COMPUTING (21UCAC63)
(From 2021-2022 Batch onwards)

HOURS/ WEEK: 5 **INT. MARKS : 40**
CREDITS : 5 **EXT. MARKS : 60**
DURATION : 75 hrs **MAX. MARKS: 100**

Preamble

This course introduces the learners to the advanced computing techniques and distributed resources in a dynamically changing computing environment.

Course Outcomes (CO)

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

CO1[K2]: outline the Internet of things and its applications
CO2[K2]: differentiate the basics of mobile, cloud computing and machine learning
CO3[K3]: determine the basic concepts and security implications in cloud computing
CO4[K4]: distinguish the awareness and representation of Machine learning
CO5[K5]: evaluate the security of Fog, Mobile and cloud computing

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K2]	2	2	1	2	1	1	1
CO2[K2]	1	2	1	3	-	1	-
CO3[K3]	3	1	2	1	1	2	1
CO4[K4]	2	2	3	2	-	-	2
CO5[K5]	2	1	-	2	2	1	-
Weightage of the course	10	08	07	10	04	05	04
Weighted percentage of Course contribution to POs	**2**	**1.93**	**2.73**	**3.1**	**2.48**	**2.65**	**2.52**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(15 hrs)**

Introduction to IoT: Introduction to Internet of Things (IoT) - IoT Architectures – Real Time Analytics in IoT and Fog Computing – Typical Fog Computing Architecture – Communication Protocols – IoT Applications – Security.

UNIT II **(15 hrs)**

Mobile Computing: Architecture for Mobile Computing – Three Tier Architecture – Middleware – Global System for Mobile Communications (GSM) – History of GSM – GSM Architecture – GSM Frequency Allocation – Authentication and Security.

UNIT III **(15 hrs)**

General Packet Radio Services (GPRS): Introduction – GPRS and Packet Data Network - GPRS Architecture – Data services in GPRS – Applications for GPRS – Limitations of GPRS – Enhanced Data Rates for GSM Evolution (EDGE) – Introduction to CDMA – CDMA Vs GSM – 3G Networks – Applications of 3G.

UNIT IV **(15 hrs)**

Cloud Computing: Cloud Computing Fundamentals – Principles of Cloud Computing – Cloud Eco Systems – Requirements for Cloud Services – Benefits and Drawbacks – Cloud Computing Architecture Fog Computing Vs Cloud Computing for IoT.

UNIT V **(15 hrs)**

Machine Learning: Introduction of Machine Learning –Probability Theory – Random Variables – Distributions – Means and Variance - Basic Algorithms – Naïve Bayes – Nearest Neighbor Estimators – A Simple Classifier – Perceptron - K – Means.

TEXTBOOKS

1. Rajkumar Buyya, Amir Vahid Dastjerdi. *Internet of Things: Principles and Paradigms*. Elsevier, 2016.
2. Asoke K Talukder, Hasan Ahmed and Roopa R Yavagal. *Mobile Computing Technology, Applications and service creation*. Tata McGraw Hill Education Private Limited, 2010.
3. R. Chandrasekaran. *Essentials of Cloud computing*. 2nd Edition, Chapman and Hall/CRC, 2015.
4. Alex Smola and S.V.N. Vishwanathan. *Introduction to Machine Learning.* Cambridge University Press, 2010.

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1. John Soldatos. *Building Blocks for IoT Analytics*. River Publishers, 2016.
2. John E. Rossman. *The Amazon way on IoT*. Volume 2, John E. Rossman publications, 2016.

Web Sources

1. https://nptel.ac.in/courses/106/104/106104028/
2. https://nptel.ac.in/courses/106/102/106102114/
3. https://nptel.ac.in/courses/106/105/106105152/
4. https://www.coursera.org/learn/cloud-iot-platform
5. https://www.udemy.com/course/iothacking1/

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - VI
CORE COURSE – XVII: PROJECT (21UCAJ61)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 4 **INT. MARKS :50**
CREDITS : 4 **EXT. MARKS : 50**
DURATION : 60 hrs **MAX. MARKS: 100**

Preamble

The course enables the learners to identify, analyze, formulate and handle programming projects with a comprehensive and systematic approach.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K1]: identify the needs of the project
CO2[K2]: illustrate the problem and solutions
CO3[K3]: develop the software to find solutions for complex problems
CO4[K4]: examine the developed components
CO5[K4]: analyze or integrate with existing project

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1 [K1]	3	2	-	1	-	2	1
CO2 [K2]	3	3	-	1	-	2	1
CO3 [K3]	2	2	-	2	-	1	1
CO4 [K4]	-	2	1	3	1	1	1
CO5 [K4]	1	3	3	3	2	2	1
Weightage of the course	09	12	04	10	03	08	05
Weighted percentage of Course contribution to POs	**1.8**	**2.9**	**1.56**	**3.1**	**1.86**	**4.23**	**3.14**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

Guidelines

1. Students will work individually or in groups with maximum 2 members on a semester-long project.
2. Depending on the interest of the students, project research areas will be chosen.
3. Students must meet the guide periodically.
4. The project carries 100 marks of which 50 marks for Internal Assessment and 50 Marks for External Examination.
5. There will be two project review sessions.
6. A draft of the final project report should be submitted to the Project Guide for review atleast two weeks prior to the end of the semester.
7. The project report should be of minimum 60 pages (excluding bibliography & appendices)
8. Two copies of the final project report should be submitted.
9. The Head of the department and the Project Guide will evaluate the final Project Report.
10. The viva-voce board shall consist of the External Examiner/The Head of the Department and the Internal Examiner.

The following rubrics will be taken into account for the evaluation of Project work and viva-voce:

Internal Assessment (50 Marks)

Project Report & Review : 40 Marks
PowerPoint Presentation : 5 Marks
Demo/Performance : 5 Marks

External Examination (50 Marks)

Project Report : 20 Marks
Viva Voce : 30 Marks

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - VI
MAJOR ELECTIVE COURSE – III: DATA MINING AND WAREHOUSING
(21UCAO61)
(From 2021-2022 Batch onwards)

HOURS/WEEK: 4 **INT. MARKS : 40**
CREDITS : 3 **EXT. MARKS : 60**
DURATION : 60 hrs **MAX. MARKS : 100**

Preamble

This course introduces the learners to the data-mining area with an emphasis on aspects useful to machine learning.

Course Outcomes (CO)

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

CO1[K1]: identify the fundamental concepts of data mining and warehousing
CO2[K2]: explain the association rule and cluster analysis
CO3[K3]: implement solutions to basic bio-informatics problems
CO4[K4]: compare and evaluate different data mining techniques like classifications and predictions
CO5[K4]: analyze data mining and trends and applications

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	3	1	1	-	-	-
CO2[K2]	2	2	2	2	-	1	-
CO3[K3]	3	3	2	2	1	-	-
CO4[K4]	3	2	-	2	2	1	2
CO5[K4]	3	2	1	1	2	1	1
Weightage of the course	13	12	06	08	05	03	03
Weighted percentage of Course contribution to POs	**2.59**	**2.9**	**2.34**	**2.48**	**3.11**	**1.59**	**1.89**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(12 hrs)**

Data Mining: Introduction To Data Mining - Architecture of Data Mining System - Data Mining and Kinds of Data - Data Mining Functionalities - Classification of Data Mining System - Data Mining Techniques - Major Issues in Data Mining.

UNIT II **(12 hrs)**

Data Warehousing and OLAP Technology and Data Mining: Introduction to Data Warehousing – Data Warehouse Components. **Data Preprocessing:** Data Preprocessing – Data Cleaning – Data Integration – Data Transformation – Data Reduction – Data Discretization and Concept Hierarchy Generation.

UNIT III **(12 hrs)**

Mining Association Rules in Large Databases: Association Mining **–** Mining Single - Dimensional Boolean Association Rules from Transactional Databases.

UNIT IV **(12 hrs)**

Classification And Prediction: Issues Regarding Classification and Prediction – Classification By Decision Tree Induction - Bayesian Classification - Classification By Association Rules – Other Classification Methods.

UNIT V **(12 hrs)**

Cluster Analysis: Cluster Analysis - Types of Data In Cluster Analysis – A Categorization of Major Clustering Methods – Partitioning Methods - Outlier Analysis. **Applications and Trends in Data Mining:** Data Mining Applications – Trends in Data Mining.

TEXTBOOK

1. B.S. Charulatha. *Data Mining & Data Warehousing.* Charulatha Publications 2017.

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1. Priya and Vanmathi. *Introduction to data Mining and Data Warehousing*. Scitech Publications, Ahmadabad, 1st Edition, 2008.
2. Arun K.Pujari. *Data Mining Techniques*. Universities Press, New Delhi., 2nd Edition, 2009.

Web Sources

1. https://nptel.ac.in/courses/106/106/106106093/
2. https://nptel.ac.in/courses/106/106/106106095/
3. https://onlinecourses.swayam2.ac.in/cec19_cs01/preview
4. https://www.javatpoint.com/data-mining
5. https://www.tutorialspoint.com/data_mining/index.htm
6. https://www.geeksforgeeks.org/basic-concept-classification-data-mining/

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - VI
MAJOR ELECTIVE COURSE – III: BIGDATA ANALYTICS (21UCAO62)
(From 2021-2022 Batch onwards)

HOURS/WEEK : 4 **INT. MARKS : 40**
CREDITS : 3 **EXT. MARKS: 60**
DURATION : 60 hrs **MAX. MARKS: 100**

Preamble

This course introduces the learners to the fundamental techniques and tools required for big data analytics.

Course Outcomes (CO)

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

CO1[K1]: state the Data management architecture and Data management system
CO2[K2]: explain the big data technology tools or components
CO3[K3]: develop the virtualizations and distributed computing
CO4[K4]: differentiate the Map reduce and other data warehouse system
CO5[K4]: compare the technological aspects of data warehouses

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	3	1	1	-	-	-
CO2[K2]	2	2	2	2	-	1	-
CO3[K3]	3	3	2	2	1	1	-
CO4[K4]	3	2	-	2	2	1	2
CO5[K4]	3	2	1	2	2	1	1
Weightage of the course	13	12	06	09	05	04	03
Weighted percentage of Course contribution to POs	**2.59**	**2.9**	**2.34**	**2.79**	**3.11**	**2.12**	**1.89**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(12 hrs)**

Grasping the Fundamentals of Big Data: The Evolution Of Data Management –Understanding The Waves Of Managing Data –Defining Big Data – Building A Successful Big Data Management Architecture –The Big Data Journey. **Examining the Big Data Types:** Defining Structured Data –Defining Unstructured Data –Looking At Real Time and Non Real Time Requirements –Putting Big Data Together.

UNIT II **(12 hrs)**

Digging into Big Data Technology Components: Exploring The Big Data Stock –Redundant Physical Infrastructure –Security Infrastructure –Operational Databases –Organizing Data Services And Tools –Analytical Data Warehouses –Big Data Analytics –Big Data Applications.

UNIT III **(12 hrs)**

Virtualization and Distributed Computing: Understanding the Basics of Virtualization –Managing Virtualization with the Hypervisor –Abstraction And Virtualization –Implementing Virtualization To Work With Big Data. **Examining the Cloud and Big Data:** Defining the cloud in the context of Big Data – Understanding the cloud deployment and delivery models –The Cloud as an imperative for Big Data –Making use of the cloud for Big Data –Providers in the Big Data Cloud Market.

UNIT IV **(12 hrs)**

Operational Databases: RDBMSs Is More Important In Big Data Environment –Non Relational Databases –Key Value Pair Databases –Document Databases –Columnar Databases –Graph Databases –Spatial Databases –Polyglot Persistence. **Map Reduce fundamentals:** Tracing The Origins Of Map reduce – Understanding The Map Function –Adding The Reduce Function –Putting Map And Reduce Together –Optimizing Map reduce Tasks.

UNIT V **(12 hrs)**

Exploring The World Of Hadoop: Explaining The Hadoop –Understanding The Hadoop Distributed File System (HDFS) –Hadoop Map reduce. The Hadoop Foundation Eco System: Building A Data Foundation With The Hadoop Eco System –Managing Resources And Applications With Hadoop Yarn –Storing Big Data With Hbase –Mining Big Data With Hive –Interacting With Hadoop Eco System.

TEXTBOOK

1. Judith Hurwitz, Alan Nuget, Dr. Fern Helper, Marcia Kaufman. *Big Data for Dummies*. A Wiley Brand 2013.

REFERENCES

Books

1. Viktor Mayer-Schonberger, Kenneth Cukier. *Big Data: A Revolution That Will Transform How We Live, Work and Think*. Tata McGraw Hill, 2013.
2. Thomas Erl, WajidKhattak, Paul Buhler. *Big Data Fundamentals: Concepts Drivers: Concepts, Drivers and Techniques*. Prentice Hall of India, 2015.

Web Sources

1. https://nptel.ac.in/courses/106/104/106104189/
2. https://nptel.ac.in/noc/courses/noc19/SEM1/noc19-cs33/
3. https://www.sas.com/en_in/insights/big-data/hadoop.html

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - VI
MAJOR ELECTIVE COURSE - III: INTERNET OF THINGS (21UCAO63)
(For those who have join from June 2021 and later)

HOURS/ WEEK: 4 **INT. MARKS : 40**
CREDITS : 3 **EXT. MARKS : 60**
DURATION : 60 hrs **MAX. MARKS: 100**

Preamble

This course introduces the learners to the inter connection and integration of the physical world and the cyber space.

Course Outcomes (CO)

On successful completion of the course, the learners should be able to

CO1[K1]: define the Internet of things and its applications
CO2[K2]: classify the concepts of IoT and M2M management
CO3[K3]: develop simple IoT design using Raspberry Pi
CO4[K4]: examine the IoT infrastructure for popular applications
CO5[K4]: simplify the views of IoT and their protocols

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	3	1	1	-	-	-
CO2[K2]	2	2	2	2	-	1	-
CO3[K3]	3	3	2	2	1	1	-
CO4[K4]	3	2	-	2	2	1	2
CO5[K4]	3	2	1	2	2	1	1
Weightage of the course	13	12	06	09	05	04	03
Weighted percentage of Course contribution to POs	**2.59**	**2.9**	**2.34**	**2.79**	**3.11**	**2.12**	**1.89**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

UNIT I **(12 hrs)**

Introduction to Internet of Things: Introduction- Physical Design of IOT- Logical Design of IOT- IOT Levels & Deployment Templates. **Domain Specific IOT:** Introduction- Home Automation- Cities.

UNIT II **(12 hrs)**

IOT and M2M: Introduction- M2M- Difference between IOT and M2M- SDN and NFV for IOT. **IOT System Management with Netconf-Yang:** Need For IOT Systems Management- Simple Network Management Protocol - Network Operator Requirements -Netconf-Yang.

UNIT III **(12 hrs)**

Developing Internet of Things: IOT Platforms Design Methodology- IOT Design Methodology. IOT Physical Devices and Endpoints. **Exemplary Device**: Raspberry Pi-About The Board-Linux On Raspberry Pi-Raspberry Pi Interfaces-Other IOT Devices.

UNIT IV **(12 hrs)**

IOT Architecture-State of the Art: Introduction, State of The Art. **Architecture Reference Model**: Introduction, Reference Model and Architecture, IOT Reference Model.

UNIT V **(12 hrs)**

IOT Reference Architecture: Introduction, Functional View, Information View, Deployment and Operational View, Other Relevant Architectural Views. **Real-World Design Constraints**: Introduction, Technical Design Constraints-Hardware Is Popular Again, Data Representation And Visualization, Interaction And Remote Control.

TEXTBOOKS

1. Vijay Madisetti and Arshdeep Bahga. *Internet of Things (A Hands-on-Approach).* VPT, 1st Edition, 2014.
2. Jan Holler, Vlasios Tsiatsis, Catherine Mulligan, Stefan Avesand, Stamatis Karnouskos, David Boyle. *From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence.* Academic Press, 1st Edition, 2014.

REFERENCES

Books

1. Francis da Costa., *Rethinking the Internet of Things: A Scalable Approach to Connecting Everything.* Apress Publications, 1st Edition, 2013.
2. Dr. Ovidiu Vermesan, Dr.Peter Friess. *Internet of Things- From Research and Innovation to Market Deployment*. River Publishers, 2014.

Web Sources

1. https://onlinecourses.nptel.ac.in/noc21_cs63/preview
2. https://nptel.ac.in/courses/108/108/108108179/
3. https://www.digimat.in/nptel/courses/video/106105166/L02.html

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER APPLICATIONS
UG Programme – Bachelor of Computer Applications
SEMESTER - VI
SKILL ENHANCEMENT COURSE-VI: PRACTICAL XI: SHELL PROGRAMMING
(21UCAS6P)
(From 2021-2022 Batch onwards)

HOURS/ WEEK: 2 **INT. MARKS : 50**
CREDIT : 1 **EXT. MARKS : 50**
DURATION : 30 hrs **MAX. MARKS: 100**

Preamble

This course familiarizes the learners with shell process structure and the shell file system and gives the basics of shell utilities, and to implement shell scripting.

Course Outcomes (CO)

On successful completion of the course, the learners will be able to
CO1[K2]: specify the basic commands of shell programming
CO2[K3]: make the file operations and directory in shell
CO3[K3]: apply standard input and output operation in files
CO4[K4]: classify the various access rights
CO5[K5]: evaluate the various file processing commands using shell

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K2]	3	2	2	2	2	1	-
CO2[K3]	3	1	2	1	1	1	1
CO3[K3]	2	-	1	1	1	1	1
CO4[K4]	1	1	1	1	-	1	1
CO5[K5]	1	-	-	-	-	1	1
Weightage of the course	10	04	06	05	04	05	04
Weighted percentage of Course contribution to POs	**2**	**0.97**	**2.34**	**1.55**	**2.48**	**2.65**	**2.52**

Based on the level of contribution ('3'-High, '2'-Medium, '1'-Low '-' No Correlation)

1. Basic Commands.
2. Checking File or Directory.
3. File Operations.
4. Directory Operations.
5. Listing the files regarding their names.
6. Changing the file access rights.
7. Counting no of users currently logged in.
8. List of files having full access rights.
9. Counting no of lines, words and characters in a file.
10. Finding out the factorial of a given number using for loop and command line arguments.
11. Write a shell program which accepts the name of the file form the standard input and thenperforms the following operations:
    I. Enter the 5 names in a file
    II. Sort the names in existing file
    III. List unsorted and sorted file
    IV. Quit
12. Sorting the Employee file.
13. Merging and extracting details from students file.