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 2023-2024 Batch onwards)

Department of Computer Science

UG Programme

Approved in the Academic Council - XIV held on 31/07/2023

Curriculum Design and Development Cell
Annexure G

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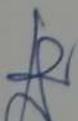RE-ACCREDITED WITH 'A' GRADE (THIRD CYCLE) BY NAAC WITH CGPA 3.11)

Programme Scheme, Scheme of Examination and Syllabi

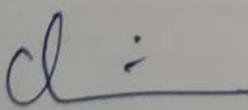### (From 2023-2024 Batch onwards)
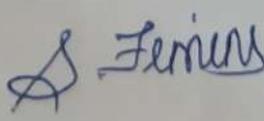
Department of Computer Science

UG Programme

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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 SCIENCE
MEMBERS OF BOARD OF STUDIES

| S.No.	Board Members	Name and Designation
1.	Chairman of the Board	**Mrs. L.Priya M.Sc.,M.Phil.,** Head & Assistant Professor of Computer Science, Sri Kaliswari College (Autonomous),Sivakasi.
2.	University Nominee	**Dr.K.Perumal** Professor Department of Computer Application School of Information Technology Madurai Kamaraj University,Madurai-625021
3.	Academic Expert 1.	**Dr. C.R.Sakthivel** Head Of the Department, Department of Computer Science, Sri Ramakrishna Mission Vidyala, Coimbatore.
4.	Academic Expert 2.	**Mrs. E.Ponmalar** Associate Professor, Department of Computer Science, SFR College for Women, Sivakasi.
5.	Industrialist	**Mr. G.Mahesh Kumar** Virtuo Technologies,Sivakasi.
6.	Alumnus	**Mr.G.Vijayapandi** Director @ Unobi Technologies Private Limited,Sivakasi
Members		
7.	Mrs. M.Saranya	Assistant Professor in Computer Science
8.	Mrs.C.Kavitha	Assistant Professor in Computer Science
9.	Mrs.M.Shanmuga Eswari	Assistant Professor in Computer Science
10.	Mr. G.Ramkumar	Assistant Professor in Computer Science
11.	Mrs. A.Karmehala	Assistant Professor in Computer Science
12.	Ms.P.R.Chowmya	Assistant Professor in Computer Science
13.	Mrs.B.Maheswari	Assistant Professor in Computer Science
14.	Mr.P.Marimuthu	Assistant Professor in Computer Science
15.	Ms.K.Gowri	Assistant Professor in Computer Science
16.	Mr.P.Manimuthu	Assistant Professor in Computer Science
17.	Mrs.R.Subasri	Assistant Professor in Computer Science

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
(Affiliated to Madurai Kamaraj University, Re-accredited with A Grade (CGPA 3.11) by NAAC)
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
GUIDELINES FOR OUTCOME-BASED EDUCATION WITH CHOICE BASED CREDIT SYSTEM
(From 2023-2024 Batch onwards)

INTRODUCTION

Sri Kaliswari College in its pursuit of imparting quality education has 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 Re-Accredited with A grade with 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
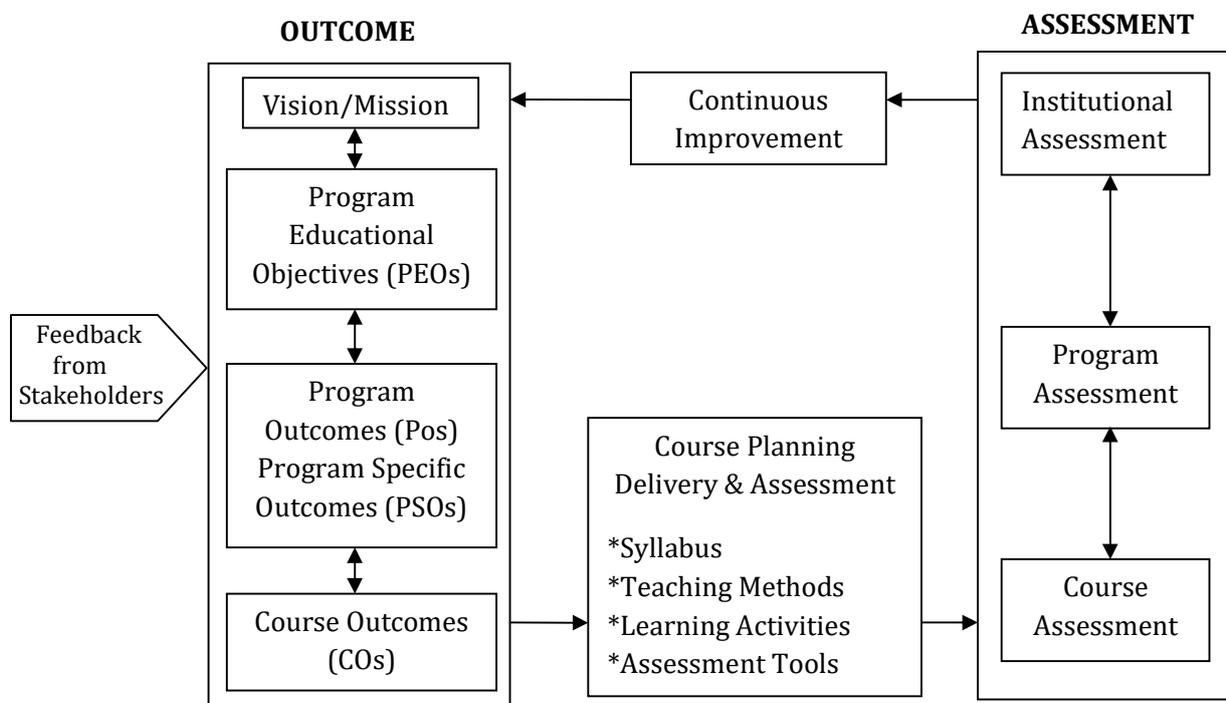
II. VISION OF THE INSTITUTION

- 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 impart eminence in computer education to produce technically competent graduates with human values.

V. MISSION OF THE DEPARTMENT

- Empower the youth in rural communities with computer education
- Enhance their knowledge and strengthen their core competence in computers through analytical learning.
- Produce employable graduates by imparting total quality education

VI. PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

The Graduates will

PEO 1: achieve the mastery of the discipline and acquire knowledge and skills in the field of computer science

PEO 2: excel in providing solutions to challenging problems in their profession by applying their knowledge of their domain practically and acquire ability to pursue higher studies of specialization

PEO 3: demonstrate proficiency in various high level programming languages to comprehend, analyze, design and construct contemporary/ innovative solutions in the field of IT and other Entrepreneurial Areas.

PEO 4: exhibit the ability to work independently on a substantial software project and as an effective team member and work effectively in multidisciplinary environment as a socially committed individual.

PEO 5: instill lifelong learning, professional and ethical attitude for embracing global challenges and make positive impact on environment and society.

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) – B.Sc. Computer Science (Cloud Computing & Cyber Security)

On the successful completion of **B.Sc. Computer Science (Cloud Computing & Cyber Security)**, the students will

PSO 1: acquire knowledge and competencies in diverse areas of computer science and make them experts to design computer software and hardware by applying mathematical and computational skills.

PSO 2: acquire skills to understand, analyze and develop computer programming in the construction of software systems of varying complexity.

PSO 3: attain the ability to formulate, model, and to design solutions, procedure and to use software tools to solve real world problems and evaluate ideas or research in a specialized areas of Computer Science.

PSO 4: communicate technological concepts in a complete, concise, and correct manner and prepare documentation and presentations using different ICT tools.

PSO 5: recognize cross cultural, societal, professional, legal, and ethical issues prevailing in software industry and exhibit high level of professional and moral values.

PSO 6: gain excellent adaptability to changing work environment, and strengthen good interpersonal skills as a leader in a team and acquire employability skills.

PSO 7: develop the ability to appreciate emerging technologies and constantly upgrade their skills with an attitude towards lifelong learning.

IX. PO-PSO Mapping Matrix – B.Sc. Computer Science (Cloud Computing & Cyber Security)

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

X. PO-PEO Mapping Matrix – B.Sc. Computer Science (Cloud Computing & Cyber Security)

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

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
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DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
REGULATIONS

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

Eligibility

      Candidate should have 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 2023 - 2024 may be permitted to write their examinations in this pattern up to April 2031.

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SCHEME OF EXAMINATION

For both UG and PG Programmes, the internal and external marks are distributed as follows:

For all Theory Courses(Part I, II, III)   : Internal Marks: 25; External
                                                                          Marks: 75

For Courses with both Theory and Practical, it will be considered as practical course and assessment will be for both Theory and Practical.

For Part-IV Courses   : Internal Marks:25; External
                                                                          Marks: 50(Converted to 75)

For all Practical Courses, Project and Internship   : Internal Marks: 25; External
                                                                          Marks: 75

Internal Mark Distribution for Theory Courses

Assessment Type	Marks	Scheme of Assessment
Internal Test	10 marks	Two Internal Tests and 1 Model Exam will be conducted and average of the best two will be considered
Written Assignment/ E-Assignment/ Case Studies/ Reviews/ Field Assignments/ Poster Presentations/ Portfolios [a set of pictures (such as drawings or photographs) usually bound in book form or loose in a folder**]**	5 marks	Any two of the Assignments will be given and the average of the two will be considered
Quiz	5 marks	One Quiz Test will be conducted
Viva/ Oral Exam/ Group Discussion/ Role Play	5 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	15 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	65 marks	End result of the Practical
Viva –Voce	10 marks	Oral Mode Test

Internal Mark Distribution for Courses with both Theory and Practical

Assessment Type	Marks	Scheme of Assessment
Internal Test	10 marks	Two Internal Tests and 1 Model Exam will be conducted and average of the best two will be considered
Written Assignment E-Assignment/ Case Studies/ Reviews/ Field Assignments/ Poster Presentations/ Portfolios	5 marks	Any two of the Assignments will be given and the average of the two will be considered
Lab work /Program Execution	10 marks	Two Internal Tests will be conducted and the average of the two will be considered

External Mark Distribution for Courses with both Theory and Practical

Assessment Type	Marks	Scheme of Assessment
External Written Test	50 marks	Two hours External Exam will be conducted for 50 marks
Lab work /Program Execution	20 marks	End result of the Practical
Viva –Voce	05 marks	Oral Mode Test

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
QUESTION PAPER PATTERN FOR PART- I, PART- II & PART-III COURSES

Internal Test – 30 Marks – 1 hr Duration

S.No	Type of Questions	Marks
1.	Objective type Questions: Multiple Choice – 3 questions Answer in a Word/Sentence – 3 questions	 03 03
2.	Short Answer–2 questions –either or type	2x7=14
3.	Long Answer–1 question – either or type	1x10=10

Summative Examinations – For Part- I, Part- II & Part-III Courses
75 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	5x7=35
3.	Long Answer - 3 questions – either or type	3x10=30

QUESTION PAPER PATTERN FOR PART -IV COURSES
Internal Test- 30 Marks – 1 hr Duration

S.No	Type of Questions	Marks
1.	Objective type Questions: Multiple Choice – 5 questions	 05
2.	Short Answer - 3 questions – either or type	3x5=15
3.	Long Answer - 1 question – either or type	01x10=10

Summative Examinations –
For Part-IV Courses 50 Marks (converted to 75)-2 hrs Duration

S.No	Type of Questions	Marks
1.	Objective type Questions: Multiple Choice – 10 questions	 10
2.	Short Answer - 4 questions – either or type	4x5=20
3.	Long Answer - 2 questions – either or type	02x10=20

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)

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,

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

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

Assessment tools
For Summative Examinations,

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

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

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

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

Percentage of CO attainment	Level of Attainment
= 70% and above	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.

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

Percentage attainment for each PO $= \dfrac{\text{Total weightage of all courses contributed to each PO}}{\text{Total weightage of all courses contributed to all POs}} \times 100 \times$ weighted contribution of the course in the attainment of each PO

Percentage Attainment of PO = Average of percentage attainment of all POs

Expected Level of Attainment for each of the Programme Outcomes

Percentage of PO attainment	Level of Attainment
= 70% and above	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

Percentage of PEO attainment	Level of Attainment
= 70% and above	Excellent
= 60% - <70 %	Very good
= 50% -< 60 %	Good
= 40% - < 50 %	Satisfactory
Below 40%	Not Satisfactory

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DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
CURRICULUM STRUCTURE
OUTCOME-BASED EDUCATION WITH CHOICE BASED CREDIT SYSTEM
(From 2023-2024 Batch onwards)

Part	Courses	Sem I	Sem II	Sem III	Sem IV	Sem V	Sem VI	Credits
I	Tamil / Hindi	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) 5 (5) P	5 (5) 5 (5) P	5 (5) 5 (5)P	5 (5) 5 (5) P	5 (4) 5 (4) 5 (4)P 5 (4)P	6 (4) 6 (4) 6 (4)P	68
	Elective Courses Generic/ Discipline Specific	4 (3)	4 (3)	4 (3)	3 (3)	4 (3) 4 (3)	5 (3) 5 (3)	24
IV	Skill Enhancement Courses	2 (2) F 2 (2) NME	2(2) P 2(2) NME	1(1) E 2 (2) P	2 (2) P 2 (2)	-	2(2) P	17
	Environmental Studies	-	-	1	1(2)	-	-	02
	Value Education	-	-	-	-	2(2)	-	02
	Internship/ Industrial Training	-	-	-	-	(2)	-	02
V	Extension Activity	-	-	-	-	-	(1)	01
	Total Hours (Per week)/ Credits	30(23)	30(23)	30(22)	30(25)	30(26)	30(21)	140 180

Self-paced Learning (Swayam Course)	-	-	-	-	-	1 Credit	1 Credit

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DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
CURRICULUM PATTERN
OUTCOME-BASED EDUCATION WITH CHOICE BASED CREDIT SYSTEM
(From 2023-2024 Batch onwards)
PROGRAMME CODE – UCY

Semester	Part	Course Code	Course Name	Hours	Credits	Internal Marks	External Marks
I	I	23UTAG11	Podhu Tamil / Hindi – I	6	3	25	75
	II	23UENL11	General English – I	6	3	25	75
	III	23UCYC11	**Core Course - I:** Python Programming	5	5	25	75
		23UCYC1P	**Core Course - II:** Practical: Python Programming	5	5	25	75
		23UCYA11	**Elective Course Generic / Discipline Specific - I:** Discrete Mathematics-I	4	3	25	75
	IV	23UCYS11	**Skill Enhancement Course - I: Foundation** Programming in C	2	2	25	75
		23UCYN11	**Skill Enhancement Course II: Non Major Elective Course :** Understanding the internet	2	2	25	75
			Total	**30**	**23**		
II	I	23UTAG21	Podhu Tamil / Hindi – II	6	3	25	75
	II	23UENL21	General English – II	6	3	25	75
	III	23UCYC21	**Core Course - III:** Data Structures & Algorithms	5	5	25	75
		23UCYC2P	**Core Course - IV:** Practical: Data Structures & Algorithms	5	5	25	75
		23UCYA21	**Elective Course Generic/ Discipline Specific - II:** Discrete Mathematics – II	4	3	25	75
	IV	23UCYS2P	**Skill Enhancement Course - III:** Office Automation	2	2	25	75
		23UCYN21	**Skill Enhancement Course - IV: Non Major Elective Course :** Advanced Excel	2	2	25	75
			Total	**30**	**23**		
III	I	23UTAG31	Podhu Tamil/Hindi– III	6	3	25	75
	II	23UENL31	General English – III	6	3	25	75
	III	23UCYC31	**Core Course - V:** Database Management Systems	5	5	25	75
		23UCYC3P	**Core Course - VI:** Practical: Database Management Systems	5	5	25	75
		23UCYA31	**Elective Course Generic/ Discipline Specific - III:** Numerical Methods	4	3	25	75

		23UCYS31	**Skill Enhancement Course– V: (Entrepreneurial Skill)**- Software Testing	1	1	25	75
	IV	23UCYS3P	**Skill Enhancement Course – VI:** Web Designing	2	2	25	75
		-	Environmental Studies	1	-	-	-
			Total	**30**	**22**		
IV	I	23UTAG41	Podhu Tamil / Hindi – IV	6	3	25	75
	II	23UENL41	General English – IV	6	3	25	75
	III	23UCYC41	**Core Course - VII: Industry Module-** Java Programming	5	5	25	75
		23UCYC4P	**Core Course - VIII:** Practical: Java Programming	5	5	25	75
		23UCYA41	**Elective Course Generic/ Discipline Specific - IV:** Computer Networks	3	3	25	75
	IV	23UCYS4P	**Skill Enhancement Course – VII:** PHP Programming	2	2	25	75
		23UCYS41	**Skill Enhancement Course – VIII:** Cyber Forensics	2	2	25	75
		23UESR41	Environmental Studies	1	2	25	75
			Total	**30**	**25**		
V	III	23UCYC51	**Core Course - IX:** Machine Learning	5	4	25	75
		23UCYC52	**Core Course - X:** Cloud Computing	5	4	25	75
		23UCYC5P	**Core Course - XI:** Practical: Cloud Computing	5	4	25	75
		23UCYJ51	**Core Course - XII:** Project with Viva-Voce	5	4	25	75
		23UCYO51 23UCYO52	**Elective Courses Generic/ Discipline Specific - V:** 1. Operating Systems 2. .NET Programming	4	3	25	75
		23UCYO53 23UCYO54	**Elective Courses Generic/ Discipline Specific - VI:** 1. Big Data Analytics 2. Introduction to Data Science	4	3	25	75
	IV	23UVED51	Value Education	2	2	25	75
		23UCYJ52	Internship/Industrial Training	-	2	25	75
			Total	**30**	**26**		
VI	III	23UCYC61	**Core Course - XIII:** Cyber Security	6	4	25	75
		23UCYC62	**Core Course - XIV:** Cryptography & Network Security	6	4	25	75
		23UCYC6P	**Core Course - XV: Practical :** Cryptography & Network Security	6	4	25	75
			Elective Courses Generic/ Discipline Specific - VII:	5	3	25	75

	23UCYO61 23UCYO62	1. Information Security 2. Human Computer Interaction				
	23UCYO63 23UCYO64	**Elective Courses Generic/ Discipline Specific - VIII:** 1. Ethical Hacking 2. Database Security	5	3	25	75
IV	23UCYS6P	**Skill Enhancement Course – IX: Professional Competency Skill:** Enterprise Resource Planning	2	2	25	75
	-	Extension	-	1	-	100
		Total	**30**	**21**		

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OUTCOME-BASED EDUCATION WITH CHOICE BASED CREDIT SYSTEM
(From 2023-2024 Batch onwards)

PROGRAMME ARTICULATION MATRIX (PAM)

Semester	Course Code	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7
I	23UTAG11	Podhu Tamil / Hindi – I	10	7	2	8	2	2	3
	23UENL11	General English – I	10	7	2	8	2	2	3
	23UCYC11	Core Course - I: Python Programming	14	14	9	7	0	7	5
	23UCYC1P	Core Course - II: Practical: Python Programming	14	14	10	7	0	6	5
	23UCYA11	Elective Course Generic / Discipline Specific - I: Discrete Mathematics-I	10	13	7	4	0	4	3
	23UCYS11	Skill Enhancement Course - I: Foundation - Programming in C	13	14	9	7	0	6	5
	23UCYN11	Skill Enhancement Course II: Non Major Elective Course : Understanding the internet	9	5	0	8	0	5	5
II	23UTAG21	Podhu Tamil / Hindi – II	10	8	2	8	2	2	3
	23UENL21	General English – II	10	8	2	8	2	2	3
	23UCYC21	Core Course - III: Data Structures & Algorithms	14	12	8	8	0	6	5
	23UCYC2P	Core Course - IV: Practical: Data Structures & Algorithms	13	13	11	10	0	10	5
	23UCYA21	Elective Course Generic/ Discipline Specific – II: Discrete Mathematics - II	10	11	8	6	0	7	5
	23UCYS2P	Skill Enhancement Course – III: Office Automation	13	6	0	8	1	5	5

Sem	Course Code	Title							
	23UCYN21	Skill Enhancement Course - IV: Non Major Elective Course: Advanced Excel	9	5	0	8	0	5	5
III	23UTAG31	Podhu Tamil / Hindi – III	10	8	2	8	2	2	2
	23UENL31	General English – III	10	8	3	9	3	3	2
	23UCYC31	Core Course - V: Database Management Systems	14	14	9	3	1	2	7
	23UCYC3P	Core Course - VI: Practical: Database Management Systems	15	13	4	3	2	4	5
	23UCYA31	Elective Course Generic/ Discipline Specific - III: Numerical Methods	10	10	7	5	0	4	4
	23UCYS31	Skill Enhancement Course– V: (Entrepreneurial Skill)- Software Testing	14	14	11	8	0	7	10
	23UCYS3P	Skill Enhancement Course – VI: Web Designing	14	12	8	8	0	6	5
IV	23UTAG41	Podhu Tamil / Hindi – IV	10	8	2	9	2	2	2
	23UENL41	General English – IV	10	9	3	8	2	3	3
	23UCYC41	Core Course - VII: Industry Module- Java Programming	10	12	11	5	5	5	2
	23UCYC4P	Core Course - VIII: Practical: Java Programming	10	8	7	9	4	4	1
	23UCYA41	Elective Course Generic/ Discipline Specific - IV: Computer Networks	15	11	3	5	1	2	5
	23UCYS4P	Skill Enhancement Course – VII: PHP Programming	15	12	10	5	5	13	15
	23UCYS41	Skill Enhancement Course – VIII: Cyber Forensics	12	12	11	5	5	5	10
	23UESR41	Environmental Studies	8	5	1	7	8	5	5
	23UCYC51	Core Course - IX: Machine Learning	15	12	2	3	2	8	3
	23UCYC52	Core Course - X: Cloud Computing	15	13	7	2	3	2	5
	23UCYC5P	Core Course - XI: Practical: Cloud Computing	15	13	7	2	3	2	5
	23UCYJ51	Core Course - XII: Project with Viva Voce	13	10	10	11	4	5	3

V	23UCYO51 23UCYO52	Elective Courses Generic/Discipline Specific–V: 1. Operating Systems 2. .NET programming	15	13	7	2	3	2	5
	23UCYO53 23UCYO54	Elective Courses Generic/ Discipline Specific - VI: 1. Big Data Analytics 2. Introduction to Data Science	11	11	9	5	7	10	5
	23UVED51	Value Education	8	5	1	5	9	4	7
	23UCYJ52	Internship/Industrial Training	8	12	4	7	1	5	8
VI	23UCYC61	Core Course - XIII: Cyber Security	15	13	6	5	3	8	5
	23UCYC62	Core Course - XIV: Cryptography and Network Security	15	12	2	3	2	8	3
	23UCYC6P	Core Course - XV: Practical : Cryptography & Network Security	13	12	11	3	5	10	10
	23UCYO61 23UCYO62	Elective Courses Generic/Discipline Specific–VII: 1. Information Security 2. Human Computer Interaction	15	13	7	2	3	2	5
	23UCYO63 23UCYO64	Elective Courses Generic/Discipline Specific–VIII: 1. Ethical Hacking 2. Database Security	15	13	7	2	3	2	5
	23UCYS6P	Skill Enhancement Course – IX: Professional Competency Skill: Enterprise Resource Planning	15	15	14	12	13	11	5
	-	Extension Activity	8	2	1	7	9	8	5
		Total Weightage of all courses contributing to PO	**532**	**462**	**257**	**273**	**119**	**223**	**217**

SRI KALISWARI COLLEGE (AUTONOMOUS), Sivakasi
(Affiliated to Madurai Kamaraj University, Re-accredited with A Grade (CGPA 3.11) by NAAC)
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
OUTCOME-BASED EDUCATION WITH CHOICE BASED CREDIT SYSTEM
(From 2023-2024 Batch onwards)

PROGRAMME ARTICULATION MATRIX – WEIGHTED PERCENTAGE

Semester	Course Code	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7
I	23UTAG11	Podhu Tamil / Hindi – I	1.88	1.52	0.78	2.93	1.68	0.9	1.38
	23UENL11	General English – I	1.88	1.52	0.78	2.93	1.68	0.9	1.38
	23UCYC11	Core Course - I: Python Programming	2.63	3.03	3.5	2.56	0	3.14	2.3
	23UCYC1P	Core Course - II: Practical: Python Programming	2.63	3.03	3.89	2.56	0	2.69	2.3
	23UCYA11	Elective Course Generic / Discipline Specific - I: Discrete Mathematics-I	1.88	2.81	2.72	1.47	0	1.79	1.38
	23UCYS11	Skill Enhancement Course - I: Foundation - Programming in C	2.44	3.03	3.5	2.56	0	2.69	2.3
	23UCYN11	Skill Enhancement Course II: Non Major Elective Course : Understanding the internet	1.69	1.08	0	2.93	0	2.24	2.3
II	23UTAG21	Podhu Tamil / Hindi – II	1.88	1.73	0.78	2.93	1.68	0.9	1.38
	23UENL21	General English – II	1.88	1.73	0.78	2.93	1.68	0.9	1.38
	23UCYC21	Core Course - III: Data Structures & Algorithms	2.63	2.6	3.11	2.93	0	2.69	2.3
	23UCYC2P	Core Course - IV: Practical: Data Structures & Algorithms	2.44	2.81	4.28	3.66	0	4.48	2.3
	23UCYA21	Elective Course Generic/ Discipline Specific – II: Discrete Mathematics - II	1.88	2.38	3.11	2.2	0	3.14	2.3
	23UCYS2P	Skill Enhancement Course – III: Office Automation	2.44	1.3	0	2.93	0.84	2.24	2.3

	23UCYN21	Skill Enhancement Course - IV: Non Major Elective Course: Advanced Excel	1.69	1.08	0	2.93	0	2.24	2.3
III	23UTAG31	Podhu Tamil / Hindi – III	1.88	1.73	0.78	2.93	1.68	0.9	0.92
	23UENL31	General English – III	1.88	1.73	1.17	3.3	2.52	1.35	0.92
	23UCYC31	Core Course - V: Database Management Systems	2.63	3.03	3.5	1.1	0.84	0.9	3.23
	23UCYC3P	Core Course - VI: Practical: Database Management Systems	2.82	2.81	1.56	1.1	1.68	1.79	2.3
	23UCYA31	Elective Course Generic/ Discipline Specific - III: Numerical Methods	1.88	2.16	2.72	1.83	0	1.79	1.84
	23UCYS31	Skill Enhancement Course–V: (Entrepreneurial Skill)-Software Testing	2.63	3.03	4.28	2.93	0	3.14	4.61
	23UCYS3P	Skill Enhancement Course – VI: Web Designing	2.63	2.6	3.11	2.93	0	2.69	2.3
IV	23UTAG41	Podhu Tamil / Hindi – IV	1.88	1.73	0.78	3.3	1.68	0.9	0.92
	23UENL41	General English – IV	1.88	1.95	1.17	2.93	1.68	1.35	1.38
	23UCYC41	Core Course - VII: Industry Module- Java Programming	1.88	2.6	4.28	1.83	4.2	2.24	0.92
	23UCYC4P	Core Course - VIII: Practical: Java Programming	1.88	1.73	2.72	3.3	3.36	1.79	0.46
	23UCYA41	Elective Course Generic/ Discipline Specific - IV: Computer Networks	2.82	2.38	1.17	1.83	0.84	0.9	2.3
	23UCYS4P	Skill Enhancement Course – VII: PHP Programming	2.82	2.6	3.89	1.83	4.2	5.83	6.91
	23UCYS41	Skill Enhancement Course – VIII: Cyber Forensics	2.26	2.6	4.28	1.83	4.2	2.24	4.61
	23UESR41	Environmental Studies	1.5	1.08	0.39	2.56	6.72	2.24	2.3
	23UCYC51	Core Course - IX: Machine Learning	2.82	2.6	0.78	1.1	1.68	3.59	1.38
	23UCYC52	Core Course - X: Cloud Computing	2.82	2.81	2.72	0.73	2.52	0.9	2.3
	23UCYC5P	Core Course - XI: Practical: Cloud Computing	2.82	2.81	2.72	0.73	2.52	0.9	2.3
	23UCYJ51	Core Course - XII: Project with Viva Voce	2.44	2.16	3.89	4.03	3.36	2.24	1.38

V	23UCYO51 23UCYO52	Elective Courses Generic/Discipline Specific–V: 1. Operating Systems 2. .NET programming	2.82	2.81	2.72	0.73	2.52	0.9	2.3
	23UCYO53 23UCYO54	Elective Courses Generic/ Discipline Specific - VI: 1. Big Data Analytics 2. Introduction to Data Science	2.07	2.38	3.5	1.83	5.88	4.48	2.3
	23UCYC51	Value Education	1.5	1.08	0.39	1.83	7.56	1.79	3.23
	23UCYJ52	Internship/Industrial Training	1.5	2.6	1.56	2.56	0.84	2.24	3.69
VI	23UCYC61	Core Course - XIII: Cyber Security	2.82	2.81	2.33	1.83	2.52	3.59	2.3
	23UCYC62	Core Course - XIV: Cryptography and Network Security	2.82	2.6	0.78	1.1	1.68	3.59	1.38
	23UCYC6P	Core Course - XV: Practical : Cryptography & Network Security	2.44	2.6	4.28	1.1	4.2	4.48	4.61
	23UCYO61 23UCYO62	Elective Courses Generic/Discipline Specific–VII: 1. Information Security 2. Human Computer Interaction	2.82	2.81	2.72	0.73	2.52	0.9	2.3
	23UCYO63 23UCYO64	Elective Courses Generic/Discipline Specific–VIII: 1. Ethical Hacking 2. Database Security	2.82	2.81	2.72	0.73	2.52	0.9	2.3
	23UCYS6P	Skill Enhancement Course – IX:Professional Competency Skill: Enterprise Resource Planning	2.82	3.25	5.45	4.4	10.92	4.93	2.3
	-	Extension Activity	1.5	0.43	0.39	2.56	7.56	3.59	2.3
Total Weighted Percentage of Course Contributionto Pos			**100**	**100**	**100**	**100**	**100**	**100**	**100**

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF TAMIL
UG PROGRAMME - B.A./ B.COM/B.B.A./ B.SC./BCA
SEMESTER - I
பொதுத்தமிழ் - I (23UTAG11)
(From 2023-2024 Batch onwards)

HOURS / WEEK: 6	**INT. MARKS : 25**
CREDITS : 3	**EXT. MARKS : 75**
DURATION : 90 hrs	**MAX. MARKS: 100**

நோக்கங்கள்

- முதலாமாண்டு பட்ட வகுப்பு மாணவர்களுக்குத் தமிழ் மொழி இலக்கியங்களை அறிமுகம் செய்தல்.
- தற்கால இலக்கியப் போக்குகளையும் இலக்கணங்களையும் மாணவர் அறியுமாறு செய்து அவர்களின் படைப்பாற்றலைத் தூண்டுதல்.
- தமிழ் இலக்கியம் சார்ந்த போட்டித் தேர்வுகளுக்கு ஏற்ப கற்பித்தல் நடைமுறைகளை மேற்கொள்ளுதல்.

கற்றலின் விளைவுகள்

CO1[K1]: பாரதியார் காலந்தொட்டு தற்காலக் கவிதைகள் வரை கவிதை இலக்கியம் அறிமுகப்படுத்தப்படுவதால் அவற்றை அடையாளம் காண்பர்.

CO2[K2]: கவிதை வரலாற்றினை புரிந்து கொண்டு பிழை இல்லாமல் எழுதும் திறன் பெறுவர்.

CO3[K3]: இக்கால இலக்கிய வகைகள் மற்றும் இலக்கணம் கற்பதன் மூலம் அவற்றை தம் வாழ்நிலையோடு பொருத்திப் பார்ப்பர்.

CO4[K4]: மொழியறிவோடு சிந்தனைத்திறன் பெற்று இலக்கியம் மற்றும் இலக்கணங்களைப் பகுப்பாய்வர்.

CO5[K5]: உலகளாவிய இலக்கியங்களைக் கற்று மதிப்பீடு செய்வர்.

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[K5]	2	1	1	1	-	1	1
Weightage of the Course	10	07	02	08	02	02	03
Weighted percentage of Course Contribution to Pos	1.88	1.52	0.78	2.93	1.68	0.9	1.38

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

கூறு I   (18 hrs)

மரபுக்கவிதை: பெ.சுந்தரனார் - தமிழ்த் தெய்வ வணக்கம், பாரதிதாசன் - சிறுத்தையை வெளியில் வா, கவிமணி - புத்தரும் சிறுவனும், முடியரசன் - மொழி உணர்ச்சி, கண்ணதாசன் - ஆட்டனத்தி ஆதிமந்தி - ஆதிமந்திபுலம்பல், சுரதா - துறைமுகம் தொகுப்பிலிருந்து ஏதேனும் ஒருகவிதை, தமிழ் ஒளி - கடல்

கூறு II   (18 hrs)

புதுக்கவிதை: அப்துல் ரகுமான் - வீட்டுக்கொருமரம் வளர்ப்போம், ஈரோடு தமிழன்பன் - சென்றியூ கவிதைகள் (ஏதேனும் ஐந்து கவிதைகள்), வைரமுத்து - பிற்சேர்க்கை, மு.மேத்தா - வாழைமரம், அறிவுமதி - வள்ளுவம் பத்து, நா முத்துக்குமார் - ஆனந்தயாழை மீட்டுகிறாய், சுகிர்தராணி - சபிக்கப்பட்ட முத்தம், இளம் பிறை - நீ எழுத மறுக்கும் எனது அழகு.

கூறு III   (18 hrs)

சிறுகதைகள் : வாய்ச்சொற்கள் - ஜெயகாந்தன் (மாலைமயக்கம் தொகுப்பு), கடிதம் - புதுமைப்பித்தன், கரு - உமாமகேஸ்வரி, முள்முடி - தி.ஜானகிராமன், சிதறல்கள் - விழி.பா.இதயவேந்தன், காகிதஉறவு - சு.சமுத்திரம், வீட்டின் மூலையில் சமையல் அறை - அம்பை, (மொழிபெயர்ப்புக் கதை) ஆண்டன் செக்காவ் - நாய்க்காரச் சீமாட்டி, சந்தியா பதிப்பகம்.

கூறு IV   (18 hrs)

மரபுக்கவிதை கவிதை தோற்றம் வளர்ச்சி - புதுக்கவிதை கவிதை தோற்றம் வளர்ச்சி - சிறுகதை தோற்றம் வளர்ச்சி

கூறு **V** **(18 hrs)**

மொழித்திறன் போட்டிதேர்வு: பொருள் பொதிந்த சொற்றொடர் அமைத்தல், ஓர் எழுத்து ஒருமொழி, வேற்றுமை உருபுகள், திணை, பால், எண், இடம், கலைச்சொல்லாக்கம், மொழிபெயர்ப்பு.

(குறிப்பு: அலகு 4, 5 ஆகியன போட்டித் தேர்வு நோக்கில் நடத்தப்பட வேண்டும்).

பாடநூல்கள்

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1. சிற்பி. பாலசுப்பிரமணியன், *தமிழ் இலக்கிய வரலாறு,* கவிதா வெளியீடு, சென்னை.
2. தமிழண்ணல், *புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு,* சோலை பதிப்பகம், மதுரை
3. பாக்கியமேரி, *வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு,* பாரி நிலையம், சென்னை.

வலைப்பதிவுகள் (Web Sources)

1. Tamil Heritage Foundation- www.tamilheritage.org <http://www.tamilheritage.org>
2. Tamil virtual University Library- www.tamilvu.org/ library http://www.virtualvu.org/library
3. Project Madurai - www.projectmadurai.org.
4. Chennai Library- www.chennailibrary.com <http://www.chennailibrary.com>.
5. Tamil Universal Digital Library- www.ulib.prg <http://www.ulib.prg>.
6. Tamil E-Books Downloads- tamilebooksdownloads. blogspot.com
7. Tamil Books on line- books.tamil cube.com
8. Catalogue of the Tamil books in the Library of British Congress archive.org
9. Tamil novels on line - books.tamilcube.com

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF ENGLISH
UG PROGRAMME - B.A./ B.COM/B.B.A./ B.SC./BCA
SEMESTER- I
GENERAL ENGLISH-I (23UENL11)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 6 (L-5, T-1)	**INT. MARKS : 25**
CREDITS : 3	**EXT. MARKS : 75**
DURATION : 90 hrs	**MAX. MARKS: 100**

Course Objectives
- To enable learners to acquire the linguistic competence necessarily required in various life situations.
- To help them understand the written text and able to use skimming, scanning skills
- To assist them in creative thinking abilities.
- To enable them become better readers and writers.
- To assist them in developing correct reading habits, silently, extensively and intensively.

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1[K1]: identify the use of the language skills i.e. Reading, Listening, Speaking and Writing.
CO2[K2]: demonstrate communicative skills by articulating simple dialogues and instructions.
CO3[K3]: apply knowledge of word power and grammar in framing correct sentences.
CO4[K4]: analyze prose, poetry and short stories to develop language skills through literature.
CO5[K5]: assess the linguistic competence that enables them, in the future, to present their views in various social, academic and employment situations.

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[K5]	2	1	1	1	-	1	1
Weightage of the course	10	07	02	08	02	02	03
Weighted percentage of Course contribution to POs	1.88	1.52	0.78	2.93	1.68	0.9	1.38

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

UNIT I - PROSE (18 hrs)

Jerome K Jerome	–	Uncle Podger Hangs a Picture
David Sedaris	–	Us and Them -From Dress Your Family in Corduroy and Denim
Harish Bhat	–	JRD

UNIT II - POETRY (18 hrs)

William Ralph Emerson	–	A Nation's Strength
Paul Laurence Dunbar	–	The Sparrow
Subramania Bharati	–	A Patch of Land
Chinua Achebe	–	Love Cycle

UNIT III - SHORT STORIES (18 hrs)

Bhabani Bhattacharya	–	The Faltering Pendulum
R.K. Laxman	–	The Gold Frame
Sudha Murthy	–	How I Taught My Grandmother to Read

UNIT IV - LANGUAGE COMPETENCY (18 hrs)

Vocabulary: Synonyms, Antonyms, Word Formation
Appropriate use of Articles and Parts of speech
Error Correction

UNIT V - ENGLISH FOR WORKPLACE (18 hrs)

Self-Introduction, Greetings
Introducing others
Listening for General and Specific Information
Listening to and Giving Instructions/Directions

TEXTBOOKS

1. Bhattacharya, Bhabani. *Steel Hawk and other stories*. New Delhi: Sahitya Akademi, 1967.
2. Sudha, Murthy. *How I Taught My Grandmother to Read and other Stories*, India: Penguin Books, 2004.

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1. Kumar, Vijay T & K Durga Bhavani. *English in use -A Textbook for College Students.* YL Srinivas
2. Swan, Michael. *Practical English Usage* - 4th Edition. New York: Oxford University Press, 2016.
3. Shepherd Margaret & Sharon Hogan. Penny Carter (Illustrator). *The Art of Civilized Conversation: A Guide to Expressing Yourself with Style and Grace.* Now York: Broadway Books, 2005.

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2. https://poets.org/poem/sparrow-0
3. https://poets.org/poem/nations-strength
4. https://www.best-poems.net/chinua-achebe/love-cycle.html
5. https://www.tata.com/newsroom/heritage/coffee-tea-jrd-tata-stories
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7. http://rosyhunt.blogspot.com/2013/01/uncle-podger-hangs-picture.html
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SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme- B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER- I
CORE COURSE –I: PYTHON PROGRAMMING (23UCYC11)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 5	**INT. MARKS : 25**
CREDITS : 5	**EXT. MARKS : 75**
DURATION : 75 hrs	**MAX. MARKS: 100**

Course Objectives
- To make students understand the concepts of python programming.
- To apply the OOPs concept in python programming.
- To impart knowledge on demand and supply concepts.
- To make the students learn best practices in python programming.
- To know the costs and profit maximization.

Course Outcomes (CO)
On successful completion of the course, the learners will be able to

CO1[K1]: describe the concepts of python

CO2[K2]: discuss arrays, control statements, Lists and file handling of python

CO3[K3]: apply the concept of python to implement simple problem

CO4[K4]: analyze arrays, control statements, lists, tuples, dictionary and functions

CO5[K6]: develop a solution for a simple program using python concepts

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	2	1	1	-	1	1
CO2[K2]	3	3	2	1	-	1	1
CO3[K3]	3	3	2	2	-	2	1
CO4[K4]	3	3	2	1	-	1	1
CO5[K6]	2	3	2	2	-	2	1
Weightage of the course	14	14	09	07	-	07	05
Weighted percentage of Course contribution to POs	2.63	3.03	3.5	2.56	0	3.14	2.3

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

UNIT I (15 hrs)

Basics of Python Programming: History of Python-Features of Python-Literal-Constants-Variables - Identifiers–Keywords-Built-in Data Types-Output Statements – Input Statements-Comments – Indentation- Operators-Expressions-Type conversions. **Python Arrays:** Defining and Processing Arrays – Array methods.

UNIT II (15 hrs)

Control Statements: Selection/Conditional Branching statements: if, if-else, nested if and if-elif-else statements. Iterative Statements: while loop, for loop, else suite in loop and nested loops. **Jump Statements:** break, continue and pass statements**.**

UNIT III (15 hrs)

Functions: Function Definition – Function Call – Variable Scope and its Lifetime-Return Statement. **Function Arguments**: Required Arguments, Keyword Arguments, Default Arguments and Variable Length Arguments- Recursion. **Python Strings:** String operations- Immutable Strings - Built-in String Methods and Functions - String Comparison. **Modules**: import statement- The Python module – dir() function – Modules and Namespace – Defining our own modules.

UNIT IV (15 hrs)

Lists: Creating a list -Access values in List-Updating values in Lists-Nested lists -Basic list operations-List Methods. Tuples: Creating, Accessing, Updating and Deleting Elements in a tuple – Nested tuples– Difference between lists and tuples. **Dictionaries:** Creating, Accessing, Updating and Deleting Elements in a Dictionary – Dictionary Functions and Methods - Difference between Lists and Dictionaries.

UNIT V (15 hrs)

Python File Handling: Types of files in Python - Opening and Closing files-Reading and Writing files: write() and writelines() methods- append() method – read() and readlines() methods – with keyword – Splitting words – File methods - File Positions- Renaming and deleting files.

TEXTBOOKS

1. ReemaThareja. *Python Programming using problem solving approach.* Oxford University Press, First Edition, 2017.
2. Dr. R. NageswaraRao. *Core Python Programming.* Dream tech Publishers, First Edition, 2017.

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1. VamsiKurama. *Python Programming: A Modern Approach*. Pearson Education.
2. Mark Lutz.*Learning Python*. Orielly.
3. Adam Stewarts.*Python Programming*.Online.
4. Fabio Nelli.*Python Data Analytics*. APress.
5. Kenneth A. Lambert.*Fundamentals of Python – First Programs*. CENGAGE Publication.

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1. https://www.programiz.com/python-programming
2. https://www.guru99.com/python-tutorials.html
3. https://www.w3schools.com/python/python_intro.asp
4. https://www.geeksforgeeks.org/python-programming-language/
5. https://en.wikipedia.org/wiki/Python_(programming_language)

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme- B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER- I
CORE COURSE –II: PRACTICAL: PYTHON PROGRAMMING (23UCYC1P)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 5	**INT. MARKS : 25**
CREDITS : 5	**EXT. MARKS : 75**
DURATION : 75 hrs	**MAX. MARKS: 100**

Course Objectives
- Be able to design and program Python applications
- Be able to create loops and decision statements in Python.
- Be able to work with functions and pass arguments in Python.
- Be able to build and package Python modules for reusability
- Be able to read and write files in Python.

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1[K2]: demonstrate the syntax and semantics of python language
CO2[K3]: find out the problem and solve using python programming techniques.
CO3[K4]: discover suitable programming constructs for problem solving.
CO4[K5]: evaluate various concepts of python language to solve the problem in an efficient way.
CO5[K6]: develop a python program for a given problem

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K2]	2	2	2	1	-	1	1
CO2[K3]	3	3	2	2	-	1	1
CO3[K4]	3	3	2	1	-	1	1
CO4[K5]	3	3	2	2	-	1	1
CO5[K6]	3	3	2	1	-	2	1
Weightage of the course	14	14	10	07	0	06	05
Weighted percentage of Course contribution to POs	2.63	3.03	3.89	2.56	0	2.69	2.3

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

EXERCISES LIST:

1. Program using variables, constants, I/O statements in Python.
2. Program using Operators in Python.
3. Program using Conditional Statements.
4. Program using Loops.
5. Program using Jump Statements.
6. Program using Functions.
7. Program using Recursion.
8. Program using Arrays.
9. Program using Strings.
10. Program using Modules.
11. Program using Lists.
12. Program using Tuples.
13. Program using Dictionaries.
14. Program for File Handling.

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF MATHEMATICS
UG Programme – B. Sc. Computer Science / Computer Science (Cloud Computing and Cyber Security)
SEMESTER- I
ELECTIVE COURSE GENERIC / DISCIPLINE SPECIFIC - I: DISCRETE MATHEMATICS - I
(23UCSA11/23UCYA11)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 4(L-3, T-1)	**INT. MARKS : 25**
CREDITS : 3	**EXT.MARKS : 75**
DURATION : 60 hrs	**MAX. MARKS: 100**

Course Objectives
- To understand the fundamental concepts of discrete mathematics.
- To develop logical thinking skills and problem-solving skills.

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, relations and functions, matrix operations, logic statements, various graphs

CO3[K3]: compute various operations on sets, relations, functions, matrices, graphs and truth values of logic statements

CO4[K4]: classify the types of relations, functions, matrices, logic statements and graphs

CO5[K5]: assess the equivalency of relations, invertibility of functions, tautological implications and equivalence of logic formulae, the method of solving graph optimization problems.

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	2	-	-	-	-	-
CO2[K2]	2	2	1	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	10	13	07	04	0	04	03
Weighted percentage of Course contribution to Pos	1.88	2.81	2.72	1.47	0	1.79	1.38

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

UNITI (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.

 Textbook 1: Chapter I: Section 1-7;

 Chapter II: Section 1-5;

 Chapter III: Section 1-4

UNIT II (12 hrs)

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

 Textbook 1: Chapter VI: Section 1-4.

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.

 Textbook 1: Chapter IX: Section 1-9.

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 Optimization Problems.
Textbook 2: Chapter I: Section 1.1-1.9.

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.
Textbook 2: Chapter 2: Section 2.1-2.16.

TEXTBOOKS
1. M.K.Venkataraman, N.Sridharan and N.Chandra sekaran. *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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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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3. https://www.whitman.edu/mathematics/higher_math_online/section04.01. html
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SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER- I
SKILL ENHANCEMENT COURSE - I: FOUNDATION - PROGRAMMING IN C (23UCYS11)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 2	**INT. MARKS : 25**
CREDITS : 2	**EXT. MARKS : 75**
DURATION : 30 hrs	**MAX. MARKS: 100**

Course Objectives
- This course enables the learners to explore the concepts related to C programming
- Helpful to implement high level language programming.

Course Outcomes (CO)
On successful completion of the course, the learners will be able to

CO1[K1]: describe various concepts of C

CO2[K2]: illustrate the statements, arrays, functions, structures and pointers

CO3[K3]: apply simple solutions using appropriate programming control statements of C

CO4[K4]: analyze the working of control statements, arrays, functions and pointers

CO5[K5]: choose the appropriate way for providing a solution using C

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	2	1	1	-	1	1
CO2[K2]	3	3	2	1	-	1	1
CO3[K3]	3	3	2	2	-	1	1
CO4[K4]	3	3	2	1	-	1	1
CO5[K5]	2	3	2	2	-	2	1
Weightage of the course	13	14	09	07	-	06	05
Weighted percentage of Course contribution to POs	2.44	3.03	3.5	2.56	0	2.69	2.3

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

UNIT I   **(6 hrs)**

Overview of C: Importance of C, sample C program, C program structure, executing C program. Constants, Variables, and Data Types: Character set, C tokens, keywords and identifiers constants, variables, data types, declaration of variables, Assigning values to variables---Assignment statement, declaring a variable as constant, as volatile.

UNIT II   **(6 hrs)**

Operators and Expression: Arithmetic, Relational, logical, assignment, increment, decrement, conditional, bitwise and special operators, arithmetic expressions, operator precedence, type conversions, mathematical functions. **Decision Making and Branching**: Decision making with If, simple IF, IF ELSE, nested IF ELSE , ELSE IF ladder, switch, GOTO statement.

UNIT III   **(6 hrs)**

Decision Making and Looping: While, Do-While, For, Jumps in loops. **Arrays:** Declaration and accessing of one & two-dimensional arrays, initializing two- dimensional arrays. **Functions:** The form of C functions, Return values and types, calling a function, categories of functions, Nested functions, Recursion.

UNIT IV   **(6 hrs)**

Structures: Defining, giving values to members and initialization.

UNIT V   **(6 hrs)**

Pointers: Definition, declaring and initializing pointers, accessing a variable through address and through pointer.

TEXTBOOK

1. E. Balagurusamy. *Programming in ANSI C*. Tata McGraw-Hill, Fifth Edition, 2010

REFERENCES
Books

1. Byron Gottfried. *Schaum's Outline Programming with C.* Tata McGraw-Hill, Fourth Edition, 2018.
2. Kernighan and Ritchie. *The C Programming Language*. Prentice Hall, Second Edition, 1998
3. YashavantKanetkar. *Let Us C*.BPB Publications, Eighteenth Edition, 2021

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1. https://codeforwin.org/
2. https://www.geeksforgeeks.org/c-programming-language/
3. http://en.cppreference.com/w/c

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER- I
SKILL ENHANCEMENT COURSE - II: NON MAJOR ELECTIVE COURSE: UNDERSTANDING THE INTERNET (23UCYN11)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 2	**INT. MARKS : 25**
CREDITS : 2	**EXT. MARKS : 75**
DURATION : 30 hrs	**MAX. MARKS: 100**

Course Objectives
- The primary goal is to prepare students for full knowledge of internet its application and working of Internet
- To get good knowledge of internet protocol, working of all protocols

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1[K1]: describe the basic concepts of internet
CO2[K2]: explain the various features of concept of internet
CO3[K3]: write about internet, web, searching and creating web pages
CO4[K4]: analyze the applications of internet
CO5[K5]: assess the concepts of internet

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	1
CO3[K3]	2	-	-	1	-	1	1
CO4[K4]	2	3	-	2	-	1	1
CO5[K5]	1	-	-	2	-	1	1
Weightage of the course	09	05	0	08	0	05	05
Weighted percentage of Course contribution to POs	1.69	1.08	0	2.93	0	2.24	2.3

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

UNIT I **(6 hrs)**

Understanding the Internet: What is the internet? – How TCP/IP makes the internet work. An Overview of the internet: Mail – The Web – The parts of the Web – Anonymous FTP and Downloading – Talk Facilities.

UNIT II **(6 hrs)**

Everything you need to connect to the net: Operating system (Windows) – Modems. **Internet Addresses:** Two Types of Top Level Domains – Domains – IP Address – Mail Address – URL – Filename and Extensions

UNIT III **(6 hrs)**

The Web: The Basic Ideas – Options and Preferences – Entering a URL – Shortcuts when Typing URL – Navigating – **Reading a Webpage. Mail:** The Basic Ideas – The Body of a Message – Attachments – Signatures – Mail is stored (Folder) – Address Lines within the Header (To, Cc, Bcc) – Using an Address Book – Replying – Forwarding – Understanding – Mail Error Message.

UNIT IV **(6 hrs)**

Finding Stuff on the Internet: Search Engines – Techniques for Using the Search Engine. **Downloading and Installing Software:** Overview of the Download Process – Downloading Program – Anonymous FTP – Installing a Program – Uninstalling a Program. **Safety, Security and Privacy:** Computer Virus.

UNIT V **(6 hrs)**

Creating Your Own Webpage: HTML – The Components of a Webpage – Web Page Editors – Pictures and Sounds – Finding a Server to Host Your Website. **Getting Your Own Domain Name:** How to Get Your Own Domain Name – Registering a Domain Name – Choosing a Domain Name.

TEXTBOOKS
1. Barnouw, E and Krishnaswamy S . *Indian Film*. New York:OUP.
2. Kumar, Keval . *Mass Communication in India*. Mumbai: Jaico.
3. Srivastava, K M .*Media Issues.* Sterling Publishers Pvt Ltd.
4. Harley Hahn. *Harley Hahn teaches The Internet* .New Delhi: Prentice Hall of India Private Limited, 2001.
     UNIT I : 1.1, 1.4, 2.2-2.4, 2.9, 2.10
     UNIT II : 3.5, 3.13, 4.2, 4.5, 4.6, 4.9-4.11
     UNIT III: 7.1, 7.2, 7.5-7.8, 5.1, 5.7-5.12, 5.14-5.17
     UNIT IV : 9.2, 9.3, 11, 8.9
     UNIT V : 15, 16.1-16.3

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1. Acharya, R N . *Television in India*. New Delhi : Manas Publications.
2. Barnouw, E. *Documentary – A History of Nonfiction*. Oxford, OUP
3. Luthra, H R. *Indian Broadcasting*. New Delhi : Ministry of I & B.
4. Vasudev, Aruna .*The New Indian Cinema*. New Delhi:Macmillan India,

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1. https://www.teachucomp.com/samples/html/5/manuals/Mastering-HTML5-CSS3.pdf
2. https://www.w3schools.com/html/default.asp

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF TAMIL
UG PROGRAMME - B.A./ B.COM/B.B.A./ B.SC./BCA
SEMESTER - II
பொதுத்தமிழ் - II (23UTAG21)
(From 2023-2024 Batch onwards)

HOURS/WEEK : 6	**INT. MARKS : 25**
CREDITS : 3	**EXT. MARKS : 75**
DURATION : 90 hrs	**MAX. MARKS: 100**

நோக்கங்கள்

* சமய இலக்கியங்களையும் சிற்றிலக்கியங்களையும் மாணவர்களுக்கு அறிமுகப்படுத்துதல்
* மொழித்திறனையும் சிறுகதை இலக்கிய வடிவத்தையும் மாணவர்களுக்கு உணர்த்துதல்.

கற்றலின் விளைவுகள்

CO1[K1]: பக்தி இலக்கியங்களைக் கற்பதன் மூலம் பக்தி நெறியினையும், சமய
நல்லிணக்கத்தையும் அறிவர்.

CO2[K2]: சமயப்பாடல்கள் மற்றும் சிற்றிலக்கியங்களின் அமைப்பினையும், நோக்கத்தினையும்
தெளிவாகக் கூறுவர்.

CO3[K3]: தமிழில் உள்ள பக்தி இலக்கியம் மற்றும் சிற்றிலக்கியங்களின்
பொருண்மைகளுடன் இலக்கணத் தெளிவையும் அடைவர்.

CO4[K4]: தமிழ்ச் சமூகப் பண்பாட்டு வரலாற்றினை இலக்கியங்கள் வாயிலாக
அறிந்து கொண்டு பாகுபடுத்துவர்.

CO5[K5]: போட்டித் தேர்வுகளில் வெற்றி பெறுவதற்குத் தமிழ்ப் பாடத்தினைப்
பயன்கொள்ளும் வகையில் ஏற்ற பயிற்சி பெற்று மதிப்பீடு செய்வர்.

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[K5]	2	1	1	2	-	1	1
Weightage of the Course	10	08	02	08	02	02	03
Weighted percentage of Course Contribution to Pos	**1.88**	**1.73**	**0.78**	**2.93**	**1.68**	**0.9**	**1.38**

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

கூறு **I** **(18 hrs)**
பக்தி இலக்கியம்: திருநாவுக்கரசர் தேவாரம் - நாமார்க்கும் குடியெல்லாம் எனத் தொடங்கும் பதிகம் (10 பாடல்கள்), ஆண்டாள் - திருப்பாவை (முதல் 10 பாசுரம்)

கூறு **II** **(18 hrs)**
வள்ளலார் - அருள் விளக்கமாலை (முதல் 10 பாடல்),எச்.ஏ.கிருட்டிணப் பிள்ளை - இரட்சணியமனோகரம் - பால்யபிரார்த்தனை, குணங்குடி மஸ்தான் சாகிபு - பராபரக்கண்ணி (முதல் 10 கண்ணி)

கூறு **III** **(18 hrs)**
சிற்றிலக்கியங்கள்: தமிழ்விடு தூது (முதல் 20 கண்ணி), திருக்குற்றாலக் குறவஞ்சி - குறத்தி மலைவளம் கூறுதல், முக்கூடல் பள்ளு - நாட்டு வளம்

கூறு **IV** **(18 hrs)**
பாடம் தழுவிய இலக்கிய வரலாறு (பல்லவர் காலம், நாயக்கர் காலம்)

கூறு **V** **(18 hrs)**
மொழித்திறன் போட்டித்தேர்வுதிறன்: தொடர் வகைகள், மரபுத்தொடர், பழமொழிகள், பிறமொழிச் சொற்களைக் களைதல், வழுச்சொற்கள் நீக்குதல், இலக்கணக் குறிப்பு அறிதல்.

(குறிப்பு: அலகு 4, 5 ஆகியன போட்டித் தேர்வு நோக்கில் நடத்தப் பட வேண்டும்).

பாடநூல்கள்
1. தமிழியல் துறையினர், *தொகுப்பு நூல்,* ஸ்ரீ காளீஸ்வரி கல்லூரி (தன்னாட்சி), சிவகாசி.
2. வாசுதேவன், கா. *பன்முக நோக்கில் தமிழ் இலக்கிய வரலாறு,* தேவன் பதிப்பகம், திருச்சிராப்பள்ளி, 2017.

பார்வை நூல்கள்
1. சிற்பி. பாலசுப்பிரமணியன், *தமிழ் இலக்கிய வரலாறு,* கவிதா வெளியீடு, சென்னை.
2. தமிழண்ணல், *புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு,* சோலை பதிப்பகம், மதுரை
3. பாக்கியமேரி, *வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு,* பாரி நிலையம்,சென்னை.

வலைப்பதிவுகள் (Web Sources)
1. Tamil Heritage Foundation- www.tamilheritage.org <http://www.tamilheritage.org>
2. Tamil virtual University Library- www.tamilvu.org/ library http://www.virtualvu.org/library
3. Project Madurai - www.projectmadurai.org.
4. Chennai Library- www.chennailibrary.com <http://www.chennailibrary.com>.
5. Tamil Universal Digital Library- www.ulib.prg <http://www.ulib.prg>.
6. Tamil E-Books Downloads- tamilebooksdownloads. blogspot.com
7. Tamil Books on line- books.tamil cube.com
8. Catalogue of the Tamil books in the Library of British Congress archive.org
9. Tamil novels on line - books.tamilcube.com

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF ENGLISH
UG PROGRAMME - B.A./ B.COM/B.B.A./ B.SC./BCA
SEMESTER- II
GENERAL ENGLISH-II (23UENL21)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 6(L-5, T-1)	**INT. MARKS : 25**
CREDITS : 3	**EXT. MARKS : 75**
DURATION : 90 hrs	**MAX. MARKS: 100**

Course Objectives
- To introduce learners to the essential skills of communication in English.
- To enable them use these skills effectively in academic and non-academic contexts.
- To help them identify and eliminate common mistakes in writing and speaking.
- To enable them use various business communication strategies and to use advanced vocabulary.
- To familiarize them in writing descriptive essays and respond to arguments orally and in writing.

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1 [K1]: identify appropriate literary terms such as diction, tone, imagery, figures of speech, motif etc.,
CO2 [K2]: define verbs, tenses and concord and its role in speaking and writing effectively.
CO3 [K3]: apply the knowledge of language competency at workplace and day-to-day life
CO4 [K4]: analyze prose, poetry and short stories to develop language skills through literature.
CO5 [K6]: construct grammatically correct and meaningful sentences by choosing apt words.

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 thenb course	10	08	02	08	02	02	03
Weighted percentage of Course contribution to POs	1.88	1.73	0.78	2.93	1.68	0.9	1.38

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

UNIT I- PROSE   (18 hrs)
     W.R. Inge   -   The Spoon-Fed Age
     Dale Carnegie   -   If You Are Wrong. Admit it
     Shashi Tharoor   -   Kindly Adjust to our English

UNIT II- POETRY   (18 hrs)
     Alfred Lord Tennyson -   The Flower
     Nissim Ezekiel   -   Very Indian Poem in Indian English
     Maya Angelou   -   Still I Rise
     Dr. Gieve Patel   -   On Killing a Tree

UNIT III- FICTION   (18 hrs)
     Paulo Coelho   -   The Alchemist

UNIT IV- LANGUAGE COMPETENCY   (18 hrs)
     Homonyms, Homophones, Homographs, Portmanteau words
     Verbs and Tenses, Subject Verb Agreement, Error correction

UNIT V- ENGLISH IN THE WORKPLACE   (18 hrs)
     Reading for General and Specific information [charts, tables, schedules,
                                 graphs etc]
     Reading news and weather reports
     Writing paragraphs
     Taking and making notes

TEXTBOOKS
1. Coelho, Paulo. *The Alchemist.* New York: Harper, 2005.
2. Pillai, Radhakrishna. *Emerald English Grammar and Composition.* Chennai: Emerald Publishers,2016.

REFERENCES
Books
1. Hewings, Martin. *Advanced English Grammar.* Cambridge University Press, 2000.
2. SP Bakshi, Richa Sharma. *Descriptive English.* India: Arihant Publications Ltd, 2019.
3. Sheena Cameron, Louise Dempsey. *The Reading Book: A Complete Guide to Teaching Reading.* London: S & L. Publishing, 2019.
4. Sherman, Barbara. *Skimming and Scanning Techniques.* Virginia: Liberty University Press, 2014.
5. Chambers, Phil. *Brilliant Speed Reading: Whatever you need to read, However You want to Read it-Twice as Quickly*, India: Pearson, 2013.
6. Coelho, Paulo. *The Archer.* New York: Penguin Viking, 2020.

Web Sources
1. http://econtent.in/pacc.in/admin/contents/40_%20_2020103001102714.pdf
2. https://www.poetryfoundation.org/poems/46446/still-i-rise
3. https://www.poemhunter.com/poem/the-flower-2/
4. https://www.poemhunter.com/poem/on-killing-a-tree/
5. https://www.tbr.fun/if-youre-wrong-admit-it/
6. https://www.theweek.in/columns/shashi-tharoor/2018/05/25/kindly-adjust-to-our-english.html?fbclid=IwAR3IhtdXqvuV4ySECn9S7SA6HmCEYISyd1QHd3BlwKgiNKKwdkeSg3qWp-U/
7. https://docplayer.net/217945876-The-spoon-fed-age-1-by-the-very-reverend-w-r-inge.html
8. https://www.youtube.com/watch?v=lxBYpmxjeDU

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme- B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER- II
CORE COURSE –III: DATA STRUCTURES & ALGORITHMS (23UCYC21)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 5	**INT. MARKS : 25**
CREDITS : 5	**EXT. MARKS : 75**
DURATION : 75 hrs	**MAX. MARKS: 100**

Course Objectives
- To understand the concepts of ADTs
- To learn linear data structures-lists, stacks, queues.
- To learn Tree structures and application of trees.
- To learn graph structures and application of graphs.
- To understand various sorting and searching

Course Outcomes (CO)
On successful completion of the course, the learners will be able to

CO1[K1]: describe the concepts of data structures

CO2[K2]: explain the working of data structures

CO3[K3]: apply the required data structure to solve a problem

CO4[K4]: analyze the working of data structures

CO5[K5]: choose appropriate data structure to solve a problem.

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	2	1	1	-	1	1
CO2[K2]	3	2	1	1	-	1	1
CO3[K3]	3	3	2	2	-	1	1
CO4[K4]	3	2	2	2	-	1	1
CO5[K5]	2	3	2	2	-	2	1
Weightage of the course	14	12	08	08	-	06	05
Weighted percentage of Course contribution to POs	2.63	2.6	3.11	2.93	0	2.69	2.3

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

UNIT I   **(15 hrs)**

Abstract Data Types (ADTs) - List ADT-array-based implementation-linked list implementation singly linked lists - circular linked lists – doubly - linked lists - applications of lists - Polynomial Manipulation - All operations – Insertion – Deletion – Merge - Traversal

UNIT II   **(15 hrs)**

Stack ADT – Operations – Applications - Evaluating arithmetic expressions – Conversion of infix to postfix expression - Queue ADT - Operations-Circular Queue - Priority Queue - deQueue applications of queues.

UNIT III   **(15 hrs)**

Tree ADT - tree traversals-Binary Tree ADT - expression trees-applications of trees - binary search tree ADT - Threaded Binary Trees - AVL Trees - B-Tree - B+ Tree – Heap- Applications of heap.

UNIT IV   **(15 hrs)**

Definition - Representation of Graph - Types of graph - Breadth first traversal – Depth first traversal - Topological sort – Bi-connectivity – Cut vertex - Euler circuits - Applications of graphs.

UNIT V   **(15 hrs)**

Searching - Linear search - Binary search - Sorting - Bubble sort - Selection sort-Insertion sort - Shell sort - Radix sort – Hashing - Hash functions - Separate chaining - Open Addressing - Rehashing Extendible Hashing.

TEXTBOOKS

1. Mark Allen Weiss. *Data Structures and Algorithm Analysis in C++.* Pearson Education, Fourth Edition,2014.
2. Reema Thareja. *Data Structures Using C.* Oxford Universities Press, Second Edition,2004.

REFERENCES Books

1.Thomas H.Cormen,Chales E.Leiserson, Ronald L.Rivest and Clifford Stein. *Introduction to Algorithms.* McGraw Hill ,Third Edition, 2009.

2. Aho, Hopcroft and Ullman. *Data Structures and Algorithms.* Pearson Education 2003

Web Sources

1. https://www.programiz.com/dsa
2.https://www.geeksforgeeks.org/learn-data-structures-and-algorithms-dsa-tutorial/

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme- B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER- II
CORE COURSE –IV: PRACTICAL: DATA STRUCTURES & ALGORITHMS (23UCYC2P)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 5	**INT. MARKS : 25**
CREDITS : 5	**EXT. MARKS : 75**
DURATION : 75 hrs	**MAX. MARKS: 100**

Course Objectives
- To understand the concepts of ADTs
- To learn linear data structures-lists, stacks, queues
- To learn Tree structures and application of trees
- To learn graph structures and application of graphs
- To understand various sorting and searching

Course Outcomes (CO)

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

CO1[K2]: demonstrate the concept of data structures

CO2[K3]: apply required data structure to solve a problem

CO3[K4]: analyze the appropriate data structure to solve a problem

CO4[K5]: develop a program involving graphs, trees and heaps.

CO5[K6]: construct programs with required data structure algorithm

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]	2	3	2	2	-	2	1
CO3[K4]	3	2	2	2	-	2	1
CO4[K5]	3	3	2	2	-	2	1
CO5[K6]	2	3	3	2	-	2	1
Weightage of the course	13	13	11	10	-	10	5
Weighted percentage of Course contribution to POs	2.44	2.81	4.28	3.66	0	4.48	2.3

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

EXERCISES LIST:

Implement the following exercises using C Programming language:

1. Write a program to implement the List ADT using arrays and linked lists.
2. Write a programs to implement the following using a singly linked list.
   - Stack ADT
   - Queue ADT
3. Write a program that reads an infix expression, converts the expression to postfix form and then evaluates the postfix expression (use stack ADT).
4. Write a program to implement priority queue ADT.
5. Write a program to perform the following operations:
   - Insert an element into a binary search tree.
   - Delete an element from a binary search tree.
   - Search for a key element in a binary search tree.
6. Write a program to perform the following operations
   - Insertion into an AVL-tree
   - Deletion from an AVL-tree
7. Write programs for the implementation of BFS and DFS for a given graph.
8. Write a programs for implementing the following searching methods:
   - Linear search
   - Binary search
9. Write a programs for implementing the following sorting methods:
   - Bubble sort
   - Selection sort
   - Insertion sort
   - Radix sort.

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF MATHEMATICS
UG Programme - B.Sc. Computer Science(Cloud Computing and Cyber Security)
SEMESTER - II
ELECTIVE COURSE GENERIC / DISCIPLINE SPECIFIC - II: DISCRETE MATHEMATICS - II
(23UCSA21/23UCYA21)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 4 (L-3, T-1)	**INT. MARKS: 25**
CREDITS : 3	**EXT. MARKS: 75**
DURATION : 60 hrs	**MAX. MARKS: 100**

Course Objectives
- To study about the formulation of Linear Programming problem and finding its solution using graphical method.
- To study about Assignment and Transportation problem.
- To find numerical solutions to problems where the exact solutions are not known

Course Outcomes (CO)
On successful completion of the course, the learners will be able to

CO1[K1]: state the basic terminologies of linear programming problem, transportation problem, assignment problem, curve fitting, numerical solutions of polynomial equations

CO2[K2]: explain the methods of solving linear programming problem, transportation problem, assignment problem, fitting curve for given data, solving polynomial equations numerically

CO3[K3]: find optimal solution of linear programming problem, transportation problem, assignment problem, numerical solution of polynomial equations and a curve that best fit the given data

CO4[K4]: examine the optimality of solutions of linear programming problem, transportation problem, assignment problem and the empirical relation of given data

CO5[K5]: determine the appropriate method of finding the optimal solution of linear programming problem, transportation problem, assignment problem, the curve that best fit the given data, the numerical solution of polynomial equations

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	2	1	1	1	-	1	1
CO2[K2]	2	2	1	2	-	1	1
CO3[K3]	2	3	2	1	-	1	1
CO4[K4]	2	3	2	1	-	2	1
CO5[K5]	2	2	2	1	-	2	1
Weightage of the course	10	11	08	06	0	07	05
Weighted percentage of Course contribution to POs	1.88	2.38	3.11	2.2	0	3.14	2.3

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

UNIT I **(12 hrs)**
     Linear Programming Problem – Mathematical Formulation: Introduction – Linear Programming Problem – Mathematical Formulation of the Problem – Illustration on Mathematical Formulation of LPPs. **Linear Programming Problem –Graphical Solution and Extension:** Introduction – Graphical Solution Method – Some Exceptional cases.
Chapter 2: Section 2.1 – 2.4 & Chapter 3: Section 3.1 – 3.3

UNIT II **(12 hrs)**
     Transportation Problem: Introduction – LP Formulation of the Transportation Problem – Existence of Solution in T.P – Duality in Transportation Problem – The Transportation Table – Loops in Transportation Table – Triangular Basis in a T.P – Solution of a Transportation Problem – Finding an Initial Basic Feasible Solution – Test for Optimality – Economic Interpretation of u_j's and v_j's – Degeneracy in Transportation Problem – Transportation Algorithm (MODI Method) – Some Exceptional Cases.
Chapter 10: Section 10.1 – 10.13, 10.15

UNIT III   **(12 hrs)**

        Assignment Problem: Introduction – Mathematical Formulation of the Problem – Solution Methods of Assignment Problem – Special Cases in Assignment Problems – The Travelling Salesman Problem.

Chapter 11: Section 11.1 – 11.4, 11.7

UNIT IV   **(12 hrs)**

        Empirical Relations and Curve Fitting: Introduction – Equations Reducible to Linear Form – Method of Least Squares-Fitting a Straight Line – Method of Least Square-Fitting a Second Degree Parabola.

Chapter 2: Page 2.1 – 2.4, 2.5 – 2.6, 2.8 – 2.24

UNIT V   **(12 hrs)**

        Numerical Solutions of Algebraic and Transcendental Equation: Introduction – Bolzano's Bisection Method – Simple Iteration Method – Method of False Position(Regula Falsi Method) – Newton-Raphson Method.

Chapter 3: Page 3.1 – 3.5, 3.16 – 3.21

TEXTBOOKS

1. Kanti Swarup, Gupta P.K. and Man Mohan. *Operations Research.* New Delhi: Sultan Chand and Sons, Sixteenth Edition, 2012. **(UNITS I, II & III)**
2. T. Veerarajan, T. Ramachandran. *Numerical Methods with Programs in C.* New Delhi: Tata McGraw-Hill Pulishing Company Limited, Second Edition, 2007.**(Units IV &V)**

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1. Premkumar Gupta, Er. and Kira, D.S. *Problems in Operations Research.* NewDelhi: S.Chand and Company Ltd, 2012.
2. Pannerselvam, R. *Operations Research.* New Delhi: Prentice Hall of India Private Limited, Second Edition, 2006.
3. Kapoor, V.K. *Operations Research.* New Delhi: Sultan Chand & Sons Educational Publishers, 2000.
4. Kalavathy, S. *Numerical Methods.* Chennai: Vijay Nicole Imprints Private   Limited, 2004.
5. Kandasamy, P. and thilagavathy, K. *Calculus of finite differences and Numerical Analysis.* New Delhi: S.Chand and Company Ltd., First Edition, 2003.

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2. https://www.youtube.com/watch?v=a2QgdDk4Xjw
3. https://theengineeringmaths.com/wp-content/uploads/2017/11/num- solutions.pdf
4. https://www.lkouniv.ac.in/site/writereaddata/siteContent/202004032250 571912siddharth_bhatt_engg_Interpolation.pdf
5. https://theengineeringmaths.com/wp-content/uploads/2017/11/interpolation-web.pdf

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - II
SKILL ENHANCEMENT COURSE - III: OFFICE AUTOMATION (23UCYS2P)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 2	**INT. MARKS : 25**
CREDITS : 2	**EXT. MARKS : 75**
DURATION : 30 hrs	**MAX. MARKS: 100**

Course Objectives
- Understand and apply the basic concepts of a word processing package.
- Understand and apply the basic concepts of electronic spreadsheet software.
- Understand and apply the basic concepts of database management system.
- Understand and create a presentation using PowerPoint tool.

Course Outcomes (CO)
On successful completion of the course, the learners will be able to

CO1[K2]: demonstrate the options in word, spreadsheet and powerpoint
CO2[K3]: apply the various options in office package
CO3[K4]: analyze appropriate tools and options to create a neat document, worksheetand presentation
CO4[K5]: choose the required tools in word, spreadsheet and powerpoint to produce the required output
CO5[K6]: design a simple document, presentation slide and do calculation in Worksheets

CO-PO Mapping table (Course Articulation Matrix)

PO ⟍ CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K2]	3	1	-	2	-	1	1
CO2[K3]	3	1	-	2	-	1	1
CO3[K4]	3	1	-	1	-	1	1
CO4[K5]	2	1	-	1	-	1	1
CO5[K6]	2	2	-	2	1	1	1
Weightage of the course	13	06	00	08	01	05	05
Weighted percentage of Course contribution to POs	2.44	1.3	0	2.93	0.84	2.24	2.3

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

WORD

Exercises involving;
1. Creating, Editing ,Formatting and Saving Documents
2. Creating a table, merging cells, changing column and row width
3. Usage of Paragraph, Line Spacing, Header and Footer options
4. Usage of Bullets and Numbering, Spelling and Grammar options
5. Inserting an image, applying page border and content border
6. Using word art and Mail Merge

WORKSHEET

Exercises involving;
7. Using Mathematical functions
8. Creation of Charts and Graphs
9. Applying Sorting and Filter

POWERPOINT

Exercises involving;
10. Simple Slide creation
11. Applying Transition and Design
12. Using custom Animation
13. Creation of Photo Album

COLLABORATIVE TOOLS

Exercises involving;
14. Sharing an Online Document/Spreadsheet/Powerpoint to a Mail-ID

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - II
SKILL ENHANCEMENT COURSE IV: NON MAJOR ELECTIVE COURSE : ADVANCED EXCEL
(23UCYN21)
(From 2023-2024 BATCH ONWARDS)

HOURS/WEEK: 2	**INT. MARKS : 25**
CREDITS : 2	**EXT. MARKS : 75**
DURATION : 30 hrs	**MAX. MARKS: 100**

Course Objectives
- Handle large amounts of data
- Aggregate numeric data and summarize into categories and subcategories
- Filtering, sorting, and grouping data or subsets of data

Course Outcomes (CO)

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

CO1[K1]: describe the basic functions, validation techniques, pivot tables, data time functions and charts

CO2[K2]: explain the steps for validation, creating pivot tables, charts and syntax of formulas, data time functions

CO3[K3]: apply required steps for creating validation, pivot tables, charts

CO4[K4]: analyze different chart types, date time functions and various validation techniques

CO5[K6]: create an Excel sheet with tables, charts, date time functions, required formulae.

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	1
CO3[K3]	2	-	-	1	-	1	1
CO4[K4]	2	3	-	2	-	1	1
CO5[K6]	1	-	-	2	-	1	1
Weightage of the course	09	05	0	08	0	05	05
Weighted percentage of Course contribution to POs	1.69	1.08	0	2.93	0	2.24	2.3

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

UNIT I **(6 hrs)**

Basics of Excel- Customizing common options- Absolute and relative cells- Protecting and un-protecting worksheets and cells- Working with Functions - Writing conditional expressions - logical functions - lookup and reference functions- VlookUP with Exact Match, Approximate Match- Nested VlookUP with Exact Match- VlookUP with Tables, Dynamic Ranges- Nested VlookUP with Exact Match- Using VLookUP to consolidate Data from Multiple Sheets

UNIT II **(6 hrs)**

Data Validations - Specifying a valid range of values - Specifying a list of valid values- Specifying custom validations based on formula - Working with Templates Designing the structure of a template- templates for standardization of worksheets - Sorting and Filtering Data -Sorting tables- multiple-level sorting- custom sorting- Filtering data for selected view - advanced filter options- Working with Reports Creating subtotals- Multiple-level subtotal.

UNIT III **(6 hrs)**

Creating Pivot tables Formatting and customizing Pivot tables- advanced options of Pivot tables- Pivot charts- Consolidating data from multiple sheets and files using Pivot tables- external data sources- data consolidation feature to consolidate data- Show Value As % of Row, % of Column, Running Total, Compare with Specific Field- Viewing Subtotal under Pivot- Creating Slicers..

UNIT IV **(6 hrs)**

More Functions Date and time functions- Text functions- Database functions- Power Functions - Formatting Using auto formatting option for worksheets- Using conditional formatting option for rows, columns and cells- What If Analysis - Goal Seek- Data Tables- Scenario Manager.

UNIT V   **(6 hrs)**

Charts - Formatting Charts- 3D Graphs- Bar and Line Chart together- Secondary Axis in Graphs- Sharing Charts with PowerPoint / MS Word, Dynamically- New Features Of Excel Sparklines, Inline Charts, data Charts- Overview of all the new features.

TEXTBOOKS
1. Lokesh Lalwani. *Excel 2019 All in one.*

2. Bill Jelen, Michael Alexander. *Microsoft Excel 2019 Pivot Table Data Crunching.*

REFERENCES
Book
1. Greg Harvey. *Excel 2019 All-in-One for Dummies.*First edition

Web Sources
1. https://www.simplilearn.com
2. https://www.javatpoint.com
3. https://www.w3schools.com

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF TAMIL
UG PROGRAMME - B.A./ B.COM/B.B.A./ B.SC./BCA
SEMESTER - III
பொதுத்தமிழ் - III (23UTAG31)
(From 2023-2024 Batch onwards)

HOURS/WEEK : 6	**INT. MARKS : 25**
CREDITS : 3	**EXT. MARKS : 75**
DURATION : 90 hrs	**MAX. MARKS: 100**

நோக்கங்கள்

* இலக்கியங்களின் சிறப்பினை உணர்த்துதல்.
* காலந்தோறும் எழுந்த காப்பியங்களின் போக்கையும், புதினத்தின் இலக்கிய வடிவத்தையும் யாப்பு, அணி போன்ற இலக்கிய வகைகளையும் மொழிபெயர்ப்புத் திறனையும் மாணவர்கள் உணருமாறு செய்தல்.
* தமிழ் இலக்கியம் சார்ந்த போட்டித் தேர்வுகளுக்கு ஏற்ப கற்பித்தல் நடைமுறைகளை மேற்கொள்ளுதல்.

கற்றலின் விளைவுகள்

CO1[K1]: இலக்கியங்களின் வழி வாழ்வியல் சிந்தனைகள் பற்றி அறிவர்.
CO2[K2]: காப்பிய சமயக் கருத்துக்களையும் நோக்கங்களையும் அடையாளம் காண்பர்.
CO3[K3]: தமிழ் புதினங்களின் வழி சமகாலப் படைப்புகளின் வாழ்க்கை முறையின் ஆற்றலைப் பெறுவர்.
CO4[K4]: காப்பியங்கள் மற்றும் புதினங்களின் வரலாற்றினைப் பாகுபடுத்துவர்.
CO5[K5]: இலக்கிய இலக்கணங்களை கற்று அவற்றை மதிப்பீடு செய்வர்.

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[K5]	2	2	1	2	1	1	1
Weightage of the Course	10	08	02	08	02	02	02
Weighted percentage of Course Contribution to Pos	1.88	1.73	0.78	2.93	1.68	0.9	0.92

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

கூறு I   **(18Hrs)**
        பெருங்காப்பியங்கள்: சிலப்பதிகாரம் - வழக்குரை காதை - இளங்கோவடிகள்,
மணிமேகலை ஆதிரை பிச்சையிட்ட காதை – சீத்தலைச்சாத்தனார், சீவகசிந்தாமணி – பூமகள்
இலம்பகம் - திருத்தக்கதேவர், வளையாபதி – நாதகுந்தனார்.

கூறு II   **(18Hrs)**
        சமயக் காப்பியங்கள்: பெரியபுராணம் - பூசலார் நாயனார் புராணம் - சேக்கிழார்,
கம்பராமாயணம் - மந்தரை சூழ்ச்சிப் படலம் - கம்பர், வில்லிபாரதம் - மற்போர் சருக்கம் -
வில்லிப்புத்தூராழ்வார், சீறாப்புராணம் - புலி வசனித்த படலம் - உமறுப்புலவர்.

கூறு III   **(18 hrs)**
        புதினம்: வஞ்சிமாநகரம் (வரலாற்றுப் புதினம்) – நா.பார்த்தசாரதி.

கூறு IV   **(18 hrs)**
        காப்பியத்தின் தோற்றமும் வளர்ச்சியும் - புதினத்தின் தோற்றமும் வளர்ச்சியும்

கூறு V   **(18 hrs)**
        மொழித்திறன்: நூல் மதிப்புரை, திறனாய்வு செய்தல், கடிதம் வரைதல், விண்ணப்பம்
எழுதுதல்.

பாடநூல்கள்
1. தமிழியல் துறையினர், *தொகுப்பு நூல்,* ஸ்ரீ காளீஸ்வரி கல்லூரி (தன்னாட்சி), சிவகாசி.
2. வாசுதேவன், கா. *பன்முக நோக்கில் தமிழ் இலக்கிய வரலாறு,* தேவன் பதிப்பகம்,
திருச்சிராப்பள்ளி, 2017.

பார்வை நூல்கள்
1. சிற்பி. பாலசுப்பிரமணியன், *தமிழ் இலக்கிய வரலாறு,* கவிதா வெளியீடு, சென்னை.

2. தமிழண்ணல், *புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு,* சோலை பதிப்பகம், மதுரை

3. பாக்கியமேரி, *வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு,* பாரி நிலையம்,சென்னை.

வலைப்பதிவுகள் (Web Sources)
1. Tamil Heritage Foundation- www.tamilheritage.org http://www.tamilheritage.org
2. Tamil virtual University Library- www.tamilvu.org/ library
    http://www.virtualvu.org/library
3. Project Madurai - www.projectmadurai.org.
4. Chennai Library- www.chennailibrary.com http://www.chennailibrary.com
5. Tamil Universal Digital Library- www.ulib.prg http://www.ulib.prg
6. Tamil E-Books Downloads- tamilebooksdownloads. blogspot.com
7. Tamil Books on line- books.tamil cube.com
8. Catalogue of the Tamil books in the Library of British Congress archive.org
9. Tamil novels on line - books.tamilcube.com

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF ENGLISH
UG PROGRAMME - B.A./ B.COM/B.B.A./ B.SC./BCA
SEMESTER- III
GENERAL ENGLISH - III (23UENL31)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 6 (L- 5, T-1)	**INT. MARKS : 25**
CREDITS : 3	**EXT. MARKS : 75**
DURATION : 90 hrs	**MAX. MARKS: 100**

Course Objectives
- To enhance the level of literary and aesthetic experience of students and to help them respond creatively.
- To sensitize them to the major issues in the society and the world.
- To provide them with an ability to build and enrich their communication skills.
- To equip them to utilize the digital knowledge resources effectively for their chosen fields of study and
- To help them think and write imaginatively and critically.

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 scenes from Shakespearean plays.
CO2 [K2]: demonstrate effective speaking skills by listening to speeches of famous personalities and express it in day-to-day life.
CO3 [K3]: apply the knowledge of language competency in writing letters, emails and display social etiquettes in everyday life.
CO4 [K4]: analyse data interpretation, meeting etiquettes, organizing and participating in a meeting.
CO5 [K5]: develop language skills through literature and assess the knowledge of English in the workplace.

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[K5]	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	1.88	1.73	1.17	3.3	2.52	1.35	0.92

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

UNIT I - SPEECHES OF FAMOUS PERSONALITIES   (18 hrs)
Jawaharlal Nehru   -   Tryst with Destiny
Steve Jobs   -   You've got to Find What You Love
Barack Obama   -   Yes, We Can

UNIT II- POETRY   (18 hrs)
Christina Rossetti   -   In an Artist's Studio
Toru Dutt   -   Sita
Oodgeroo Noonuccal   -   A Song of Hope
Mamang Dai   -   The Voice of the Mountains

UNIT III - SCENES FROM SHAKESPEARE   (18 hrs)
Romeo & Juliet   -   The Balcony Scene
Macbeth   -   Banquet Scene
Julius Caesar   -   Murder Scene

UNIT IV - LANGUAGE COMPETENCY   (18 hrs)
Writing letters and emails
Writing and messaging in social media platforms [blogs, twitter,
Instagram, facebook]
Learning netiquette, email etiquette

UNIT V - ENGLISH FOR WORK PLACE   (18 hrs)
Data Interpretation and Reporting
Data Presentation and analysis
Meeting Etiquettes - language, dress code, voice modulation
Online Meetings   - Terms and expressions used
Conducting and participating in a meeting

TEXTBOOK

1. Arden Shakespeare. *Complete works of William Shakespeare*. Bloomsbury, 2011.

REFERENCES
 Books

1. Wells, Stanley. *The Shakespeare Book: Big Ideas Simply Explained*, et al. DK
   Publishing, 2015.

2. Gandhi, Mahatma. *Famous Speeches by Mahatma Gandhi*, Create space
   Independent Publishing Platform, 2016.

3. Bernish, Jeanne Kelly. *How to Build a Professional Digital Profile* Kindle Edition,
   Bernish Communications Associates, LLC; 1st edition (May 29, 2012).

3. Folse, Keith.S. *Keys to Teaching Grammar to English Language Learners*, Second
   Ed.: A Practical Handbook, Michigan Teacher Training, 2016.

4. Yardley, Krysia.M. *Role Play- Theory and Practice*. Matwiejczuk, SAGE publications
   ltd, 1997.

Web Sources

1. https://www.scribd.com/document/558838656/
2. http://www.wordslikethis.com.au/
3. https://www.poetryfoundation.org/poems/146804/in-an-artist39s-   studio
4. https://www.poetrynook.com/poem/s%E2%94%9C%C2%ABta
5. https://www.cam.ac.uk/files/a-tryst-with
destiny/index.html#:~:text=Jawaharlal%20Nehru%2C%20delivering%20his%20Tryst%2
0with%20Destiny%20speech.&text=%22Long%20years%20ago%20we%20made,awake
%20to%20life%20and%20freedom

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - III
CORE COURSE – V: DATABASE MANAGEMENT SYSTEMS (23UCYC31)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 5		**INT. MARKS : 25**	
CREDITS : 5		**EXT. MARKS : 75**	
DURATION : 75 hrs		**MAX. MARKS : 100**	

Course Objectives
- This course familiarizes the learners with database creation.
- Able to do SQL query operations and concurrency transaction operations.

Course Outcomes (CO)

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

CO1[K1]: describe the concepts of database systems

CO2[K2]: explain the basics of database, design concepts, normalization, SQL, PL/SQL

CO3[K3]: apply required SQL, PL/SQL to solve a database problem

CO4[K4]: analyze database concepts, ER model, various control structures in PL/SQL

CO5[K6]: develop database schema and perform SQL and PL/SQL operations for an simple application

CO-PO Mapping table (Course Articulation Matrix)

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	2	2	2	1	1	1
CO2[K2]	3	3	2	1	-	-	1
CO3[K3]	3	3	1	-	-	1	2
CO4[K4]	3	3	1	-	-	-	1
CO5[K6]	2	3	3	-	-	-	2
Weightage of the course	14	14	09	03	01	02	07
Weighted percentage of Course contribution to POs	2.63	3.03	3.5	1.1	0.84	0.9	3.23

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

UNIT I – DATABASE CONCEPTS   (15 hrs)

Database Concepts: Database Systems - Data vs Information - Introducing the database - File system - Problems with file system – Database systems - Data models - Importance - Basic Building Blocks - Business rules - Evolution of Data models - Degrees of Data Abstraction.

UNIT II – DESIGN CONCEPTS   (15 hrs)

Design Concepts: Relational database model - logical view of data-keys -Integrity rules - relational set operators - data dictionary and the system catalog - relationships -data redundancy revisited -indexes - codd's rules. Entity relationship model - ER diagram.

UNIT III – NORMALIZATION AND SQL   (15 hrs)

Normalization of Database Tables: Database tables and Normalization – The Need for Normalization – The Normalization Process – Higher level Normal Form. **Introduction to SQL:** Data Definition Commands – Data Manipulation Commands – SELECT Queries – Additional Data Definition Commands – Additional SELECT Query Keywords – Joining Database Tables.

UNIT IV – ADVANCED SQL   (15 hrs)

Relational SET Operators: UNION – UNION ALL – INTERSECT - MINUS. **SQL Join Operators:** Cross Join – Natural Join – Join USING Clause – JOIN ON Clause – Outer Join. **Sub Queries and Correlated Queries**: WHERE – IN – HAVING – ANY and ALL – FROM. **SQL Functions:** Date and Time Function – Numeric Function – String Function – Conversion Function.

UNIT V – PL/SQL   (15 hrs)

A Programming Language: History – Fundamentals – Block Structure – Comments – Data Types – Other Data Types – Variable Declaration – Assignment operation – Arithmetic operators. **Control Structures and Embedded SQL**: Control Structures – Nested Blocks – SQL in PL/SQL – Data Manipulation – Transaction Control statements. **PL/SQL Cursors and Exceptions**: Cursors – Implicit Cursors, Explicit Cursors and Attributes – Cursor FOR loops – SELECT…FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions.

TEXTBOOKS

1. Coronel, Morris and Rob. *Database Systems, Design, Implementation and Management.* Ninth Edition
2. Nilesh Shah. *Database Systems Using Oracle.* Newyork: Pearson Education, 2016

REFERENCES
Books

1. Abraham Silberschatz, Henry F.Korth, S.Sudarshan. *Database System Concepts.* NewYork: McGraw Hill International Publication
2. Shio Kumar Singh. *Database Systems*. NewYork: Pearson publications

Web Sources

1. Web resources from NDL Library, E-content from open-source libraries

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - III
CORE COURSE – VI: PRACTICAL: DATABASE MANAGEMENT SYSTEMS (23UCYC3P)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 5		**INT. MARKS : 25**	
CREDITS : 5		**EXT. MARKS : 75**	
DURATION : 75 hrs		**MAX. MARKS: 100**	

Course Objectives
- Students can learn various SQL and PL/SQL commands
- learn cursor and various application programs.

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1[K2]: demonstrate the commands required to create, alter and handle tables
CO2[K3]: apply various SQL, PL/SQL constructs for a database system
CO3[K4]: analyze a given database problem and to design a database schema
CO4[K5]: develop database system solutions using SQL and PL/SQL
CO5[K6]: create solution based on a database systems

CO-PO Mapping table (Course Articulation Matrix)

PO\CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K2]	3	3	-	1	-	-	1
CO2[K3]	3	3	-	1	-	1	1
CO3[K4]	3	3	2	1	-	1	1
CO4[K5]	3	2	1	-	1	1	1
CO5[K6]	3	2	1	-	1	1	1
Weightage of the course	15	13	04	03	02	04	05
Weighted percentage of Course contribution to POs	2.82	2.81	1.56	1.1	1.68	1.79	2.3

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

I. SQL
1. DDL Commands
2. DML Commands
3. TCL Commands

II.   PL/SQL
4. Fibonacci Series
5. Factorial
6. String Reverse
7. Sum Of Series
8. Trigger

III.   CURSOR
9. Student Mark Analysis Using Cursor

IV.   APPLICATION
10. Library Management System
11. Student Mark Analysis

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF MATHEMATICS
UG Programme - B.Sc. Computer Science(Cloud Computing and Cyber Security)
SEMESTER - III
ELECTIVE COURSE GENERIC/ DISCIPLINE SPECIFIC - III: NUMERICAL METHODS
(23UCYA31)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 4(L-3, T-1)	**INT. MARKS : 25**
CREDITS : 3	**EXT. MARKS : 75**
DURATION : 60 hrs	**MAX. MARKS: 100**

Course Objectives
- To introduce the various topics in Numerical methods.
- To know the fundamentals of algebraic equations.
- To apply interpolation and approximation on numerical problems.
- To find numerical differentiation and integration of functions.
- To solve ordinary differential equations numerically.

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1[K1]: describe the basic concepts in numerical analysis
CO2[K2]: explain the methods of solving algebraic, transcendental, differential
equations
CO3[K3]: apply numerical methods to obtain approximate solutions of algebraic,
transcendental and differential equations, numerical differentiation and
integration of given functions
CO4[K4]: examine the numerical solution of algebraic, transcendental differential
equations, numerical differentiation and integration of functions and
interpolating values of the given data
CO5[K5]: determine the appropriate method of solving algebraic, transcendental
differential equations numerically and integration of functions and finding
missing values of a given data

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	-	1	1
CO3[K3]	2	2	1	1	-	1	1
CO4[K4]	2	2	2	1	-	1	1
CO5[K5]	2	2	2	1	-	1	1
Weightage of the course	10	10	07	05	0	04	04
Weighted percentage of Course contribution to POs	1.88	2.16	2.72	1.83	0	1.79	1.84

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

UNIT I (12 hrs)

Fundamentals of Algebraic Equation: Solution of Algebraic and Transcendental Equations - Bisection Method – Fixed Point Iteration Method – Newton Raphson Method – Linear System of Equations – Gauss Elimination Method – Gauss Jordan Method.
Page No. 3.2, 3.3, 3.4, 3.13 – 3.18, 3.20, 3.21, 4.1, 4.2, 4.10 – 4.16

UNIT II (12 hrs)

Iterative, Interpolation and Approximation: Iterative Methods - Gauss Jacobi and Gauss Seidel – Eigen Values of a Matrix by Power Method and Jacobi's Method for Symmetric Matrices. Interpolation with Unequal Intervals – Lagrange's Interpolation – Newton's Divided Difference Interpolation.
Page No. 4.5, 4.7, 4.8, 4.21 – 4.25, 4.28 – 4.34, 7.1, 7.2, 7.6, 7.7, 7.12 – 7.18

UNIT III (12 hrs)

Interpolation with Equal Interval: Difference Operators and Relations - Interpolation with Equal Intervals – Newton's Forward and Backward Difference Formulae.
Page No. 6.1 – 6.4, 6.11 – 6.16

UNIT IV **(12 hrs)**

Numerical Differentiation and Integration: Approximation of Derivatives using Interpolation Polynomials – Numerical Integration using Trapezoidal, Simpson's 1/3 rule.
Page No. 8.1, 8.2, 8.8 – 8.11, 8.28 – 8.30, 8.38 – 8.40

UNIT V **(12 hrs)**

Initial Value Problems for Ordinary Differential Equations: Single Step Methods – Taylor's Series Method – Euler's Method – Modified Euler's Method - Runge Kutta Method for Solving (first, second, third and 4th) Order Equation.
Page No. 10.1 – 10.13, 10.16 - 10.25

TEXTBOOK
1. Veerarajan, T. and Ramachandran, T. *Numerical Methods with Programs in C*. New Delhi: Tata McGraw – Hill Publishing Company Limited, Second Edition, 2007.

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1. Kandasamy, P., Thilagavathy, K. and Gunavathi, K. *Numerical Methods*. New Delhi : S.Chand and Company Ltd, 2012.
2. Kalavathy, S. *Numerical Methods.* Chennai : Vijay Nicole Imprints Pvt Ltd, 2004.
3. Arumugam, S., Thangapandi Isaac, A. and Somasundaram, A. *Numerical Methods.* Chennai : Scitech Publications (India) Pvt Ltd, 2009.

Web Sources
1. https://theengineeringmaths.com/wp-content/uploads/2017/11/num-solutions.pdf
2. https://www.lkouniv.ac.in/site/writereaddata/siteContent/202004032250571912siddharth_bhatt_engg_Interpolation.pdf
3. https://theengineeringmaths.com/wpcontent/uploads/2017/11/interpolationweb.pdf
4. https://nptel.ac.in/content/storage/111/107/111107105/MP4/mod02lec08.mp4
5. https://nptel.ac.in/content/storage/111/107/111107105/MP4/mod08lec39.mp4

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - III
SKILL ENHANCEMENT COURSE – V: (ENTEREPRENEURIAL SKILL)- SOFTWARE TESTING (23UCYS31)
(From 2023-2024 Batch onwards)

HOUR/WEEK: 1   **INT. MARKS : 25**
CREDIT   : 1   **EXT. MARKS : 75**
DURATION   : 15 hrs   **MAX. MARKS: 100**

Course Objectives
- To study various Software techniques
- To study fundamental concepts in software testing

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1[K1]: describe various types of software testing
CO2[K2]: explain the concepts of software testing
CO3[K3]: write the required steps to perform various testing
CO4[K4]: analyze different testing methods
CO5[K5]: assess the appropriate testing method for a given scenario

CO-PO Mapping table (Course Articulation Matrix)

PO\CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	3	2	1	-	1	1
CO2[K2]	3	2	1	2	-	1	1
CO3[K3]	3	3	2	2	-	1	3
CO4[K4]	2	3	3	2	-	2	2
CO5[K5]	3	3	3	1	-	2	3
Weightage of the course	14	14	11	08	0	07	10
Weighted percentage of Course contribution to POs	2.63	3.03	4.28	2.93	0	3.14	4.61

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

UNIT I (3 hrs)

Introduction: Purpose – Productivity and Quality in Software – Testing Vs Debugging – Model for Testing – Bugs – Types of Bugs – Testing and Design Style.

UNIT II (3 hrs)

Flow / Graphs and Path Testing: – Achievable paths – Path instrumentation – Application – Transaction Flow Testing Techniques.

UNIT III (3 hrs)

Data Flow Testing: Strategies. **Domain Testing:** Domains and Paths – Domains and Interface Testing.

UNIT IV (3 hrs)

Linguistic: Metrics – Structural Metric – Path Products and Path Expressions. **Syntax Testing :**Formats – Test Cases.

UNIT V (3 hrs)
Logic Based Testing : Decision Tables – Transition Testing – States, State Graph, State Testing.

TEXTBOOKS

1. B.Beizer. *Software Testing Techniques.* New Delhi: DreamTech India, Second Edition, 2003.
2. K.V.K.Prasad. *Software Testing Tools.* New Delhi: DreamTech India, 2005.

REFERENCES
Books
1. Burnstein. *Practical Software Testing*. Springer International Edn, 2003.
2. Kit.*Software Testing in the Real World: Improving the Process*. Delhi:Pearson Education, 1995.
3. R. Rajani, and P.P.Oak. *Software Testing.*New Delhi: Tata Mcgraw Hill.

Web Sources

1. https://www.javatpoint.com/software-testing-tutorial
2. https://www.guru99.com/software-testing.html

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme- B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER- III
SKILL ENHANCEMENT COURSE VI: WEB DESIGNING (23UCYS3P)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 2	INT. MARKS : 25
CREDITS : 2	EXT. MARKS : 75
DURATION : 30 hrs	MAX. MARKS : 100

Course Objectives

- Understand the basics of HTML and its components.
- To study about the Graphics in HTML .
- Understand and apply the concepts of XML and DHTML.
- Understand the concept of JavaScript .
- To identify and understand the goals and objectives of the Ajax.

Course Outcomes (CO)

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

CO1[K2]: demonstrate various HTML tags

CO2[K3]: apply the required HTML tags and attributes to design a website

CO3[K4]: analyze the appropriate HTML tags and CSS to create a neat website.

CO4[K5]: choose the required tags, CSS and Ajax technology to create a website.

CO5[K6]: develop a web application using HTML, CSS and Ajax.

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K2]	3	2	1	1	-	1	1
CO2[K3]	3	2	1	1	-	1	1
CO3[K4]	3	3	2	2	-	1	1
CO4[K5]	3	2	2	2	-	1	1
CO5[K6]	2	3	2	2	-	2	1
Weightage of the course	14	12	08	08	0	06	05
Weighted percentage of Course contribution to POs	2.63	2.6	3.11	2.93	0	2.69	2.3

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

1. Design a web page using text formatting tags.
2. Create Web page using ordered and unordered lists.
3. Create your home page with images.
4. Create web page using internal and external links for documents.
5. Create web page using image and text hyperlinks within documents.
6. Create web page using tables.
7. Create a web page using 2 or more framesets.
8. Design a web page using forms.
9. Design the static web pages required for an online book store web site
10. Design a web page using CSS
11. Write JavaScript code to perform validation
12. Develop Social Media application using AJAX

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF TAMIL
UG PROGRAMME - B.A./ B.COM/B.B.A./ B.SC./BCA
SEMESTER - IV
பொதுத்தமிழ் - IV (23UTAG41)
(From 2023-2024 Batch onwards)

HOURS / WEEK : 6	**INT. MARKS : 25**
CREDITS : 3	**EXT. MARKS : 75**
DURATION : 90 hrs	**MAX. MARKS: 100**

நோக்கங்கள்

- இலக்கியங்களின் சிறப்பினை உணர்த்துதல்.
- சங்க இலக்கியத்தின் சிறப்பையும், நாடகம் என்னும் இலக்கிய வகையின் தன்மையையும் அகபுற இலக்கணங்களையும் மாணவர்களுக்கு அறிமுகப்படுத்துதல்.
- தமிழ் இலக்கியம் சார்ந்த போட்டித் தேர்வுகளுக்கு ஏற்ப கற்பித்தல் நடைமுறைகளை மேற்கொள்ளுதல்.

கற்றலின் விளைவுகள்

CO1[K1]: சங்க இலக்கியத்தில் காணப்பெறும் அறக்கருத்துக்களை அறிந்து கொள்வர்.

CO2[K2]: சங்க இலக்கியங்கள் மற்றும் நாடக இலக்கியம் வாயிலாக மக்களின் வாழ்க்கை முறையினை எடுத்துரைப்பர்.

CO3[K3]: நாடக இலக்கியம் மூலம் நடிப்பாற்றலையும், கலைத்தன்மையையும், படைப்பாற்றலையும் கற்பர். மேலும் மொழிபெயர்ப்பு ஆற்றலையும் பெறுவர்.

CO4[K4]: கலைச்சொற்களைக் கண்டறிந்து அவற்றோடு தொடர்புடைய சொல்லைப் பகுப்பர்.

CO5[K5]: சங்க இலக்கியம் மற்றும் நாடக இலக்கியங்களை மதிப்பீடு செய்வர்.

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	08	02	09	02	02	02
Weighted percentage of Course Contribution to Pos	1.88	1.73	0.78	3.3	1.68	0.9	0.92

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

கூறு I **(18 hrs)**

எட்டுத்தொகை: நற்றிணை (10,14,16பாடல்கள்), குறுந்தொகை (16,17,19,20,25,29,38,440), கலித்தொகை (38,51), அகநானூறு (15,33,55), புறநானூறு (37,86,112), பரிபாடல் (55)

கூறு II **(18 hrs)**

பத்துப்பாட்டு: நெடுநல்வாடை - நக்கீரர்

கூறு III **(18 hrs)**

நாடகம்: சபாபதி - பம்மல் சம்பந்த முதலியார்

கூறு IV **(18 hrs)**

சங்க இலக்கியம் தோற்றம் வளர்ச்சி - நாடகத்தின் தோற்றம் வளர்ச்சி

கூறு V **(18 hrs)**

மொழித்திறன்: மொழிபெயர்ப்பு - கலைச்சொற்கள், கொடுக்கப்பட்டுள்ள ஆங்கிலப் பகுதியைத் தமிழில் மொழிபெயர்தல், அலுவலகக் கடிதம் - தமிழில் மொழிபெயர்த்தல்.

பாடநூல்கள்
1. தமிழியல் துறையினர், *தொகுப்பு நூல்,* ஸ்ரீ காளீஸ்வரி கல்லூரி (தன்னாட்சி), சிவகாசி.
2. வாசுதேவன், கா. *பன்முக நோக்கில் தமிழ் இலக்கிய வரலாறு,* தேவன் பதிப்பகம், திருச்சிராப்பள்ளி, 2017.

பார்வை நூல்கள்
1. சிற்பி. பாலசுப்பிரமணியன், *தமிழ் இலக்கிய வரலாறு,* கவிதா வெளியீடு, சென்னை.
2. தமிழண்ணல், *புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு,* சோலை பதிப்பகம், மதுரை
3. பாக்கியமேரி, *வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு,* பாரி நிலையம், சென்னை.

வலைப்பதிவுகள் (Web Sources)
1. Tamil Heritage Foundation- www.tamilheritage.org <http://www.tamilheritage.org>
2. Tamil virtual University Library- www.tamilvu.org/ library http://www.virtualvu.org/library
3. Project Madurai - www.projectmadurai.org.
4. Chennai Library- www.chennailibrary.com <http://www.chennailibrary.com>.
5. Tamil Universal Digital Library- www.ulib.prg <http://www.ulib.prg>.
6. Tamil E-Books Downloads- tamilebooksdownloads. blogspot.com
7. Tamil Books on line- books.tamil cube.com
8. Catalogue of the Tamil books in the Library of British Congress archive.org
9. Tamil novels on line - books.tamilcube.com

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF ENGLISH
UG PROGRAMME - B.A./ B.COM/B.B.A./ B.SC./BCA
SEMESTER- IV
GENERAL ENGLISH –IV (23UENL41)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 6 (L-5, T-1)	**INT. MARKS : 25**
CREDITS : 3	**EXT. MARKS : 75**
DURATION : 90 hrs	**MAX. MARKS: 100**

Course Objectives
- To help learners imbibe the rules of language unconsciously and tune to deduce language structure and usage.
- To use receptive skills through reading and listening to acquire good exposure to language and literature.
- To develop language skill for effective communication.
- To provide exposure to plays, autobiographies and expose them to value based ideas.
- To enhance the learner's language skills especially in the areas of grammar and pronunciation.

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1 [K1]: state ideas effectively and appropriately in real life situations.
CO2 [K2]: demonstrate speaking skills in appreciating literature.
CO3 [K3]: use grammar and pronunciation effectively and appropriately.
CO4 [K4]: examine the literary works to develop language skills.
CO5 [K6]: construct grammatically correct and meaning full sentences.

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	1.88	1.95	1.17	2.93	1.68	1.35	1.38

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

UNIT I - LIFE WRITING **(18 hrs)**

Malala Yousafzai	-	I am Malala - Chapter 1
Nikola Tesla	-	My Inventions - Chapter 2

UNIT II - ONE ACT PLAYS **(18 hrs)**

Edward Albee	-	The Zoo Story
Anton Chekhov	-	The Proposal

UNIT III - INTERVIEWS **(18 hrs)**

Nelson Mandela's Interview with Larry King
Rakesh Sharma's Interview with Indira Gandhi from Space
Lionel Messi with Sid Lowe (Print)

UNIT IV - LANGUAGE COMPETENCY **(18 hrs)**

Refuting, Arguing & Debating, Making Suggestions & Responding to   Suggestions, Asking for and Giving Advice or Help, Interviews (face to face,   telephone and video conferencing)

UNIT V - ENGLISH FOR WORKPLACE **(18 hrs)**

Job Applications: Covering letters, CV and Resume
Creating a digital profile - Linkedin
Filling Forms (Online & Manual): creation of account, railway reservation,   ATM, Credit/debit card
Body Language -Practical Skills for Interviews

TEXTBOOKS
1. Yousafzai, Malala, and Christina Lamb. *I Am Malala The Girl Who Stood Up for Education and Was Shot by the Taliban*. New York: Little Brown, 2013.
2. Tesla , Nikola. *My Inventions.* London: Ingram Short Title, 2011.

REFERENCES
Books
1. Taylor, Mary Borg, & Francis, *Writing Your Life: A Guide to Writing Autobiographies.* Routledge, 2021.
2. Bert, A. Norman. *One-act Plays for Acting Students: An Anthology of Short one- Act Plays for one, Two or Three actors*. Christian Publisher LLC, 1987.
3. Dolley, Colin. and Rex Welford.*The One-Act Play Companion: A Guide to plays, Play wrights and Performance*. Bloomsbury Publishing,2015.
4. Bernis, Jeanne Kelly. Editor. *How to Build a Professional Digital Profile*. Bernish, Bernish Communications Associates, LLC, 2012
5. Yardley, M Yardley - Matwiejczuk, *Role Play-Theory and Practice.* SAGE publications ltd, 1997.

Web Sources

1. For Readers' Theatre: https://www.youtube.com/watch?v=JaLQJt8orSw&t=469s(the link to the performance; refer scripts by Aaron Sheperd)
2. http://BBC learn English.com
3. https://www.infoplease.com/dictionary/brewers/animals-crieshttp://onestopenglish.comhttp://hearn-english-today.comhttp://talkenglish.com

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER- IV
CORE COURSE –VII : INDUSTRY MODULE - JAVA PROGRAMMING (23UCYC41)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 5   **INT. MARKS : 25**
CREDITS   : 5   **EXT. MARKS : 75**
DURATION   : 75 hrs   **MAX. MARKS: 100**

Course Objectives

- To provide fundamental knowledge of object-oriented programming.

- To equip the student with programming knowledge in Core Java from the basics up.

- To enable the students to use AWT controls, Event Handling and Swing for GUI

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1[K1]: describe the various concepts of Java programming
CO2[K2]: explain the Java Programming paradigms in detail
CO3[K3]: apply the required Java techniques to solve simple problem.
CO4[K4]: analyze the concepts of Inheritance, Multithreading, Exception handling
                and Swings
CO5[K5]: choose appropriate java constructs to solve a basic problem

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	2	1	1	1	1	-
CO2[K2]	2	3	2	1	1	1	1
CO3[K3]	2	2	3	1	1	1	--
CO4[K4]	2	2	3	1	1	1	
CO5[K5]	1	3	2	1	1	1	1
Weightage of the course	10	12	11	05	05	05	02
Weighted percentage of Course contribution to POs	1.88	2.6	4.28	1.83	4.2	2.24	0.92

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

UNIT I **(15 hrs)**

Introduction: Review of Object Oriented concepts – History of Java - Java buzzwords - JVM architecture - Datatypes - Variables - Scope and life time of variables - arrays - operators – control statements - type conversion and casting - simple java program - constructors - methods - Static block - Static Data – Static Method String and StringBuffer Classes

UNIT II **(15 hrs)**

Inheritance: Basic concepts - Types of inheritance - Member access rules - Usage of this and Super key word - Method Overloading - Method overriding - Abstract classes - Dynamic method dispatch - Usage of final keyword **Packages**: Definition-Access Protection-Importing Packages. **Interfaces**: Definition–Implementation–Extending Interfaces. **Exception Handling**: try – catch - throw - throws – finally – Built-in exceptions - Creating own Exception classes.

UNIT III **(15 hrs)**

Multithreaded Programming: Thread Class - Runnable interface – Synchronization–Using synchronized methods– Using synchronized statement-Interthread Communication –Deadlock. **I/O Streams:** Concepts of streams - Stream classes-Byte and Character stream - Reading console Input and Writing Console output - File Handling.

UNIT IV **(15 hrs)**

AWT Controls: The AWT class hierarchy – user interface components- Labels - Button – Text Components - Check Box - Check Box Group - Choice - List Box - Panels – Scroll Pane - Menu - Scroll Bar. Working with Frame class - Color - Fonts and layout managers. Event Handling: Events - Event sources – Event Listeners - Event Delegation Model (EDM) – Handling Mouse and Keyboard Events - Adapter classes – Inner classes

UNIT V **(15 hrs)**

Swing: Introduction to Swing - Hierarchy of swing components. Containers - Top level containers - JFrame - JWindow - JDialog - JPanel - JButton - JToggleButton - JCheckBox - JRadioButton - JLabel,JTextField - JTextArea - JList - JComboBox - JScrollPane.

TEXTBOOKS
1. Herbert Schildt. *The Complete Reference.* New Delhi: Tata McGraw Hill, Seventh Edition, 2010
2. Gary Cornell. *Core Java 2 Volume I – Fundamental.* Addison Wesley, 1999

REFERENCES
Books
1. Kathy Sierra, Bert Bates and Trisha Gee. *Head First Java.* O'Rielly Publications
2. Y. Daniel Liang. *Introduction to Java Programming.* India: Pearson Education, Seventh Edition,2010

Web Sources
1. https://javabeginnerstutorial.com/core-java-tutorial
2. http://docs.oracle.com/javase/tutorial/
3. https://www.coursera.org/

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme- B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER- IV
CORE COURSE –VIII: PRACTICAL: JAVA PROGRAMMING (23UCYC4P)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 5	**INT. MARKS : 25**
CREDITS : 5	**EXT. MARKS : 75**
DURATION : 75 hrs	**MAX. MARKS: 100**

Course Objectives:

- To gain practical expertise in coding Core Java programs

- To become proficient in the use of AWT, Event Handling and Swing.

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1[K2]: demonstrate the constructs of Java
CO2[K3]: apply the required concepts of Java to solve a simple problem
CO3[K4]: analyze various control statements in java
CO4[K5]: examine the working Java statements, exception, threading and Swing
       controls
CO5[K6]:create a simple java program

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K2]	3	2	1	1	1	---	---
CO2[K3]	2	3	1	1	1	1	
CO3[K4]	2	1	3	1	1	--	
CO4[K5]	2	1	1	3	1	1	
CO5[K6]	1	1	1	3	---	2	1
Weightage of the course	10	8	7	9	4	4	1
Weighted percentage of Course contribution to POs	**1.88**	**1.73**	**2.72**	**3.3**	**3.36**	**1.79**	**0.46**

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

EXERCISES LIST:

1. Write a Java program that prompts the user for an integer and then prints out all the prime numbers up to that Integer?

2. Write a Java program to multiply two given matrices.

3. Write a Java program that displays the number of characters, lines and words in a text?

4. Generate random numbers between the given limits using Random class and print messages according to the range of the value generated.

5. Write a program to do String Manipulation using Character Array and perform the following string operations:

    a. String length

    b. Finding a character at a particular position

    c. Concatenating two strings

6. Write a program to perform the following string operations using String class:

    a. String Concatenation

    b. Search a substring

    c. To extract substring from given string

7. Write a program to perform string operations using String Buffer class:

    1. Length of a string

    2. Reverse a string

    3. Delete a substring from the given string

8. Write a java program that implements a multi-thread application that has three threads. First thread generates random integer every 1 second and if the value is even, second thread computes the square of the number and prints. If the value is odd, the third thread will print the value of cube of the number.

9. Write a threading program which uses the same method asynchronously to print the numbers 1 to 10 using Thread1 and to print 90 to100 using Thread2.

10. Write a program to demonstrate the use of following exceptions.

    1. Arithmetic Exception

    2. Number Format Exception

    3. Array Index Out of Bound Exception

    4. Negative Array Size Exception

11. Write a Java program that reads on file name from the user, then displays information about whether the file exists, whether the file is readable, whether the file is writable, the type of file and the length of the file in bytes?

12. Write a program to accept a text and change its size and font. Include bold italic options. Use frames and controls.

13. Write a Java program that handles all mouse events and shows the event name at the center of the window when a mouse event is fired. (Use adapter classes).

14. Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the +, -,*, % operations. Add a text field to display the result. Handle any possible exceptions like divide by zero.

15. Write a Java program that simulates a traffic light. The program lets the user select one of three lights: red, yellow, or green with radio buttons. On selecting a button, an appropriate message with "stop" or "ready" or "go" should appear above the buttons in a selected color. Initially there is no message shown.

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER- IV
ELECTIVE COURSE GENERIC/ DISCIPLINE SPECIFIC -IV: COMPUTER NETWORKS
(23UCYA41)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 3	**INT. MARKS : 25**
CREDITS : 3	**EXT. MARKS : 75**
DURATION : 45 hrs	**MAX. MARKS: 100**

Course Objectives

* This course enables the students to learn the fundamentals of Computer Network and its concepts and to enhance their knowledge in various functions and protocols in different layers

* To differentiate various techniques in error detection, framing and routing.

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1[K1]: define the basics of computer network architecture, OSI and

TCP/IP reference models

CO2[K2]: explain the working and performance of telephone systems and satellite

communications

CO3[K3]: state the concept of elementary data link protocols

CO4[K4]: analyze the characteristics of routing and congestion control algorithms

CO5[K5]: discuss about network security and various protocols such as FTP, HTTP,

Telnet, DNS

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	1	-	1	-	-	1
CO2[K2]	3	2	1	1	1	-	1
CO3[K3]	3	3	1	1	-	1	1
CO4[K4]	3	2	1	1	-	-	1
CO5[K5]	3	3	-	1	-	1	1
Weightage of the course	15	11	03	05	01	02	05
Weighted percentage of Course contribution to POs	2.82	2.38	1.17	1.83	0.84	0.9	2.3

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

UNIT I   **(9 hrs)**

Introduction – Network Hardware – Software – Reference Models – OSI and TCP/IP Models – **Example Networks:** Internet, ATM, Ethernet and Wireless LANs - Physical Layer – Theoretical Basis for Data Communication - Guided Transmission Media.

UNIT II   **(9 hrs)**

Wireless Transmission - Communication Satellites – **Telephone System:** Structure, Local Loop, Trunks and Multiplexing and Switching. **Data Link Layer:** Design Issues – Error Detection and Correction.

UNIT III   **(9 hrs)**

Elementary Data Link Protocols - Sliding Window Protocols – Data Link Layer in the Internet - Medium Access Layer – Channel Allocation Problem – Multiple Access Protocols – Bluetooth.

UNIT IV   **(9 hrs)**

Network Layer - Design Issues - Routing Algorithms - Congestion Control Algorithms – IP Protocol – IP Addresses – Internet Control Protocols.

UNIT V   **(9 hrs)**

Transport Layer: Services - Connection Management - Addressing, Establishing and Releasing a Connection – Simple Transport Protocol – Internet Transporet Protocols (ITP) - **Network Security:** Cryptography.

TEXTBOOK

1. A. S. Tanenbaum. *Computer Networks.* New Delhi: Prentice Hall of India, 2008.

REFERENCES
Books

1. B. A. Forouzan. *Data Communications and Networking.* New York: Tata McGraw Hill, 2017.
2. F. Halsall. *Data Communications, Computer Networks and Open Systems.* New York: Pearson Education, 2008.
3. D. Bertsekas and R. Gallagher. *Data Networks.* New Delhi: PHI, 2008.
4. Lamarca. *Communication Networks.* New York: Tata McGraw Hill, 2002

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1. https://en.wikipedia.org/wiki/Computer_network
2. https://citationsy.com/styles/computer-networks

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - IV
SKILL ENHANCEMENT COURSE – VII: PHP PROGRAMMING (23UCYS4P)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 2	**INT. MARKS : 25**
CREDITS : 2	**EXT. MARKS : 75**
DURATION : 30 hrs	**MAX. MARKS: 100**

Course Objectives
- To provide the necessary knowledge of PHP
- Enhance the basic skills to develop dynamic web pages using PHP.

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1[K2]: demonstrate the PHP server side scripts
CO2[K3]: apply required PHP constructs to create a server side script
CO3[K4]: examine the possible PHP constructs to solve a server side application
CO4[K5]: choose PHP scripts to handle HTML forms
CO5[K6]: develop dynamic web pages using PHP

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K2]	3	2	1	1	1	2	3
CO2[K3]	3	3	2	1	1	3	3
CO3[K4]	3	3	2	1	1	2	3
CO4[K5]	3	2	3	1	1	3	3
CO5[K6]	3	2	2	1	1	3	3
Weightage of the course	15	12	10	05	05	13	15
Weighted percentage of Course contribution to POs	2.82	2.6	3.89	1.83	4.2	5.83	6.91

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

EXERCISES LIST:

1. Program to design web application using HTML formatting tags

2. Program to design website using Tables and Cascading Style Sheets

3. Program for form handling using PHP

4. Program to perform validation in forms

5. Program to use iterative statements in PHP

6. Program for string functions in PHP

7. Program for Built-in functions in PHP

8. Program for user defined functions in PHP

9. Program to perform manipulation with database

10. Program to store and retrieve images in database

11. Program to demonstrate session

12. Program to demonstrate cookies

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - IV
SKILL ENHANCEMENT COURSE – VIII: CYBER FORENSICS (23UCYS41)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 2	**INT. MARKS : 25**
CREDITS : 2	**EXT. MARKS : 75**
DURATION : 30 hrs	**MAX. MARKS: 100**

Course Objectives
- Understand the definition of computer forensics fundamentals.
- To study about the Types of Computer Forensics Evidence.
- Understand and apply the concepts of Duplication and Preservation of Digital Evidence.
- Understand the concepts of Electronic Evidence and Identification of Data.

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1[K1]: recall the concepts of cyber forensics
CO2[K2]: explain the cyber forensics fundamentals
CO3[K3]: apply the methods for data recovery, evidence collection and data seizure.
CO4[K4]: analyze various computer forensic systems
CO5[K5]: evaluate the different types of computer forensics technology

CO-PO Mapping table (Course Articulation Matrix)

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	3	3	1	1	1	2
CO2[K2]	3	3	2	1	1	1	2
CO3[K3]	2	2	2	1	1	1	2
CO4[K4]	2	2	2	1	1	1	2
CO5[K5]	2	2	2	1	1	1	2
Weightage of the course	12	12	11	05	05	05	10
Weighted percentage of Course contribution to POs	2.26	2.6	4.28	1.83	4.2	2.24	4.61

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

UNIT I **(6 hrs)**

     Overview of Computer Forensics Technology: Computer Forensics Fundamentals: What is Computer Forensics Use of Computer Forensics in Law Enforcement, Computer Forensics Assistance to Human Resources/Employment Proceedings, Computer Forensics Services, Benefits of professional Forensics Methodology, Steps taken by Computer Forensics Specialists. Types of Computer. Forensics Technology: Types of Business Computer Forensic Technology–Types of Military Computer Forensic Technology–Types of Law Enforcement–Computer Forensic. Technology–Types of Business Computer Forensic Technology.

UNIT II **(6 hrs)**

     Computer Forensics Evidence and Capture: Data Recovery: Data Recovery Defined, Data Back–up and Recovery, The Role of Back –up in Data Recovery, The Data – Recovery Solution. Evidence Collection and Data Seizure: Collection Options, Obstacles, Types of Evidence, The Rules of Evidence, Volatile Evidence, General Procedure, Collection and Archiving, Methods of Collections, Artifacts, Collection Steps, Controlling Contamination: The chain of custody.

UNIT III **(6 hrs)**

     Duplication and Preservation of Digital Evidence: Processing steps, Legal Aspects of collecting and Preserving Computer forensic Evidence. Computer image Verification and Authentication: Special needs of Evidential Authentication, Practical Consideration, Practical Implementation.

UNIT IV **(6 hrs)**

     Computer Forensics Analysis: Discovery of Electronic Evidence: Electronic Document Discovery: A Powerful New Litigation Tool. Identification of Data: Time Travel, Forensic Identification and Analysis of Technical Surveillance Devices.

UNIT V **(6 hrs)**

     Reconstructing Past Events: How to Become a Digital Detective, Useable File Formats, Unusable File Formats, Converting Files. Networks: Network Forensics Scenario, a technical approach, Destruction Of E–Mail, Damaging Computer Evidence, Documenting the Intrusion on Destruction of Data, System Testing.

TEXTBOOK

1. John R. Vacca. *Computer Forensics: Computer Crime Investigation.* New Delhi :
   Firewall Media, Third Edition, 2002.

REFERENCES

Books

1. Nelson, Phillips Enfinger and Steuart. *Computer Forensics and Investigations*. Enfinger, Steuart, CENGAGE Learning, 2004
2. Anthony Sammes and Brian Jenkinson. *Forensic Computing: A Practitioner's Guide.* Springer–Verlag London Limited, Second Edition ,2007.
3. Robert M.Slade*. Software Forensics Collecting Evidence from the Scene of a Digital Crime.* TMH, 2005.

Web Sources

1. https://www.vskills.in
2. https://www.hackingarticles.in/best-of-computer-forensics-tutorials/

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
UG PROGRAMME
SEMESTER- III & IV
ENVIRONMENTAL STUDIES (23UESR41)
(From 2023 - 2024 Batch onwards)

HOURS/WEEK: 2 (III SEM-1, IV SEM-1)	**INT. MARKS : 25**
CREDITS : 2	**EXT. MARKS : 75**
DURATION : 30 hrs	**MAX. MARKS: 100**

Course Objectives

- To provide a comprehensive understanding of various environmental issues, including pollution, deforestation, climate change, loss of biodiversity, water scarcity, and resource depletion
- To encourage sustainable practices in various sectors, such as energy, transportation, agriculture, and waste management.
- To promote the conservation and preservation of natural resources, habitats, and ecosystems
- To foster a sense of environmental ethics and values.
- To encourage individuals to, participate in community initiatives, and contribute to sustainable development at local, national, and global levels

Course Outcomes (CO)

On successful completion of the course, the learners should 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, biodiversity and climatic change

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[K5]: evaluate 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[K5]	1	1	-	1	2	1	1
Weightage of the course	08	05	01	07	08	05	05
Weighted percentage of Course contribution to Pos	1.5	1.08	0.39	2.56	6.72	2.24	2.3

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

UNIT I – NATURAL RESOURCES   (6 hrs)

Natural resources: Definition of resource; Classification of natural resources- biotic and abiotic, renewable and non-renewable. **Biotic resources:** Major type of biotic resources- forests, grasslands, wetlands, wildlife and aquatic (fresh water and marine); Microbes as a resource; Status and challenges. **Water resources:** Types of water resources- fresh water and marine resources; Availability and use of water resources; Environmental impact of over-exploitation, issues and challenges; Water scarcity and stress; Conflicts over water.

UNIT II –SUSTAINABLE DEVELOPMENT   (6 hrs)

Soil as a resource and its degradation. **Energy resources:** Sources of energy and their classification, renewable and non-renewable sources of energy; Conventional energy sources- coal, oil, natural gas, nuclear energy; Non-conventional energy sources- solar, wind, tidal, hydro, wave, ocean thermal, geothermal, biomass, hydrogen and fuel cells; Implications of energy use on the environment. **Introduction to sustainable development:** Sustainable Development Goals (SDGs) - targets and indicators, challenges and strategies for SDGs.

UNIT III – ENVIRONMENTAL ISSUES LOCAL, REGIONAL AND GLOBAL   (6 hrs)

Industrial revolution and its impact on the environment; Population growth and natural resource exploitation; Global environmental change. **Pollution:** Impact of sectoral processes on Environment, Types of Pollution- air, noise, water, soil, municipal solid waste, hazardous waste; Trans boundary air pollution; Acid rain; Smog. Land use and Land cover change: land degradation, deforestation, desertification, urbanization. **Biodiversity loss:** past and current trends, impact. Global change: Ozone layer depletion; Climate change.

UNIT IV – CONSERVATION OF BIODIVERSITY AND ECOSYSTEM   (6 hrs)

Biodiversity and its distribution: Biodiversity as a natural resource; Levels and types of biodiversity; Biodiversity in India and the world; Biodiversity hotspots; Species and ecosystem threat categories. **Ecosystems and ecosystem services:** Major ecosystem types in India and their basic characteristics- forests, wetlands, grasslands, agriculture, coastal and marine; Threats to biodiversity and ecosystems. Major conservation policies: in-situ and ex-situ conservation approaches; Major protected areas.

UNIT V – CLIMATE CHANGE: IMPACTS, ADAPTATION AND MITIGATION   (6 hrs)

Climate change: Natural variations in climate; Structure of atmosphere; Anthropogenic climate change from greenhouse gas emissions– past, present and future; Projections of global climate change with special reference to temperature, rainfall, climate variability and extreme events; Importance of 1.5 °C and 2.0 °C limits to global warming; Impacts of climate change on ocean and land systems; Sea level rise, changes in marine and coastal ecosystems; Impacts on forests and natural ecosystems; **Mitigation of climate change -** Renewable energy sources; Carbon capture and storage, National climate action plan and Intended Nationally Determined Contributions (INDCs)

TEXTBOOKS
1. Chiras D. D and Reganold J. P. *Natural Resource Conservation: Management for a Sustainable Future,* Pearson, Tenth Edition, 2010
2. Harris, Frances. *Global Environmental Issues,* Wiley-Blackwell, Second Edition

REFERENCES
Books
1. Krishnamurthy K. V.. *Textbook of Biodiversity.* Science Publishers, Plymouth, UK.
2. Pittock, Barrie. *Climate Change: The Science, Impacts and Solutions.* Routledge, Second Edition.

Web Sources
1. https://www.youtube.com/watch?v=QewEi2U1jLs
2. https://www.unep.org/news-and-stories/story/marine-biodiversity-gets-lifeline-high-seas-treaty

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - V
CORE COURSE – IX: MACHINE LEARNING (23UCYC51)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 5	**INT. MARKS : 25**
CREDITS : 4	**EXT. MARKS : 75**
DURATION : 75 hrs	**MAX. MARKS: 100**

Course Objectives
- To Learn about Machine Intelligence and Machine Learning applications.
- Implement and apply machine learning algorithms to real-world applications, identify and apply the appropriate machine learning technique to classification, pattern recognition, optimization and decision problems, create instant based learning and apply advanced learning.

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1[K1]: appreciate the importance of visualization in the data analytics
solution
CO2[K2]: apply structured thinking to unstructured problems
CO3[K3]: understand a very broad collection of machine learning
algorithms and problems
CO4[K4]: learn algorithmic topics of machine learning and mathematically
deep enough to introduce the required theory
CO5[K5]: develop an appreciation for what is involved in learning from data.

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	-	-	-	1	-
CO3[K3]	3	2	-	1	-	2	1
CO4[K4]	3	3	1	1	1	2	1
CO5[K5]	3	3	1	1	1	2	1
Weightage of the course	15	12	02	03	02	08	03
Weighted percentage of Course contribution to POs	2.82	2.6	0.78	1.1	1.68	3.59	1.38

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

UNIT I (15 hrs)

Introduction Machine Learning - Difference between AI, Machine Learning and Big data. Supervised and unsupervised learning, parametric vs non-parametric models, parametric models for classification and regression- Linear Regression, Logistic Regression, Naïve Bayes classifier, simple non-parametric classifier-K-nearest neighbour, support vector machine

UNIT II (15 hrs)

Neural networks and genetic algorithms Neural Network Representation – Problems – Perceptrons – Multilayer Networks and Back Propagation Algorithms – Advanced Topics – Genetic Algorithms – Hypothesis Space Search – Genetic Programming – Models of Evaluation and Learning.

UNIT III (15 hrs)

Bayesian and computational learning Bayes Theorem – Concept Learning – Maximum Likelihood – Minimum Description Length Principle – Bayes Optimal Classifier – Gibbs Algorithm – Naïve Bayes Classifier – Bayesian Belief Network – EM Algorithm – Probability Learning – Sample Complexity – Finite and Infinite Hypothesis Spaces – Mistake Bound Model

UNIT IV (15 Hrs)

Instant based learning K- Nearest Neighbour Learning – Locally weighted Regression – Radial Basis Functions – Case Based Learning.

UNIT V   **(15hrs)**

      Advanced learning Recommendation systems – opinion mining, sentiment analysis. Learning Sets of Rules – Sequential Covering Algorithm – Learning Rule Set – First Order Rules – Sets of First Order Rules – Induction on Inverted Deduction – Inverting Resolution – Analytical Learning – Perfect Domain Theories – Explanation Base Learning – FOCL Algorithm – Reinforcement Learning – Task – Q-Learning – Temporal Difference Learning.

TEXTBOOKS
1. Tom M. Mitchell. *Machine Learning.* McGraw-Hill Education (India) Private Limited, 2013
2. Bengio, Yoshua, Ian J. Goodfellow and Aaron Courville.*Deep learning.* MIT Press,2015.

REFERENCES
Books
1. Ethem Alpaydin. *Introduction to Machine Learning (Adaptive Computation and Machine Learning)*, The MIT Press 2004.
2. Stephen Marsland. *Machine Learning: An Algorithmic Perspective.* CRC Press, 2009

Web Sources
1. Web resources from NDL Library, E-content from open-source libraries

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - V
CORE COURSE – X: CLOUD COMPUTING (23UCYC52)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 5	**INT. MARKS : 25**
CREDITS : 4	**EXT. MARKS : 75**
DURATION : 75 hrs	**MAX. MARKS: 100**

Course Objectives
- To impart fundamental concepts of Cloud Computing.
- To impart a working knowledge of the various cloud service types and their uses and pitfalls.
- To enable the students to know the common features and differences in the service offerings of the three major Cloud Computing service providers, namely Amazon, Microsoft and Google.
- To provide know-how of the various aspects of application design, benchmarking and security on the Cloud.

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1[K1]: describe the terminologies of Cloud computing.
CO2[K2]: explain the services given by cloud computing.
CO3[K3]: use the cloud in designing an application.
CO4[K4]: examine the cloud application in benchmarking and tuning.
CO5[K5]: evaluate the application of cloud in various fields.

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	3	1	1	-	-	1
CO2[K2]	3	3	1	1	-	-	1
CO3[K3]	3	3	1	-	1	-	1
CO4[K4]	3	2	2	-	1	1	1
CO5[K5]	3	2	2	-	1	1	1
Weightage of the course	15	13	07	02	03	02	05
Weighted percentage of Course contribution to POs	2.82	2.81	2.72	0.73	2.52	0.9	2.3

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

UNIT I   (15 hrs)

Definition of Cloud Computing – Characteristics of Cloud Computing – Cloud Models – Cloud Service Examples – Cloud-based Services and Applications.
Cloud Concepts and Technologies: Virtualization – Load balancing – Scalability and Elasticity – Deployment – Replication – Monitoring – Software Defined Networking – Network Function Virtualization – MapReduce – Identity and Access Management – Service Level Agreements – Billing.

UNIT II   (15 hrs)

Cloud Services Compute Services: Amazon Elastic Computer Cloud - Google Compute Engine - Windows Azure Virtual Machines. **Storage Services:** Amazon Simple Storage Service - Google Cloud Storage - Windows Azure Storage **Database Services:** Amazon Relational Data Store - Amazon Dynamo DB - Google Cloud SQL - Google Cloud Data Store - Windows Azure SQL Database - Windows Azure Table Service. **Application Services:** Application Runtimes and Frameworks - Queuing Services - Email Services - Notifiction Services - Media Services. **Content Delivery Services:** Amazon Cloud Front - Windows Azure Content Delivery Network. **Analytics Services:** Amazon Elastic MapReduce - Google MapReduce Service - Google BigQuery - Windows Azure HDInsight .**Deployment and Management Services:** Amazon Elastic Beanstack - Amazon CloudFormation. **Identity and Access Management Services:** Amazon Identiy and Access Management - Windows Azure Active Directory **Open Source Private Cloud Software:** CloudStack – Eucalyptus - OpenStack

UNIT III   (15 hrs)

Cloud Application Design: Introduction – Design consideration for Cloud Applications – Scalability – Reliability and Availability – Security – Maintenance and Upgradation – Performance – Reference Architectures for Cloud Applications – Cloud Application Design Methodologies: Service Oriented Architecture (SOA), Cloud Component Model, IaaS, PaaS and SaaS Services for Cloud Applications, Model View Controller (MVC), RESTful Web Services – Data Storage Approaches: Relational Approach (SQL), Non-Relational Approach (NoSQL).

UNIT IV   (15 hrs)

Cloud Application Benchmarking and Tuning: Introduction to Benchmarking – Steps in Benchmarking – Workload Characteristics – Application Performance Metrics – Design Consideration for Benchmarking Methodology – Benchmarking Tools and Types of Tests –Deployment Prototyping. **Cloud Security:** Introduction – CSA Cloud Security Architecture – Authentication (SSO) – Authorization – Identity and Access Management – Data Security : Securing data at rest, securing data in motion – Key Management – Auditing.

.

UNIT V   (15 hrs)

Case Studies: Cloud Computing for Healthcare – Cloud Computing for Energy Systems - Cloud Computing for Transportation Systems - Cloud Computing for Manufacturing Industry - Cloud Computing for Education

TEXTBOOK

1. Arshdeep Bahga, Vijay Madisetti. *Cloud Computing – A Hands On Approach*. Universities Press (India) Pvt. Ltd., 2018.

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Books
1. Anthony T Velte, Toby J Velte, Robert Elsenpeter, *Cloud Computing: A Practical Approach*, Tata McGraw-Hill, 2013.
2. Barrie Sosinsky. *Cloud Computing Bible*. Wiley India Pvt. Ltd., 2013.
3. David Crookes. *Cloud Computing in Easy Steps*. Tata McGraw Hill, 2012.
4. Dr. Kumar Saurabh. *Cloud Computing*. Wiley India, Second Edition 2012.

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1. https://www.ibm.com/topics/cloud-computing
2. https://en.wikipedia.org/wiki/Cloud_computing

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER- V
CORE COURSE - XI: PRACTICAL: CLOUD COMPUTING (23UCYC5P)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 5	**INT. MARKS : 25**
CREDITS : 4	**EXT. MARKS : 75**
DURATION : 75 hrs	**MAX. MARKS: 100**

Course Objectives:
- To impart fundamental concepts of Cloud Computing.
- To impart a working knowledge of the various cloud service types and their uses and pitfalls.
- To enable the students to know the common features and differences in the service offerings of the three major Cloud Computing service providers, namely Amazon, Microsoft and Google.
- To provide know-how of the various aspects of application design, benchmarking and security on the Cloud.

Course Outcomes (CO)

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

CO1[K2]: demonstrate the concept of Cloud computing.
CO2[K3]: apply the services given by cloud computing.
CO3[K4]: analyze to design and cloud application
CO4[K5]: evaluate the cloud application.
CO5[K6]: integrate the application of cloud in various fields.

CO-PO Mapping table (Course Articulation Matrix)

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K2]	3	3	1	1	-	-	1
CO2[K3]	3	3	1	1	-	-	1
CO3[K4]	3	3	1	-	1	-	1
CO4[K5]	3	2	2	-	1	1	1
CO5[K6]	3	2	2	-	1	1	1
Weightage of the course	15	13	07	02	03	02	05
Weighted percentage of Course contribution to POs	2.82	2.81	2.72	0.73	2.52	0.9	2.3

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

EXERCISES LIST:

1. Write a C program that contains a string (char pointer) with a value \Hello World". The program should XOR each character in this string with 0 and displays the result.
2. Write a C program that contains a string (char pointer) with a value \Hello World". The program should AND or and XOR each character in this string with 127 and display the result
3. Write a Java program to perform encryption and decryption using the following algorithms: a) Ceaser Cipher b) Substitution Cipher c) Hill Cipher 198
4. Write a Java program to implement the DES algorithm logic
5. Write a C/JAVA program to implement the BlowFish algorithm logic
6. Write a C/JAVA program to implement the Rijndael algorithm logic.
7. Using Java Cryptography, encrypt the text "Hello world" using BlowFish. Create your own key using Java keytool.
8. Install Virtual box/VMware Workstation with different flavours of linux or windows OS on top of windows7 or 8.
9. Install a C compiler in the virtual machine created using virtual box and execute Simple Programs
10. Install Google App Engine. Create hello world app and other simple web applications using python/java.
11. Use GAE launcher to launch the web applications.
12. Simulate a cloud scenario using CloudSim and run a scheduling algorithm that is not present in Cloud Sim.
13. Find a procedure to transfer the files from one virtual machine to another virtual machine.
14. Find a procedure to launch virtual machine using try stack (Online Open stack Demo Version)

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER- V
CORE COURSE-XII: PROJECT WITH VIVA VOCE (23UCYJ51)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 5	**INT. MARKS : 25**
CREDITS : 4	**EXT. MARKS : 75**
DURATION : 75 hrs	**MAX. MARKS: 100**

Course Objectives
- To familiarize the learners with the objectives and stages in formulating a Research Project
- To relate conceptual knowledge and the fundamentals of the research
- To apply fundamental and disciplinary concepts and methods in ways appropriate to their principal areas of study
- To develop the art of writing coherently, originally and analytically

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1[K2]: express their views with ppt illustrations and critical support
CO2[K3]: organize the views and solutions as modules of the project
CO3[K4]: analyze the various possible solutions of the chosen problem domain
CO4[K5]: evaluate the adopted solution with various testing
CO5[K6]: compile the development of solution as Documentation

CO-PO Mapping table (Course Articulation Matrix)

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K2]	3	2	2	2	-	1	-
CO2[K3]	3	2	2	2	1	1	-
CO3[K4]	3	2	2	2	1	1	1
CO4[K5]	2	2	2	2	1	1	1
CO5[K6]	2	2	2	3	1	1	1
Weightage of the course	13	10	10	11	04	05	03
Weighted percentage of Course contribution to POs	2.44	2.16	3.89	4.03	3.36	2.24	1.38

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

Guidelines for Project Submission

1. Students will work individually on a semester-long project.
2. Depending on the interest of the students, project titles will be chosen.
3. Students must meet the guide periodically.
4. The project report should be of minimum 25 pages (excluding bibliography & appendices)
5. The project carries 100 marks of which 25 marks for Internal Assessment and 75 Marks for External Examination.
6. There will be two project review sessions.
7. A draft of the final project report should be submitted to the Project Guide for review at least two weeks prior to the end of the semester.
8. Three 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 (25 Marks)

Project Report & Review : 15 Marks

PowerPoint Presentation : 5 Marks

Demo/Performance : 5 Marks

External Examination (75 Marks)

Project Report : 25 Marks

Viva Voce : 50 Marks

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - V
ELECTIVE COURSES GENERIC/ DISCIPLINE SPECIFIC - V: OPERATING SYSTEMS
(23UCYO51)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 4	**INT. MARKS : 25**
CREDITS : 3	**EXT. MARKS : 75**
DURATION : 60 hrs	**MAX. MARKS: 100**

Course Objectives:
- Understanding the design of the Operating System
- Imparting knowledge on CPU scheduling, Process and Memory Management.
- To code specialized programs for managing overall resources and operations of the computer.

Course Outcomes (CO)

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

CO1[K1]: describe the fundamentals of OS, process life cycle, Scheduling
         algorithms, Deadlock and Memory management

CO2[K2]: summarize the process involving threads and semaphores

CO3[K3]: apply respective algorithms for handling deadlock

CO4[K4]: analyze various methods to schedule the process and managing memory

CO5[K5]: determine memory management and organization

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	3	1	1	-	-	1
CO2[K2]	3	3	1	1	-	-	1
CO3[K3]	3	3	1	-	1	-	1
CO4[K4]	3	2	2	-	1	1	1
CO5[K5]	3	2	2	-	1	1	1
Weightage of the course	15	13	07	02	03	02	05
Weighted percentage of Course contribution to POs	2.82	2.81	2.72	0.73	2.52	0.9	2.3

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

UNIT I – INTRODUCTION   (12 hrs)

Introduction: operating system - history (1990s to 2000 and beyond) - distributed computing - parallel computation. **Process concepts:** definition of process - process states - Life cycle of a process - process management - process state transitions - process control block (PCB) - process operations - suspend and resume - context switching - Interrupts - Interrupt processing - interrupt classes - Inter process communication – signals - message passing.

UNIT II – ASYNCHRONOUS CONCURRENT PROCESSES   (12 hrs)

Asynchronous concurrent processes: mutual exclusion - critical section - mutual exclusion primitives - implementing mutual exclusion primitives - Peterson's algorithm - software solutions to the mutual Exclusion Problem – n-thread mutual exclusion - Lamports Bakery Algorithm. **Semaphores**: Mutual exclusion with Semaphores - thread synchronization with semaphores - counting semaphores - implementing semaphores. **Concurrent programming:** monitors - message passing.

UNIT III – DEADLOCK   (12 hrs)

Deadlock and indefinite postponement: Resource concepts - four necessary conditions for deadlock - deadlock prevention - deadlock avoidance and Dijkstra's Banker's algorithm - deadlock detection - deadlock recovery.

UNIT IV – SCHEDULING   (12 hrs)

Job and processor scheduling: scheduling levels - scheduling objectives - scheduling criteria - preemptive vs non-preemptive scheduling - interval timer or interrupting clock – priorities - scheduling algorithms - FIFO scheduling - RR scheduling - quantum size - SJF scheduling - SRT scheduling - HRN scheduling - multilevel feedback queues - Fair share scheduling.

UNIT V – MEMORY MANAGEMENT   (12 hrs)

Real Memory organization and Management: Memory organization - Memory management - Memory hierarchy - Memory management strategies - contiguous vs non-contiguous memory allocation - single user contiguous memory allocation - fixed partition multiprogramming - variable partition multiprogramming - Memory swapping. **Virtual Memory organization:** virtual memory basic concepts - multilevel storage organization - block mapping - paging basic concepts - segmentation - paging/segmentation systems. **Virtual Memory Management:** Demand Paging - Page replacement strategies.

TEXTBOOK

1. H.M. Deitel. *Operating Systems.* NewYork: Pearson Education, 2011.

REFERENCES
Books
1. William Stallings. *Operating Systems: Internals and Design Principles*. New Delhi:
   Prentice Hall of India, 2017.
2. A. Silberschatz, and P.B. Galvin. *Operating Systems Concepts.* John Wiley &
   Sons(ASIA) Pte Ltd.,2012.

Web Sources
1. https://www.geeksforgeeks.org/web-operating-system/
2. https://www.tutorialspoint.com/web-operating-system

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - V
ELECTIVE COURSES GENERIC/ DISCIPLINE SPECIFIC - V: .NET PROGRAMMING
(23UCYO52)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 4	**INT. MARKS : 25**
CREDITS : 3	**EXT. MARKS : 75**
DURATION : 60 hrs	**MAX. MARKS: 100**

Course Objectives
- To develop ASP.NET Web application using standard controls, create rich database applications using ADO.NET
- Implement file handling operations, utilize ASP.NET security features for authenticating the web site, and handles SQL Server Database using ADO.NET.

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1[K1]: describe CLR, C# Fundamental, IDE, Data Reader, Adapter and Data
          Binding, XML Classes in .NET Framework
CO2[K2]: summarize Web Form Controls, File Stream Classes, File Mode & its
          Operations, Data Controls and its Operations in Web application creation
CO3[K3]: use Web Form and HTML controls in a Web Application, File Stream
          operations, Grid View control in Database operation.
CO4[K4]: examine various conditional and looping statements, Authentication and
          Authorization properties in Web application creation
CO5[K5]: choose conditional and looping statements, HTML and Web form controls
          and Validation controls in creating Web applications

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	3	1	1	-	-	1
CO2[K2]	3	3	1	1	-	-	1
CO3[K3]	3	3	1	-	1	-	1
CO4[K4]	3	2	2	-	1	1	1
CO5[K5]	3	2	2	-	1	1	1
Weightage of the course	15	13	07	02	03	02	05
Weighted percentage of Course contribution to POs	2.82	2.81	2.72	0.73	2.52	0.9	2.3

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

UNIT I **(12 hrs)**

Overview Of .NET Framework: Common Language Runtime (CLR), Framework Class Library- **C# Fundamentals:** Primitive Types And Variables – Operators - Conditional Statements -Looping Statements – Creating And Using Objects – Arrays – String Operations.

UNIT II **(12 hrs)**

Introduction to ASP.NET: IDE-Languages supported Components -Working with Web Forms – **Web form standard controls:** Properties and its events – HTML controls - **List Controls:** Properties and its events.

UNIT III **(12 hrs)**

Rich Controls: Properties and its events – **validation controls:** Properties and its events – File Stream classes - File Modes – File Share – Reading and Writing to files – Creating, Moving, Copying and Deleting files – File uploading.

UNIT IV **(12 Hrs)**

ADO.NET Overview: Database Connections – Commands – Data Reader - Data Adapter - Data Sets - Data Controls and its Properties - Data Binding**.**

UNIT V **(12 hrs)**

Grid View control: Deleting, editing, Sorting and Paging. XML classes – Web form to manipulate XML files - Website Security - Authentication - Authorization – Creating a Web application.

TEXTBOOKS
1. Svetlin Nakov, VeselinKolev & Co. *Fundamentals of Computer Programming with C.* Faber publication, 2019.
2. Mathew, Mac Donald. *The Complete Reference ASP.NET*. Tata McGraw-Hill ,2015.

REFERENCES
Books

1. Herbert Schildt. *The Complete Reference C#.NET.* Tata McGraw-Hill,2017.
2. Kogent Learning Solutions. *C# 2012 Programming Covers .NET 4.5 Black Book.*Dreamtech press, 2013.
3. Anne Boehm, Joel Murach. *Murach's C# 2015.* Mike Murach& Associates Inc. 2016.
4. DenielleOtey, Michael Otey. *ADO.NET: The Complete reference,* McGraw Hill,2008.
5. Matthew MacDonald. *Beginning ASP.NET 4 in C# 2010*, APRESS,2010.

Web Sources
1. Web resources from NDL Library, E-content from open-source libraries

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - V
ELECTIVE COURSES GENERIC/ DISCIPLINE SPECIFIC - VI: BIG DATA ANALYTICS
(23UCYO53)
(From 2023-2024 BATCH ONWARDS)

HOURS/WEEK: 4	**INT. MARKS : 25**
CREDITS : 3	**EXT. MARKS : 75**
DURATION : 60 hrs	**MAX. MARKS: 100**

Course Objectives
- To know the fundamental concepts of big data and analytics.
- To explore tools and practices for working with big data.

Course Outcomes (CO)

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

CO1[K1]: recognize the evolution of big data.

CO2[K2]: discuss the classification and clustering,

CO3[K3]: apply and split data using classification and clustering.

CO4[K4]: analyze data streams clustering

CO5[K5]: evaluate the usage of NOSQL in Big Data

CO-PO Mapping table (Course Articulation Matrix)

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	2	1	1	3	3	1
CO2[K2]	2	3	2	1	1	1	1
CO3[K3]	2	2	2	1	1	2	1
CO4[K4]	2	2	3	1	1	2	1
CO5[K5]	2	2	1	1	1	2	1
Weightage of the course	11	11	09	05	07	10	05
Weighted percentage of Course contribution to POs	2.07	2.38	3.5	1.83	5.88	4.48	2.3

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

UNIT I **(12 hrs)**

INTRODUCTION TO BIG DATA : Evolution of Big data — Best Practices for Big data Analytics — Big data characteristics — Validating — The Promotion of the Value of Big Data — Big Data Use Cases- Characteristics of Big Data Applications — Perception and Quantification of Value -Understanding Big Data Storage — A General Overview of High-Performance Architecture — HDFS — MapReduce and YARN — Map Reduce Programming Model

UNIT II **(12 hrs)**

CLUSTERING AND CLASSIFICATION : Advanced Analytical Theory and Methods: Overview of Clustering — K-means — Use Cases — Overview of the Method — Determining the Number of Clusters — Diagnostics — Reasons to Choose and Cautions .- **Classification:** Decision Trees — Overview of a Decision Tree — The General Algorithm — Decision Tree Algorithms — Evaluating a Decision Tree — Decision Trees in R — Naïve Bayes — Bayes? Theorem — Naïve Bayes Classifier.

UNIT III **(12 hrs)**

ASSOCIATION AND RECOMMENDATION SYSTEM: Advanced Analytical Theory and Methods: Association Rules — Overview — Apriori Algorithm — Evaluation of Candidate Rules — Applications of Association Rules — Finding Association& finding similarity — **Recommendation System:** Collaborative Recommendation- Content Based Recommendation — Knowledge Based Recommendation- Hybrid Recommendation Approaches.

UNIT IV **(12 hrs)**

STREAM MEMORY: Introduction to Streams Concepts — Stream Data Model and Architecture — Stream Computing, Sampling Data in a Stream — Filtering Streams — Counting Distinct Elements in a Stream — Estimating moments — Counting oneness in a Window — Decaying Window — Real time Analytics Platform(RTAP) applications — Case Studies — Real Time Sentiment Analysis, Stock Market Predictions. Using Graph Analytics for Big Data: Graph Analytics

UNIT V **(12 hrs)**

NOSQL DATA MANAGEMENT FOR BIG DATA AND VISUALIZATION : NoSQL Databases : Schema-less Models?: Increasing Flexibility for Data Manipulation-Key Value Stores- Document Stores — Tabular Stores — Object Data Stores — Graph Databases Hive — Sharding —Hbase — Analyzing big data with twitter — Big data for E-Commerce Big data for blogs — Review of Basic Data Analytic Methods using R..

TEXTBOOK

1. Anand Rajaraman and Jeffrey David Ullman .*Mining of Massive Datasets.* Cambridge University Press, 2012.

REFERENCES
Books
1. David Loshin.*Big Data Analytics: From Strategic Planning to Enterprise Integration with Tools, Techniques, NoSQL, and Graph.* Morgan Kaufmann/El sevier Publishers, 2013.

2. EMC Education Services.*Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data*, Wiley publishers, 2015.

Web Sources
1. https://www.youtube.com/watch?v=iW0hPuvuKOE
2. https://www.youtube.com/watch?v=bY6ZzQmtOzk
3.https://www.youtube.com/watch?v=I_ku0D4uQzQ&list=PLPIwNooIb9vi4f8tVkzLnr1tll6Pubbqh
4. https://www.youtube.com/watch?v=KCEPoPJ8sWw

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - V
ELECTIVE COURSES GENERIC/ DISCIPLINE SPECIFIC - VI: INTRODUCTION TO DATA
SCIENCE (23UCYO54)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 4		**INT. MARKS : 25**	
CREDITS : 3		**EXT. MARKS : 75**	
DURATION : 60 hrs		**MAX. MARKS: 100**	

Course Objectives
- To identify and understand the basics of cluster and decision tree
- learn about the concept of stream, understand the Big Data Platform and its Use cases, Map Reduce Jobs and understand the concepts of NoSQL Databases.

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1[K1]: describe data, data science process, machine learning algorithms and Hadoop
CO2[K2]: explain data, data science process, machine learning algorithms and Hadoop
CO3[K3]: write about data science process, machine learning algorithms and Hadoop
CO4[K4]: analyze different data science process and machine learning algorithms
CO5[K5]: justify appropriate data science process and machine learning algorithms

CO-PO Mapping table (Course Articulation Matrix)

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	2	1	1	3	3	1
CO2[K2]	2	3	2	1	1	1	1
CO3[K3]	2	2	2	1	1	2	1
CO4[K4]	2	2	3	1	1	2	1
CO5[K5]	2	2	1	1	1	2	1
Weightage of the course	11	11	09	05	07	10	05
Weighted percentage of Course contribution to POs	2.07	2.38	3.5	1.83	5.88	4.48	2.3

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

UNIT I (12 hrs)
Introduction: Benefits And Uses – Facets Of Data – Data Science Process – Big Data Ecosystem and Data Science

UNIT II (12 hrs)
The Data Science Process: Overview – Research Goals - Retrieving Data - Transformation – Exploratory Data Analysis – Model Building

UNIT III (12 hrs)
Algorithms: Machine Learning Algorithms – Modeling Process – Types – Supervised – Unsupervised - Semi-Supervised

UNIT IV (12 hrs)
Introduction To Hadoop: Hadoop Framework – Spark – Replacing Mapreduce– Nosql – ACID – CAP – BASE – Types

UNIT V (12 hrs)
Case Study: Prediction Of Disease - Setting Research Goals - Data Retrieval – Preparation – Exploration - Disease Profiling - Presentation and Automation

TEXTBOOK
1. Davy Cielen, Arno D. B. Meysman and Mohamed Ali. *Introducing Data Science.* manning publications, 2016

REFERENCES
Books
1. Roger Peng. *The Art of Data Science.* lulu.com 2016.
2. MurtazaHaider. *Getting Started with Data Science – Making Sense of Data with Analytics.* IBM press, E-book.
3. Davy Cielen, Arno D.B. Meysman, Mohamed Ali. *Introducing Data Science: Big Data, Machine Learning, and More, Using Python Tools.* Dreamtech Press 2016.
4. Annalyn Ng, Kenneth Soo. *Numsense! Data Science for the Layman: No Math Added.* 2017, First Edition.
5. Cathy O'Neil, Rachel Schutt. *Doing Data Science Straight Talk from the Frontline.* O'Reilly Media, 2013.
6. Lillian Pierson. *Data Science for Dummies.* Second Edition,2017.

Web Sources
1. Web resources from NDL Library, E-content from open-source libraries

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
UG PROGRAMME
SEMESTER –V
VALUE EDUCATION (23UVED51)
(From 2023 - 2024 Batch onwards)

HOURS/WEEK: 2 (T-2, L-)   **INT. MARKS : 25**
CREDIT   : 2   **EXT. MARKS : 75**
DURATION   : 30 hrs   **MAX. MARKS: 100**

Course Objectives

- To inculcate the values towards personal development
- To know the social values for the global development
- To ensure the modern challenges of Adolescent
- To be aware of human right
- To enrich the knowledge to control the mind

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[K5]: assess 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[K5]	1	1	-	1	2	1	1
Weightage of the course	08	05	01	05	09	04	07
Weighted percentage of Course contribution to Pos	1.5	1.08	0.39	1.83	7.56	1.79	3.23

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

UNIT I – CONCEPT OF HUMAN VALUES, VALUE EDUCATION TOWARDS PERSONAL DEVELOPMENT   (6 hrs)

Aim of Education and Value Education; Evolution of Value Oriented Education; Concept of Human Values; Types of Values; Components of Value Education**. Personal Development:** Self Analysis and Introspection; Sensitization Towards Gender Equality, Physically Challenged, Intellectually Challenged. Respect to - Age, Experience, Maturity, Family Members, Neighbours, Co-Workers. **Character Formation towards Positive Personality:** Truthfulness, Constructivity, Sacrifice, Sincerity, Self-Control, Altruism, Tolerance, Scientific Vision.

UNIT II – VALUE EDUCATION TOWARDS NATIONAL AND GLOBAL DEVELOPMENT
                                                                                    (6 hrs)

National and International Values: Constitutional or national values - Democracy, socialism, secularism, equality, justice, liberty, freedom and fraternity. Social Values - Pity and probity, self-control, universal brotherhood. Professional Values - Knowledge thirst, sincerity in profession, regularity, punctuality and faith. Religious Values - Tolerance, wisdom, character. Aesthetic values - Love and appreciation of literature and fine arts and respect for the same. National Integration and international understanding.

UNIT III – IMPACT OF GLOBAL DEVELOPMENT ON ETHICS AND VALUES   (6 hrs)

Conflict of cross-cultural influences, mass media, cross-border education, materialistic values, professional challenges and compromise. Modern Challenges of Adolescent Emotions and behavior; Sex and spirituality: Comparision and competition; positive and negative thoughts. Adolescent Emotions, arrogance, anger, sexual instability, selfishness, defiance

UNIT IV – THERAUPATIC MEASURES   (6 hrs)

Control of the mind through
1. Simplified physical exercise
2. Meditation – Objectives, types, effect on body, mind and soul
3. Yoga – Objectives, Types, Asanas
4. Activities: (i) Moralisation of Desires (ii) Neutralisation of Anger (iii)Eradication of Worries (iv)Benefits of Blessings

UNIT V – HUMAN RIGHTS   (6 hrs)

Concept of Human Rights – Indian and International Perspectives - Evolution of Human Rights - Definitions under Indian and International documents - **Broad classification of Human Rights and Relevant Constitutional Provisions -** Right to Life, Liberty and Dignity - Right to Equality - Right against Exploitation - Cultural and Educational Rights - Economic Rights - Political Rights - Social Rights - **Human Rights of Women and Children -** Social Practice and Constitutional Safeguards - Female Foeticide and Infanticide - Physical assault and harassment - Domestic violence - Conditions of Working Women - **Institutions for Implementation -** Human Rights Commission – Judiciary - Violations and Redressel - Violation by State - Violation by Individuals - Nuclear Weapons and terrorism - Safeguards.

REFERENCES

Books

1. Pitchaikani Prabhaharan, A. Babu Franklin, M.Archana Devi. *Value education*. Sri Kaliswari College (Autonomous), Sivakasi, 2017.
2. Subramanyam, K. *Values in Education*, Ramana Publications, 1995
3. Swamy Chidbhavananda. *Indian National Education*. Publication by Ramakirshna Tapovanam.

Web Sources
1. https://www.youtube.com/watch?v=ruKY3GqBvYQ.
2. https://www.republicworld.com/technology-news/science/15-famous-indian-scientists-list-know-what-were-their-innovations.html.
3. https://www.youtube.com/watch?v=M9_l9DDvEsw.

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG PROGRAMME - B. Sc COMPUTER SCIENCE
SEMESTER- V
INTERNSHIP / INDUSTRIAL TRAINING (23UCYJ52)
(From 2023-2024 Batch onwards)

HOURS/WEEK: -	**INT. MARKS : 25**
CREDITS : 2	**EXT. MARKS : 75**
DURATION : 25 Days	**MAX. MARKS: 100**

Course Objectives

- To learn and develop new skills relevant to the field of study or career interests.
- To understand different departments, roles, and functions within the organization to broaden knowledge and explore potential career paths.
- To apply the knowledge gained in academic studies to real-world scenarios.
- To bridge the gap between classroom learning and professional life.
- To gain exposure to different tasks, projects, and challenges relevant to the chosen field.

Course Outcomes (CO)
On successful completion of the course, the learners should be able to

CO1[K1]: identify different career paths within the industry and gain insights into potential future roles.
CO2[K3]: apply theoretical concepts and academic knowledge to real-world situations and challenges encountered during the internship.
CO3[K4]: analyse problems, generate innovative solutions, and make informed decisions.
CO4[K5]: evaluate how to manage time effectively and prioritize tasks to meet deadlines and deliver quality work.
CO5[K6]: create a portfolio of the work, projects, and achievements during the internship.

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[K3]	2	3	-	1	-	1	2
CO3[K4]	2	2	-	2	-	1	1
CO4[K5]	-	2	1	-	-	1	1
CO5[K6]	1	3	3	3	-	1	2
Weightage of the course	08	12	04	07	01	05	08
Weighted percentage of Course contribution to Pos	1.5	2.6	1.56	2.56	0.84	2.24	3.69

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

Rules and Regulations

1. Each Student has to undergo 25 days institutional/industry based training during the fourth semester summer vacation.
2. Internships could be undertaken in different media organizations, industries and educational institutions which should be approved by the department.
3. Students should keep a detailed record of activities performed and hours spent in training and report the same to the Faculty Coordinator/Mentor/Guide regularly about the progress of internship on weekly basis
4. At the end of the internship, the student must submit a full-fledged detailed internship report (not exceeding 20 pages) along with attendance certificate
5. The Internship carries 100 marks out of which 25 marks for Internal and 75 Marks for External.
6. The viva voce board shall consist of the Head of the Department and the Internal Examiner (Senior Faculty member)
7. The training programme shall be evaluated as per the following pattern

Internal (25 Marks)

Training Review: 15 Marks

Daily Log Report: 5 Marks

PPT Presentation :5 Marks

External (75 Marks)

Training Report :25 Marks

Viva Voce : 50 Marks

EACH INTERNSHIP REPORT WILL FOLLOW THE FORMAT DESCRIBED:

- 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

<u>List of Chapters</u>
1. Introduction
2. Nature of work
3. Role in the organization
4. Questionnaires and Observations about work
5. Operating Environment
6. Detailed Description of Technology used
7. Implementation
8. Conclusion
9. Appendix

Text Format in the report   :   Times New Roman 12 with 1.5 line
                                        Margins 1.5" left and 1" all other

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - VI
CORE COURSE – XIII: CYBER SECURITY (23UCYC61)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 6	**INT. MARKS : 25**
CREDITS : 4	**EXT. MARKS : 75**
DURATION : 90 hrs	**MAX. MARKS: 100**

Course Objectives
- Analyze and evaluate the cyber security needs of an organization.
- This course focuses on the models, tools, and techniques for enforcement of security with some emphasis on the use of cryptography.

Course Outcomes (CO)

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

CO1[K1]: describe the concepts of cyber security

CO2[K2]: explain the features of cyber security

CO3[K3]: apply cyber security algorithms to solve simple real world problem

CO4[K4]: differentiate various governing bodies of cyber laws

CO5[K5]: evaluate various privacy policies for an organization

CO-PO Mapping table (Course Articulation Matrix)

PO \ CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	3	1	1	1	1	1
CO2[K2]	3	2	1	1	1	1	1
CO3[K3]	3	3	1	-	-	2	1
CO4[K4]	3	3	2	2	1	2	1
CO5[K5]	3	2	1	1	-	2	1
Weightage of the course	15	13	06	05	03	08	05
Weighted percentage of Course contribution to POs	2.82	2.81	2.33	1.83	2.52	3.59	2.3

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

UNIT I   **(18 hrs)**

      Introduction To Security : Data Encryption Standard-Block Cipher Principles-Block Cipher Modes Of Operation-Advanced Encryption Standard (AES)-Triple DES-Blowfish-RC5 Algorithm.

UNIT II   **(18 hrs)**

      Public Key Cryptography And Hash Algorithms : Principles Of Public Key Cryptosystems-The RSA Algorithm-Key Management - Diffie Hellman Key Exchange- Hash Functions-Hash Algorithms (MD5, Secure Hash Algorithm)

UNIT III   **(18 hrs)**

      Fundamentals Of Cyber Security : How Hackers Cover Their Tracks- Fraud Techniques- Threat Infrastructure- Techniques To Gain A Foothold (Shellcode, SQL Injection, Malicious PDF Files)- Misdirection, Reconnaissance, And Disruption Methods.

UNIT IV   **(18 hrs)**

      Planning for Cyber Security : Privacy Concepts -Privacy Principles and Policies - Authentication and Privacy - Data Mining - Privacy on the Web - Email Security - Privacy Impacts of Emerging Technologies.

UNIT V   **(18 hrs)**

 Cyber Security Management : Security Planning - Business Continuity Planning - Handling Incidents - Risk Analysis - Dealing with Disaster – Legal Issues – Protecting Programs and Data – Information and the Law – Rights of Employees and Employers - Emerging Technologies - The Internet of Things - Cyber Warfare.

TEXTBOOKS
1. William Stallings.*Cryptography and Network Security.* Pearson Education, Sixth Edition,2013.
2. Charles P. P fleeger Shari Lawrence Pfleeger Jonathan Margulies*. Security in Computing*. Pearson Education ,Fifth Edition, 2015.

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1. Graham, J. Howard, R., Olson, R.. *Cyber Security Essentials.* CRC Press, 2011.
2. George K.Kostopoulous.*Cyber Space and Cyber Security*. CRC Press, 2013.

Web Sources
1. Web resources from NDL Library, E-content from open-source libraries

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - VI
CORE COURSE - XIV: CRYPTOGRAPHY & NETWORK SECURITY (23UCYC62)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 6	**INT. MARKS : 25**
CREDITS : 4	**EXT. MARKS : 75**
DURATION : 90 hrs	**MAX. MARKS: 100**

Course Objectives

- Enable students to learn the Introduction to Cryptography, Web Security and Case studies in Cryptography,
- To gain knowledge on classical encryption techniques and concepts of modular arithmetic and number theory
- To explore the working principles and utilities of various cryptographic algorithms including secret key cryptography, hashes and message digests, and public key algorithms,
- To explore the design issues and working principles of various authentication Applications and various secure communication standards including Kerberos, IPsec, and SSL/TLS and email.

Course Outcomes (CO)

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

CO1[K1]: describe process of the cryptographic algorithms

CO2[K2]: illustrate encryption and decryption techniques

CO3[K3]: apply security techniques to solve network security problem

CO4[K4]: compare and apply different encryption and decryption techniques to solve problems related to confidentiality and authentication

CO5[K5]: evaluate the use of appropriate security techniques to solve network security problem

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	-	-	-	1	-
CO3[K3]	3	2	-	1	-	2	1
CO4[K4]	3	3	1	1	1	2	1
CO5[K5]	3	3	1	1	1	2	1
Weightage of the course	15	12	02	03	02	08	03
Weighted percentage of Course contribution to POs	2.82	2.6	0.78	1.1	1.68	3.59	1.38

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

UNIT I   (18 hrs)

Introduction to Cryptography – Security Attacks – Security Services –Security Algorithm- Stream cipher and Block cipher - Symmetric and Asymmetric-key Cryptosystem Symmetric Key Algorithms: Introduction – DES – Triple DES – AES – IDEA – Blowfish – RC5.

UNIT II   (18 hrs)

Public-key Cryptosystem: Introduction to Number Theory – RSA Algorithm – Key Management – Diffie-Hellman Key exchange – Elliptic Curve Cryptography Message Authentication and Hash functions – Hash and Mac Algorithm – Digital Signatures and Authentication Protocol.

UNIT III   (18 hrs)

Network Security Practice: Authentication Applications – Kerberos – X.509 Authentication services and Encryption Techniques - E-mail Security – PGP – S / MIME – IP Security.

UNIT IV   (18 hrs)

WebSecurity – Secure Socket Layer – Secure Electronic Transaction - System Security - Intruders and Viruses – Firewalls– Password Security.

UNIT V (18 hrs)

CaseStudy: Implementation of Cryptographic Algorithms – RSA – DSA – ECC (C/JAVA Programming) - Network Forensic – Security Audit - **Other Security Mechanism:** Introduction to Stenography – Quantum Cryptography – Water Marking - DNA Cryptography.

TEXTBOOK
1. William Stallings. *Cryptography and Network Security*. PHI/ Pearson Education.
2. Bruce Schneir. *Applied Cryptography*. CRC Press.

REFERENCES
Books
1. A.Menezes, P Van Oorschot and S.Vanstone. *Hand Book of Applied Cryptography*. CRC Press, 1997.
2. Ankit Fadia. *Network Security*. Mac Millan.

Web Sources
1. https://nptel.ac.in/courses/106/105/106105031/
2. http://www.nptelvideos.in/2012/11/cryptography-and-network-security.html
3. https://www.tutorialspoint.com/cryptography/index.htm

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - VI
CORE COURSE - XV: PRACTICAL : CRYPTOGRAPHY & NETWORK SECURITY
(23UCYC6P)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 6	**INT. MARKS : 25**
CREDITS : 4	**EXT. MARKS : 75**
DURATION : 90 hrs	**MAX. MARKS: 100**

Course Objectives

- Enable students to learn the Introduction to Cryptography, Web Security and Case studies in Cryptography,
- To gain knowledge on classical encryption techniques and concepts of modular arithmetic and number theory

Course Outcomes (CO)

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

CO1[K2]: recall the basic concepts of Cryptography and Network Security.

CO2[K3]: use Symmetric and Asymmetric key algorithms for Cryptography and Network Security.

CO3[K4]: examine the various malware attacks and analyze various encryption and decryption techniques.

CO4[K5]: evaluate the uses of different encryption and decryption techniques.

CO5[K6]: develop simple digital signature scheme and cryptographic algorithms**.**

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K2]	3	3	3	1	1	2	2
CO2[K3]	3	3	2	1	1	2	2
CO3[K4]	3	2	2	1	1	2	2
CO4[K5]	2	2	2	-	1	2	2
CO5[K6]	2	2	2	-	1	2	2
Weightage of the course	13	12	11	03	05	10	10
Weighted percentage of Course contribution to POs	2.44	2.6	4.28	1.1	4.2	4.48	4.61

Approved in the Academic Council - XIV held on 31/07/2023   23UCY135

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

Implement the following

1. Write a program that contains a string (char pointer) with a value 'Hello world'. The program should XOR each character in the string with 0 and display the result

2. Write a program to perform encryption and decryption using the Ceaser Cipher

3. Write a program to perform encryption and decryption using the Hill Cipher

4. Write a program to perform encryption and decryption using the Substitution Cipher

5. Write a program to perform encryption and decryption using the DES algorithm

6. Connect to switch with a computer and enable the port security

7. Defeating malware using Building Trojans and Rootkit hunter

8. Implement signature scheme – Digital Signature Standard

9. Identify and capture the user name and password in a same network using wireshark

10. Implement Man-in-the-middle attack and Session hijacking

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - VI
ELECTIVE COURSES GENERIC/ DISCIPLINE SPECIFIC –VII : INFORMATION SECURITY
(23UCYO61)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 5	**INT. MARKS : 25**
CREDITS : 3	**EXT. MARKS : 75**
DURATION : 75 hrs	**MAX. MARKS: 100**

Course Objectives
- To know the objectives of information security
- Understand the importance and application of each of confidentiality, integrity, authentication and availability
- Understand various cryptographic algorithms
- Understand the basic categories of threats to computers and networks

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1[K1]: describe information security, computer security, cryptographic techniques and program security
CO2[K2]: describe information security, computer security, cryptographic techniques and program security
CO3[K3]: write about information security, computer security, cryptographic techniques and program security
CO4[K4]: analyze information security, computer security, cryptographic techniques
CO5[K5]: assess information security, computer security, cryptographic techniques

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	3	1	1	-	-	1
CO2[K2]	3	3	1	1	-	-	1
CO3[K3]	3	3	1	-	1	-	1
CO4[K4]	3	2	2	-	1	1	1
CO5[K5]	3	2	2	-	1	1	1
Weightage of the course	15	13	07	02	03	02	05
Weighted percentage of Course contribution to POs	2.82	2.81	2.72	0.73	2.52	0.9	2.3

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

UNIT I – INTRODUCTION TO INFORMATION SECURITY   (15 hrs)

Introduction to Information Security: Security mindset - Computer Security Concepts (CIA) – Attacks - Vulnerabilities and protections - Security Goals - Security Services - Threats - Attacks - Assets - malware - program analysis and mechanisms.

UNIT II – COMPUTER SECURITY   (15 hrs)

The Security Problem in Computing: The meaning of computer Security - Computer Criminals - Methods of Defense. **Cryptography Concepts and Techniques:** Introduction - plain text and cipher text - substitution techniques - transposition techniques - encryption and decryption.

UNIT III – CRYPTOGRAPHIC TECHNIQUES   (15 hrs)

Symmetric and Asymmetric Cryptographic Techniques: DES – AES - RSA algorithms. **Authentication and Digital Signatures:** Use of Cryptography for authentication - Secure Hash function - Key management - Kerberos.

UNIT IV – PROGRAM SECURITY   **(15 hrs)**

Non-malicious Program errors: Buffer overflow - Incomplete mediation - Time-of-check to Time-of-use Errors – Viruses – Trapdoors - Salami attack - Man-in-the- middle attacks - Covert channels - File protection Mechanisms. **User Authentication Designing Trusted OS:** Security polices - models of security - trusted OS design - Assurance in trusted OS Implementation examples.

UNIT V – SECURITY IN NETWORKS   **(15 hrs)**

Security in Networks: Threats in networks - Network Security Controls – Architecture – Encryption - Content Integrity - Strong Authentication - Access Controls - Wireless Security – Honeypots - Traffic flow security. **Web Security:** Web security considerations - Secure Socket Layer and Transport Layer Security - Secure electronic transaction.

TEXTBOOKS
1. Charles P. Pfleeger. *Security in Computing*. Pearson Education
2. William Stallings. *Cryptography And Network Security Principles And Practice.* Pearson Education

REFERENCES
Books
1. C K Shyamala, N Harini, Dr T R Padmanabhan. *Cryptography and Network Security.* Wiley India
2. Forouzan Mukhopadhyay. *Cryptography and Network Security*. Mc Graw Hill
3. Mark Stamp. *Information Security, Principles and Practice*. Wiley India
4. WM.Arthur Conklin, Greg White. *Principles of Computer Sceurity.* TMH.

Web Sources
1. https://www.imperva.com/learn/data-security/information-security-infosec/
2. https://www.geeksforgeeks.org/what-is-information-security/

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - VI
ELECTIVE COURSES GENERIC/ DISCIPLINE SPECIFIC – VII : HUMAN COMPUTER INTERACTION (23UCYO62)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 5		**INT. MARKS : 25**
CREDITS : 3		**EXT. MARKS : 75**
DURATION : 75 hrs		**MAX. MARKS: 100**

Course Objectives
- To learn the foundations of Human Computer Interaction.
- To become familiar with the design technologies for individuals and persons with disabilities.
- To be aware of mobile HCI.
- To learn the guidelines for user interface

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1[K1]: explain the fundamentals of Human Computer Interaction

CO2[K2]: describe the Human Computer Interaction design and software process technologies

CO3[K3]: write about design & software process, models and theories, mobile HCI

CO4[K4]: analyze various Human Computer Interaction

CO5[K5]: assess the various types of Web Interface Design

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	3	1	1	-	-	1
CO2[K2]	3	3	1	1	-	-	1
CO3[K3]	3	3	1	-	1	-	1
CO4[K4]	3	2	2	-	1	1	1
CO5[K5]	3	2	2	-	1	1	1
Weightage of the course	15	13	07	02	03	02	05
Weighted percentage of Course contribution to POs	2.82	2.81	2.72	0.73	2.52	0.9	2.3

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

UNIT I – FOUNDATIONS OF HCI   (15 hrs)

The Human: I/O channels – Memory - Reasoning and problem solving. **The Computer:** Devices – Memory – processing and networks. **Interaction:** Models – frameworks – Ergonomics – styles – elements – interactivity- Paradigms.

UNIT II – DESIGN & SOFTWARE PROCESS   (15 hrs)

Interactive Design: Basics – process – scenarios. **Navigation:** screen design Iteration and prototyping. **HCI in software process:** Software life cycle – usability engineering – Prototyping in practice – design rationale. **Design rules:** principles, standards, guidelines, rules. **Evaluation Techniques:** Universal Design.

UNIT III – MODELS AND THEORIES   (15 hrs)

HCI Models: Cognitive models - Socio-Organizational issues and stakeholder requirements - Communication and collaboration models - Hypertext, Multimedia and WWW.

UNIT IV – MOBILE HCI   (15 hrs)

Mobile Ecosystem: Platforms - Application frameworks. **Types of Mobile Applications:** Widgets – Applications – Games - Mobile Information Architecture - Mobile 2.0. **Mobile Design:** Elements of Mobile Design – Tools.

UNIT V – WEB INTERFACE DESIGN **(15 hrs)**

Designing Web Interfaces: Drag & Drop - Direct Selection - Contextual Tools –
Overlays - Inlays and Virtual Pages - Process Flow.

TEXTBOOKS

1. Alan Dix, Janet Finlay, Gregory Abowd, Russell Beale. *Human - Computer Interaction*. Pearson Education, 2004.
2. Brian Fling. *Mobile Design and Development.* O'Reilly Media Inc., 2009.
3. Bill Scott and Theresa Neil. *Designing Web Interfaces*. O'Reilly, 2009.

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1. Shneiderman. *Designing the User Interface: Strategies for Effective Human-Computer Interaction*. Pearson Education.

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1. https://www.interaction-design.org/literature/topics/human-computer-interaction
2. https://link.springer.com/10.1007/978-0-387-39940-9_192
3. https://en.wikipedia.org/wiki/Human%E2%80%93computer_interaction

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - VI
ELECTIVE COURSES GENERIC/ DISCIPLINE SPECIFIC –VIII : ETHICAL HACKING
(23UCYO63)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 5	**INT. MARKS : 25**
CREDITS : 3	**EXT. MARKS : 75**
DURATION : 75 hrs	**MAX. MARKS: 100**

Course Objectives
- This course covers the theory and practices of finding the vulnerabilities through forming the different attacks
- Define the appropriate security policy including the action to detect or prevent the attacks and thus reduce the damages.

Course Outcomes (CO)
On successful completion of the course, the learners will be able to
CO1[K1]: describe about fundamentals of security, hacking, malware threats and session hijacking, web server hacking and attacks
CO2[K2]: explain about security, hacking, malware threats and session hijacking, web server hacking and attacks
CO3[K3]: write about hacking, malware threats and session hijacking, web server hacking and attacks
CO4[K4]: analyse security fundamentals, hijacking
CO5[K5]: assess the various security threats, hacking, malware threats and session hijacking

CO-PO Mapping table (Course Articulation Matrix)

PO \ CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	3	1	1	-	-	1
CO2[K2]	3	3	1	1	-	-	1
CO3[K3]	3	3	1	-	1	-	1
CO4[K4]	3	2	2	-	1	1	1
CO5[K5]	3	2	2	-	1	1	1
Weightage of the course	15	13	07	02	03	02	05
Weighted percentage of Course contribution to POs	2.82	2.81	2.72	0.73	2.52	0.9	2.3

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

UNIT I - INTRODUCTION TO ETHICAL HACKING   (15 hrs)

Security Fundamental - Security Testing - Hacker and Cracker – Descriptions - Test Plans- keeping it legal - Ethical and Legality-Technical Foundations of Hacking: The Attacker's Process - The Ethical Hacker's Process- Security and the Stack.

UNIT II - FOOTPRINTING AND SCANNING   (15 hrs)

Information Gathering - Determining the NetworkRange - Identifying Active Machines- Finding Open Ports and Access Points - OS Fingerprinting Services - Mapping the Network Attack Surface - Enumeration and System Hacking : Enumeration - System Hacking.

UNIT III - MALWARE THREATS AND SESSION HIJACKING   (15 hrs)

Viruses and Worms- Trojans - Covert Communication - Keystroke Logging and Spyware – Malware Counter Measures- Sniffers - Session Hijacking - Denial of Service - Distributed Denial of Service.

UNIT IV - WEB SERVER HACKING AND ATTACKS   (15 hrs)

Web Server Hacking - Web Application Hacking - Database Hacking - Wireless Technologies – Mobile Security and Attacks: Wireless Technologies - Mobile Device Operation and Security – Wireless LANs.

UNIT V - CASE STUDY   **(15 hrs)**

Intrusion Detection Systems - Firewalls - Honeypots - Physical Security - Social Engineering – Case Studies: Intrusion detection Real Secure Tripwire Dragon Snort ,Packet sniffing Leave the sniffer running, Passwords in procedures & documents.

TEXTBOOK

1. Michael Gregg. *Certified Ethical Hacker*. Pearson IT Certification, Version 10, Third Edition, 2019.

REFERENCES
Book

1. Roger Grimes. *Hacking the Hacker.* Wiley, First Edition, 2017.
2. Ankit Fadia*. The Unofficial Guide to Ethical Hacking*. Laxmi Publications, Second Edition, 2006.

Web Sources

1. https://www.simplilearn.com/tutorials/cyber-security-tutorial/what-is-ethical-hacking
2. https://www.udemy.com/topic/ethical-hacking/
3. https://www.techtarget.com/searchsecurity/definition/ethical-hacker

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science (Cloud Computing & Cyber Security)
SEMESTER - VI
ELECTIVE COURSES GENERIC/ DISCIPLINE SPECIFIC - VIII: DATABASE SECURITY
(23UCYO64)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 5	**INT. MARKS : 25**
CREDITS : 3	**EXT. MARKS : 75**
DURATION : 75 hrs	**MAX. MARKS: 100**

Course Objectives
- To study the different models involved in database security and their applications in real time world to protect the database and information associated with them.
- Demonstrate understanding of security architecture in modern computer systems in a typical enterprise.

Course Outcomes (CO)
On successful completion of the course, the learners will be able to

CO1[K1]: describe the various database security issues

CO2[K2]: explain the concepts of database security

CO3[K3]: write about security models, software security design, various models of
     new generation security design

CO4[K4]: analyze security models, software security design, various models of new
     generation security design

CO5[K5]: assess security models and software security design

CO-PO Mapping table (Course Articulation Matrix)

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K1]	3	3	1	1	-	-	1
CO2[K2]	3	3	1	1	-	-	1
CO3[K3]	3	3	1	-	1	-	1
CO4[K4]	3	2	2	-	1	1	1
CO5[K5]	3	2	2	-	1	1	1
Weightage of the course	15	13	07	02	03	02	05
Weighted percentage of Course contribution to POs	2.82	2.81	2.72	0.73	2.52	0.9	2.3

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

UNIT I - INTRODUCTION   (15 hrs)

Introduction to Databases Security Problems in Databases Security Controls Conclusions Security Models - Introduction Access Matrix Model Take - Grant Model Acten Model PN Model Hartson and Hsiao's Model Fernandez's Model Bussolati and Martella's Model for Distributed databases

UNIT II - SECURITY MODELS   (15 hrs)

Bell and LaPadula's Model Biba's Model Dion's Model Sea View Model Jajodia and Sandhu's Model the Lattice - Model for the Flow Control conclusion - Security Mechanisms Introduction User Identification/Authentication - Memory Protection Resource - Protection Control Flow Mechanisms - Isolation Security Functionalities in Some Operating Systems Trusted Computer - System Evaluation Criteria.

UNIT III - SECURITY SOFTWARE DESIGN   (15 hrs)

Introduction - A Methodological Approach to Security Software Design Secure Operating System Design Secure - DBMS Design Security Packages - Database Security Design Statistical - Database Protection & 58 Intrusion Detection - Systems Introduction Statistics Concepts and Definitions - Types of Attacks Inference - Controls evaluation Criteria for Control Comparison - Introduction IDES System RETISS System ASES System Discovery.

UNIT IV - MODELS FOR THE PROTECTION OF NEW GENERATION DATABASE

(15 hrs)

SYSTEMS 1- Introduction A Model for the Protection of Frame Based Systems - A Model for the Protection of Object Oriented Systems - SORION Model for the Protection of Object - Oriented Data. SYSTEMS 2 - A Model for the Protection of New Generation **Database Systems**: the Orion Model Jajodia and Kogan's Model - Model for the Protection of Active Databases Conclusions.

UNIT V - CASE STUDY **(15 hrs)**

Database Watermarking − Basic Watermarking Process - Discrete Data, Multimedia, and Relational Data − Attacks on Watermarking - Single Bit Watermarking, Multi bit Watermarking.

TEXTBOOKS
1. Hassan A. Afyouni. Database Security and Auditing. India Edition, CENGAGE Learning, 2009.
2. Castano. *Database Security*. Pearson Education, Second edition,2002.
3. Alfred basta, melissa zgola. *Database Security.* CENGAGE learning, 2014.

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1. Michael Gertz and Sushil Jajodia. *Handbook of Database Security: Applications and Trends.* Springer, 2010
2. Osama S. Faragallah, El-Sayed M. El-Rabaie, Fathi E. Abd El-Samie, Ahmed I. Sallam, and Hala S. El-Sayed. *Multilevel Security for Relational Database.* ISBN 978-1-4822- 0539- CRC Press, 2014.

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 1. https://www.techopedia.com/definition/29841/database-security
 2. https://www.sisense.com/glossary/database-security/
 3. https://www.cs.uct.ac.za/mit_notes/database/pdfs/chp12.pdf

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
DEPARTMENT OF COMPUTER SCIENCE
UG Programme - B.Sc. Computer Science
SEMESTER- VI
SKILL ENCHANCEMENT COURSE –IX: PROFESSIONAL COMPETENCY SKILL:
ENTERPRISE RESOURCE PLANNING (23UCYS6P)
(From 2023-2024 Batch onwards)

HOURS/WEEK: 2	**INT. MARKS : 25**
CREDITS : 2	**EXT. MARKS : 75**
DURATION : 30 hrs	**MAX. MARKS: 100**

Course Objectives

- To understand the basic concepts, Evolution and Benefits of ERP

- To know the need and Role of ERP in logical and Physical Integration.

- Identify the important business functions provided by typical business software such as enterprise resource planning and customer relationship management

Course Outcomes (CO)

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

CO1[K2]: show the basic concepts of ERP.

CO2[K3]: apply different technologies used in ERP

CO3[K4] : analyze different ERPs

CO4[K5]: evaluate the benefits of ERP

CO5[K6]: create a simple module in ERP.

CO-PO Mapping table (Course Articulation Matrix)

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1[K2]	3	3	3	2	2	2	1
CO2[K3]	3	3	2	2	3	2	1
CO3[K4]	3	3	3	3	3	2	1
CO4[K5]	3	3	3	3	3	2	1
CO5[K6]	3	3	3	2	2	3	1
Weightage of the course	15	15	14	12	13	11	5
Weighted percentage of Course contribution to POs	2.82	3.25	5.45	4.4	10.92	4.93	2.3

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

1. Simulating Business Processes for an Enterprise
2. Designing a web portal for an Enterprise using E-business models
3. To implement E-procurement model
4. Study of Open Source ERP
5. Study of Cloud ERP
6. Business Process Agility
7. Design of SCM model
8. Implementing Business Intelligence

SRI KALISWARI COLLEGE (AUTONOMOUS), SIVAKASI
UG Programme – B.Sc COMPUTER SCIENCE
SEMESTER V & VI
PART V – EXTENSION
(From 2023 -2024 Batch Onwards)

HOURS/WEEK: -
CREDIT   : 1
DURATION : -   **INT. MARKS: 100**

Course Objectives

- To promote community involvement, encourage civic participation, and foster a sense of ownership and responsibility.
- To involve the learners in organizing campaigns, seminars, or public events to educate the public, promote understanding, and advocate for positive change.
- To create platforms for knowledge sharing, partnership development, and collective action.
- To encourage environmental conservation, promote responsible resource management, or foster sustainable livelihoods.
- To raise awareness about social issues, advocate for marginalized groups, or implement programs that promote inclusivity and equal opportunities.

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/nonverbal 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	**1.5**	**0.43**	**0.39**	**2.56**	**7.56**	**3.59**	**2.3**

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