DEPARTMENT OF COMPUTER TECHNOLOGY

Syllabus

BATCH: 2026 – 2029

Faculty Members

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Nallamuthu Gounder Mahalingam College

An Autonomous Institution affiliated to Bharathiar University

Re-Accredited with A++ by NAAC (4th Cycle) &

ISO 9001:2015 Certified Institution

Pollachi – 642 001.

NGM COLLEGE

(AUTONOMOUS)

U.G. DEPARTMENT OF COMPUTER TECHNOLOGY

(C.T.)

CYGNET

SYLLABUS

2026 – 2029 Batch

(With Effect From 2026-2029 Batch and Onwards)

NGM COLLEGE (AUTONOMOUS),

POLLACHI

33rd ACADEMIC COUNCIL MEETING

MINUTES OF THE MEETING

Date: 25-03-2026 **Venue: Board Room**

Approval of Revised /New Curriculum, Programme Structure and Scheme of Examination

Preamble / Background

The Chairperson placed before the Academic Council the **revised / newly designed curriculum and syllabi** prepared by the respective Departments and approved by the Board of Studies. The curriculum has been structured in accordance with the Outcome Based Education (OBE) framework and the applicable UGC / University regulations. The Curriculum Development Cell (CDC) has validated the curriculum for academic coherence, Standardization and policy agreement.

Documents / items placed before the council for approval

1. Introduction of New Programme
2. Inclusion of Gandhian Thoughts – Certificate Course
3. Ratification of Add-on Diploma Course (Batch 2024–2027)
4. Allotment of Marks for Health and Wellness
5. Online Course for Advance Learning
6. Extra Credits for Achievers
7. Common Scheme and Structure of Programmes – B.Com/B.Sc Cs, BA, B.Sc Core Science Disciplines
8. Norms for Conduct of Arrear Examinations for Students Admitted from 2026–2027 Onwards
9. Detailed Course Syllabi and Minutes of the Board of Studies.

Agenda Note for Approval

As the Member Secretary, I place the following items before the Academic Council for consideration and approval:

1. **Introduction of New Programme**

   Approval is sought for the introduction of a new academic programme **B.Com Finance and Accounting** from the academic year 2026–2027. On affiliation from Bharathiar university.

2. **Inclusion of Gandhian Thought**

It is proposed to introduce ***Gandhian Thought*** as a Certificate course in the First Semester for all students admitted from the academic year 2026–2027 onwards.

3. **Ratification of add-on Diploma Course (Batch 2024–2027)**

Ratification is requested for the add-on, industry-oriented course introduced for the batch 2024–2027, and approval is also sought for its continuation for the forthcoming batches This is a Wipro-certified programme offered to Computer Science and core science students beyond regular academic hours and does not interfere with the core curriculum Duration of the course is 90 hours in Semester V and 90 hours in Semester VI On successful completion of the course the student is entitled to get an extra credit of 4 per course The course material and required training will be provided by Wipro and monitored by the faculty ."

4. **Allotment of Marks for Health and Wellness**

Health and Wellness Course in the III Semester was introduced for the 2025–2028 batch as per the guidelines of the Directorate of Collegiate Education (R.C. No. 40413/Q3/2024 dated 03.12.2024). The course is offered for two hours per week beyond regular college hours and is evaluated by the end of the Semester in accordance with the prescribed guidelines and One credit shall be awarded for this course As the award of marks was not clearly specified in the previous Academic Council, approval is now sought for the 2025–2028 batch as well as for the forthcoming batches

5. **Online Course for Advance Learning**

To motivate the students (Advanced Learners) in every discipline Student can take up online courses in any semester and can become eligible for an extra credit as per the duration of the training

6. **Extra Credits for Achievers**

Approval is sought for the Students who win in the National/State hackaton /develop a product/create a startup /publish a patent with an extra 1 credit.

7. **Common Scheme and Structure of Programmes – B.Com/B.Sc Cs, BA, B.Sc Core Science Disciplines**

The scheme and structure of all programmes have been designed in accordance with the guidelines of TANSCHE. All departments uniformly follow:

- **4 Programme Educational Objectives (PEOs)**
- **2 Programme Specific Outcomes (PSOs)**
- **5 Course Outcomes (COs)**

Further, all Course Outcomes (COs) are appropriately mapped with Programme Outcomes (POs) as defined under the UGC Learning Outcomes-Based Curriculum Framework (LOCF)

Certain modifications have been incorporated e to the scheme and structure to ensure uniformity across all departments, and the same is placed before the Academic Council for approval."

8. **Norms for Conduct of Arrear Examinations for Students Admitted from 2026–2027 Onwards**

It is proposed that arrear examinations for students admitted from the academic year 2026–2027 onwards shall be conducted as follows:

- **Odd Semester arrear papers** shall be conducted during the respective Odd Semester examinations.
- **Even Semester arrear papers** shall be conducted during the respective Even Semester examinations.

However, as a special provision, final-year students shall be permitted to appear for their Fifth Semester arrear papers during the Sixth Semester examinations.

This provision shall be applicable only to currently enrolled students and shall not apply to those who have discontinued or completed the programme.

9. **Detailed Course Syllabi and Minutes of the Board of Studies**

The Chairpersons of the respective Boards will present their programmes, explicitly highlighting the modifications in their respective syllabi, including any additions or deletions of courses, and seek approval from the Academic Council.

Resolution No: NGM/AC/2026/02/05

Resolved that the Academic Council hereby approves the curriculum, programme structure, scheme of examinations, and detailed syllabi as recommended by the respective Boards of Studies and validated by the Curriculum Development Cell, to be implemented from the Academic Year **2026-2027 onwards.**

Implementation

The approved curriculum shall be incorporated in the Final Consolidated Syllabus Book / Curriculum Handbook and shall come into force as per the above resolution.

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Department of Computer Technology

Institute Vision

Our dream is to make the college an institution of excellence at the national level by imparting quality education of global standards to make students academically superior, socially committed, ethically strong, spiritually evolved and culturally rich citizens to contribute to the holistic development of the self and society.

Institute Mission

Training students to become role models in academic arena by strengthening infrastructure, upgrading curriculum, developing faculty, augmenting extension services and imparting quality education through an enlightened management and committed faculty who ensure knowledge transfer, instill research aptitude and infuse ethical and cultural values to transform students into disciplined citizens in order to improve quality of life.

Department Vision

To continue to be the Premier Department for Computer Technology and to become regionally top-ranked and nationally recognized for Academic Excellence

Department Mission

To offer a broad-based education, encourage lifelong learning, foster teamwork, promote creativity, discovery and competitiveness.

To turn out highly qualified graduates into world-class professionals capable of competing in the IT Arena as well as in a research environment.

Program Educational Objectives:

The Program Educational Objectives (PEOs) describe the expected professional accomplishments and societal contributions of Physics graduates about three to four years after completing the undergraduate program. The PEOs are as follows:

PEO1	Demonstrating the concepts and technologies of Software Industry
PEO2	Motivate to select one domain knowledge and develop smart software solutions as per industry standard
PEO3	Focus to solve real time problems in terms of various technologies.
PEO4	Understand the concepts of software project life cycle during software development and apply the knowledge of various levels of security in computer field.

Program Outcomes (POs)

Program Outcomes (POs) are the graduate attributes acquired by students at the time of completing their undergraduate program. These outcomes are aligned with the Graduate Attributes (GAs) prescribed by the UGC under the LOCF framework and are common to all disciplines of study.

The attainment of POs is assessed at the time of graduation for every outgoing batch. The POs are addressed and achieved through the Course Outcomes (COs) of the various courses in the curriculum, and collectively contribute to the attainment of the Program Educational Objectives (PEOs).

PO1	**Disciplinary knowledge**: Demonstrate strong knowledge in Computer Technology including programming, databases, networking, and software development. Apply computing concepts, algorithms, and IT tools to understand and solve technological problems in real-world applications.
PO2	**Communication Skills**: Communicate technical information effectively through written reports, presentations, and digital media. Demonstrate the ability to explain computing concepts clearly and collaborate with peers, professionals, and stakeholders.
PO3	**Critical thinking**: Apply logical and analytical thinking to evaluate computing problems, software systems, and technological solutions. Assess different approaches and make informed decisions based on evidence and technical understanding.
PO4	**Problem solving**: Identify, analyze, and solve real-world computing problems using programming techniques, software tools, and modern technologies. Apply learned concepts to develop innovative and efficient digital solutions.
PO5	**Analytical reasoning**: Analyze data, algorithms, and system designs to identify patterns, errors, and performance improvements. Use logical reasoning and computational thinking to interpret information and develop effective solutions.
PO6	**Research-related skills**: Develop the ability to investigate emerging

	technologies, formulate research questions, and analyze computing data. Conduct small research projects or experiments related to software development, artificial intelligence, or data analysis.
PO7	**Cooperation/Team work**: Work effectively in teams to design, develop, and implement software projects. Demonstrate collaboration, responsibility, and respect while contributing to group tasks and technology-based solutions.
PO8	**Scientific reasoning**: Apply scientific and systematic approaches in analyzing computing problems and technological innovations. Interpret data and evaluate technological solutions using evidence-based reasoning.
PO9	**Reflective thinking**: Evaluate personal learning experiences in computing and software development to improve technical and professional skills. Demonstrate self-awareness and adaptability in rapidly evolving technological environments.
PO10	**Information/digital literacy**: Effectively use ICT tools, programming platforms, databases, and digital resources to access, evaluate, and manage information. Apply appropriate software technologies for data processing, analysis, and communication.
PO11	**Self-directed learning**: Demonstrate the ability to learn new programming languages, tools, and technologies independently. Manage computing projects and continuously upgrade technical knowledge to meet industry demands.
PO12	**Multicultural competence:** Understand and respect diverse cultural perspectives while working in global IT environments. Collaborate effectively with multicultural teams in the development of software and technology solutions.
PO13	**Moral and ethical awareness/reasoning**: Apply ethical practices in computing including responsible use of technology, data privacy, intellectual property rights, and cybersecurity principles. Demonstrate honesty and professionalism in software development and research activities.
PO14	**Leadership readiness/qualities**: Demonstrate leadership skills in planning, organizing, and managing software development projects. Motivate team members and contribute to achieving project goals in a professional IT environment.
PO15	**Lifelong learning**: Continuously update knowledge in emerging areas such as artificial intelligence, cloud computing, data science, and cybersecurity. Engage in lifelong learning to adapt to evolving technologies and career opportunities in the IT industry.

Program Specific Outcomes:

The **Program Specific Outcomes (PSOs)** are defined by the stakeholders of the program and describe the discipline-specific skills that a B.Sc., Computer Technology graduate is expected to acquire at the time of graduation. Unlike the general Program Outcomes (POs) prescribed by UGC-LOCF, PSOs are exclusive to the discipline (Physics) and are achieved through the teaching–learning process of the courses in the curriculum.

PSO - 01	**Academic skills and abilities:** Acquire academic excellence with professional skill for employment and higherstudies.
PSO - 02	**Explore Software Development Solutions:** Create, select and apply modern tools and techniques to analyze and develop successful software in IT Industry.

Course Outcomes (COs) specify the measurable learning achievements that students are expected to attain upon successful completion of course.

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15	PSO1	PSO2
CO1																		
CO2																		
CO3																		
CO4																		
CO5																		

3 Point Scale – 1, 2, 3

1) A **Credit** is a unit by which the coursework is measured. It determines the number of hours of instruction required per week over the duration of a semester (Minimum 15 weeks).
   a) 1 Credit of class room theory = 15 hours of engagement in a semester.
   b) 1 Credit of Practical/Internship/workshop-based activity/theory under ODL = 30 hours of engagement in a semester.
   c) 1 Credit of field visit/industry visit/Assignments = 40-45 hours of engagement in a semester
d) Research Project/Dissertation: Either entire semester/Equivalent to one paper

2. **Choice Based Credit System (CBCS)** provides an opportunity for the students to choose courses from the prescribed courses basket comparing Major/Core, Minor/Elective of Skills Based (Vocational) courses.

3. **Learning Hours:** Total outcome-based learning hours for credits shall include:

- Classroom Teaching/Tutorials
- Lab work/Practical/Projects/Assignments/Seminars
- Sports/Games/Physical Activities/ Yoga
- Social/Community work (Including NCC/NSS participation)
- Internship/Apprenticeship/On the Job Training (OJT), field visit, Projects

2. Distribution of Credit and selection of courses across Three (UG) / Two Years (PG) Degree Programmes:

2.1. Major Discipline Course

Major discipline is the main focus (Core) subjects and the degree will be awarded in that discipline.

Students must secure a prescribed minimum number of credits (About 50% of total credits) in the major discipline. Major courses shall be available to choose in every semester. The weightage of the credits of a course may differ (4-6 credits) based on level of the courses. The number of courses in Major may vary from semester to semester.

2.2. Minor Discipline Course

Minor discipline is the broader understanding of the course beyond the major discipline course.

2.3. Interdisciplinary/ Multidisciplinary/Allied Course

This is constituent discipline of the major courses and helps learners to acquire core competence in relevant or any other independent courses. This course may be major specific or other discipline specific. Minimum of 9 credits may be allocated to Interdisciplinary/ Multidisciplinary/Allied courses.

S.No	Category	Abbreviation	Description
1	Core Course	CC	Mandatory courses that provide fundamental and advanced knowledge in the primary discipline, ensuring academic depth and programme uniformity.
2	Allied Course	AC	Supportive courses related to the core discipline that enhance conceptual understanding and interdisciplinary knowledge.
3	Allied Optional	AO	Elective allied courses that allow students to choose additional subjects related to or supportive of the major discipline.
4	Foundation Course	FC	Courses designed to bridge the gap between school education and higher education by strengthening basic academic skills and knowledge.
5	Ability Enhancement Compulsory Course	AECC	Mandatory courses aimed at enhancing essential skills such as communication and environmental awareness for all students.
6	AE–1: Communicative English	AE–1	A compulsory course offered in Semester II to develop communication and language skills, conducted beyond regular class hours.
7	AE–2: Environmental Science	AE–2	A compulsory course offered in Semester I focusing on environmental awareness, sustainability, and responsible citizenship.
8	Value Education	VE	Courses that promote moral, ethical, and social values to ensure holistic personality development and responsible citizenship.
9	Skill Enhancement Course	SEC	Application-oriented courses designed to develop practical, technical, and employability skills related to the programme.
10	Non-Major Elective/Extra Departmental Course	NME/EDC	Interdisciplinary courses offered by other departments to provide basic knowledge outside the student's major, promoting multidisciplinary learning.
11	Discipline Specific	DSE	Advanced and specialized elective courses within the discipline offered in Semesters V and VI, allowing students to choose areas

	Elective		of interest.
12	Discipline Specific Skill Enhancement Course	DSSEC	
13	Self Study	SS	A course designed for independent learning, completed outside regular class hours to promote learner autonomy.
14	Internship	IS	Practical training undertaken after Semester IV during summer, followed by report submission and viva-voce in Semester V.
15	Outreach Programme	OR	A compulsory activity to promote social responsibility and community engagement through service-oriented initiatives.
16	Extra Credit Courses	EC	Additional credits earned through approved online courses such as MOOCs offered via platforms like SWAYAM and NPTEL or through institutional certificate courses.

2.4. Summer Internship / Field visits / Projects/ Apprenticeship / Community Engagement and Service corresponding to Major Subject, Co-Curricular Courses and Research Project.

- Internship/ Apprenticeship corresponding to Major subjects are suggested in fifth or sixth semester.
- Field visits/ Projects / Community Engagement and services corresponding to Major subject to be offered in third years.

2.5. Research Project/Dissertation:

The research project / dissertation will be in major discipline with social relevance leading to product development / problem solving / prototypes.

B.Sc. Computer Technology
(FOR THE CANDIDATES ADMITTED FROM THE ACADEMIC YEAR 2026 - 2027 ONWARDS)
I to VI SEMESTERS
SCHEME OF EXAMINATIONS

SEMESTER - I										
Part	Subject Code	Title of the Paper	Hrs. / Week		Hrs. / Sem.	Exam Hrs.	Maximum Marks		Total Marks	Credits
			L	P	T		Internal	External		
I	26UTL1C1	Tamil Paper-I	5	-	-	3	25	75	100	3
	26UHN1C1	Hindi Paper-I								
	26UFR1C1	French Paper-I								
II	26UEN101	Communication Skills – I	5	-	-	3	25	75	100	3
III	26UCT101	**CC I** - Problem Solving Techniques using C	4			3	25	75	100	4
	26UCT102	**CC II** - Data Structures	4			3	25	75	100	4
	26UCT1A1/ 26UCT1A2	**Allied:** Mathematics - I: Discrete Mathematics /Mathematical Structures For Computer Science	5			3	25	75	100	4
	26UCT103	**CC Lab I** - Problem Solving Techniques using C Lab		4		3	20	30	50	2
IV	26EVS101	**AECC I:** Environmental Studies	2			2	-	50	50	2
	26HEC101	**VE:** Human Excellence - Personal Values & SKY Yoga Practice - I	1	-	-	2	20	30	50	1
V		Extension Activities – Annexure I	-	-	-	-	-	-	-	-
EC		CERTIFICATE COURSE - Gandhian Thought	30 Hrs.							Grade
Total			30						650	23

EC – Extra Credit Course / Certificate Course / Co-scholastic Course / Job Oriented Course
CC – Core Course; **AECC** - Ability Enhancement Compulsory Course; **VE**-Value Education

SEMESTER - II										
Part	Subject Code	Title of the Paper	Hrs. / Week		Hrs. / Sem.	Exam Hrs.	Maximum Marks		Total Marks	Credits
			L	P	T		Internal	External		
I	26UTL2C2	Tamil Paper-II	5	-	-	3	25	75	100	3
	26UHN2C2	Hindi Paper-II								
	26UFR2C2	French Paper-II								
II	26UEN202	Communication Skills – II	5	-	-	3	25	75	100	3
III	26UCT204	**CC III :** Object Oriented Programming with Java	4			3	25	75	100	4
	26UCT205	**CC IV:** Computer Networks	4			3	25	75	100	4
	26UCT2A1/ 26UCT2A2	**Allied :** Mathematics II – Operations Research / Statistics	5			3	25	75	100	4
	26UCT206	**CC Lab - II :** Object Oriented Programming with Java		4		3	20	30	50	2
	26UCT2S1/ 26UCT2S2	**SEC I:** Naan Mudhalvan : Data Visualization Tools Lab / Professional Skills		2		2	-	50	50	1
IV	26HEC202	**VE:** Human Excellence - Family Values & SKY Yoga Practice - II	1			2		50	50	1
V		**Extension Activities - Annexure II**	-	-	-	-	-	-	-	-
EC	26CMM201	CERTIFICATE COURSE **Annexure-III IKS:**ManaiyiyalMahathuvam – I			15 Hrs.	2		50	50	Grade
	26CUB201	**IKS:**UzhavuBharatham - I			15 Hrs.	2		50	50	Grade
Total			**30**						**650**	**22**

EC – Extra Credit Course / Certificate Course / Co-scholastic Course / Job Oriented Course
CC – Core Course; **AECC** - Ability Enhancement Compulsory Course;
SEC – Skill Enhancement Course; **VE**-Value Education

SEMESTER - III										
Part	Subject Code	Title of the Paper	Hrs. / Week		Hrs. / Sem.	Exam Hrs.	Maximum Marks		Total Marks	Credits
			L	P	T		Internal	External		
I	26UTL3C3	Tamil Paper-III	4	-	-	3	25	75	100	3
	26UHN3C3	Hindi Paper-III								
	26UFR3C3	French Paper-III								
II	26UEN3C3	Communication Skills – III	4	-	-	3	25	75	100	3
III	26UCT307	**CC V:** Python Programming	4			3	25	75	100	4
	26UCT308	**CC VI:** Database Management Systems	4			3	25	75	100	4
	26UCT3A1/ 26UCT3A2	**Allied:** Software Engineering / Organizational Behaviour	4			3	25	75	100	4
	26UCT309	**CC Lab - III:** Python Programming Lab		4		3	20	30	50	2
	26UCT310	**CC Lab- IV:** Database Management Systems Lab		4		3	20	30	50	2
IV	26UCT3N1 / 26UCT3N2	**Extra Departmental Course (EDC-I) –Annexure-I** :Office Automation Lab / Multimedia Lab	1	-	-	2	-	50	50	1
	26HEC303	**VE:** Human Excellence - Professional Values & Ethics - SKY Yoga Practice - III	1	-	-	2	20	30	50	1
	26GKL301	General Awareness - Self Study	SS		-	2	-	50	50	1
V	26UHW301	Health and Wellness	2#	-	-	-	-	-		1
		Extension Activities Annexure-II								
EC	26CMM302	**CERTIFICATE COURSE Annexure-III**			15 Hrs.	2		50	50	Grade
	26CUB302	**IKS:**ManaiyiyalMahathuvam – II **IKS:**Uzhavu Bharatham - II			15 Hrs.	2		50	50	Grade
	26UCT3VA	**Value Added Course** (Outside Class hours)								Grade
		MOOC Certificate Courses								
Total			**30**						**750**	**26**

EC – Extra Credit Course / Certificate Course / Co-scholastic Course / Job Oriented Course **CC** – Core Course; **VE**-Value Education *Extra Credits;

SEMESTER - IV										
Part	Subject Code	Title of the Paper	Hrs. / Week		Hrs. / Sem.	Exam Hrs.	Maximum Marks		Total Marks	Credits
			L	P	T		Internal	External		
I	26UTL4C4	Tamil Paper-IV	4	-	-	3	25	75	100	3
	26UHN4C4	Hindi Paper-IV								
	26UFR4C4	French Paper-IV								
II	26UEN4C4	Communication Skills – IV	4	-	-	3	25	75	100	3
III	26UCT411	**CC VII:** LINUX Programming	4			3	25	75	100	3
	26UCT412	**CC VIII:** Operating Systems	4			3	25	75	100	3
	26UCT4A1 / 26UCT4A2	**GE IV - Allied:** Artificial Intelligence and Machine Learning / Software Testing	4			3	25	75	100	4
	26UCT413	**CC Lab V:** LINUX Programming Lab		3		3	20	30	50	2
	26UCT414	**CC Lab VI:** No Code Interface Development (WIX / Framer)		3		3	20	30	50	2
	26UCT4S1/ 26UCT4S2	**SEC II**: Naan Mudhalvan: Interactive Data Science Lab using Jupyter Notebook / Desktop Publishing Lab		2		2	–	50	50	1
IV	26UCT4N1 / 26UCT4N2	**Extra Departmental Course (EDC-II) – Annexure-I** -Scripting Languages Lab / Pencil 2D	–	1	-	2	-	50	50	1
	26HEC404	**VE:** Human Excellence - Social Values & SKY Yoga Practice - IV	1	-	-	2	20	30	50	1
V		**Extension Activities Annexure-II**	-	-	-	-	–	-		1
EC	26CMM403 26CUB403	**CERTIFICATE COURSE Annexure-III** **IKS:**Manaiyiyal Mahathuvam – III **IKS:**Uzhavu Bharatham - III	15 Hrs.			2	-	50	50	Grade
			15 Hrs.			2	-	50	50	Grade
	26UCT4VA	**Value Added Course** (Outside Class hours)			30 Hrs.					Grade
		MOOC Certificate Courses								
Total			**30**						**750**	**24**

EC – Extra Credit Course / Certificate Course / Co-scholastic Course / Job Oriented Course

CC – Core Course; **SEC** – Skill Enhancement Course; **VE**-Value Education *Extra Credits;

SEMESTER - V										
Part	Subject Code	Title of the Paper	Hrs. / Week		Hrs. / Sem.	Exam Hrs.	Maximum Marks		Total Marks	Credits
			L	P	T		Internal	External		
III	26UCT515	**CC IX:** Open Source Technologies (PHP & MySQL)	5			3	25	75	100	5
	26UCT516	**CC X:** Information and Cyber Security	6			3	25	75	100	5
	26UCT5E1 / 26UCT5E2 / 26UCT5E3	**DSE -I:#**	6			3	25	75	100	5
	26UCT517	**CC Lab VII :** Open Source Technologies (PHP & MySQL) Lab		5		3	20	30	50	2
	26UCT518	**CC Lab VIII :** Web Designing Lab		5		3	20	30	50	2
	26UCT5S1 / 26UCT5S2	**SEC III:** Naan Mudhalvan: Mobile Application Development Lab / UI/UX Programming Lab		2		2	–	50	50	1
IV	26HEC505	**VE:** Human Excellence - National Values & SKY Yoga Practice - V	1	-	-	2	20	30	50	1
	26UCT5AL	**ALC - I:** Self Study: Digital Marketing	ss					100	100	Credits**
EC	26CSD501	Soft Skills Development - I								Grade
		MOOC Certificate Courses								
Total			**30**						500	21

Discipline Specific Elective (DSE) – I#

26UCT5E1: Prompt Engineering
26UCT5E2: Virtual Reality
26UCT5E3: Fundamentals of Blockchain Technology

EC – Extra Credit Course / Certificate Course / Co-scholastic Course / Job Oriented Course

CC – Core Course; **DSE** – Discipline-Specific Elective; **SEC** – Skill Enhancement Course; **ALC**-Advanced Learner Course (Optional); **VE**-Value Education

*Extra Credits; **Credits – Based on course content maximum of 4 credits

SEMESTER - VI										
Part	Subject Code	Title of the Paper	Hrs. / Week		Hrs. / Sem.	Exam Hrs.	Maximum Marks		Total Marks	Credits
			L	P	T		Internal	External		
III	26UCT619	**CC XI:** Framework Technologies	5			3	25	75	100	4
	26UCT6E4 / 26UCT6E5 / 26UCT6E6	**DSE -II:**##	6			3	25	75	100	5
	26UCT6E7/ 26UCT6E8 / 26UCT6E9	**DSE -III:**###	6			3	25	75	100	5
	26UCT620	**CC Lab IX:** Framework Technologies Lab		5		3	20	30	50	2
	26UCT621	**CC Lab X:** Cloud Workspace Lab		5		3	20	30	50	2
	26UCT622	Project				3	25	75	100	4
	26UCT6S1/ 26UCT6S2	**SEC IV**: Naan Mudhalvan: MERN Stack Development Lab / Animation Lab		2		3	–	50	50	1
IV	26HEC606	**VE:** Human Excellence - Global Values & SKY Yoga Practice - VI	1	-	-	2	20	30	50	1
	26UCT6AL	**ALC - II:** Self Study: Agentic AI Systems	SS					100	100	Credits**
Total			**30**						**600**	**24**
Grand Total									**3900**	**140**

Discipline Specific Elective (DSE) – II ##	**Discipline Specific Elective (DSE) – III** ###
26UXX6E4: Software Project Management 26UXX6E5: Data Analytics 26UXX6E6: Edge Computing	26UXX6E7: Cloud Computing 26UXX6E8: Internet of Things 26UXX6E9: Mobile Computing

Completion of at least one approved Massive Open Online Course (MOOC) through the SWAYAM platform or NPTEL is **mandatory** for all students as part of the programme requirements.
Students shall successfully complete the course and obtain certification within the stipulated period. The credits earned through these online courses shall be considered as per the institutional norms and regulations. This initiative aims to promote self-paced learning, interdisciplinary exposure, industry-relevant knowledge, and lifelong learning competencies among students.

EC – Extra Credit Course / Certificate Course / Co-scholastic Course / Job Oriented Course
CC – Core Course; **DSE** – Discipline-Specific Elective; **SEC** – Skill Enhancement Course
ALC-Advanced Learner Course (Optional); **VE**-Value Education *Extra Credits;**Credits – Based on course content maximum of 4 credits

List of Abbreviations:

- **CC** – Core Course
- **AECC** – Ability Enhancement Compulsory Course
- **SEC** – Skill Enhancement Course
- **DSE** – Discipline-Specific Elective
- **VAC** – Value Added Course
- **ALC** – Advanced Learner Course
- **VE** – Value Education

Grand Total = 3900; Total Credits = 140

Passed by	**Board of Studies Meeting held on 07.03.2026**
Approved by	**33rd Academic Council Meeting held on 25.03.2026**

(Academic Council Nominee)
Dr. M. NIRMALA, Principal, Akshaya College of Arts and Science,
Kinathukadavu, Coimbatore-642 109.

25.3.26

(Academic Council Nominee)
Dr. M. EZHIL INBAN, Associate Professor of Physics,
Department of Physics, Government Arts College,
Coimbatore-641 018.

25/3/26

Question Paper Pattern
(Based on Bloom's Taxonomy)

K1-Remember; **K2**- Understanding; **K3**- Apply; **K4**-Analyze; **K5**- Evaluate

1. Theory Examinations: 75 Marks (Part I, II, & III)

(i) Test- I & II, ESE:

Knowledge Level	Section	Marks	Description	Total
K1 & K2 (Q1 - 10)	A (Q1 – 5 MCQ) (Q6 – 10 Define / Short Answer / MCQ)	10 * 1 = 10	MCQ / Define	75
K3 (Q11-15)	B (Either or pattern)	5 * 5 = 25	Short Answers	
K4 & K5 (Q16 – 20)	C (Either or pattern)	5 * 8 = 40	Descriptive/ Detailed	

2. Theory Examinations: 38 Marks (3 Hours Examination) (Part III: If applicable)

Knowledge Level	Section	Marks	Description	Total
K1 & K2 (Q1 - 10)	A (Q 1 – 10 MCQ)	10 * 1 = 10	MCQ	50 (Reduced to 38)
K3 (Q11 – 15)	B (Either or pattern)	5 * 3 = 15	Short Answers	
K4 & K5 (Q16-20)	C (Either or pattern)	5 * 5 = 25	Descriptive/ Detailed	

3. Theory Examinations: 38 Marks (2 Hours Examination) (Part IV: If applicable)

Knowledge Level	Section	Marks	Description	Total
K1 & K2 (Q1-10)	A (Q1 – 5 MCQ) (Q6–10 Define / Short Answer)	10 * 1 = 10	MCQ / Define	50 (Reduced to 38)
K3, K4 & K5 (Q11-15)	B (Either or pattern)	5 * 8 = 40	Descriptive/ Detailed	

4. Practical Examinations:

Paper	Maximum Marks	Marks for		Components for CIA		
		CIA	CEE	Tests	Observation Note	Record Note
Practical (Core / Elective)	50	20	30	10	05	05
Practical (Core / Elective)	75	30	45	20	05	05
Practical (Core / Elective)	100	40	60	30	05	05

5. Project:

Paper	Maximum Marks	Marks for		
		CIA	CEE	
			Evaluation	Viva-voce
Project	100	25	50	25
Project	150	40	75	35
Project	200	50	100	50

* CIA – Continuous Internal Assessment & CEE – Comprehensive External Examinations

Components of Continuous Internal Assessment (CIA)

THEORY

Maximum Marks: 100; CIA Mark: 25; CEE Mark: 75;

Components		Calculation	CIA Total
Test 1	75	(75+75+15+10)/7	25
Test 2 / Model	75		
Assignment / Digital Assignment	15		
Others*	10		

*Others may include the following: Seminar / Socratic Seminars, Group Discussion, Role Play, APS, Class participation, Case Studies Presentation, Field Work, Field Survey, Term Paper, Workshop / Conference Participation, Presentation of Papers in Conferences, Quiz, Report / Content Writing, etc.

Maximum Marks: 50; CIA Mark: 12; CEE Mark: 38; (Part III: If applicable)

Components		Calculation	CIA Total
Test 1	50	(50+50+10+10)/10	12
Test 2 / Model	50		
Assignment / Digital Assignment	10		
Seminar	10		

PROJECT

Maximum Marks: 100; CIA Mark: 25; CEE Mark: 75;

Components		Calculation	CIA Total
Review I	5	5+5+5+10	25
Review II	5		
Review III	5		
Report Submission	10		

Maximum Marks: 200; CIA Mark: 50; CEE Mark: 150;

Components		Calculation	CIA Total
Review I	10	10+ 10+10+20	50
Review II	10		
Review III	10		
Report Submission	20		

* *Components for 'Review' may include the following:*

Originality of idea, relevance to current trend, candidate involvement, and presentation of report for Commerce, Management & Social Work.

Synopsis, System Planning, Design, Coding, Input form, Output format, Preparation of Report & Submission for Computer Science cluster.

Continuous Internal Assessment for Project

For Commerce, Management & Social Work Programme

The Final year Commerce, Management & Social Work students should undergo a project work during (V/VI) semester

- The period of study is for 4 weeks.
- Project / Internship work has to be done in an industrial organization (or) work on any industrial problem outside the organization is allowed.
- Students are divided into groups and each group is guided by a Mentor.
- The group should not exceed four students, also interested student can undergo individually.
- A problem is chosen, objectives are framed, and data is collected, analyzed and documented in the form of a report / Project.
- Viva – Voce is conducted at the end of this semester, by an External Examiner and concerned Mentor (Internal Examiner).
- Project work constitutes 100 marks, out of which 25 is CIA and 75 is CEE Marks.

Mark Split UP

CIA	CEE	Total
25	75	100

S. No	Components for CIA	Marks
1	Review – I *	5
2	Review – II *	5
3	Review – III *	5
4	Rough Draft Submission	10
Total		**25**

* Review includes Objectives and Scope, Research Methodology, Literature Review, Data Analysis and Results, Discussion and Interpretation, Recommendations and Implications, Presentation and Format, Creativity and Originality, and Overall Impact and Contribution.

S. No	Components for CEE	Marks
1	Evaluation*	50
2	Viva-Voce	25
Total		**75**

* Evaluation includes Originality of Idea, Relevance to Current Trend, Candidate Involvement, Thesis Style / Language, and Presentation of Report.

Components for CEE: 75 Marks

Components for CEE	Marks	Total	Grand Total
Evaluation			75
Title Relevance of the Industry/Institute	10	50	
Technology	10		
Design and Development Publishing	10		
Testing, Report	20		
Viva Voce			
Project Presentation	10	25	
Q&A Performance	15		

HEALTH AND WELLNESS COURSE

Scheme of Evaluation

Part	Description	Marks
A	Report	40
B	Attendance	20
C	Activities (Observation During Practice)	40
	Total	100

ANNEXURE – I

UNDER GRADUATION PROGRAMME (SELF-FINANCING)

EXTRA DEPARTMENT AL COURSE – SEMESTER III

Programme	Course Code	Course Title
B.Com	26UCO3N1/ 26UCO3N2	Extra Departmental Course - I: Practical Banking/ Extra Departmental Course - I: Fundamentals of Accounting
B.Com (Computer Applications)	26UCC3N1/ 26UCC3N2	Extra Departmental Course - I: Business Professional Correspondence/ Extra Departmental Course - I: Accounting Software Tally
B.Com (E-Commerce)	26UEC3N1/ 26UEC3N2	Extra Departmental Course - I: E-Commerce Security and Digital Crime Prevention/ Extra Departmental Course - I: E-Banking
B.Com (Professional Accounting)	26UPA3N1/ 26UPA3N2	Extra Departmental Course - I: Fundamentals of Accounting and Auditing/ Extra Departmental Course - I: Elements of Company Law
B.Com (Banking & Insurance)	26UBI3N1/ 26UBI3N2	Extra Departmental Course - I: Banking Practical I/ Extra Departmental Course - I: Banking Practical II
B.Com (International Business)	26UIB3N1/ 26UIB3N2	Extra Departmental Course - I: Introduction to International Business/ Extra Departmental Course - I: Tourism Marketing
B.Com (Information Technology)	26UCI3N1/ 26UCI3N2	Extra Departmental Course – I: Information Technology for Business Extra Departmental Course – I: Digital Banking
BBA	26UBM3N1/ 26UBM3N2	Extra Departmental Course - I: Intellectual Property Rights/ Extra Departmental Course - I: Rural Consumer Behaviour
B.Sc (Computer Science)	26UCS3N1/ 26UCS3N2	Extra Departmental Course - I: Multimedia Lab/ Extra Departmental Course - I: Advanced Applications in MS Excel Lab
BCA	26UBC3N1/ 26UBC3N2	Extra Departmental Course - I: Web Designing Lab/ Extra Departmental Course - I: Desktop Publishing Lab
B.Sc (Information Technology)	26UIT3N1/ 26UIT3N2	Extra Departmental Course - I: Social Media Analytics/ Extra Departmental Course - I:Basics of Hardware
B,Sc (Computer Technology)	26UCT3N1/ 26UCT3N2	Extra Departmental Course - I: Office Automation Lab/ Extra Departmental Course - I: Multimedia Lab
B.Sc (CS with Data Analytics)	26UDA3N1/ 26UDA3N2	Extra Departmental Course - I: Data Analysis Using Excel/ Extra Departmental Course - I: Adobe Photoshop
B.Sc (CS with Artificial Intelligence & Machine Learning)	26UAI3N1/ 26UAI3N2	Extra Departmental Course - I: Web Development Essentials/ Extra Departmental Course - I:Advanced Excel Lab
BA (Tamil Literature)	26UTM3N1/ 26UTM3N2	Extra Departmental Course - I: தமிழ் மரபு மருத்துவம் Extra Departmental Course - I: நடைமுறைத் தமிழ்
Tamil Language	25BTL3B1	Basic Tamil Paper - I

ANNEXURE – I

UNDER GRADUATION PROGRAMME (SELF-FINANCING)

EXTRA DEPARTMENTAL COURSE – SEMSTER III

Programme	Course Code	Course Title
B.Com	26UCO4N1/ 26UCO4N2	Extra Departmental Course- II: Consumer Affairs/ Extra Departmental Course- II: Fundamentals of Marketing
B.Com (Computer Applications)	26UCC4N1/ 26UCC4N2	Extra Departmental Course- II: Commerce and Computer Application Practical/ Extra Departmental Course- II: Retail Management
B.Com (E-Commerce)	26UEC4N1/ 26UEC4N2	Extra Departmental Course- II: Advanced Cyber Forensics in E-Commerce Systems/ Extra Departmental Course- II: E-Commerce
B.Com (Professional Accounting)	26UPA4N1/ 26UPA4N2	Extra Departmental Course- II: Introduction to Taxation/ Extra Departmental Course- II: Elements of Contract Law
B.Com (Banking & Insurance)'	26UBI4N1/ 26UBI4N2	Extra Departmental Course – II: Life Insurance Practical/ Extra Departmental Course – II: General Insurance Practical
B.Com (International Business)	26UIB4N1/ 26UIB4N2	Extra Departmental Course- II: Global Logistics/ Extra Departmental Course- II: Tour Operation Management
B.Com (Information Technology)	26UCI4N1/ 26UCI4N2	Extra Departmental Course- II: Digital Advertising and Promotion/ Extra Departmental Course- II: AI and Smart Technology
BBA	26UBM4N1/ 26UBM4N2	Extra Departmental Course- II: Retail Management/ Extra Departmental Course- II: Supply Chain Management
B.Sc (Computer Science)	26UCS4N1/ 26UCS4N2	Extra Departmental Course- II: Flash Lab/ Extra Departmental Course– II: Internet Services and Applications Lab
BCA	26UBC4N1/ 26UBC4N2	Extra Departmental Course- II: Illustration Effects Lab/ Extra Departmental Course- II: Animation Techniques Lab
B.Sc (Information Technology)	26UIT4N1/ 26UIT4N2	Extra Departmental Course- II: Data Analytics/ Extra Departmental Course- II: Workplace Digitization
B,Sc (Computer Technology)	26UCT4N1/ 26UCT4N2	Extra Departmental Course- II: Scripting Languages/ Extra Departmental Course- II: Pencil 2D
B.Sc (CS with Data Analytics)	26UDA4N1/ 26UDA4N2	Extra Departmental Course- II: Web Designing using HTML and CSS/ Extra Departmental Course- II: Office Automation Tools
B.Sc (CS with Artificial Intelligence & Machine Learning)	26UAI4N1/ 26UAI4N2	Extra Departmental Course- II: Web Application Development/ Extra Departmental Course- II: Transforming Data with Excel and Power BI
BA (Tamil Literature)	26UTM4N1/ 26UTM4N2	Extra Departmental Course- II: ஊடகவியல் / Extra Departmental Course- II: தமிழரின் நிர்வாகக் கோட்பாடுகள்
Tamil Language	25BTL4B2	Basic Tamil Paper - II

ANNEXURE-II

PART – V (EXTENSION ACTIVITIES)

S. No	SUBJECTS
1	National Service Scheme
2	National Cadet Crops
3	Sports and Games
4	Rotaract Club
5	Red Ribbon Club
6	Youth Red Cross
7	Consumer Awareness Club
8	Entrepreneurship Development Cell
9	Centre for Rural Development
10	Student Guild of Service
11	Green Society
12	Equal Opportunity Centre
13	Fine Arts Club
14	Arutchelvar Manavar Sindhanai Mandram
15	Vivekanandar Manavar Sindhanai Mandram

DEPARTMENT OF COMPUTER TECHNOLOGY

ANNEXURE-III

CERTIFICATE COURSES

S. No	SUBJECTS
1	Gandhian Thought
2	Manaiyiyal Mahathuvam
3	Uzhavu Bharatham
4	Value Added Course - I
5	Value Added Course - II
6	MOOC Certificate Courses

SEMESTER I

Programme Code:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT101			Title	Batch:	2026 - 2029
				Title	Semester:	I
Lecture Hrs./Week or Practical Hrs./Week	4	Tutorial Hrs./Sem.	-	CC I: Problem Solving Techniques using C	Credits:	4

Course Objective

To focus on the language and syntax of C programming concepts.

Course Outcomes

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

CO Number	CO Statement	
CO1	To remember data types, identifier, arrays, strings and pointers	PO1(3)
CO2	To understand how to write and use control statements and functions in C	PO3(1), PO4(3), PO5(2), PO9(2), PO12(3)
CO3	To implement the concept of pointers, structure and union	PO3(2), PO4(2), PO5(3), PO14(2)
CO4	To evaluate string functions and file Operations in C programming for a givenapplication	PO11(2)
CO5	To evaluate random file operations, preprocessor and command linearguments	PO3(2), PO8(2), PO9(1), PO10(3), PO15(1)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO14	PO15
CO1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	1	3	2	-	-	-	2	-	-	3	-	-	-
CO3	-	-	2	2	3	-	-	-	-	-	-	-	-	2	-
CO4	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
CO5	-	-	2	-	-	-	-	2	1	3	-	-	-	-	1

3 Point Scale – 1, 2, 3

CC I: Problem Solving Techniques using C

Units	Content	Hrs
Unit I	**Introduction to C** :Overview of C – History and Importance of C – Basic Structure of C programs - Executing a 'C' program – Character set –C Tokens–Keywords – Identifiers – Constants– Variables – Rules for defining variables- Data types, – Declaring and initializing variables–Operators & Expressions–Precedence of arithmetic Mathematical functions – **Managing Input and output operations**: Introduction – Reading a character–Writing a character Formatted input- Formatted output Simple Programs	12
Unit II	**Control Statements:** IF, IF..ELSE Statements, ELSE...IF ladder – Switch Statement – GOTO Statement – WHILE Statement – Do Statement – FOR Statement.-Jumps in loops. **Arrays:** One dimensional Arrays – Two Dimensional Arrays –simple Structures: Arrays within Structures–Union.	12
Unit III	**Functions:** User-defined functions- -Elements of user defined function, definition of function - Return value & their types, function calls &declarations-Category of functions: No arguments & No return values-arguments that No return values – Arguments with return values-No arguments that return a value -Recursion	12

Unit IV	**String manipulation:** Introduction- Declaring & Initializing String variables –Reading string from terminal, Writing string to screen – String handling Functions. **Pointers:** Introduction - Accessing, Declaring & Initializing pointer Variables	12
Unit V	**Files:** Defining and opening a file – Closing a file –I/O operations on sequential file– Command line arguments- Programs using Files and Command Line Arguments	12
	Total Contact Hrs	**60**

Pedagogy and **Assessment Methods**

Chalk and Talk lectures, Group Discussion, Seminar, Interaction, power point presentation

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	E.Balagurusamy	Programming in ANSI C	Tata McGraw-Hill Publishing Co & Ltd., New Delhi, India, Eighth Edition	2019

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Greg Perry, Dean Miller	C Programming – Absolute Beginner's Guide	Third Edition	2013
2	Yashvant Kanetkar	Let us C	17th Edition	2020
3	https://www.javatpoint.com/data-types-in-c			
4	https://www.tutorialspoint.com/cprogramming/c_arrays.html			
5	https://www.programiz.com/c-programming/c-functions			
6	https://www.programiz.com/c-programming/c-pointers			
7	https://www.geeksforgeeks.org/basics-file-handling-c/			

Course Designed by	**Dr. K.S. Leelavathi**	KS L.
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	M.
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

Dr. M. RAJASENATHIPATHI M.A.,M.C.A.,M.Phil.,Ph.D
Head of the Department
Department of Computer Technology
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POLLACHI - 642 001.

Dr. R. MANICKA CHEZIAN M.Sc.,M.S.,Ph.D.,
PRINCIPAL I/c
Nallamuthu Gounder Mahalingam College
Pollachi - 642 001, Coimbatore District.

Programme Code:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT102			Title	Batch:	2026 – 2029
				CC IV: Data Structures	Semester:	I
Lecture Hrs./Week or Practical Hrs./Week	4	Tutorial Hrs./Sem.	–		Credits:	4

Course Objective

To understand the concepts of array, stack, queue, list, linked list, tree and their computer applications.

Course Outcomes

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

CO Number	CO Statement	
CO1	To remember arrays, stack/queue operations and trees	PO1(3), PO5(1), PO8(3), PO12(3), PO15(1)
CO2	To understand and develop skills to analyze simple linear and non linear Data structures	PO2(1), PO3(2), PO4(2), PO5(2), PO6(1), PO9(3), PO14(3)
CO3	To apply the concept of linked lists, graphs and trees for the Real world problems	PO1(2), PO3(2), PO4(3), PO10(1), PO12(2), PO15(3)
CO4	To evaluate file organizations, various searching and sorting methodologies	PO3(2), PO4(2), PO5(3), PO7(2), PO8(1), PO10(2), PO14(2)
CO5	To apply the concept of Binary trees	PO1(3), PO3(2), PO4(3), PO5(2), PO11(1), PO12(1), PO15(1)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO14	PO15
CO1	3	-	-	-	1	-	-	3	-	-	-	3	-	-	1
CO2	-	1	2	2	2	1	-	-	3	-	-	-	-	3	-
CO3	2	-	2	3		-	-	-	-	1	-	2	-	-	3
CO4	-	-	2	2	3	-	2	1	-	2	-	-	-	2	-
CO5	3	-	2	3	2	-	-	-	-	-	1	1	-	-	1

3 Point Scale – 1, 2, 3

CC IV: DataStructures

Units	Content	Hrs
Unit I	**Introduction** - Definition – Structure and properties of Algorithms – Development of an Algorithm – Data structures and Algorithms – Data structure – Definition and Classification. **Arrays:** Introduction – Array Operations - Number of elements in an array, representation of Arrays in memory, Applications	12
Unit II	**Stacks:** Introduction – Stack Operations – Applications .**Queues:** Circular Queues – Other types of Queues – Applications.	12
Unit III	**Linked Lists:** Introduction – Singly Linked Lists – Circular Linked Lists –Doubly Linked Lists – Applications.	12
Unit IV	**Trees**: Introduction – Trees – Basic Terminologies - Representation of Trees. **Binary Trees**: Basic Terminologies and Types - Representation of Binary Trees - Binary Search Tree – Applications. **Graphs**: Introduction – Definition and basic Terminologies.	12
Unit V	**File Organizations**: Introduction – Files - Keys – Basic File Operations – Sequential File Organizations – Indexed sequential File Organizations – Direct File Organizations. **Searching:** Binary search. Sorting: Merge sort and Quick sort.	12
	Total Contact Hrs	**60**

Pedagogy and Assessment Methods

Chalk and Talk lectures, Group Discussion, Seminar, Interaction, power point presentation

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	GAV Pai	Data Structures and Algorithms – Concepts, Techniques and Applications	Tata MCGraw HillPublications, New Delhi, India ISBN-10: 0070667268	2017

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Aaron M Tanenbaum, Yedidyeh langsam, Moshe J Augenstein,	Data Structure using C	Facsimile Edition, Pearson India, ISBN-13:978-8131702291.	2018
2	Ashok N Kamthane	Programming and Data Structures	PearsonEducation, 1stIndian Print, ISBN-13:978-131724224.	2009
3	https://www.w3schools.in/cplusplus-tutorial/working-with-files/			
4	https://www.javatpoint.com/ds-stack-vs-queue			
5	https://www.javatpoint.com/ds-linked-list			
6	https://www.javatpoint.com/binary-tree			
7	https://www.javatpoint.com/bubble-sort			

Course Designed by	**Dr. R. Jayaprakash**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

Dr. M. RAJASENATHIPATHI M.A.,M.C.A.,M.Phil.,Ph.D
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Dr. R. MANICKA CHEZIAN M.Sc.,M.S.,Ph.D.
PRINCIPAL I/c
Nallamuthu Gounder Mahalingam College
Pollachi 642 001, Coimbatore District.

Programme Code:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT1A1			Title	Batch:	2026 - 2029
				Allied I: Mathematics - I: Discrete Mathematics	Semester:	I
Lecture Hrs./Weekor Practical Hrs./Week	5	Tutorial Hrs./Sem.	-		Credits:	4

Course Objective

To understand and apply Discrete Mathematics techniques for set operations and algebraic structures, grasp fundamental principles of mathematical logic and functions, analyze types and properties of relations, and effectively utilize graph theory concepts and algorithms to solve practical problems in various fields.

Course Outcomes (CO)

CO1	Remember the Fundamental Techniques and Notation of Vedic Mathematics, Including Methods For Addition, Subtraction, and Squaring.	PO1(3), PO5(1), PO10(2), PO13(3)
CO2	To keep in mind about the Set theory and its laws	PO1(3), PO5(2), PO12(3)
CO3	To understand the law relating to Prepositional calculus, Tautologies and Contradiction	PO3(2), PO5(2), PO8(1), PO14(2)
CO4	To implement the conceptual knowledge of Relations and Functions	PO3(2), PO4(3), PO5(2), PO15(3)
CO5	To Analyze Various Types ofFunctions And Relations, including their Compositions and Properties.	PO3(3), PO4(2), PO5(3), PO8(2), PO10(1), PO13(1)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO14	PO15
CO1	3	-	-	-	1	-	-	-	-	2	-	-	3	-	-
CO2	3	-	-	-	2	-	-	-	-	-	-	3	-	-	-
CO3	-	-	2	-	2	-	-	1	-	-	-	-	-	2	-
CO4	-	-	2	3	2	-	-	-	-	-	-	-	-	-	3
CO5	-	-	3	2	3	-	-	2	-	1	-	-	1	-	-

3 Point Scale – 1, 2, 3

26UCT1A1

Allied I: Mathematics - I: Discrete Mathematics

Units	Content	Hrs
Unit I	Set theory-Introduction-Set & its Elements - Set Description - Types of sets-*Venn-Euler Diagrams**- Set operations & Laws of set theory-Fundamental products-partitions of sets – minsets.	15
Unit II	Mathematical logic – Introduction - Prepositional calculus – Basic logical operations - Tautologies - Contradiction - Argument - Method of proof.	15
Unit III	Relations – Binary Relations – Set operation on relations-Types of Relations – Partial order relation – Equivalence relation – Composition of relations – Functions – Types of functions – Invertible. Functions.	15
Unit IV	Graph Theory – Basic terminology – Paths, Cycle and Connectivity – Sub graphs – Types of graphs – Isomorphic Graphs, Homeomorphic Grap	15
Unit V	Representation of graphs in computer memory – Eulerian Graph and Hamiltonian Graph – Shortest path problems: Unweighted Graph and Weighted Graph .	15
	Total Contact Hrs	**75**

Note: **Italicized* texts are for self study

Pedagogy and **Assessment Methods**

Chalk and Talk lectures, Group Discussion, Seminar, Interaction, power point presentation

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Sharma J. K	Discrete Mathematics	3rd Edition, MacMillan India Ltd., New Delhi, India ISBN-10: ISBN-13: 9780230322301.	2020

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER S \ EDITION	YEAR OF PUBLICATION
1	Tremblay J.P, Manohar R,	Discrete Mathematics Structures with Applications to Computer Science	TATA McGraw-Hill Publications, New Delhi, India	2017
2	Dr. Venkataramen .M.K, Dr Sridharan .N, Chandarasekaran .N,	Discrete Mathematics	The National publishing Company Chennai. ISBN-13: 9788172863722.	2003
3	http://pdfebooklibrary.com/ebooks/discrete-mathematics-book-download.pdf			

Course Designed by	**Dr. R. Jayaprakash**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Nallamuthu Gounder Mahalingam College
Pollachi - 642 001, Coimbatore District.

Programme Code:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT1A2			Title	Batch:	2026 - 2029
				Allied I: Mathematics - I: Mathematical Structures for Computer Science	Semester:	I
Lecture Hrs./Week or Practical Hrs./Week	5	Tutorial Hrs./Sem.	–		Credits:	4

Course Objective

To gain knowledge of the concepts of matrices, algebraic equations, numericaldifferentiation, integration and correlation for computer applications.

Course Outcomes

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

CO Number	CO Statement	
CO1	To remember an in-depth knowledge in Matrices, Determinants, Inverse of amatrix, Rank of a Matrix and Eigen value Problems	PO1(3), PO5(2), PO8(3), PO11(3), PO13(2), PO15(1)
CO2	To understand the concepts of numerical differentiation and integration	PO3(2), PO4(2), PO5(2), PO9(3), PO10(2), PO13(3)
CO3	To apply an appropriate numerical method for solving	PO3(2), PO4(3), PO5(2), PO6(1), PO12(2), PO15(2)
CO4	To figure out the concept of Mean, Median, Mode, Measures of dispersionand the law relating to Correlation and Regression	PO3(2), PO5(3), PO8(2), PO10(1), PO13(3), PO15(2)
CO5	To evaluate the concept of correlation and correlation evaluation regression	PO3(3), PO5(3), PO8(2), PO10(2), PO14(1)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO14	PO15
CO1	3	-	-	-	2	-	-	3	-	-	3	-	2	-	1
CO2	-	-	2	2	2	-	-	-	3	2	-	-	3	-	-
CO3	-	-	2	3	2	1	-	-	-	-	-	2	-	-	2
CO4	-	-	2		3	-	-	2	-	1	-	-	3	-	2
CO5	-	-	3		3	-	-	2	-	2	-	-	-	1	-

3 Point Scale – 1, 2, 3

Allied I: Mathematics - I: Mathematical Structures For Computer Science

Units	Content	Hrs
Unit I	**Matrices** – Introduction – Determinants – Inverse of a matrix – Rank of a Matrix – Eigen Value problems	15
Unit II	**System of Simultaneous Linear algebraic Equation:** Gauss elimination, Gauss Jordan. **The solution of Numerical Algebraic and Transcendental equation** – Bisection method – Newton Raphson method.	15
Unit III	**Numerical Differentiation:** Newton's forward Difference - Backward Difference – **Startling formula Numerical Integration**: Trapezoidal Rule and Simpson's rule	15
Unit IV	**Measures of central tendency:** Mean (Individual Series), Median Discrete Series) and Mode (Continuous Series) – Relationship among mean, median and mode. Case study: Calculate mean, median and mode for students mark list. **Measures of dispersion:** Range, quartile deviation, mean deviation and Standard deviation.	15
Unit V	**Correlation**: Karl Pearson's coefficient of correlation – **Rank correlation regression:** Regression Equations – Difference between Correlation and Regression.	15
	Total Contact Hrs	75

Pedagogy and Assessment Methods

Chalk and Talk lectures, Group Discussion, Seminar, Interaction, power point presentation

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Dr. Venkataraman. M. K	Engineering Mathematics	Volume II, Third Edition, National Publishing Company, Chennai (NPC) – (Unit I).	2001
2	Kandasamy.P, Thilagavathi.K, Gunavathi. K	Numerical Methods	Revised Edition, S. Chand and Company Ltd,New Delhi, ISBN-13: 9788121914383.	2013
3	Pillai.R.S.N, Bagavathi.V	Statistical Methods	Sultan Chand andSons Company Limited, New Delhi, (UnitIV &V). ISBN-13: 978-9352533091	2016

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	N. P. Bali., Dr. Manish Goyal	A text book of Engineering Mathematics	Vol1, 9th edition, University science Press, New Delhi. ISBN 13:-9788131808320.	2013
2	Gupta .S.C, Kapoor .V.K	Fundamental of Mathematical Statistics	Sultan Chand and Sons-Tb,ISBN-13:9788180549687.	2018
3	https://www.vedantu.com/maths/types-of-matrices			

4	https://byjus.com/maths/gauss-elimination-method/
5	http://www.math.pitt.edu/~sparling/052/23052/23052notes/23052notestojan14th/node3.html
6	https://statistics.laerd.com/statistical-guides/measures-central-tendency-mean-mode-median.php
7	s://www.bmj.com/about-bmj/resources-readers/publications/statistics-square-one/11-4correlation-and-regression

Course Designed by	**Dr. A. Kalaivani**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

Dr. M. RAJASENATHIPATHI M.A.,M.C.A.,M.Phil.,Ph.D.
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Dr. R. MANICKA CHEZIAN M.Sc.,M.S.,Ph.D.,
PRINCIPAL i/c
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Programme Code:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT103			Title	Batch:	2026 - 2029
				CC Lab I – Problem Solving Techniques using C Lab.	Semester:	I
Lecture Hrs./Week or Practical Hrs./Week	4	Tutorial Hrs./Sem.	–		Credits:	2

Course Objective

On successful completion of this subject the students will be able to enhance their analyzing and problem solving skills and use the same for writing programs in C.

Course Outcomes

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

CO Number	CO Statement	
CO1	To remember the concept of data types, decision making and loopingcontrol statements	PO1(3), PO3(1), PO4(2), PO8(3), PO12(3), PO15(1
CO2	To get the idea of array, strings and functions in C	PO1(3), PO3(2), PO4(2), PO5(1), PO9(3), PO13(2), PO15(1)
CO3	To access the file information through open/close and reading/writingoperations in a file	PO3(2), PO4(3), PO5(2), PO7(3), PO10(2), PO12(2)
CO4	To remember the concept of pointers	PO1(3), PO3(2), PO5(2),PO9(3), PO14(2), PO15(1)
CO5	To get the idea of file functions	PO3(2), PO4(2), PO5(2), PO8(2), PO10(2), PO11(1), PO14(3)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO14	PO15
CO1	3	-	1	2	-	-	-	3	-	-	-	3	-	-	1
CO2	3	-	2	2	1	-	-	-	3	-	-	-	2	-	1
CO3	-	-	2	3	2	-	3	-	-	2	-	2	-	-	-
CO4	3	-	2		2	-	-	-	3	-	-	-	-	2	1
CO5	-	-	2	2	2	-	-	2	-	2	1	-	-	3	-

3 Point Scale – 1, 2, 3

CC Lab 1 – Problem Solving Techniques using C Lab

Content	Hrs
Sample Programs 1. Write a C program to illustrate the concept of operators in C. 2. Write a C program to illustrate the concept of conditional and unconditional control statements. 3. Write a C program to illustrate the concept of Arrays with help of linked list. 4. Write a C program to illustrate the concept of stack and Queue. 5. Write a C program to illustrate the concept of Functions with binary Tree. 6. Write a C program to illustrate the concept of call by value. 7. Write a C program to illustrate the concept of call by reference. 8. Write a C program to illustrate the concept of pointers and Sorting as merge and quick sort. 9. Write a C program to illustrate the concept of File and its Operations. 10. Write a C program to illustrate the concept of Command line Arguments.	60
Total Contact Hrs	**60**

Pedagogy and Assessment Methods

Group Discussion, Seminar, Interaction, power point presentation

Course Designed by	**Dr. K.S Leelavathi**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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SEMESTER- II

Programme Code:	B.Sc			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT204			Title	Batch:	2026 - 2029
				CC III : Object Oriented Programming with Java	Semester:	II
Lecture Hrs/Week or Practical Hrs/Week	4	Tutorial Hrs/Sem	-		Credits:	4

Course Objective

To provide profound coverage on classes, multithreading, exception handling, applets and file handling in Java

Course Outcomes

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

CO Number	CO Statement	
CO1	Remember about classes, objects, members of a class and relationshipsamong them needed for a specific problem	PO1(3), PO3(1), PO4(2), PO7(3), PO10(3), PO13(1)
CO2	Comprehend the concepts of inheritance, interface and package	PO1(3), PO3(2), PO4(2), PO5(2), PO8(2), PO11(2), PO13(1), PO15(1)
CO3	Examine error handling techniques using exception handling	PO3(2), PO4(3), PO5(2), PO6(1), PO9(2), PO12(2)
CO4	Evaluate the concepts of thread, applet and files	PO3(2), PO4(2), PO5(3), PO7(2), PO10(2), PO14(3), PO15(1)
CO5	Developed skills in designing abstract window toolkit	PO3(2), PO4(3), PO5(2), PO8(2), PO10(3), PO11(1)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO14	PO15
co1	3	-	1	2	-	-	3	-	-	3	-	-	1	-	-
co2	3	-	2	2	2	-	-	2	-	-	2	-	1	-	1
co3	-	-	2	3	2	1	-	-	2	-	-	2	-	-	-
co4	-	-	2	2	3	-	2	-	-	2	-	-	-	3	1
co5	-	-	2	3	2	-	-	2	-	3	1	-	-	-	-

3 Point Scale – 1, 2, 3

CC III : Object Oriented Programming with Java

Units	Content	Hrs
Unit I	Fundamentals of Object – oriented programming – Introduction –Basics Concept of Object-object oriented programming. Benefits of OOP – Applications of OOP – Java Evolution – History –Java features. How java differs from C and C++ - Java and the Internet – Java Environment – Overview of Java Language – Simple Java Program – Java Program Structure – Java Tokens – Java Statements – Implementing Java – Java Virtual Machine – Command Line Arguments.	12
Unit II	Constants, Variables and Data Types – Declaration of variables – Scope of Variables – Symbolic Constants – Operators and Expressions –Arithmetic Operators – Relational Operators – Logical Operators – AssignmentOperators – Increment and Decrement Operators –Conditional Operator – Precedence of Arithmetic Operators - Type Conversions in Expressions – Operator Precedence and Associativity – Decision Making and Branching – Decision Making with If statement – Simple If statement – if-Else statement – Nesting of if-Else statement — the switch statement.	12
Unit III	Decision Making and Looping – The While Statement – the Do statement – The For statement– Classes, Objects and Methods – Defining a Class – Fields Declaration – Methods Declaration – Creating Objects – Accessing Objects – Constructors – Method Overloading – static members – Nesting of Methods – Inheritance – Overriding methods Abstract Methods and classes –Arrays and Strings – Wrapper classes – Enumerate types.	12
Unit IV	Interfaces – Defining Interfaces – Extending Interfaces – Implementing Interfaces – Accessing Interface variables – Packages – Java API Packages– Creating Packages – Accessing a Package – Using a Package – Adding a class to a package — Multithreaded Programming- Creating Threads – Extending the Thread classes – Stopping and Blocking a Thread – Lifecycle of Thread – Using Thread methods.	12

Unit V	Types of Errors – Exception – Syntax of Exception handling code – Multiple catch statements – Using Finally statement – Throwing our own Exceptions - Applet Programming – How Applet differs from Applications –Building Applet Code – Applet Lifecycle – Creating an Executable Applet – Concept of Streams – Stream Classes – Byte-Stream classes – Character Stream classes – Using Streams — Using the file class – I/O functions – Creating of files – Reading / Writing characters – Reading /writing bytes.	12
	Total Contact Hrs	**60**

Pedagogy and Assessment Methods

Chalk and Talk lectures, Group Discussion, Seminar, Interaction, power point presentation

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Balagurusamy. E	Programming With JAVA A Primer	6th Edition, Tata McGraw Hill Publications,New Delhi, India, ISBN-13: 9780070141698.	2019

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	John R. Hubbard	Programming with Java	2nd Edition, Schaum's Outline Series, Tata McGraw Hill Publications, ISBN-13: 9780070589421.	2013
2	Timothy Budd	Understanding Object Oriented Programming with Java	2nd Edition, Pearson Education, ISBN-13: 9780201308815.	2016
3	Deitel&Deitel	Java TM: How to Program	9th Edition, PHI, ISBN-13: 9780136123712	2013
4	iiti.ac.in/people/~tanimad/JavaTheCompleteReference.pdf			
5	http://www.onlineprogrammingbooks.com/learning-java-4th-edition/			
6	https://www.javatpoint.com/serialization-in-java			
7	https://www.journaldev.com/2452/serialization-in-java			
8	https://www.tutorialspoint.com/java/index.htm			

Course Designed by	**Dr. M. Rajasenathipathi**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT205			Title	Batch:	2026 – 2029
				CC IV: Computer Networks	Semester:	II
Lecture Hrs./Week or Practical Hrs./Week	4	Tutorial Hrs./Sem.	–		Credits:	4

Course Objective

To provide a strong background of computer network concepts, a good foundation covering the layers of OSI and TCP/IP model to acquire knowledge and network functionalities into layers.

Course Outcomes

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

CO Number	CO Statement	
CO1	Remember computer network basics, network architecture, and TCP/IP and OSI reference models.	PO1(3), PO3(1), PO5(1), PO7(3), PO10(2), PO13(3), PO15(2)
CO2	Understand the knowledge about essential protocols and their operations.	PO1(3), PO3(2), PO4(2), PO5(2), PO8(2), PO11(3), PO14(2)
CO3	Apply aspects of network security.	PO3(2), PO4(3), PO5(2), PO6(1), PO8(1), PO12(3), PO15(1)
CO4	Familiarize the different types of protocols.	PO1(2), PO3(2), PO5(2), PO8(2), PO10(1), PO13(2)
CO5	Evaluate detection and correction of errors in transmission.	PO3(2), PO4(2), PO5(3), PO8(1), PO10(1), PO12(2), PO13(3), PO15(1)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO14	PO15
CO1	3	-	1	-	1	-	3	-	-	2	-	-	3	-	2
CO2	3	-	2	2	2	-	-	2	-	-	3	-	-	2	-
CO3	-	-	2	3	2	1	-	1	-	-	-	3	-	-	1
CO4	2	-	2	-	2	-	-	2	-	1	-	-	2	-	-
CO5	-	-	2	2	3	-	-	1	-	1	-	2	3	-	1

3 Point Scale – 1, 2, 3

CC IV: Computer Networks

Units	Content	Hrs
Unit I	**Introduction**: Uses of Computer Network-**Network Hardware**: LAN– WAN – MAN – Wireless – Home Networks. **Network Software**: Protocol Hierarchies – Design Issues for the Layers – Connection-oriented and connectionless services – Service Primitives – The Relationship of services to Protocols.	12
Unit II	**Reference Models:** OSI Reference Model– TCP/IP reference Model. **Physical Layer** - Guided Transmission Media: Magnetic Media – Twisted Pair – Coaxial Cable – Fiber Optics. **Wireless Transmission**: Electromagnetic Spectrum.	12
Unit III	**Communication Satellites:** Geostationary, Medium-Earth Orbit, Low Earth-orbit Satellites – Satellites versus Fiber. **Data-Link Layer:** Error Detection and correction–	12
Unit IV	**Network Layer: Routing algorithms:** Shortest path Routing, Flooding, Distance Vector Routing – **Congestion Control Algorithms:** General Principles of Congestion Control, Congestion Prevention Policies. **Transport Layer: Elements of Transport Protocols:** Addressing, Connection Establishment.	12

Unit V	**Application Layer:** DNS –E-mail: Architecture and Services, The User Agent, Message Formats, Message Transfer, Final Delivery. **Case Studies:** Network Security.	12
	Total Contact Hrs	**60**

Pedagogy and Assessment Methods

Chalk and Talk lectures, Group Discussion, Seminar, Interaction, power point presentation

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Andrew S. Tanenbaum	Computer Networks	5th Edition, Prentice Hall, New Delhi, ISBN-13: 978-0-13-212695-3	2016

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Behrouz A. Forouzan	Data Communicationsand Networking	4th Edition, Tata McGraw-Hill Publishing Company Limited, ISBN-13: 978-0070634145.	2017
2	Achyut S.Godbole	Data Communicationsand Networks	2nd ed. Tata McGraw-Hill Publishing Company Limited, ISBN-13: 978-0-07-047297.	2017
3	https://onlinecourses.swayam2.ac.in/cec19_cs07/preview			
4	https://www.tutorialspoint.com/data_communication_computer_network/index.htm			

5	http://www.engppt.com/2009/12/networking-fourozan-ppt-slides.html
6	https://www.slideshare.net/SalihinNirbhoy/basic-computer-networking-tutorial

Course Designed by	**Dr. R. Jayaprakash**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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POLLACHI - 642 001.

Programme:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)
Course Code:	26UCT2A1			Title	Batch: 2026 - 2029
				Allied II: Mathematics II – Operations Research	Semester: II
Lecture Hrs./Week or Practical Hrs./Week	5	Tutorial Hrs./Sem.	–		Credits: 4

Course Objective

Every industrial organization faces multifaceted problems to identify best possible solution to their problems. OR aims to help the executives to obtain optimal solution with the use of OR techniques and to locate best or optimal solution.

Course Outcomes

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

CO Number	CO Statement	
CO1	To recollect the modeling tools and computational tools as well asanalytic skills to evaluate the problems.	PO1(3), PO3(2), PO5(2), PO7(3), PO9(2), PO11(3), PO14(1)
CO2	To understand how to translate real world problem given in words into amathematical formulation.	PO2(1), PO3(2), PO4(3), PO5(2), PO7(3), PO9(2), PO13(3), PO15(1)
CO3	To apply mathematical optimization techniques, existing optimizationtool kits to write computer programs and to implement algorithms and solve problems.	PO1(3), PO3(2), PO4(3), PO5(3), PO6(1), PO10(2), PO13(2), PO14(1)
CO4	To analyze the problem situation leading to better control, better co-ordination, better systems and finally better decisions.	PO2(1), PO3(3), PO4(2), PO5(3), PO8(2), PO10(3), PO12(2), PO15(2)
CO5	To analyze the concept of CPM and PERT	PO1(2), PO3(2), PO4(2), PO5(2), PO8(2), PO10(1), PO12(2), PO14(1)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO14	PO15
CO1	3	-	2	-	2	-	3	-	2	-	3	-	-	1	-
CO2	-	1	2	3	2	-	3	-	2	-	-	-	3	-	1
CO3	3	-	2	3	3	1	-	-	-	2	-	-	2	1	-
CO4	-	1	3	2	3	-	-	2	-	3	-	2	-	-	2
CO5	2	-	2	2	2	-	-	2	-	1	-	2	-	1	-

3 Point Scale – 1, 2, 3

Allied II: Mathematics II –Operations Research

Units	Content	Hrs
Unit I	**Linear Programming Problem:** Graphical Solution Method- General Linear Programming Problem (Definition alone) - Canonical and Standard forms of LPP. **Simplex Method:** Basic Solution and Degenerate Solutions to Linear Equation.	15
Unit II	**Transportation Problem**: North West Corner Method- Least Cost Method- Vogel's Approximation Method-.**Assignment Problem**: Definition-Assignment Algorithm.	15
Unit III	Inventory Control: Introduction – Types of Inventory – Inventory Decision-Economical Order Quantity (EOQ) - Deterministic Inventory Problems.(Simple Problems)	15
Unit IV	Sequencing Problems: Introduction- Problems with n Jobs and 2 Machines-Problems with n Jobs and k Machines.	15
Unit V	**Network Scheduling:** Introduction- Network and Basic Components- Rules of Network Construction- Time calculation in Networks-CPM-PERT-PERT Calculations- Difference between CPM and Pert Network.	15
	Total Contact Hrs	**75**

Pedagogy and Assessment Methods

Chalk and Talk lectures, Group Discussion, Seminar, Interaction, power point presentation

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	KantiSwarup, P.K.Gupta, Man Mohan	Operations Research	Sultan Chand & Sons, New Delhi,Seventh Edition ISBN-13: 978-8180547713	2010

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	R. Paneer Selvam,	Operation Research	Prentice Hall of India Pvt Ltd, second edition	2016
2	https://ncert.nic.in/ncerts/l/lemh206.pdf			
3	https://www.mygreatlearning.com/blog/transportation-problem-explained/			
4	https://www.researchgate.net/publication/245280760_Deterministic_Inventory_Models_for_Variable_Production			
5	https://link.springer.com/chapter/10.1007%2F978-3-662-08011-5_10			
6	https://en.wikipedia.org/wiki/Network_congestion			

Course Designed by	**Dr. K. S. Leelavathi**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT2A2			Title	Batch:	2026 - 2029
				GE II – Allied II: Mathematics II – Statistics	Semester:	II
Lecture Hrs./Week or Practical Hrs./Week	5	Tutorial Hrs./Sem.	–		Credits:	4

Course Objective

Learning various statistical methods like central tendency, dispersion, correlation and regression, probability and sampling theory.

Course Outcomes

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

CO Number	CO Statement	
CO1	To remember the formula of different Means, Median, Mode, Deviations, Correlation, Regression, Probability, Chi square test, Degree of Freedom, etc..	PO1(3), PO3(2), PO5(2), PO8(3), PO10(3), PO12(2), PO14(1), PO15(2)
CO2	To understand the concepts Central tendency, Dispersion, Correlation and regression, Probability and Sampling theory.	PO2(1), PO3(2), PO5(2), PO8(1), PO10(2), PO11(1), PO12(3), PO15(3)
CO3	To solve the problems by using formula to apply the programs.	PO1(3), PO3(2), PO4(3), PO5(2), PO7(2), PO10(2), PO14(2)
CO4	To analyze the solution is right or wrong.	PO2(1), PO3(3), PO5(3), PO6(1), PO8(2), PO11(3), PO14(3)
CO5	To evaluate the results through the program outputs	PO1(2), PO3(2), PO4(2), PO5(3), PO7(1), PO9(1), PO10(3), PO13(2), PO15(1)

Mapping

POs / COs	PO1	PO2	PO 3	PO 4	PO 5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2	PO1 3	PO14	PO15
CO1	3	-	2	-	2	-	-	3	-	3	-	2	-	1	2
CO2	-	1	2	-	2	-	-	1	-	2	1	3	-	-	3
CO3	3	-	2	3	2	-	2	-	-	2	-	-	-	2	-
CO4	-	1	3	-	3	1	-	2	-	-	3	-	-	3	-
CO5	2	-	2	2	3	-	1	-	1	3	-	-	2	-	1

3 Point Scale – 1, 2, 3

GE II – Allied II: Mathematics II –Statistics

Units	Content	Hrs
Unit I	Measures of central tendency: Mean: Arithmetic Mean, Weighted Arithmetic Mean, Combined Arithmetic Mean, Geometric Mean, Harmonic Mean, Median and mode – Relation between mean, median and mode.	15
Unit II	Dispersion: Range - Mean deviation - Standard deviation - Coefficient of Variation – Quartile Deviation. Correlation: Karl Pearson's Coefficient of Correlation – Rank correlation.	15
Unit III	Regression: Regression Equations - Difference between correlation & Regression. Probability: Permutation and Combination- Important terms in probability.	15
Unit IV	Measurement of Probability: Classical Approach- Relative Frequency theory of probability, Personalistic View of Probability, Axiomatic Approach of Probability.	15

Unit V	Theorems of Probability: Addition, /Multiplication, Odds Sampling Theory and Test of Significance: Introduction – Estimation theory – Testing of hypothesis – Testing if significance for large samples and small samples. Chi Square Test: Introduction – x^2test, Degrees of freedom.	15
	Total Contact Hrs	75

Pedagogy and Assessment Methods

Chalk and Talk lectures, Group Discussion, Seminar, Interaction, power point presentation

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Pillai R. S. N. Bagavathi V,	Statistical Methods	8th Edition, Sultan Chandand Sons & Company Ltd. New Delhi.	2019

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Gupta. S.C. Kapoor. V.K.	Fundamentals of Mathematical Statistics.	11th edition. S. Chand and Sons.	Reprint 2014
2	Statistics Tutorial | Tutorialspoint			
3	A Complete Tutorial On Statistics And Probability | Edureka			
4	https://books.google.co.in/books?id=FmuH3IcYIRYC&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false			
5	https://content.kopykitab.com/ebooks/2016/07/8069/sample/sample_8069.pdf			

6	https://www.gacwrmd.in/learning/Maths/STATISTICS-I-%207BMA5C2.pdf

Course Designed by	**Dr. K. S. Leelavathi**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

Dr. M. RAJASENATHIPATHI M.A.,M.C.A.,M.Phil.,Ph.D.
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Dr. R. MANICKA CHEZIAN M.Sc.,M.S.,Ph.D.,
PRINCIPAL i/c
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Pollachi - 642 001, Coimbatore District.

Programme Code:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT206			Title	Batch:	2026 - 2029
				CC Lab - II : Object Oriented Programming with Java	Semester:	II
Lecture Hrs./Week or Practical Hrs./Week	4	Tutorial Hrs./Sem.	–		Credits:	2

Course Objective

To utilize java programming concepts for developing, compiling and running java applications and applets.

Course Outcomes

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

CO Number	CO Statement	
CO1	Understand the basic concepts of Java Programming with emphasis on ethicsand principles of professional coding	PO1(3), PO2(2), PO4(2), PO7(2), PO10(1), PO13(2)
CO2	Demonstrate the creation of objects, classes and methods and the concepts of constructor, methods overloading, Arrays, branchingand looping	PO1(3), PO3(2), PO4(3), PO5(2), PO8(1), PO12(2), PO14(2)
CO3	Create data files and Design a page using AWT controls and Mouse Events inJava programming Implement the concepts of code reusability and debugging.	PO2(3), PO3(2), PO5(1), PO7(2), PO10(3),PO11(1), PO14(3), PO15(1)
CO4	Develop applications using Strings, Interfaces and Packages and applets	PO1(2), PO4(3), PO5(2), PO8(1), PO10(2), PO12(3)
CO5	Construct Java programs using Multithreaded Programming andException Handling	PO3(2), PO4(3), PO5(3), PO6(1), PO11(1),PO13(2), PO15(1)

Mapping

POs / COs	PO1	PO2	PO 3	PO 4	PO 5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15
CO1	3	2	-	2	-	-	2	-	-	1	-	-	2	-	-
CO2	3	-	2	3	2	-	-	1	-	-	-	2	-	2	-
CO3	-	3	2	-	1	-	2	-	-	3	1	-	-	3	1
CO4	2	-	-	3	2	-	-	1	-	2	-	3	-	-	-
CO5	-	-	2	3	3	1	-	-	-	-	1	-	2	-	1

3 Point Scale – 1, 2, 3

Content	Hrs
Sample Programs 1. Write a Java program to implement the Stack operations. 2. Write a Java program to implement the Queue operations. 3. Write Java programs that use both recursive and non recursive functions for implementing the following searching methods: (a) Linear search (b) Binary search 4. Write a java program to illustrate the concept of Package creation. 5. Write a java program to illustrate the concept of threading. 6. Write a java program to illustrate the concept of synchronization. 7. Write a java program to illustrate the concept of Exception Handling Mechanism. 8. Write a java program to develop an Applet. 9. Write a java program to implement to the concept of decision making statements. 10. Write a java program using file concept.	60
Total Contact Hours	60

Pedagogy and Assessment Methods

Group Discussion, Seminar, Interaction, power point presentation

Course Designed by	**Dr. M. Rajasenathipathi**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Dr. R. MANICKA CHEZIAN M.Sc.,M.S.,Ph.D.,
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Pollachi - 642 001, Coimbatore District.

Programme Code:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT2S1			Title	Batch:	2026 - 2029
				SEC I: Naan Mudhalvan : Data Visualization Tools Lab	Semester:	II
Lecture Hrs./Week or Practical Hrs./Week	2	Tutorial Hrs./Sem.	–		Credits:	1

Course Objective

To understand the importance of data visualization for business intelligence and decision making.

Course Outcomes

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

CO Number	CO Statement	
CO1	Use Power BI for data visualization	PO1(3), PO3(2), PO5(2), PO7(1), PO8(1), PO10(2), PO11(2), PO13(1), PO15(2)
CO2	Apply data visuals to convey trends in data over time using Power BI	PO1(3), PO2(1), PO6(1), PO9(1), PO10(3), PO11(2), PO13(1), PO14(1), PO15(2)
CO3	Construct effective data visuals to solve workplace problems and able to create table, matrix visuals to present detailed data in a structured and organized manner.	PO1(2), PO4(3), PO6(2), PO8(2), PO10(1), PO14(2)
CO4	Summarize data and perform basic analysis to identify trends, patterns, and key insights using Power BI visuals and measures.	PO1(3), PO3(2), PO4(3), PO6(2), PO9(2), PO12(1), PO14(2)
CO5	Learn and create effective visualizations7	PO1(2), PO5(3), PO7(1), PO10(3), PO14(2), PO15(3)

Mapping

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15
CO1	3	-	2	-	2	-	1	1	-	2	2	-	1	-	2
CO2	3	1	-	-	-	1	-	-	1	3	2	-	1	1	2
CO3	2	-	-	3	-	2	-	2	-	1	-	-	-	2	-
CO4	3	-	2	3	-	2	-	-	2	-	-	1	-	2	-
CO5	2	-	-	-	3	-	1	-	-	3	-	-	-	2	3

3 Point Scale – 1, 2, 3

Content	Hrs
Sample Programs 1. Write a Power BI "Program" to Import and Clean Excel Data. 2. Write a Power BI "Program" to Resize a Visual. 3. Write a Power BI "Program" to Create a Basic Sales Report. 4. Write a Power BI "Program" to Change the Color of a Visual 5. Write a Power BI "Program" to Visualize Sales Trends Over Time. 6. Write a Power BI "Program" to Calculate Percentage of Total Sales. 7. Write a Power BI "Program" to Filter and Slice Data. 8. Write a Power BI "Program" to Create a Geographical Sales Map. 9. Write a Power BI "Program" to Create a Simple Table Visualization. 10. Write a Power BI "Program" to Create a Clustered Column.	30
Total Contact Hours	**30**

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation Seminar, Quiz, Assignments, Group Task.

Course Designed by	**Dr. R. Jayaprakash**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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SEMESTER- III

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT307			Title	Batch:	2026-2029
				CC V: Python Programming	Semester:	III
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	06		Credits:	04

Course Objective

The course is designed to provide Basic knowledge of Python. Python programming is intended for software engineers, system analysts, program managers and user support personnel who wish to learn the Python programming language.

Course Outcomes

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

CO Number	CO Statement	
CO1	To develop python programs for core python and data types using objects and functions.	PO1(3), PO2(1), PO8(1), PO10(3), PO11(2), PO15(2)
CO2	To develop python programs for List, Stack, Queues.	PO1(3), PO7(1), PO8(2)
CO3	To implement File Objects and Object-Oriented Programming using python.	PO1(3), PO6(1), PO9(1), PO13(1)
CO4	To manage Errors and Exceptions and summarize the Network Programming.	PO1(3), PO6(2), PO9(1), PO13(1)
CO5	Understand and apply Well-Formed Object Oriented Features.	PO1(3), PO6(2), PO9(1), PO14(2), PO15(3)

Mapping

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15
CO1	3	1	-	-	-	-	-	1	-	3	2	-	-	-	2
CO2	3	-	-	-	-	-	1	2	-	-	-	-	-	-	-
CO3	3	-	-	-	-	1	-	-	1	-	-	-	1	-	-
CO4	3	-	-	-	-	2	-	-	1	-	-	-	1	-	-
CO5	3	-	-	-	-	2	-	-	1	-	-	-	-	2	3

3 Point Scale – 1, 2, 3

CC V: Python Programming

Units	Content	Hrs
Unit I	Basics: Python- Variables- Executing Python From the Command Line- Editing Python Files-Python Reserved Words-Basic Syntax-Comments-Strings And Numeric Data Types-Simple Input and Output.	12
Unit II	Control Statements: Control Flow and Syntax-Indenting- If Statement- Relational Operators- Logical Operators- Bit Wise Operators- While Loop- Break and Continue-For Loop-Lists-Tuple -Sets-Dictionaries.	12
Unit III	Functions: Definition- Passing Parameters to a Function-Variable Number of Arguments- Scope-Passing Functions to a Function- Mapping Functions in a Dictionary-Lambda-Modules- Standard Modules- Sys-Math- Time- Dir Function.	12
Unit IV	Error Handling: Run Time Errors-Exception Model-Exception Hierarchy-Handling Multiple Exceptions-Data Streams-Access Modes Writing-Data to a File Reading-Data From a File.	12
Unit V	Object Oriented Features: Classes Principles of Object Orientation-*Creating Classes*-Instance Methods-File Organization-Special Methods-*Class Variables- Inheritance*-Polymorphism-Type Identification-Simple Character Methods.	12
	Total Contact Hrs	**60**

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz,

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Mark Summerfield	"Programming in Python 3 ", A Complete Introduction to the Python Language"	2nd Edition, Addison-Wesley Professional, Boston, USA	2019
2	Anurag Gupta, G P Biswas	Python Programming	McGraw Hill Education, New Delhi, India	2020

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Allen Downey, Jeffrey Elkner, Chris Meyers	Learning With Python	Green Tea Press, Wellesley, Massachusetts	2016
2	Wesley J Chun	Core Python Application Programming.	3rd Edition, Prentice Hall Press Upper Saddle River, NJ, USA	2012
3	http://docs.python.org/3/tutorial/index.html.			
4	http://interactivepython.org/courselib/static/pythonds.			
5	http://www.ibiblio.org/g2swap/byteofpython/read/			
6	https://www.edureka.co/blog/polymorphism-in-python			
7	https://www.programiz.com/python-programming/inheritance			

Course Designed by	**Dr. R. Jayaprakash**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT308			Title	Batch:	2026-2029
				CC VI: Database Management Systems	Semester:	III
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	08		Credits:	04

Course Objective

The learner would have to understood the fundamental concepts of database systems & use the features available in a DBMS package

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Keep in mind Queries in a DBMS, Structure of a DBMSattributes and entity sets	PO1(3), PO2(1), PO3(2), PO4(2), PO5(2), PO8(1), PO10(3), PO11(2), PO15(2)
CO2	Comprehend deep knowledge about the basics of Relational Modeland ACID properties	PO1(3), PO2(1), PO4(2), PO5(3), PO8(2), PO10(2), PO11(2), PO13(3)
CO3	Apply joins and set operators, control structures and embedded SQL for data management and retrieval techniques	PO2(2), PO11(2), PO13(1), PO14(2)
CO4	Analyze the basic issues of transaction processing concurrency control and understand the importance ofNormalization	PO2(2), PO11(2), PO13(3), PO14(1)
CO5	Familiarity on Parallel, Object Oriented & Distributed databases	PO1(3), PO2(2), PO10(3), PO11(3), PO14(2), PO15(3)

Mapping

POs / COs	PO1	PO2	PO3	PO 4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2	PO1 3	PO14	PO15
CO1	3	1	2	2	2	-	-	1	-	3	2	-	-	-	2
CO2	3	1	-	2	3	-	-	2	-	2	2	-	3	-	-
CO3	-	2	-	-	-	-	-	-	-	-	2	-	1	2	-
CO4	-	2	-	-	-	-	-	-	-	-	2	-	3	1	-
CO5	3	2	-	-	-	-	-	-	-	3	3	-	-	2	3

3 Point Scale – 1, 2, 3

CC VI: Database Management Systems

Units	Content	Hrs
Unit I	**Database Concepts – A Relational approach:** Database – Relationships – DBMS – The Relational Data Model – Integrity Rules – Theoretical Relational Languages. **Database Design: Data Modeling and Normalization:** Data Modeling – Dependency – Database Design – Normal forms – Dependency Diagrams –De Normalization.	12
Unit II	**Oracle9i: An Overview:** Personal Database – Client/Server Databases - Oracle9i: An Introduction – The SQL *Plus Environment – SQL – Sample Databases. **Oracle Tables: Data Definition Language (DDL):** Naming Rules and Conventions – Data Types – Constraints – Create, Display, Alter, Drop, *Rename and Truncating Oracle Table**.	12
Unit III	**Working with Tables: Data Management and Retrieval:** DML – Adding a New Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – Retrieving Data from a Table – Arithmetic Operations – Restricting Data with a WHERE clause – Sorting. **Functions and Grouping:** Built-In functions – Grouping Data.	12

Unit IV	**Multiple Tables: Joins and Set operators:** Join – Set Operators. **PL/SQL – A Programming Language:** History – Fundamentals of PL/SQL – PL/SQL Block Structure – Comments – Data Types – *Other Data Types** – Variable Declaration — Assignment Operation – **Control Structures and Embedded SQL:** Control Structures – SQL in PL/SQL – Data Manipulation – Transaction Control Statements.	12
Unit V	**PL/SQL Exceptions and Composite Data Types:** Cursors: Types of Cursor – Implicit cursor – Explicit cursor -Exceptions – Types of Exceptions. Composite Data Types – PL/SQL Records – PL / SQL Tables. **Named Blocks:** Procedures – Functions – Triggers. Case study: Connection of front end and Back end tools.	12
	Total Contact Hrs	**60**

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz,

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Nilesh Shah	Database Systems Using Oracle	Second edition, PHI Pvt. Ltd., New Delhi, India. Indian Reprint	2014

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	ArunMajumdar and Pritimoy Bhattacharya	Database Management Systems	1st Edition, TMH, ISBN-13: 978-0074622391.	2017
2	Gerald V. Post	Database Management Systems	3nd Edition, TMH Publication, ISBN-13: 9780070635265	2018
3	Jonathan Gennick	Oracle SQLPlus Pocket Reference	2nd Edition, E.H. J. Pallett Publication, ISBN-13: 978-0596526887.	2019

4	http://freecomputerbooks.com/An-Introduction-to-Relational-Database-Theory.html
5	https://swayam.gov.in/nd2_cec19_cs05/preview
6	https://www.featuredcustomers.com
7	https://onlinecourses.nptel.ac.in/noc19_cs46/preview
8	https://www.slideshare.net/NILESHX/database-management-system-28774171

Course Designed by	**Dr. C. Keerthana**	C. K
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	M.
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT3A1			Title	Batch:	2026-2029
				Allied:	Semester:	III
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	04	Software Engineering	Credits:	04

Course Objective

To enhance the basic software engineering methods and practices and to learn the techniques for developing software systems

Course Outcomes

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

CO Number	CO Statement	KnowledgeLevel
CO1	Keep in mind layers of process models, Requirement gathering phases design concepts and testing strategies	PO1(3), PO2(2), PO3(2), PO4(2), PO5(2),PO7(1), PO8(2), PO10(2),PO11(2), PO13(1)
CO2	Picture out the main aspects of software engineering and evaluate requirements for a software system and analyzing the requirements through modeling	PO1(3), PO2(2),PO6(3), Po15(2)
CO3	Apply the process of analysis and design using the object-oriented approach	PO1(3), PO2(2), PO4(3),PO5(3),PO11(3),PO 15(3)
CO4	Interpret the design engineering and various Testing tactics	PO1(3), PO2(2),PO7(2), PO8(3), PO10(3), PO15(2)
CO5	Inculcate knowledge on Software engineering concepts in turn gives a roadmapto design a new software project.	PO1(3), PO2(3), PO3(2), PO5(3), PO9(2), PO11(3), PO13(2), PO14(3), PO15(3)

Mapping

POs / COs	PO1	PO2	PO3	PO 4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2	PO1 3	PO14	PO15
CO1	3	2	2	2	2	-	1	2	-	2	2	-	1	-	-
CO2	3	2	-	-	-	3	-	-	-	-	-	-	-	-	2
CO3	3	2	-	3	3	-	-	-	-	-	3	-	2	-	2
CO4	3	2	-	-	-	-	2	3	-	3	-	-	-	-	2
CO5	3	3	2	-	3	-	-	-	2	-	3	-	2	3	3

3 Point Scale – 1, 2, 3

Allied: Software Engineering

Units	Content	Hrs
Unit I	**Introduction to Software Engineering**: The evolving role of software - Changing Nature of Software - Software myths. **A Generic view of process**: Software engineering - A layered technology - The Capability Maturity Model Integration (CMMI).**Process models**: The waterfall model.	12
Unit II	**System Engineering**: Computer-Based Systems – The system engineering Hierarchy. **Requirements Engineering:** Requirements Engineering Tasks – Initiating the Requirements Engineering Process.	12
Unit III	**Building the Analysis Model**: Requirement analysis – Analysis Modeling approaches – Data modeling concepts - Scenario-Based Modeling – Flow - Oriented Modeling – Class-Based Modeling – Creating a Behavioral Model.	12
Unit IV	**Design Engineering**: Design process and Design quality - Design concepts - the design model. **Creating an architectural design**: Software architecture - Data design - Architectural Design.	12
Unit V	**Testing Strategies**: Software Testing Lifecycle- Test strategies for conventional software, Validation testing, System testing - The art of Debugging. **Testing Tactics**: Black - Box and White-Box Testing.	12
	Total Contact Hrs	**60**

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz,

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Roger S. Pressman	Software Engineering, A Practitioner's Approach	7th Edition, TATA McGraw-Hill Publications, New Delhi, India., ISBN-13 : 978-0071267823	2018

Reference Books

S.NO	AUTHOR	- TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Ian Sommerville	Software Engineering	9th Edition, Addison Wesley, ISBN-13: 978-0137035151	2017
2	Stephen Schacht	Software Engineering	7th Edition, New Delhi, Tata McGraw Hill Publishing Company, ISBN-13: 9780070647770.	2012
3	https://nptel.ac.in/courses/106/105/106105218/			
4	https://swayam.gov.in/nd1_noc19_cs70/preview			
5	https://freevideolectures.com/course/4071/nptel-software-project-management			
6	https://www.nptelvideos.com/video.php?id=918			
7	https://www.w3schools.in/sdlc-tutorial/software-development-life-cycle-sdlc/			

Course Designed by	**Dr. C. Keerthana**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	26UCT3A2			Title	Batch:	2026 - 2029
				Allied: Organizational Behaviour	Semester:	III
Lecture Hrs./Week or Practical Hrs./Week	4	Tutorial Hrs./Sem.	-		Credits:	4

Course Objective

This course aims in developing the knowledge in personality, perception, attitudes and motivation and learning about stress management, communication, leadership, organization structure and organization culture and helps to apply the obtained knowledge in their career development.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Recollect the Individual Behaviour and its effects in an organization.	PO1(2), PO2(2), PO3(2), PO4(1), PO5(2), PO7(2), PO9(2), PO12(2), PO13(2), PO15(2)
CO2	Acquire the knowledge about Personality, Perception, Attitudes and Values.	PO1(2), PO11(1), PO12(2)
CO3	Apply Learning and Motivation concepts in an Organization.	PO2(3), PO4(3), PO6(3), PO10(3), PO11(3), PO12(2), PO13(3)
CO4	Analyze the various types of Organizational Culture and Organizational Structure.	PO2(3), PO4(3), PO7(3), PO12(3), PO14(3)
CO5	Interpret the various types of leadership and the effects of adaptation to it.	PO1(2), PO2(3), PO8(2), PO9(2), PO11(2), PO12(3), PO15(3)

Mapping

POs / COs	PO1	PO2	PO3	PO 4	PO5	PO6	PO7	PO8	PO9	PO1 0	PO1 1	PO1 2	PO1 3	PO14	PO15
CO1	2	2	2	1	2	-	2	-	2	-	-	2	2	-	2
CO2	2	-	-	-	-	-	-	-	-	-	1	2	-	-	-
CO3	-	3	-	3	-	3	-	-	-	3	3	2	3	-	-
CO4	-	3	-	3	-	-	3	-	-	-	-	3	-	3	-
CO5	2	3	-	-	-	-	-	2	2	-	2	3	-	-	3

3 Point Scale – 1, 2, 3

Allied: Organizational Behaviour

Units	Content	Hrs
Unit I	Introduction: Elements of OB – Nature and Scope of OB - Contributing Disciplines to OB - Foundations of Individual Behaviour: Introduction – The Individual and Individual Differences – Human Behaviour and its Causation – Personality: Concepts – Determinants – Types.	12
Unit II	Perception: Perceptual Process – Factors affecting perception – Improving Perception – Impression management - Attitudes: Concept of Attitudes – Formation of Attitudes – Types of Attitudes - Values: Concept of Value – Types of Values – Formation of Values – Values and Behaviour - Job Satisfaction.	12
Unit III	Learning: Meaning and Definition– Determinants of Learning - Learning Principles – Reinforcement – Punishment – Learning and Behaviour - Motivation: Concepts – Meaning of Motivation – Nature of Motivation – Motivation Cycle or Process – Need for Motivation – Theories of Motivation – Group Behaviour.	12
Unit IV	Organizational Conflicts: Definition of Conflict – Sources of Conflict – Types of Conflicts – Aspects of Conflicts – Functional Conflict – Dysfunctional Conflict – Conflict Process – Conflict Management - Job Frustration - Stress Management.	12
Unit V	Communication: Nature and Need for Communication – Communication Process – Communication Channel – Communication Networks –Communication Barriers – Effective Communication - Leadership – Organizational Culture: Types–Functions – Team Building.	12
	Total Contact Hrs	**60**

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz, Assignments, Group Task.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Roger S. Pressman	Software Engineering, A Practitioner's Approach	7th Edition, TATA McGraw-Hill Publications, New Delhi, India. ISBN-13: 978-0071267823	2018

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Ian Sommerville	Software Engineering	9th Edition, Addison Wesley, ISBN-13: 978-0137035151	2017
2	Stephen Schacht	Software Engineering	7th Edition, New Delhi, Tata McGraw Hill Publishing Company, ISBN-13: 9780070647770.	2012
3	https://nptel.ac.in/courses/106/105/106105218/			
4	https://swayam.gov.in/nd1_noc19_cs70/preview			
5	https://freevideolectures.com/course/4071/nptel-software-project-management			
6	https://www.nptelvideos.com/video.php?id=918			
7	https://www.w3schools.in/sdlc-tutorial/software-development-life-cycle-sdlc/			

Course Designed by	**Dr. K.S. Leelavathi**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT309			Title	Batch:	2026-2029
				CC Lab III: Python Programming Lab	Semester:	III
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	0		Credits:	02

Course Objective

The course is designed to provide Basic knowledge of Python. Python programming is intended for software engineers, system analysts, program managers and user support personnel

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	To develop python programs for list and control statements and understand the Different loops such as "for", "while" and "do-while".	PO1(3), PO2(1), PO3(2), PO4(3), PO5(2), PO8(1), PO10(3), PO11(2), PO15(2)
CO2	To Manage Errors and Exception and summarization of networks	PO1(3), PO7(1), PO8(3), PO9(1), PO10(3), PO11(2), PO13(1), PO14(1)
CO3	To implement File Objects and Object-Oriented Programming using python.	PO1(3), PO4(3), PO7(1), PO8(2), PO13(1), PO14(1)
CO4	Analyze the use control structures in programming.	PO1(3), PO6(3), PO8(2)
CO5	Design Python scripting language to develop innovative real time applications.	PO1(3), PO2(2), PO3(3), PO8(3), PO12(1), PO13(1), PO14(2), PO15(3)

Mapping

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15
CO1	3	1	2	3	2	-	-	1	-	3	2	-	-	-	2
CO2	3	-	-	-	-	-	1	3	1	3	2	-	1	1	-
CO3	3	-	-	3	-	-	1	2	-	-	-	-	1	1	-
CO4	3	-	-	-	-	3	-	2	-	-	-	-	-	-	-
CO5	3	2	3	-	-	-	-	3	-	-	-	1	1	2	3

3 Point Scale – 1, 2, 3

26UCT309

CC Lab III: Python Programming Lab

Content	Hrs
Sample Programs 1. Write a program to display the following information: Your name, Full address, Mobile number, College name, Course. 2. Write a program to find the largest three integers using if-else and conditional operator. 3. Write a program to find first n prime numbers. 4. Write a program to find the product of two matrices. 5. Write a program to find the GCD of two integers. 6. Write a program to print the Fibonacci sequence. 7. Write a GUI program that converts Celsius temperature to Fahrenheit temperature. 8. Write a GUI program that displays your details when a button is clicked. 9. Write a program that opens a specified text file and then displays a list of all unique words Found in the file. 10. Write a program that opens a specified text file and then displays the most frequent words in a text read from a file.	60
Total Contact Hrs	**60**

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz, Assignments,

Course Designed by	**Dr. A. Kalaivani**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT310			Title	Batch:	2026-2029
				CC Lab IV: Database Management Systems Lab	Semester:	III
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	-		Credits:	02

Course Objective

To enable the students to know about database concepts with practical Knowledge

Course Outcomes

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

CO Number	CO Statement	KnowledgeLevel
CO1	Recollect the basic commands such as DDL, DML, TCL	PO1(3), PO2(1), PO3(2), PO4(2), PO5(2), PO8(1), PO10(3), PO11(2), PO15(2)
CO2	Understand about various set, join operations and group functions inPL/SQL	PO1(3), PO2(2), Po3(3), PO4(3), PO5(3), PO7(1), PO8(2), PO10(3)
CO3	Develop various set and join operation in SQL	PO1(3), PO4(3), PO6(1), PO8(1), PO9(1), PO12(3), PO13(1), PO14(1)
CO4	Use PL/SQL stored procedure, stored functions, cursors andpackages to query the database.	PO1(3), PO3(3), PO6(3), PO8(3), PO9(1), PO11(3), PO15(2)
CO5	Validate the PL/SQL cursors, GROUPBY clauses	PO1(3), PO4(3), PO6(3), PO9(1), PO10(3), PO15(2)

Mapping

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15
CO1	3	1	2	2	2	-	-	1	-	3	2	-	-	-	2
CO2	3	2	3	3	3	-	1	2	-	3	-	-	-	-	-
CO3	3	-	-	3	-	1	-	2	1	-	-	3	1	1	-
CO4	3	-	3	-	-	2	-	3	1	-	3	-	-	-	2
CO5	3	-	-	3	-	3	-	-	1	3	2	-	-	-	2

3 Point Scale – 1, 2, 3

26UCT310

CC Lab IV: Database Management Systems Lab

Content	Hrs
Sample Programs **Sample Programs** 1. Write a query for DDL and DML commands. 2. Write a query for TCL commands. 3. Write a query for NOT NULL, CHECK, UNIQUE constraints. 4. Write a query to implement functions in SQL. 5. Write a query for JOIN operations. 6. Write a query to implement set operator 7. Write a SQL program for user-defined exception 8. Write a SQL block to delete and update using trigger. 9. Write a query for the HAVING clause. 10. Write a query for GROUP BY clause	60
Total Contact Hrs	**60**

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz,

Course Designed by	**Dr. A. Kalaivani**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT3N1			Title	Batch:	2026-2029
				Extra Departmental Course (EDC-I) – Annexure-I: Office Automation Lab	Semester:	III
Lecture Hrs./Week or Practical Hrs./Week	01	Tutorial Hrs./Sem.	0		Credits:	01

Course Objective

To familiarize the students in preparation of documents and presentations with office automation tools

Course Outcomes

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

CO Number	CO Statement	KnowledgeLevel
CO1	Keep in mind about the menus and icons functionalities in MSWord	PO1(2), PO2(2), PO10(3), PO11(2), PO15(2)
CO2	Understand and apply mathematical functions to calculate mean,median and standard deviation using Excel.	PO1(2), PO2(2), PO3(2), Po4(2), PO5(2), PO6(1), PO8(1), PO9(1), PO10(3), PO11(2)
CO3	Apply different build in functions and their usage.	PO1(2), PO2(2) PO3(2), Po4(2), PO5(2), PO6(1), PO8(1), PO9(1), PO10(3), PO11(2)
CO4	Prepare a power point presentation for a range of events.	PO1(2), PO2(3), PO7(2), PO10(3), PO11(2), PO12(1), PO13(1), PO14(1)
CO5	Include graphs, tables and images to power point presentation.	PO1(2), PO2(3), PO10(3), PO11(2), PO12(1), PO13(1), PO14(1), PO15(2)

Mapping

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15
CO1	2	2	-	-	-	-	-	-	-	3	2	-	-	-	2
CO2	2	2	2	2	2	1	-	2	1	3	2	-	-	-	-
CO3	2	2	2	2	2	1	-	1	-	3	2	-	-	-	-
CO4	2	3	-	-	-	-	2	-	-	3	2	1	1	1	-
CO5	2	3	-	-	-	-	-	1	-	3	2	1	1	1	2

3 Point Scale – 1, 2, 3

Extra Departmental Course (EDC-I) –Annexure-I: Office Automation Lab

Content	Hrs.
MS WORD 1. Type the text, check spelling and grammar, bullets and numbering list items, align the text to left, right, justify and centre. 2. Prepare a job application letter enclosing your bio-data. 3. Performing mail merge operation and preparing labels. 4. Preparing a neatly aligned, error free document, add header and footer, also perform find and replace operation. 5. Prepare a document in newspaper column layout. **MS EXCEL** 6. Worksheet Using formulas. 7. Worksheet Manipulation for electricity bill preparation. 8. Drawing graphs to illustrate class performance. 9. An excel worksheet contains monthly Sales Details of five companies. **MS POWER POINT** 10. Prepare a power point presentation for Department inaugural function.	15
Total Contact Hrs.	**15**

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz, Assignments, Group Task.

Course Designed by	**Dr. R. Jayaprakash**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT3N2			Title	Batch:	2026-2029
				Extra Departmental Course (EDC-I) – Annexure-I: Multimedia Lab	Semester:	III
Lecture Hrs./Week or Practical Hrs./Week	01	Tutorial Hrs./Sem.	0		Credits:	01

Course Objective

To offer the knowledge of creating and working with digital images and to manipulate them and to develop a presentation package using multimedia tools

Course Outcomes

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

CO Number	CO Statement	KnowledgeLevel
CO1	Keep in mind the concept of Basic Multimedia Techniques	PO1(2), PO2(1), PO3(1), PO4(1), PO5(1), PO10(3), PO11(2), PO15(2)
CO2	Discuss the application of multimedia concepts in the development ofinformation visualization and business applications.	PO1(3), PO2(2), PO3(2), PO4(2), PO5(2), PO9(1), PO10(3), PO12(1), PO13(1), PO14(1)
CO3	Validate the creation of a simple applications using multimedia tools	PO1(3), PO4(3), PO5(2), PO7(2), PO8(2), PO10(3), PO12(1)
CO4	Use scripting Techniques for dynamic effects and to validate forminput entry	PO1(3), PO4(3), PO5(3), PO7(1), PO8(2), PO10(3), PO11(3)
CO5	Comprehend and analyse the fundamentals of animation, virtualreality, underlying technologies, principles and applications.	PO1(3), PO2(2), PO8(3), PO9(1), PO10(3), PO11(3), PO15(3)

Mapping

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15
CO1	2	1	1	1	1	-	-	-	-	3	2	-	-	-	2
CO2	3	2	2	2	2	-	-	-	1	3	-	1	1	1	-
CO3	3	-	-	3	2	-	2	2	-	3	-	1	-	-	-
CO4	3	-	-	3	3	-	1	2	-	3	3	-	-	-	-
CO5	3	2	-	-	-	-	-	3	1	3	3	-	-	-	3

3 Point Scale – 1, 2, 3

Extra Departmental Course (EDC-I) –Annexure-I: Multimedia Lab

Content	Hrs
Sample Programs 1. Cropping images using Lasso Tool 2. Designing Pictures using Paint Tools 3. Designing Text using Text Tools 4. Applying Layer Effects to Images and Texts 5. Designing an Employee or Student ID card 6. Designing a seasonal greetings 7. Design a photograph applying Filter effects 8. Design an invitation for a conference 9. Design a brochure or poster for a technical symposium 10. Designing a Flexible banner for your college	15
Total Contact Hrs	15

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz, Assignments, Group Task.

Course Designed by	**Dr. C. Keerthana**	C. Keerthana
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	M. Rajasenathipathi
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	R. Manickachezian

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SEMESTER- IV

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT411			Title	Batch:	2026-2029
				CC VII: LINUX Programming	Semester:	IV
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	4		Credits:	03

Course Objective

This course introduces basic understanding of Linux OS, Linux commands and File system and to Familiarize students with the Linux environment.

Course Outcomes

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

CO Number	CO Statement	
CO1	Remember the operating system architecture and low level interfaces that are required to build Linux systems	PO1(3), PO3(1), PO4(2), PO5(2), PO8(1), PO15(1)
CO2	Understand different commands used by system administrator and file related commands	PO2(2), PO3(2), PO10(3), PO11(1)
CO3	Apply various Linux operating system commands and utilities in Linux systems	PO1(3), PO7(3), PO11(2), PO13(1)
CO4	Evaluate the shell scripts with different programming goals	PO1(2), PO3(3), PO6(3), PO8(2), PO11(2),PO14(1)
CO5	Analyze different types of shell associated commands	PO2(2), PO4(3), PO6(1), PO9(3), PO10(2), PO13(2), PO15(2)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	3	-	1	2	2	-	-	1	-	-	-	-	-	-	1
CO2	-	2	2	-	-	-	-	-	-	3	1	-	-	-	-
CO3	3	-		-	-	-	3	-	-	-	2	-	1	-	-
CO4	2		3	-	-	3		2		-	2	-	-	1	-
CO5	-	2	-	3	-	1	-	-	3	2	-	-	2	-	2

3 Point Scale – 1, 2, 3

CC VII: LINUX Programming

Units	Content	Hrs
Unit I	**Introduction:** Hardware Requirements for Linux – Salient Features – Multiuser Capability, Multitasking Capability, Communication, Security, Portability –Linux System Organization – Types of Shells – Bourne Shell, C shell, Korn Shell - Unix Commands. **Unix File System:** Creating Files – Indulging in File Play – Listing Files and Directories – Masking File Permissions – Directory Permissions – Removing File Forcibly – Directory Related Commands – Miscellaneous Commands.	12
Unit II	**File System:** The Boot Block, The Super Block, The Inode Table, Data Blocks – Storage of Files – Disk Related Commands – Disk Usage. **Essential Linux Commands:** Password - cal command – banner command –touch command – file command – Links with DOS – File Related Commands –wc, sort, cut, grep, dd – Viewing Files – File Compression.	12
Unit III	**VI Editor:** Modes of Operations – Learning the Ropes – Adding Text, Delete Text, Overwriting Text, Quitting vi – Block Commands – Search Strings – Find and Replace, Delete and Paste, Yank and Paste – Set Command – Customizing vi Environment – Multiple File Editing in vi. **Processes in Linux:** ps command – Background Process – The nohup Command Killinga Process – Changing Process Priorities – Scheduling of Processes –'at' command – 'batch' command – 'crontab' command.	12
Unit IV	**Programming with Shell:** Introduction to shell script-creation and execution-system variables-profile-read statement-command line arguments-logical operators && and ||-exit-if conditional-case-while statement-for set-shift-trap statement.	12
Unit V	**System Administration:** System Administrator-Booting and shutting down-super user status (su) - security-user services - disk management (fsck) - operation -file system administration-backups utilities.	12
	Total Contact Hrs	**60**

Pedagogy and Assessment Methods

Chalk and Talk lectures, Group Discussion, Seminar, Interaction, power point presentation

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	YashavantKanetkar	UNIX Shell Programming (Unit I – III)	BPB Publications, New Delhi, India, 3rd Edition	2016
2	Sumitabha das	UNIX System Concepts and Applications(Unit IV,V)	Tata McGraw , New Delhi, India- Hill, Fourth edition	2014

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Mark.G.Gobell	Red Hat LINUX-Reference Manual	Pearson education	2014
2	https://www.tutorialspoint.com/unix			
3	https://lecturenotes.in/subject/455/linux-programming-lp			
4	https://linuxconfig.org/linux-command-line-tutorial			
5	https://www.guru99.com/unix-linux-tutorial.html			
6	https://onlinecourses.swayam2.ac.in/aic20_sp26/preview			

Course Designed by	**Dr. C. Keerthana**	C. K
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	M. Raja
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	R. M

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT412			Title	Batch:	2026-2029
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	04	CC VIII: Operating Systems	Semester:	IV
					Credits:	03

Course Objective

To recognize the concepts and principles, techniques and approaches which constitute a coherent body of knowledge in operating systems.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Keep in mind about operating system services, process, schedulingand memory allocations	PO1(3), PO3(1), PO4(2), PO8(2)
CO2	Comprehend the various process management concepts includingscheduling, synchronization, and deadlocks	PO1(3), PO3(2), PO4(2), PO5(2), PO9(3), PO13(2), PO14(1)
CO3	Implement CPU Scheduling algorithms for process scheduling anddeploy a deep knowledge about the memory management concepts.	PO1(3), PO5(2), PO7(1), PO10(2), PO12(2), PO15(2)
CO4	Review synchronization problems, accessing methods in Files, Diskscheduling	PO1(2), PO3(3), PO5(2), PO8(2), PO11(3)
CO5	Demonstrate an understanding of different I/O techniques inoperating system	PO1(2), PO3(1), PO4(2), PO10(2), PO11(1),PO15(1)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	3	-	1	2	-	-	-	2	-	-	-	-	-	-	-
CO2	3	-	2	2	2	-	-	-	3	-	-	-	2	1	-
CO3	3	-	-	-	2	-	1	-	-	2	-	2	-	-	2
CO4	2	-	3	-	2	-	-	2	-	-	3	-	-	-	-
CO5	2	-	1	2	-	-	-	-	-	2	1	-	-	-	1

3 Point Scale – 1, 2, 3

CC VIII: Operating Systems

Units	Content	Hrs
Unit I	Introduction: What is an Operating System – Evolution of Operating system **Operating- System Structures**: System Components- Operating System Services – System Calls – System Programs – System Structure.	12
Unit II	**Process Management**: Process Concept – Process scheduling. **Threads:** Overview – Benefits- User and Kernel Threads- Multithreading Models. **CPU Scheduling**: Scheduling Criteria – Scheduling Algorithms. **Process Synchronization:** The Critical-Section Problem – Semaphores – Classic problems of Synchronization.	12
Unit III	**Deadlocks**: Deadlock Characterization – Methods for handling Deadlock – Deadlock prevention – Deadlock avoidance – Deadlock detection – Recovery from Deadlock – **Storage Management**: Swapping – Contiguous Memory allocation – Paging – Segmentation.	12
Unit IV	**Virtual memory**: Demand Paging –Page Replacement: FIFO Page Replacement – Optimal Page Replacement – LRU Page Replacement. **File-System Interface**: File concept – Access methods – Directory Structure.	12
Unit V	**File-System Implementation**: File System Structure – Allocation methods. **Mass Storage Structure:** Disk Structure – Disk Scheduling. **Case study:** Linux, Windows XP, Android OS (Memory management).	12
	Total Contact Hrs	**60**

Pedagogy and **Assessment Methods**

Chalk and Talk lectures, Group Discussion, Seminar, Interaction, power point presentation

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Abraham Silberschatz, Peter Baer Galvin, Greg Gagne	Operating System Concepts	9th Edition, John Wiley and Sons, New York, USA ISBN-13 9789812530554	2017

Reference Books

S.No	Author	Title of The Book	Publishers \ Edition	Year Of Publication
1	Achyut.S Godbole	Operating Systems	1st Edition, TMH Publications, ISBN- 9780070591134.	2010
2	H. M Deitel	Operating Systems	3rd Edition, Pearson Education Publication, ISBN 13: 9780536212153.	2012
3	http://nptel.ac.in/courses/106108101/13			
4	https://developer.android.com/topic/performance/memory-overview.html			
5	https://www.geeksforgeeks.org/operating-system-types-operating-systems-awaiting-author/			
6	https://www.slideshare.net/ashanrajpar/operating-system-presentation-60556413			
7	https://www.os-book.com/OS9/slide-dir/index.html			

Course Designed by	**Dr. K.S.Leelavathi**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Nallamuthu Gounder Mahalingam College
Pollachi - 642 001, Coimbatore District.

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT4A1			Title	Batch:	2026-2029
				GE IV: Allied:	Semester :	IV
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	03	Artificial Intelligence and Machine Learning	Credits:	04

Course Objective

To embed a deep knowledge about search techniques, reasoning, game playing, expert systems

To familiarize students with a broad cross-section of models and algorithms for machine learning, and prepare students for research or industry application of machine learning techniques.

Course Outcomes

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

CO Number	CO Statement	
CO1	Learn about the artificial intelligence problem, the characteristics of the problem space	PO1(3), PO3(1), PO4(2), PO7(3), PO11(3), PO13(2)
CO2	Understand the problem solving using predicates and predict the continuous class variable using linear regression analysis.	PO1(2), PO3(2), PO5(2), PO10(2), PO14(1)
CO3	Apply the concepts of game playing techniques and predict the binary class variable using algorithms.	PO1(3), PO2(2), PO4(3), PO5(2),PO9(3), PO10(2), PO13(1)
CO4	Analyze AI problem to be solved and its application in business	PO1(2), PO3(3), PO5(2), PO6(1), PO8(1), PO12(2)
CO5	Apply the assessment method to find the better number of PCA and Clusters for the given data	PO1(2), PO3(2),PO5(3), PO6(1),PO8(1),PO10(2),PO11(1), PO15(1)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	3	-	1	2	-	-	3	-	-	-	3	-	2	-	-
CO2	2	-	2	-	2	-	-	-	-	2	-	-	-	1	-
CO3	3	2	-	3	2	-	-	-	3	2	-	-	1	-	-
CO4	2	-	3	-	2	1	-	1	-	-	-	2	-	-	-
CO5	2	-	2	-	3	1	-	1	-	2	1	-	-	-	1

3 Point Scale – 1, 2, 3

GE IV - Allied: Artificial Intelligence and Machine Learning **26UCT4A1**

Units	Content	Hrs
Unit I	Introduction – Artificial Intelligence – **Search and Problem Solving:** Problem Solving – Find the Goal and Formulate the goal – Design the problem and problem formulation – Search and Executions – Steps involved in Problem Solving – Real-time Examples for Problem solving.	12
Unit II	**Search and Problem Solving:** Greedy Best First Search Algorithm - A* Search Algorithm. **Local Search:** Introduction to Local Search – Hill Climbing Local Search Algorithm – Simulated Annealing – Genetic Algorithms.	12
Unit III	**An Introduction to Machine Learning:** Machine Learning – Types of Machine Learning – Visualization examples for types of Machine Learning – Training Validations and Testing Datasets. **Data workflow and Data Mining:** Definition of Data – Types of attributes – Characteristics of Data - Data Quality Problems – Data Pre-processing – Confusion Matrix – Performance Evaluation – Challenges of Machine Learning.	12
Unit IV	**Linear Regression Models:** Linear Regression - **Classification:** Classification Types – Logistics Regression – Binary Classification Vs Multi Classification	12
Unit V	**Decision Tree:** Decision Tree - Decision Tree example – Instance Based Learning **Algorithms:** K-Nearest Neighbour Classifier –**Support Vector Machine:** Support Vector Machine Basics - Support Vector Machine Logic.	12
	Total Contact Hrs	**60**

Pedagogy and **Assessment Methods**

Chalk and Talk lectures, Group Discussion, Seminar, Interaction, power point presentation

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Manikandan Pancerselvam	An Introduction to Artificial Intelligence and Machine Learning	S. Chand Publishing, New Delhi, India , First Edition, ISBN-978-93-587-0395-5	2024

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Munesh Chandra Trivedi	A Classical Approach to Artificial Intelligence	2nd Edition, Khanna Book Publishing Co. Pvt. Ltd., ISBN: 978-81-90698-89-4	2022
2	Ethem Ipaydm	Introduction to Machine Learning	The MIT Press	2016
3	https://www.geeksforgeeks.org/machine-learning/			
4	https://www.cs.cmu.edu/~hn1/tex/machine-learning/notes.pdf			
5	https://www.tutorialspoint.com/machine_learning/machine_learning_tutorial.pdf			
6	https://u-aizu.ac.jp/~qf-zhao/TEACHING/ML/ML.html			
7	https://www.javatpoint.com/machine-learning-techniques			

Course Designed by	**Dr. R. Jayaprakash**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT4A2			Title	Batch:	2026-2029
				GE IV – Allied IV:	Semester:	IV
Lecture Hrs./Week or Practical	4	Tutorial Hrs./Sem.	2	: Software Testing	Credits:	04
Hrs./Week						

Course Objective

To study fundamental concepts in software testing and discuss various software testing issues and solutions in software unit test, integration and system testing.

To List a range of different software testing techniques and strategies and be able to apply specific automated unit testing method to the projects.

Course Outcomes

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

CO Number	CO Statement	
CO1	Understand the basic concepts and the processes that lead to software testing	PO1(3), PO3(1), PO4(2), PO8(1), PO11(1)
CO2	Design test cases from the given requirements using Black box testing techniques	PO1(3), PO3(2), PO4(3), PO5(2), PO7(1), PO10(2)
CO3	Identify the test cases from Source code by means of white box testing techniques	PO1(3), PO3(2), PO4(3), PO5(2),PO8(1), PO10(2)
CO4	Know about user acceptance testing and generate test cases for it	PO1(2), PO2(1), PO3(2), PO4(2), PO7(1), PO9(1), PO10(2), PO12(1), PO13(2), PO14(1)
CO5	Examine the test adequacy criteria to complete the testing process	PO1(2), PO3(3),PO4(2), PO5(3),PO6(1),PO8(1),PO9(1), PO11(1), PO13(2), PO15(2)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	3	-	1	2	-	-	-	1	-	-	1	-	-	-	-
CO2	3	-	2	3	2	-	1	-	-	2	-	-	-	-	-
CO3	3	-	2	3	2	-	-	1	-	2	-	-	-	-	-
CO4	2	1	2	2	-	-	1	-	1	2	-	1	2	1	-
CO5	2	-	3	2	3	1	-	1	1	-	1	-	2	-	2

3 Point Scale – 1, 2, 3

GE IV – Allied IV: Software Testing

Units	Content	Hrs
Unit I	Software Development Life Cycle models: Phases of Software project – Quality, Quality Assurance, Quality control – Testing, Verification and Validation – Process Model to represent Different Phases - Life Cycle models. White-Box Testing: Static Testing – Structural Testing – Challenges in White-Box Testing.	12
Unit II	Black-Box Testing: What is Black-Box Testing? - Why Black-Box Testing? – When to do Black Box Testing? – How to do Black-Box Testing? – Challenges in White Box Testing - Integration Testing: Integration Testing as Type of Testing – Integration Testing as a Phase f Testing – Scenario Testing – Defect Bash.	12
Unit III	System and Acceptance Testing: system Testing Overview – Why System testing is done? – Functional versus Non-functional Testing - Functional testing - Non-functional Testing – Acceptance Testing – Summary of Testing Phases.	12
Unit IV	Factors governing Performance Testing – Methodology of Performance Testing – tools for Performance Testing – Process for Performance Testing – Challenges. Regression Testing: What is Regression Testing? – Types of Regression Testing – When to do Regression Testing – How to do Regression Testing – Best Practices in Regression Testing.	12
Unit V	Test Planning, Management, Execution and Reporting: Test Planning – Test Management – Test Process – Test Reporting –Best Practices. Test Metrics and Measurements: Project Metrics – Progress Metrics – Productivity Metrics – Release Metrics.	12
	Total Contact Hrs	

Pedagogy and Assessment Methods

Chalk and Talk lectures, Group Discussion, Seminar, Interaction, power point presentation

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Srinivasan Desikan and Gopalswamy Ramesh	Software Testing Principlesand Practices	Pearson Education, New Delhi, India	2016
2	Limaye M.G	Software Testing Principles, Techniques and Tools	Second Reprint, Tata McGraw-Hill Publishing Company Limited, New Delhi, India.	2010

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	William E. Perry,	Effective Methods of Software Testing	Wiley India, 3rd ed,	2017
2	Renu Rajani, Pradeep Oak,	Software Testing	TMH, 3rd ed,	2014
3	https://nptel.ac.in/courses/106/101/106101163/			
4	https://www.guru99.com/software-testing-seven-principles.html			
5	https://www.geeksforgeeks.org/software-engineering-seven-principles-of-software-testing/			
6	http://www.cse.hcmut.edu.vn/~hiep/KiemthuPhanmem/Taiheuthamkhao/Introduction%20to%20Software%20Testing.pdf			
7	https://www.tutorialspoint.com/software_testing/index.htm			

Course Designed by	**Dr. A. Kalaivani**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT413			Title	Batch:	2026-2029
				CC Lab V: LINUX Programming Lab	Semester:	IV
Lecture Hrs./Week or Practical Hrs./Week	3	Tutorial Hrs./Sem.	0		Credits:	02

Course Objective

To enable the students to write program in Linux for solving specified problems.

Course Outcomes

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

CO Number	CO Statement	
CO1	Apply the various Linux distributions.	PO1(2), PO3(1), PO4(2), PO7(2), PO10(2), PO11(1),PO14(2)
CO2	Evaluate the basic set of commands and utilities in Linux systems.	PO2(1), PO4(3), PO5(2), PO8(1), PO10(3), PO11(3), PO13(2)
CO3	Validate various shell scripts with different programming concepts.	PO1(3), PO3(2), PO5(2), PO6(1),PO7(3), PO9(3), PO12(2), PO15(2)
CO4	Apply and change the ownership and file permissions using advance Unix commands.	PO3(2), PO4(3), PO5(2), PO8(2), PO10(3), PO11(1), PO13(1)
CO5	Create shell scripts for real time applications.	PO1(2), PO2(2),PO5(3), PO6(1),PO8(1),PO10(2),PO11(2), PO13(1), PO15(2)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	2	-	1	2	-	-	2	-	-	2	1	-	-	2	-
CO2	-	1	-	3	2	-	-	1	-	3	3	-	2	-	-
CO3	3	-	2	-	2	1	3	-	3	-	-	2	-	-	2
CO4	-	-	2	3	2	-	-	2	-	3	1	-	1	-	-
CO5	2	2	-	-	3	1	-	1	-	2	2	-	1	-	2

3 Point Scale – 1, 2, 3

CC Lab V: LINUX Programming Lab

Content	Hrs.
List of Programs 1. Write a shell script to stimulate the file commands: rm, cp, cat, mv, cmp, wc, split 2. Write a Shell Script to implement the following: pipes, Redirection and commands. 3. Write a shell script for displaying current date, user name, file listing and directories by getting user choice. 4. Write a shell script to implement the filter commands. 5. Write a shell script to remove the files which has file size as zero bytes. 6. Write a shell script to find the sum of the individual digits of a given number. 7. Write a shell script to implement command line arguments. 8. Write a shell script for executing control statements 9. Write a shell script to print the multiplication table of the given argument using for loop. 10. Write a shell script to show the following system configuration : a. currently logged user and his log name b. current shell , home directory , Operating System type , current Path setting c. show currently logged number of users, show all available shells d. show CPU information like processor type , speed e. show memory information	45
Total Contact Hrs.	**45**

Pedagogy and Assessment Methods

Group Discussion, Seminar, Interaction, power point presentation

Course Designed by	**Dr. M. Rajasenathipathi**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT414			Title	Batch:	2026-2029
				CC Lab VI: No Code Interface Development (WIX / Framer)	Semester:	IV
Lecture Hrs./Week or Practical Hrs./Week	03	Tutorial Hrs./Sem.	0		Credits:	02

Course Objective

To introduce students to modern no-code development platforms such as WIX and Framer for designing interactive web interfaces.

To enable learners to build responsive websites and UI components without traditional programming, focusing on design, usability, and deployment.

Course Outcomes

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

CO Number	CO Statement	
CO1	Understand the fundamentals of no-code development platforms and their role in modern web design.	PO1(3), PO3(1), PO4(2), PO6(2), PO7(3), PO10(2),PO11(1), PO14(2)
CO2	Create basic web pages and layouts using Wix or Framer interface tools and templates.	PO2(2), PO3(3), PO4(3), PO5(2), PO7(1), PO11(2)
CO3	Design responsive and user-friendly UI components using drag-and-drop design features.	PO1(2), PO2(2), PO5(2), PO7(2),PO8(3), PO9(1), PO10(3), PO13(3), PO15(1)
CO4	Integrate multimedia elements, navigation, and basic interactions in a no-code website project.	PO2(3), PO3(2), PO4(3), PO5(1), PO8(1), PO10(2), PO11(2), PO12(1)
CO5	Publish and manage a fully functional website using Wix or Framer deployment features.	PO1(2), PO2(3),PO3(1), PO5(2),PO6(1),PO9(1),PO10(3), PO12(1), PO14(1), PO15(2)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	3	-	1	2	-	2	3	-	-	2	1	-	-	2	-
CO2	-	2	3	3	2	-	1	-	-	-	2	-	-	-	-
CO3	2	2	-	-	2	-	2	3	1	3	-	-	3	-	1
CO4	-	3	2	3	1	-	-	1	-	2	2	1	-	-	-
CO5	2	3	1	-	2	1	-	-	1	3	-	1	-	1	2

3 Point Scale – 1, 2, 3

CC Lab VI: No Code Interface Development (WIX / Framer)

Content	Hrs.
List of Programs 1. Create a Wix/Framer account and explore the dashboard. 2. Design a simple personal webpage using a template (Name, photo, and description). 3. Create a multi-page website with Home, About, and Contact pages. 4. Add and customize text elements such as headings, paragraphs, and fonts. 5. Insert images and image galleries in a webpage. 6. Design a navigation menu and link it to multiple pages. 7. Create a responsive webpage layout suitable for desktop and mobile view. 8. Add buttons and hyperlinks to navigate between pages or external websites. 9. Embed multimedia elements such as videos or audio in the webpage. 10. Create a simple contact form for collecting user details.	45
Total Contact Hrs.	**45**

Pedagogy and Assessment Methods

Group Discussion, Seminar, Interaction, power point presentation

Course Designed by	**Dr. C. Keerthana**	C. +
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	M. Raja
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	R. M. C.

M. RAJASENATHIPATHI M.A., M.C.A., M.Phil., Ph.D.
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT4S1			Title	Batch:	2026-2029
				SEC II: Naan Mudhalvan: Interactive Data Science Lab using Jupyter Notebook	Semester:	IV
Lecture Hrs./Week or Practical Hrs./Week	02	Tutorial Hrs./Sem.	0		Credits:	01

Course Objective

To introduce students to data science concepts using interactive tools like Jupyter Notebook for data analysis and visualization.

To develop practical skills in Python-based data processing, analysis, and presentation of insights use notebooks.

Course Outcomes

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

CO Number	CO Statement	
CO1	Understand the basics of Jupyter Notebook environment and data science workflow.	PO1(3), PO3(1), PO4(2), PO7(3), PO10(2), PO11(1),PO14(2)
CO2	Apply Python programming and libraries to perform basic data analysis tasks.	PO2(3), PO3(2), PO4(3), PO5(2), PO7(3), PO10(3), PO11(1)
CO3	Manipulate and process datasets using data handling techniques.	PO1(2), PO3(2), PO5(3), PO6(1),PO8(1), PO10(3), PO13(3), PO15(1)
CO4	Create data visualizations and charts to interpret and communicate results.	PO2(1), PO4(3), PO5(2), PO7(1), PO8(2), PO9(2), PO11(1)
CO5	Develop an interactive data analysis notebook project integrating data processing and visualization.	PO1(2), PO3(3),PO5(3), PO6(1),PO8(1),PO10(3),PO13(1), PO14(2)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	3	-	1	2	-	-	3	-	-	2	1	-	-	2	-
CO2	-	3	2	3	2	-	3	-	-	3	1	-	-	-	-
CO3	2	-	2	-	3	1	-	1	-	3	-	-	3	-	1
CO4	-	1	-	3	2	-	1	2	2	-	1	-	-	-	-
CO5	2	-	3	-	3	1	-	1	-	3	-	-	1	2	-

3 Point Scale – 1, 2, 3

SEC II: Naan Mudhalvan: Interactive Data Science Lab using Jupyter Notebook

Content	Hrs.
List of Programs 1. Installation and introduction to Jupyter Notebook interface. 2. Write a Python program to perform basic arithmetic operations in Jupyter Notebook. 3. Write a Python program to read and display data from a CSV file. 4. Write a Python program to calculate mean, median, and standard deviation of a dataset. 5. Write a Python program to perform basic data cleaning (remove null values). 6. Write a Python program to filter and sort dataset values. 7. Write a Python program to display dataset information and summary statistics. 8. Write a Python program to create a bar chart using dataset values. 9. Write a Python program to create a line graph to visualize data trends. 10. Write a Python program to create a pie chart for categorical data.	30
Total Contact Hrs.	**30**

Pedagogy and Assessment Methods

Group Discussion, Seminar, Interaction, power point presentation

Course Designed by	**Dr. R. Jayaprakash**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	26UCT4S2			Title	Batch:	2026 - 2029
				SEC II: Naan Mudhalvan : Desktop Publishing Lab	Semester:	IV
Lecture Hrs./Week or Practical Hrs./Week	2	Tutorial Hrs./Sem	0		Credits:	1

Course Objective

To provide the students understanding of the techniques essential to build their career in desktop publishing using suitable hardware and software tools.

Course Outcomes

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

CO Number	CO Statement	
CO1	To keep in mind about the formatted text and graphics.	PO2(2), PO3(1), PO4(2), PO6(3), PO10(2), PO11(3),PO13(2)
CO2	To realize about the Print Industry, Printing technology	PO1(3), PO4(2), PO5(2), PO10(3), PO12(2), PO14(1), PO15(3)
CO3	To validate the Designing standards, Print layout Design and creative visualization for intuitive layout	PO1(3), PO2(2), PO3(2), PO7(1),PO8(2), PO11(2), PO15(1)
CO4	Visualize the special effects, Exporting drawings, outlining & filling objects	PO1(2), PO3(1), PO4(3), PO5(2), PO7(2), PO8(1), PO10(3), PO11(1), PO14(3)
CO5	Drawing lines, shapes .inserting pictures, objects, tables, templates	PO1(3), PO2(2),PO3(2), PO5(2),PO7(1),PO10(3), PO11(1), PO14(1), PO15(3)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	-	2	1	2	-	3	-	-	-	2	3	-	2	-	-
CO2	3	-	-	2	2	-	-	-	-	3	-	2	-	1	3
CO3	3	2	2	-		-	1	2	-	-	2	-	-	-	1
CO4	2	-	1	3	2	-	2	1	-	3	1	-	-	3	-
CO5	3	2	2	-	2	-	1	-	-	3	1	-	-	1	3

3 Point Scale – 1, 2, 3

SEC II: Naan Mudhalvan : Desktop Publishing Lab

Content	Hrs
Sample Programs 1. Bokeh Effect / Blur Background using photoshop 2. To create a Visiting card using Adobe Photoshop tools. 3. To draw a frame using Custom Shape Tool in Shape preset. 4. Convert a color photo to black and white photo. 5. Explain the procedure to Creating a Cover Page for a text book 6. Explain the steps for Designing a Passport Size Photo on a Max Size Paper 7. Explain the elements of Adobe Photoshop window 8. Layers in Photoshop	30
Total Contact Hrs	30

Pedagogy and Assessment Methods

Group Discussion, Seminar, Interaction, power point presentation

Course Designed by	**Dr. K.S.Leelavathi**	
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Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Pollachi - 642 001, Coimbatore District.

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	26UCT4N1			Title	Batch:	2026 - 2029
				Extra Departmental Course (EDC-II) – Annexure-I : Scripting Languages Lab	Semester:	IV
Lecture Hrs./Week or Practical Hrs./Week	1	Tutorial Hrs./Sem	0		Credits:	01

Course Objective

To Understand the concepts of scripting languages for developing web based projects.

Course Outcomes

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

CO Number	CO Statement	
CO1	Understand VB Script language programming constructs and ability to understand the differences between Scripting languages and programming languages	PO1(2), PO3(1), PO4(2), PO6(3), PO11(1), PO13(1),PO15(3)
CO2	Gain knowledge of JavaScript language programming constructs.	PO1(3), PO3(1), PO5(3), PO7(3), PO10(3), PO11(1), PO13(3)
CO3	Understand the important HTML tags for designing static pages and separate design from content using Cascading Style sheet	PO2(2), PO4(3), PO5(2), PO7(1),PO8(2), PO9(1), PO11(2), PO15(1),
CO4	Develop a dynamic web page using client side and server side scripting language.	PO1(3), PO2(2), PO5(2), PO8(1), PO10(3), PO11(2), PO12(1), PO14(1)
CO5	Able to gain some fluency programming in HTML and Java Scripting.	PO2(2), PO3(1),PO4(3), PO5(2),PO7(1),PO10(3), PO11(2), PO14(1), PO15(2)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	2	-	1	2	-	3	-	-	-	-	1	-	1	-	3
CO2	3	-	1	-	3	-	3	-	-	3	1	-	3	-	-
CO3	-	2	-	3	2	-	1	2	1	-	2	-	-	-	1
CO4	3	2	-	-	2	-	-	1	-	3	2	1	-	1	-
CO5	-	2	1	3	2	-	1	-	-	3	2	-	-	1	2

3 Point Scale – 1, 2, 3

Extra Departmental Course (EDC-II) –Annexure-I : Scripting Languages Lab

Content	Hrs
Sample Programs 1. Introduction to basic HTML elements. 2. Use table tag to format web page. Also create the Time Table of your class using table tag . 3. Create your profile page i.e. educational details, Hobbies, Achievement, My Ideals . 4. Create Style sheet to set formatting for text tags and embed that style sheet on web pages created for your site. 5. Design a web page and embed various multimedia features in the page. 6. Write a JavaScript program to determine whether a given year is a leap year in the Gregorian calendar. 7. Write a JavaScript program to convert temperatures to and from Celsius, Fahrenheit 8. Write a program outputs the squares, roots, cubes and complements of integers between 1 and 100. 9. Write a script to Sort numbers and strings. 10. Write a script to create a digital clock.	15
Total Contact Hrs	**15**

Pedagogy and Assessment Methods

Group Discussion, Seminar, Interaction, power point presentation

Course Designed by	**Dr. A. Kalaivani**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Dr. R. MANICKA CHEZIAN M.Sc.,M.S.,Ph.D.,
PRINCIPAL i/c
Nallamuthu Gounder Mahalingam College
Pollachi - 642 001, Coimbatore District.

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	26UCT4N2			Title	Batch:	2026 - 2029
				Extra Departmental Course (EDC-II) – Annexure-I Pencil 2D	Semester:	IV
Lecture Hrs./Week or Practical Hrs./Week	1	Tutorial Hrs./Sem	0		Credits:	01

Course Objective

To learn about the multimedia platform and get to understand the designing concepts.

Course Outcomes

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

CO Number	CO Statement	
CO1	Recall the concepts of 2D animation.	PO1(2), PO3(1), PO5(2), PO8(3), PO11(1), PO13(1),PO15(3)
CO2	Understand the tools and attributes, bitmap and vector graphics used in 2D animation	PO1(3), PO3(2), PO5(3), PO7(3), PO10(3), PO11(1), PO13(3)
CO3	Design and implement various 2D animation effect using Pencil 2D.	PO2(2), PO3(2), PO4(3), PO6(2),PO7(1), PO8(2), PO10(3), PO15(1)
CO4	It is built and designed to meet the demands of today's working designer to create ads or collateral for print or for the web.	PO1(3), PO2(3), PO3(2), PO5(2), PO7(31, PO10(3), PO12(1), PO14(1)
CO5	Apply the various platforms and get to understand the animation techniques and designed to help businesses types of user interfaces for popular desktop platforms.	PO2(2), PO3(1),PO4(3), PO5(1),PO7(1),PO10(3), PO11(2), PO14(1), PO15(2)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	2	-	1	-	2	-	-	3	-	-	1	-	1	-	3
CO2	2	-	2	-	3	-	3	-	-	3	1	-	3	-	-
CO3	-	2	2	3	-	2	1	2	-	3	-	-	-	-	1
CO4	3	3	2	-	2	-	1	-	-	3	-	1	-	1	-
CO5	-	2	1	3	1	-	1	-	-	3	2	-	-	1	2

3 Point Scale – 1, 2, 3

Extra Departmental Course (EDC-II) –Annexure-I : Pencil 2D

Content	Hrs
Sample Programs 1. Create natural scenery using 2D pencil. 2. Create a glossy button using 2D pencil. 3. Apply the filter effect in image or font using 2D pencil. 4. Create a Text animation using 2D pencil. 5. Create a movie clip animation using 2D pencil. 6. Create a Bouncing Ball using 2D pencil. 7. Create a Burning Candle using 2D pencil. 8. Create a Moving Car using 2D pencil.	15
Total Contact Hrs	**15**

Pedagogy and Assessment Methods

Group Discussion, Seminar, Interaction, power point presentation

Course Designed by	**Dr. M. Rajasenathipathi**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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SEMESTER- V

Programme Code:	B.Sc. UCT			Programme Title:	Bachelor of Computer Technology	
Course Code:	26UCT515			Title	Batch:	2026 - 2029
				CC IX: Open Source Technologies (PHP & MySQL)	Semester:	V
Lecture Hrs./Week or Practical Hrs./Week	5	Tutorial Hrs./Sem.	2		Credits:	05

Course Objective

To impart basic knowledge of PHP and MySQL and development of web applications using open source web technologies like Apache, MySQL and PHP (LAMP/XAMP).

Course Outcomes

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

CO Number	CO Statement	
CO1	Obtaining the basic concepts of PHP	PO1(3), PO3(1), PO4(2), PO8(1), PO12(2), PO15(1)
CO2	Gain the basic knowledge on Decision making and Looping	PO2(2), PO6(2), PO10(3), PO11(1), PO14(2)
CO3	Understand the concept in string manipulation and arrays	PO1(3), PO4(2), PO7(3), PO9(1),PO11(2),PO13(1)
CO4	Gain detailed knowledge on MySQL Commands	PO1(2), PO3(3), PO6(3), PO8(2), PO11(2),PO14(1)
CO5	Obtain knowledge about database manipulation using MySQL and design dynamic web pages.	PO2(2), PO4(3), PO6(1), PO9(3), PO10(2), PO13(2), PO15(2)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	3	-	1	2	-	-	-	1	-	-	-	2	-	-	1
CO2	-	2		-	-	2	-	-	-	3	1	-	-	2	-
CO3	3	-		2	-	-	3	-	1	-	2	-	1	-	-
CO4	2		3	-	-	3		2		-	2	-	-	1	-
CO5	-	2	-	3	-	1	-	-	3	2	-	-	2	-	2

3 Point Scale – 1, 2, 3

26UCT515

CC IX: Open Source Technologies (PHP & MySQL)

Units	Content	Hrs
Unit I	**Introducing PHP:** History – Unique features – Basic Development Concepts – Creating your First PHP Script – Sample Applications. **Using Variables and Operators:** Storing Data in Variables – Understanding PHP's Data types – Setting and Checking Variable Data Types – Using Constants – Manipulating Variables with Operators – Handling Form Input.	15
Unit II	**Controlling Program Flow:** Writing Simple Conditional Statements – Writing More Complex Conditional Statements – Repeating Actions with Loops – Working with String and Numeric Functions. **Working with Arrays:** Storing Data in Arrays – Processing Arrays with Loops and Iterations – Using Arrays with Forms – Working with Array Functions – Working with Dates and Times.	15
Unit III	**Using Functions and Classes:** Creating User-Defined Functions – Creating Classes – Using Advanced OOP Concepts. **Working with Files and Directories:** Reading Files – Writing Files – Processing Directories.	15
Unit IV	**Working with Files and Directories:** Performing Other File and Directory Operations. **Working with Databases and SQL:** Introducing Databases and SQL – Creating and Populating a Database – Using PHP's MySQLi Extension.	15
Unit V	**Working with Databases and SQL:** Adding or Modifying Data – Handling Errors. Using PHP's SQLite Extension – Using PHP's PDO Extension – Using a MySQL Database – Switching to a different Database.	15
	Total Contact Hrs	**75**

Pedagogy and Assessment Methods

Chalk and Talk lectures, Group Discussion, Seminar, Interaction, power point presentation

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	VikramVaswani	PHP: A Beginner's Guide	Tata McGraw Hill Publications , New Delhi, Second Reprint	2012

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Alan Forbes	The Joy of PHP: A Beginner's Guide to Programming Interactive Web Applications with PHP and MySQL	Kindle Edition	2020
2	RasmusLerdorf, Kevin Tatroe	Programming PHP	O'Reilly Media , 3rd Edition	2013
3	Luke Welling; Laura Thomson	PHP and MySQL-Web Development	4th Edition	2013
4	Robin Nixon	Learning PHP, MySQL, JavaScript, CSS & HTML5, Third Edition	O'reilly Media	2014
5	https://www.tutorialspoint.com/php/			
6	https://www.siteground.com/tutorials/php-mysql/			
7	https://onlinecourses.swayam2.ac.in/aic20_sp32/preview			
8	https://www.geeksforgeeks.org/php-mysql-database-introduction/			
9	https://www.w3schools.com/php/php_mysql_intro.asp			

Course Designed by	**Dr. C. Keerthana**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	26UCT516			Title	Batch:	2026 - 2029
				CC X: Information and Cyber Security	Semester:	V
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	2		Credits:	05

Course Objective

To understand the essentials of information security and learn the algorithms for implementing security.

Course Outcomes

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

CO Number	CO Statement	
CO1	Remember and understand the fundamentals of security algorithm in various layers.	PO1(3), PO3(1), PO4(2), PO7(2), PO8(1), PO11(2), PO12(1), PO15(1)
CO2	Analyze the various symmetric key and public key algorithms	PO2(3), PO3(2), PO6(3), PO10(3), PO11(1), PO14(2)
CO3	Understand the techniques to secure data in Hash algorithms.	PO1(3), PO3(1), PO5(3), PO7(3), PO9(2), PO11(2), PO12(2), PO13(1)
CO4	Assess cyber security risk management policies in order to adequately protect critical information and assets	PO1(2), PO3(3), PO6(2), PO8(2), PO11(3), PO14(1)
CO5	Analyze the various attacks in networks and discover how to protect personal data, securing simple computer networks, and safe Internet usage	PO2(3), PO4(2), PO6(2), PO9(3), PO10(2), PO13(2), PO15(2)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	3	-	1	2	-	-	2	1	-	-	2	1	-	-	1
CO2	-	3	2	-	-	3	-	-	-	3	1	-	-	2	-
CO3	3	-	1	-	3	-	3	-	2	-	2	2	1	-	-
CO4	2		3	-	-	2		2		-	3	-	-	1	-
CO5	-	3	-	2	-	3	-	-	3	3	-	-	2	-	2

3 Point Scale – 1, 2, 3

CC X: Information and Cyber Security

Units	Content	Hrs
Unit I	**Attacks on Computers and Computer Security**: Introduction – Need For Security – Types Of Attacks. **Cryptography - Concepts and Techniques:** Introduction – Plain Text and Cipher Text – Substitution Techniques - Transposition Techniques – Encryption and Decryption.	18
Unit II	**Symmetric Key Algorithms**: Introduction – Algorithm Types – An Overview Of Symmetric Key Cryptography – **Data Encryption Standard (DES)**: How DES Works? **Asymmetric Key Algorithms, Digital Signature and RSA**: Introduction – The RSA Algorithm.	18
Unit III	**Digital Certificate and Public Key Infrastructure (PKI)**: Digital Certificates: Introduction – The Concept of Digital Certificate – Certificate Authority – Technical Details. The PKIX Model. **Internet Security Protocols:** Introduction –Secure Socket Layer – (SSL) – Secure Hyper Text Transfer Protocol (SHTTP).	18
Unit IV	**Email Security: PGP** – How PGP Works? - **S / MIME: Introduction** – Cryptographic Algorithms used in S/MIME – Security in GSM –Security in 3G.**User Authentication And Kerberos:** Introduction – Authentication Basics – **Passwords:** Introduction – Clear Text Passwords - Kerberos.	18
Unit V	**Cryptography in JAVA**: Introduction – Cryptographic Solution Using JAVA. **Network Security Firewalls and Virtual Private Networks** (VPN): Introduction – **Fire Walls**: Introduction – Types of Firewalls. Virtual Private Networks (VPN) – Intrusion.	18
	Total Contact Hrs	75

Pedagogy and Assessment Methods

Chalk and Talk lectures, Group Discussion, Seminar, Interaction, power point presentation

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Atul Kahate	Cryptography and Network Security	McGraw Hill Education, New Delhi, 3rdEdition	2017

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Mark Rhodes-Ousley, Roberta Bragg, Keith Strassberg	Network Security: The Complete Reference	Tata McGraw-Hill , 1st Edition	2017
2	William Stallings	Cryptography and Network Security Principles and Practices	5th Edition,	2015
3	Brijendrasingh	Network Security and Management	PHI Publication , 3rd Edition	2014
4	Dr.Michael E. Whitman, Herbert J. Mattord	Principles and Practices of Information Security	Course Technology Cengage Learning, 4 th edition	2012
5	https://onlinecourses.swayam2.ac.in/nou21_cs01/preview			
6	https://www.tutorialspoint.com/cryptography/index.htm			
7	https://www.guru99.com/how-to-make-your-data-safe-using-cryptography.html			
8	https://www.gatevidyalay.com/tag/cryptography-and-network-security-tutorial/			
9	https://www.javatpoint.com/cyber-security-tutorial			

Course Designed by	Dr. K.S.Leelavathi	
Verified by HOD Name and Signature	Dr. M. Rajasenathipathi	
Approved by Chairman Academic Council	Dr.R.Manickachezian	

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Programme Code:	B.Sc. CT			**Programme Title:**	Bachelor of Science (Computer Technology)	
Course Code:	26UCTSE3			**Title**	**Batch:**	2026-2029
				DSE I Prompt Engineering	**Semester:**	V
Lecture Hrs./Week or Practical Hrs./Week	06	**Tutorial Hrs./Sem.**	6		**Credits:**	05

Course Objective

To introduce the fundamentals of Prompt Engineering and Large Language Models (LLMs) and their role in modern AI applications.

To develop the ability to design effective prompts for generating accurate, structured, and ethical AI-driven outputs.

Course Outcomes

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

CO Number	CO Statement	
CO1	Understand the concepts of Prompt Engineering, Large Language Models, tokens, and context windows.	PO1(3), PO3(1), PO4(2), PO8(2)
CO2	Apply basic prompting techniques such as zero-shot, one-shot, few-shot, and role prompting.	PO1(3), PO3(2), PO4(2), PO5(2), PO9(3), PO13(2), PO14(1)
CO3	Design prompts using advanced techniques like Chain-of-Thought prompting, iterative prompting, and output formatting.	PO1(3), PO5(2), PO7(1), PO10(2), PO12(2), PO15(2)
CO4	Utilize prompt engineering methods for practical applications such as content generation, summarization, data extraction, and coding assistance.	PO1(2), PO3(3), PO5(2), PO8(2), PO11(3)
CO5	Evaluate ethical considerations, security issues, bias, and hallucination risks in AI-generated responses.	PO1(2), PO3(1), PO4(2), PO10(2), PO11(1),PO15(1)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	3	-	1	2	-	-	-	2	-	-	-	-	-	-	-
CO2	3	-	2	2	2	-	-	-	3	-	-	-	2	1	-
CO3	3	-	-	-	2	-	1	-	-	2	-	2	-	-	2
CO4	2	-	3	-	2	-	-	2	-	-	3	-	-	-	-
CO5	2	-	1	2	-	-	-	-	-	2	1	-	-	-	1

3 Point Scale – 1, 2, 3

DSE I: Prompt Engineering

Units	Content	Hrs
Unit I	**Prompt Engineering:** Definition, importance, and evolution of LLMs. LLMs Work: Basics of tokens, context windows, and training data. **Core Elements of a Prompt:** Instruction, Context, Input Data, and Output Indicator.	18
Unit II	**Zero-shot Prompting:** Giving tasks without examples. One-shot and Few-shot Prompting: Providing examples to guide output quality. **Role Prompting (Persona):** Assigning roles (e.g., "Act as a Senior Editor").	18
Unit III	**Chain-of-Thought (CoT) Prompting:** Guiding the model through step-by-step reasoning. **Iterative Prompting:** Refining prompts based on previous outputs. **Output Formatting:** Constraining outputs to specific formats (JSON, Markdown, tables). **Self-Consistency:** Requesting multiple responses to find the best answer.	18
Unit IV	**Content Generation:** Emails, reports, marketing copy. Summarization and Data Extraction: Analyzing long texts. **Coding Assistance:** Generating, debugging, and explaining code snippets. **Multimodal Prompting:** Using tools that combine text, image, and audio.	18
Unit V	**Prompt Injection & Security:** Understanding risks. **Bias and Fairness:** Identifying and mitigating bias in AI output. **Hallucinations:** Managing incorrect information.	18
	Total Contact Hrs	**90**

Pedagogy and Assessment Methods

Chalk and Talk lectures, Group Discussion, Seminar, Interaction, power point presentation

Text Book

26UCT 5E1

S.NO	AUTHOR	TITLE OF THEBOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	James Phoenix, Mike Taylor	Prompt Engineering for Generative AI https://www.oreilly.com/library/view/prompt engineering-for/9781098153427/	O'Reilly Publications, California, USA ISBN No.: 9781098153427	2024

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Gilbert Mizrahi	Unlocking the Secrets of Prompt Engineering: Master the Art of Creative Language Generation to Accelerate Your Journey from Novice to Pro Link: https://www.packtpub.com/en-in/product/unlocking-the-secrets-of-prompt-engineering-9781835083833	2nd Edition, Khanna Book Publishing.	2024
2	Michael Ferguson	Prompt Engineering: The Future of Language Generation Link: https://books.apple.com/us/book/prompt-engineering-the-future-of-language-generation/id6445529200	2nd Edition, Khanna Book Publishing	2023
3	"Prompt Engineering Guide", https://www.promptingguide.ai/			
4	"Prompt Engineering for Generative AI", Google, https://developers.google.com/machine learning/resources/prompt-eng			
5	"Prompt Engineering", OpenAI, https://platform.openai.com/docs/guides/prompt-engineering/strategy-test-changes-systematically			

Course Designed by	Dr. R. Jayaprakash	
Verified by HOD Name and Signature	Dr. M. Rajasenathipathi	
Approved by Chairman Academic Council	Dr.R.Manickachezian	

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Programme Code:	B.Sc. C.T.			Programme Title:	Bachelor of Computer Technology	
Course Code:	26UCT5E2			Title	Batch:	2026 - 2029
				DSE-I[e] :Virtual Reality	Semester:	V
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	2		Credits:	05

Course Objective

To help students understand the technology behind virtual reality and introduces input, output devices used for virtual reality. It also presents the techniques and applications used for augmented reality.

Course Outcomes

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

CO Number	CO Statement	
CO1	Understand the design and implementation of the hardware that enables VR systems to be built.	PO1(3), PO3(1), PO4(2), PO7(3), PO11(3), PO13(2)
CO2	Apply appropriate techniques and design augmented reality applications.	PO1(2), PO3(2), PO5(2), PO10(2), PO14(1)
CO3	Analyze the techniques required for virtual reality environments	PO2(2), PO4(3), PO5(2),PO9(3), PO10(2), PO13(1)
CO4	Evaluate various interaction schemes common to AR experiences.	PO1(2), PO3(3), PO5(2), PO6(1), PO8(1), PO12(2)
CO5	Design, create, and integrate audio, visual, and interactive elements into a comprehensive immersive experience.	PO1(2), PO3(2),PO5(3), PO6(1),PO8(1),PO10(2), PO11(1), PO15(1)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	3	-	1	2	-	-	3	-	-	-	3	-	2	-	-
CO2	2	-	2	-	2	-	-	-	-	2	-	-	-	1	-
CO3	-	2	-	3	2	-	-	-	3	2	-	-	1	-	-
CO4	2	-	3	-	2	1	-	1	-	-	-	2	-	-	-
CO5	2	-	2	-	3	1	-	1	-	2	1	-	-	-	1

3 Point Scale – 1, 2, 3

DSE-I*: Virtual Reality

Units	Content	Hrs
Unit I	**Introduction**: The Three I's of Virtual Reality - A Short History of Early Virtual Reality – Early Commercial VR Technology - VR Becomes an Industry - The Five Classic Components of a VR System.	18
Unit II	**Input Devices**: Three – Dimensional Position trackers - Hybrid Inertial Trackers - Navigation and Manipulation Interfaces - Tracker-Based Navigation/Manipulation Interfaces – Three-Dimensional Probes - Gesture Interfaces - The Pinch Glove - The 5DT Data Glove - The Didjiglove - The CyberGlove.	18
Unit III	**Output Devices:** Graphics Displays: The Human Visual System -Personal Graphics Displays –Large Volume Displays - Sound Displays - The Human Auditory System - The Convolvotron– Speaker Based Three-Dimensional Sound.	18

Unit IV	**Getting started with Unity and Playmaker**: Downloading and Installing Unity – Buying and importing playmaker – Setting up your project. **Unity's and Playmaker's User Interface:** Interface overview and main menu – Hierarchy panel – Inspector panel – Project panel – Project panel – Views – Playmaker interface.	18
Unit V	**Components and State Machines**: Game objects, components and properties – Working with prefabs – Finite state machines, states and actions – Interaction between game objects.	18
	Total Contact Hrs	**90**

Pedagogy and Assessment Methods

Chalk and Talk lectures, Group Discussion, Seminar, Interaction, power point presentation

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Grigore C. Burdea, Philippe Coiffet	Virtual Reality Technology	2/e, Wiley Dream Tech India, New Delhi, India , ISBN: (hardback) , ISBN 9781119484653 (adobe pdf)	2024
2	Sergey Mohov	Practical Game Design with Unity and Playmaker	Olton : Packt Publishing, Limited, ISBN : 9781849698115	2013

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	William R. Sherman, Alan B. Craig	Understanding Virtual Reality: Interface, Application and Design	2nd edition, Morgan Kaufmann Publishers	2018
2	Jason Jerald	The VR Book: Human-Centered Design for Virtual Reality	ACM Books, ISBN: 978-1970001129	2015
3	https://msl.cs.uiuc.edu/vr/vrbook.pdf			
4	https://www.lncc.br/~jauvane/papers/RelatorioTecnicoLNCC-0603.pdf			
5	http://www.arise.mae.usp.br/wp-content/uploads/2018/03/Understanding-Virtual-Reality-Interface-Application-and-Design-The-Morgan-Kaufmann-Series-in-Computer-Graphics-.pdf			
6	http://rguir.inflibnet.ac.in:8080/jspui/bitstream/123456789/16380/1/9781774693209.pdf			
7	https://www.geeksforgeeks.org/virtual-reality-introduction/			

Course Designed by	**Dr. A.Kalaivani**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc. C.T.			Programme Title:	Bachelor of Computer Technology	
Course Code:	26UCT5E3			Title	Batch:	2026 - 2029
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	2	DSE-I[5] :Fundamentals of Blockchain Technology	Semester:	V
					Credits:	05

Course Objective

On successful completion of this subject the students can understand various concepts of Blockchain, Cryptocurrency, Digital Signature ,Bitcoins etc.

Course Outcomes

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

CO Number	CO Statement	
CO1	To keep in mind the fundamentals of block chain technology and crypto currency.	PO1(3), PO3(1), PO4(2), PO8(1), PO11(1)
CO2	To understand the mining mechanism in block chain.	PO1(3), PO3(2), PO5(2), PO7(1), PO10(2)
CO3	To apply and identify security measures, and various types of services that allow people to trade and transact with bitcoin.	PO4(3), PO5(2), PO8(1), PO10(3)
CO4	To analyze security, privacy, and efficiency of a given Blockchain system.	PO1(2), PO3(2), PO7(1), PO9(1), PO10(2), PO12(1), PO13(2), PO14(1)
CO5	To Assess the concepts of Blockchain, Cryptocurrency, Bitcoin and Digital Signature.	PO1(2), PO3(3),PO4(2), PO5(3),PO6(1),PO8(1),PO9(1), PO11(1), PO13(2), PO15(2)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	3	-	1	2	-	-	-	1	-	-	1	-	-	-	-
CO2	3	-	2	-	2	-	1	-	-	2	-	-	-	-	1
CO3	-	-	-	3	2	-	-	1	-	3	-	-	-	-	-
CO4	-	1	2	-	-	-	1	-	1	2	-	1	2	1	-
CO5	2	-	3	2	3	1	-	1	1	-	1	-	2	-	2

3 Point Scale – 1, 2, 3

26UCT5E3

DSE-I^{e} :Fundamentals of Blockchain Technology

Units	Content	Hrs
Unit I	Block Chain – Introduction – Problems with centralized System – Overview – Fundamentals.	18
Unit II	Bitcoin: Introduction – Transaction life cycle - Block chain2.0 – Smart Contracts. Block in Block chain Architecture - Distributed Consensus - Economics behind Block Chain Consensus	18
Unit III	The Chain and the Longest chain – Cryptocurrency to Block chain 2.0 – Permissioned model of Block chain. Cryptographic hash function – Properties – Hash pointer and Merkle tree.	18
Unit IV	Digital Signature - Public Key Cryptography - A basic cryptocurrency - Creation of coins - Payments and double spending - FORTH – the precursor for Bitcoin scripting - Bitcoin Scripts.	18
Unit V	Bitcoin P2P Network - Transaction in Bitcoin Network - Block Mining - Block propagation and block relay - Why Consensus - Distributed consensus in open environments - Consensus in a Bitcoin network.	18
	Total Contact Hrs	**90**

Pedagogy and Assessment Methods

Chalk and Talk lectures, Group Discussion, Seminar, Interaction, power point presentation

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller and Steven Goldfeder	Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction	Princet University Press, New Jersey, USA	2016
2	Antonopoulos	Mastering Bitcoin: Unlocking Digital Cryptocurrencies	O'Reilly Media Inc, California, USA	2017

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Rodrigo da Rosa Righi, Antonio Marcos Alberti, Madhusudan Singh	Blockchain Technology for Industry 4.0	Springer	2020
2	Satoshi Nakamoto	Bitcoin: A Peer-to-Peer Electronic Cash System	Oxford University Press	2019
3	https://developer.bitcoin.org/devguide/transactions.html			
4	https://www.investopedia.com/terms/b/blockchain.asp			
5	https://www.geeksforgeeks.org/cryptographic-hash-functions/			
6	https://www.geeksforgeeks.org/merkle-tree-and-hash-chain/			

Course Designed by	**Dr. A.Kalaivani**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	26 UCT517			Title	Batch:	2026 - 2029
				CC Lab VII: Open Source Technologies (PHP & MySQL) Lab	Semester:	V
Lecture Hrs./Week or Practical Hrs./Week	5	Tutorial Hrs./Sem.	0		Credits:	2

Course Objective

To expose students to free open source software environment and introduce them to use open source packages.

To work with open source applications that deal with database and website development.

Course Outcomes

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

CO Number	CO Statement	
CO1	Write PHP scripts using operators to perform various functions	PO1(2), PO3(1), PO4(2), PO7(2), PO10(2), PO11(1),PO14(2)
CO2	Implement different types of PHP functions and the concepts of files and directories	PO2(1), PO4(3), PO5(2), PO8(1), PO10(3), PO11(3), PO13(2)
CO3	Write regular expressions including modifiers, operators, and meta characters	PO1(3), PO3(2), PO5(2), PO6(1),PO7(3), PO9(3), PO12(2), PO15(2)
CO4	Create PHP scripts using array	PO3(2), PO4(3), PO5(2), PO8(2), PO10(3), PO11(1), PO13(1)
CO5	Evaluate the database connectivity using PHP and SQLite and Develop dynamic web pages.	PO1(2), PO2(2),PO5(3), PO6(1),PO8(1),PO10(2),PO11(2), PO13(1), PO15(2)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	2	-	1	2	-	-	2	-	-	2	1	-	-	2	-
CO2	-	1	-	3	2	-	-	1	-	3	3	-	2	-	-
CO3	3	-	2	-	2	1	3	-	3	-	-	2	-	-	2
CO4	-	-	2	3	2	-	-	2	-	3	1	-	1	-	-
CO5	2	2	-	-	3	1	-	1	-	2	2	-	1	-	2

3 Point Scale – 1, 2, 3

CC Lab VII: Open Source Technologies (PHP & MySQL) Lab

Content	Hrs
Sample Programs 1. Develop a PHP Script using the concept of Control Structure &Loops. 2. Develop a PHP Script to illustrate the concept of Array. 3. Develop a PHP Script to illustrate the concept of Functions. 4. Develop a PHP Script to illustrate the concept of Constructor and Destructor. 5. Develop a PHP Script to illustrate the concept of Files and Directory. 6. Write a PHP Code to make PHP Data Base Connectivity with MYSQL. 7. Write a PHP Code to make MYSQL Data Base Operation. 8. Develop a PHP Script to make Data Base Operation using MySQLite. 9. Develop a PHP Script to illustrate the concept of Cookies 10. Develop a PHP Script to illustrate the concept of Sessions	60
Total Contact Hrs	60

Pedagogy and Assessment Methods

Group Discussion, Seminar, Interaction, power point presentation

Course Designed by	**Dr. A. Kalaivani**	
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	26UCT518			Title	Batch:	2026 - 2029
				CC Lab VIII: Web Designing Lab	Semester:	V
Lecture Hrs./Week or Practical Hrs./Week	5	Tutorial Hrs. /Sem.	0		Credits:	02

Course Objective

To create tables and frames, ordered and unordered lists within a web page and learn the language of HTML, DHTML, XML and JavaScript.

To develop dynamic web page using scripting languages and various XML, HTML5 where scripting codes are embedded into HTML document for interactive presentation effect.

Course Outcomes

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

CO Number	CO Statement	
CO1	Analyze a web page and identify its elements and attributes	PO1(3), PO3(1), PO4(2), PO6(2), PO7(3), PO10(2),PO11(1), PO14(2)
CO2	Create a HTML page with formatting text tags, tables and lists	PO2(2), PO3(3), PO4(3), PO5(2), PO7(1), PO11(2)
CO3	Create a HTML file with Frames	PO1(2), PO2(2), PO5(2), PO7(2),PO8(3), PO9(1), PO10(3), PO13(3), PO15(1)
CO4	Create web pages using DHTML and XML documents	PO2(3), PO3(2), PO4(3), PO5(1), PO8(1), PO10(2), PO11(2), PO12(1)
CO5	Build dynamic web pages using JavaScript (client side programming)	PO1(2), PO2(3),PO3(1), PO5(2),PO6(1),PO9(1) ,PO10(3), PO12(1), PO14(1), PO15(2)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	3	-	1	2	-	2	3	-	-	2	1	-	-	2	-
CO2	-	2	3	3	2	-	1	-	-	-	2	-	-	-	-
CO3	2	2	-	-	2	-	2	3	1	3	-	-	3	-	1
CO4	-	3	2	3	1	-	-	1	-	2	2	1	-	-	-
CO5	2	3	1	-	2	1	-	-	1	3	-	1	-	1	2

3 Point Scale – 1, 2, 3

CC Lab VIII: Web Designing Lab

Content	Hrs
Sample Programs 1. Develop static webpages using HTML tags. 2. Prepare a webpage using OL & UL. 3. Prepare Frames which includes four html programs using frames. 4. Design and Develop webpage with the help of HTML and CSS. 5. Develop webpage using event handling in javascript 6. Embedding Javascript in HTML pages. 7. Create a home page using xml. 8. Writing XML web Documents which make use of XML Declaration, Element Declaration, Attribute Declaration 9. Usage of Internal DTD, External DTD, Entity Declaration. 10. Create a web page using image files, which switch between one another as the mouse Pointer moves over the images.	60
Total Contact Hrs	**60**

Pedagogy and Assessment Methods

Group Discussion, Seminar, Interaction, power point presentation

Course Designed by	**Dr. K.S. Leelavathi**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc.			Programme Title:	Computer Technology	
Course Code:	26UCT5S1			Title	Batch:	2026-2029
				SEC III Naan Mudhalvan: Mobile Application Development Lab	Semester:	V
Lecture Hrs./Week or Practical Hrs./Week	02	Tutorial Hrs./Sem.	-		Credits:	1

Course Objective

To learn and create the Activities and various user interfaces such as textbox, labels, List Box, Combo Box, Checkbox and Radio Button with Toast messages.

To create simple android application for arithmetic calculations

.Course Outcomes

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

CO Number	CO Statement	
CO1	Learn the basic concepts of Android Programming	PO2(2), PO3(1), PO4(2), PO6(3), PO10(2), PO11(3),PO13(2)
CO2	know how to create various user interfaces with Toast messages and simple applications	PO1(3), PO4(2), PO5(2), PO10(3), PO12(2), PO14(1), PO15(3)
CO3	Develop programs using API controls	PO1(3), PO2(2), PO3(2), PO7(1),PO8(2), PO11(2), PO15(1)
CO4	Learn the basic concepts of Android Programming	PO1(2), PO3(1), PO4(3), PO5(2), PO7(2), PO8(1), PO10(3), PO11(1), PO14(3)
CO5	Knows working with SQLite database	PO1(3), PO2(2),PO3(2), PO5(2),PO7(1),PO10(3), PO11(1), PO14(1), PO15(3)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	-	2	1	2	-	3	-	-	-	2	3	-	2	-	-
CO2	3	-	-	2	2	-	-	-	-	3	-	2	-	1	3
CO3	3	2	2	-		-	1	2	-	-	2	-	-	-	1
CO4	2	-	1	3	2	-	2	1	-	3	1	-	-	3	-
CO5	3	2	2	-	2	-	1	-	-	3	1	-	-	1	3

3 Point Scale – 1, 2, 3

SEC III: Naan Mudhalvan: Mobile Application Development Lab

Content	Hrs
Sample Programs 1. Write the steps for installation and configuration of android in Windows OS. 2. Write a program to demonstrate usage of two textbox (Edit Text), Label(Text view) and Button widgets in android and perform addition of two numbers. 3. Write a program and demonstrate the graphical layout orientation. 4. Write a program to demonstrate usage of List Box with Toast (Message Box). 5. Write a program to demonstrate usage of Combo Box with Toast (Message Box). 6. Write a program to demonstrate usage of Snippers with Toast (Message Box). 7. Write a program to demonstrate usage of Text Area, with Toast 8. Write a program to demonstrate usage of Checkbox with Toast, 9. Write a program to demonstrate usage of Radio Button with Toast 10. Write a program and calculate the simple interest and compound interest using its API controls.	30
Total Contact Hrs	30

Pedagogy and Assessment Methods

Group Discussion, Seminar, Interaction, power point presentation

Course Designed by	Dr. C. Keerthana	
Verified by HOD Name and Signature	Dr. M. Rajasenathipathi	
Approved by Chairman Academic Council	Dr.R.Manickachezian	

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT5S2			Title	Batch:	2026-2029
				SEC III: Naan Mudhalvan: UI/UX Programming Lab	Semester:	V
Lecture Hrs./Week or Practical Hrs./Week	02	Tutorial Hrs./Sem.	0		Credits:	01

Course Objective

To provide students with the knowledge of user- centered design, user-cantered methods in design, graphic design on screens, simulation and prototyping techniques and also usability testing methods, interface technologies and user centered design in corporate perspective.

Course Outcomes

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

CO Number	CO Statement	
CO1	Understand iterative user-centered design of graphical user interfaces.	PO1(2), PO3(1), PO4(2), PO6(3), PO11(1), PO13(1),PO15(3)
CO2	Apply the user Interfaces to different devices and requirements.	PO1(3), PO3(1), PO5(3), PO7(3), PO10(3), PO11(1), PO13(3)
CO3	Create high quality professional documents and artifacts related to the design process. Design interactive elements and animations to improve user engagement.	PO2(2), PO4(3), PO5(2), PO7(1),PO8(2), PO9(1), PO11(2), PO15(1),
CO4	Implement Theme the visual look and feel of the user experiences and implement user interface applications	PO1(3), PO2(2), PO5(2), PO8(1), PO10(3), PO11(2), PO12(1), PO14(1)
CO5	Create effective and compelling screen based experiences.	PO2(2), PO3(1),PO4(3), PO5(2),PO7(1),PO10(3) , PO11(2), PO14(1), PO15(2)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	2	-	1	2	-	3	-	-	-	-	1	-	1	-	3
CO2	3	-	1	-	3	-	3	-	-	3	1	-	3	-	-
CO3	-	2	-	3	2	-	1	2	1	-	2	-	-	-	1
CO4	3	2	-	-	2	-	-	1	-	3	2	1	-	1	-
CO5	-	2	1	3	2	-	1	-	-	3	2	-	-	1	2

3 Point Scale – 1, 2, 3

SEC III: Naan Mudhalvan: UI/UX Programming Lab

Units	Content	Hrs
	Sample Programs 1. Design an User Interface for Welcome screen. 2. Study and analysis of navigation design and its implementation 3. Design an User Interface Screen for Calculator 4. Design an User Interfaces for ATM Machine 5. Design an User Interface Screen for Online Examination 6. Create a working UI/UX prototype using prototyping tools 7. Study and analysis of sharing and exporting the UI/UX design 8. Study about implementation of information search module using UI/UX 9. Creating Social media advertisement using online tools and applications 10. Study about custom control and operational control their working and tools used	30
	Total Contact Hrs	**30**

Pedagogy and Assessment Methods

Group Discussion, Seminar, Interaction, power point presentation

Course Designed by	Dr. R. Jayaprakash	
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Approved by Chairman Academic Council	Dr.R.Manickachezian	

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	25UCT5AL			Title	Batch:	2026-2029
				Advanced Learner Course (ALC) –I: Digital Marketing	Semester:	V
Lecture Hrs./Week or Practical Hrs./Week	SS	Tutorial Hrs./Sem.	SS		Credits:	02

Course Objective

This course provides an overall understanding of the various digital marketing platforms and tools available for creating an effective digital marketing strategy. It provides technical skills to design and develop an integrated digital marketing plan for an organization.

Course Outcomes

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

CO Number	CO Statement	
CO1	Understand the role of digital marketing in marketing strategy	PO1(2), PO3(1), PO5(2), PO8(3), PO11(1), PO13(1),PO15(3)
CO2	Identify the key elements of a digital marketing strategy	PO1(3), PO3(2), PO5(3), PO7(3), PO10(3), PO11(1), PO13(3)
CO3	Analyze the role that social marketing plays in the digital marketing	PO2(2), PO3(2), PO4(3), PO6(2),PO7(1), PO8(2), PO10(3), PO15(1)
CO4	Demonstrate common digital marketing tools such as SEO and Socialmedia	PO1(3), PO2(3), PO3(2), PO5(2), PO7(31, PO10(3), PO12(1), PO14(1)
CO5	Apply conceptual frame works of digital marketing	PO2(2), PO3(1),PO4(3), PO5(1),PO7(1),PO10(3), PO11(2), PO14(1), PO15(2)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	2	-	1	-	2	-	-	3	-	-	1	-	1	-	3
CO2	2	-	2	-	3	-	3	-	-	3	1	-	3	-	-
CO3	-	2	2	3	-	2	1	2	-	3	-	-	-	-	1
CO4	3	3	2	-	2	-	1	-	-	3	-	1	-	1	-
CO5	-	2	1	3	1	-	1	-	-	3	2	-	-	1	2

3 Point Scale – 1, 2, 3

Advanced Learner Course (ALC) –I: Digital Marketing

Units	Content	Hrs
Unit I	Introduction to Digital Marketing: Introduction - Original and Development of Digital Marketing - Internet Users: Penetration and Kind of Internet Use - DigitalMarketing strategy – Digital Advertising Marketing Plan - Ethical and legal of framework of Digital Marketing - Skills Required in Digital Marketing	SS
Unit II	Search Engine Advertising: Introduction – Why pay for search advertising? – Understanding Ad Placement – Understanding Ad Ranks- Google Ads Account – E-Commerce Social Media Marketing: Introduction - Strategy – Implementation - Measure - Improve - Social Entertainment - Different forms of social entertainment	
Unit III	Face book Marketing : Introduction – Organic Marketing – Paid Marketing – Facebook Insights LinkedIn: Introduction - LinkedIn Strategy - Content Strategy -LinkedIn Native Videos - LinkedIn Analytics – Asset Copying - LinkedIn Sales Navigator - Adcampaign - Emerging Platforms: Instagram – Pinterest.	
Unit IV	Search Engine Optimization: Introduction – Search Engine – The Concept of SEO –SEO Phases –Website Audit – Content – On-Page Optimization – Off-Page Optimization – Social Media Reach – Maintenance – Local Search SEO – SEO Visual Search	

Unit V	Features – Mobile Analytics – Mobile APPS. Digital Analytics: Introduction – DataCollection – Key Metrics – Outcome Analysis – Experience Analysis	
	(*SS – Self Study)Total Contact Hrs	SS

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz, Assignments, Group Task

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Seema Gupta	Digital Marketing McGraw Hill Education	Digital Marketing McGraw Hill Education, New Delhi, India, 2nd Edition,	2018

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Simon Kingsnorth	Digital Marketing Strategy: An Integrated Approach to Online Marketing 2nd Edition	Kogan Page, 2nd Edition,	2019
2	Dave Chaffey	Digital Marketing	Pearson, 7th Edition,	2019
3	Kevin Hartman	Digital Marketing Analytics: In Theory And In Practice	Ostmen Bennett Bridge Publishing Services, 2nd Edition,	2020

4	https://www.simplilearn.com/
5	https://www.michaelpage.ae/
6	https://digitalnow.undp.org/
7	https://www.facebook.com/business/small-business/advertise?
8	https://www.izito.co.in/

Course Designed by	**Dr. M. Rajasenathipathi**	
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SEMESTER- VI

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	26UCT619			Title CC XI:	Batch:	2026-2029
				Framework Technologies	Semester:	VI
Lecture Hrs./Week or Practical Hrs./Week	05	Tutorial Hrs./Sem.	08		Credits:	04

Course Objective

To provide in depth knowledge on VB.NET and ASP.NET and making them to develop dynamic web applications, websites using window controls and web controls.

Course Outcomes

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

CO Number	CO Statement	
CO1	Understand the basic concepts of .NET framework and its components.	PO1(3), PO2(1), PO3(2), PO4(3), PO5(2), PO8(1), PO10(3), PO11(2), PO15(2)
CO2	Acquire the usage of various Elements of VB.Net to developprograms using them	PO1(3), PO7(1), PO8(3), PO9(1), PO10(3), PO11(2), PO13(1), PO14(1)
CO3	Implement lists and loops with VB.NET controls and iteration	PO1(3), PO4(3), PO7(1), PO8(2), PO13(1), PO14(1)
CO4	Assemble multiple forms, modules, and menus into working VB.NETsolutions	PO1(3), PO6(3), PO8(2)
CO5	Connect database by using ADO.NET and manipulate the database	PO1(3), PO2(2), PO3(3), PO8(3), PO12(1), PO13(1), PO14(2), PO15(3)

Mapping

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15
CO1	3	1	-	-	-	-	-	1	-	3	2	-	-	-	2
CO2	3	-	-	-	-	-	1	2	-	-	-	-	-	-	-
CO3	3	-	-	-	-	1	-	-	1	-	-	-	1	-	-
CO4	3	-	-	-	-	2	-	-	1	-	-	-	1	-	-
CO5	3	-	-	-	-	2	-	-	1	-	-	-	-	2	3

*3 Point Scale – 1, 2, 3

CC XI: Framework Technologies

26UCT619

Units	Content	Hrs
Unit I	**Introduction to Visual Basic .NET**: Visual Basic .NET- Introduction to Microsoft.NET- .NET Framework and the common language runtime. Introduction to the Visual Studio.NET IDE: Introduction – Overview of the visual studio .NET IDE - Menu bar and Toolbar –Visual Studio.NET IDE windows. **Introduction to Visual Basic Programming:** Introduction – simple programs – memory concepts- Arithmetic - Decision Making – Using a dialog to display a message.	15
Unit II	**Control Structures**: Introduction – Control Structures- if/then selection structure- if/then/else Selection Structure – While, Do while/loop, Do Until/Loop Repetition Structures –Assignment Operators* – For Next – Select Case – do/loop while – do/loop until – exit key word – logical operators. **Procedures:** Introduction – Modules, classes and procedures – sub procedures – function procedures – methods – Arguments Promotion — passing arguments: pass – by-value vs pass-by-reference – duration of identifiers – scope rules.	15
Unit III	**Arrays**: Introduction - arrays - declaring and allocating arrays - examples - passing arrays to procedures - By Val vs By Ref. – for each/next repetition structure. **Graphical user interface concepts**: Introduction – windows forms – event handling model – control properties and layout – labels, textboxes and buttons – group boxes and panels – checkboxes and radio buttons* – picture boxes Menus – Link labels – List boxes and checked list boxes – Combo boxes – Tree views – List views – Tab control –MDI windows – Visual inheritance – User defined controls.	15
Unit IV	Database, SQL and ADO.NET: Introduction – relational database model- SQL – ADO.NET object model – programming with ADO.NET – extracting from a database – modifying a database	15
Unit V	ASP.NET, web forms and web controls: Introduction – simple HTTP transaction – system architecture – web controls – session tracking	15
	Total Contact Hrs	75

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz, Assignments, Group Task.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Deitel H.M, Deitel P.J, Nieto T.R	Visual Basic.NET How to Program	Pearson Education, New Delhi ,6th Edition	2023

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Kogent Learning Solutions Inc.,	.Net 3.5 Programming: Covering.Net Framework	1st Edition , DreamTech Press.	2019
2	Bill Evjen, Jason Beres, et.al,	Visual Basic.Net Programming – Black Book	2nd Edition , John Wiley & Sons	2018
3	Gary B. Shelly Thomas J. Cashman,	Microsoft Visual Basic. Net Comprehensive Concepts And Techniques	Cengage Learning India ,1st Edition	2021
4	https://www.w3schools.com/asp/			
5	https://www.tutorialspoint.com/vb.net			
6	https://www.nptelvideos.com/visualbasic_net/?pn=1			
7	https://www.javatpoint.com/vb-net-control-statements			
8	https://www.tutorialspoint.com/ASP.net			

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz, Assignments, Group Task.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Deitel H.M, Deitel P.J, Nieto T.R	Visual Basic.NET How to Program	Pearson Education, New Delhi ,6th Edition	2023

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Kogent Learning Solutions Inc.,	.Net 3.5 Programming: Covering.Net Framework	1st Edition , DreamTech Press.	2019
2	Bill Evjen, Jason Beres, et.al,	Visual Basic.Net Programming – Black Book	2nd Edition , John Wiley & Sons	2018
3	Gary B. Shelly Thomas J. Cashman,	Microsoft Visual Basic. Net Comprehensive Concepts And Techniques	Cengage Learning India ,1st Edition	2021
4	https://www.w3schools.com/asp/			
5	https://www.tutorialspoint.com/vb.net			
6	https://www.nptelvideos.com/visualbasic_net/?pn=1			
7	https://www.javatpoint.com/vb-net-control-statements			
8	https://www.tutorialspoint.com/ASP.net			

Course Designed by	**Dr. C. Keerthana**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

Dr. M. RAJASENATHIPATHI M.Sc., M.Phil., Ph.D.
Head of the Department
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Dr. R. MANICKA CHEZIAN M.Sc., M.S., Ph.D.
PRINCIPAL I/c
Nallamuthu Gounder Mahalingam College
Pollachi - 642 001, Coimbatore District.

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT6E4			Title	Batch:	2026-2029
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	04	DSE II: Software Project Management	Semester:	VI
					Credits:	5

Course Objective

1. To provide the graduates to identify key areas of concern over Project Life Cycle (PLC) and use of project management principles across all the phases of PLC.
2. To understand the importance and necessity of project plan and how it is helpful to project manager in monitoring and controlling the various aspects of the project

Course Outcomes

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

CO Number	CO Statement	
CO1	Identify the activities of Software Project Management	PO2(2), PO3(1), PO4(2), PO6(3), PO10(2), PO11(3),PO13(2)
CO2	Select appropriate approach for software project	PO1(3), PO4(2), PO5(2), PO10(3), PO12(2), PO14(1), PO15(3)
CO3	Manage people in software environment	PO1(3), PO2(2), PO3(2), PO7(1),PO8(2), PO11(2), PO15(1)
CO4	Create a critical path and a precedence network for a project.	PO1(2), PO3(1), PO4(3), PO5(2), PO7(2), PO8(1), PO10(3), PO11(1), PO14(3)
CO5	Generate project schedule and can construct, design and developnetwork diagram for different type of Projects.	PO1(3), PO2(2),PO3(2), PO5(2),PO7(1),PO10(3), PO11(1), PO14(1), PO15(3)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PO 15
CO1	-	2	1	2	-	3	-	-	-	2	3	-	2	-	-
CO2	3	-	-	2	2	-	-	-	-	3	-	2	-	1	3
CO3	3	2	2	-		-	1	2	-	-	2	-	-	-	1
CO4	2	-	1	3	2	-	2	1	-	3	1	-	-	3	-
CO5	3	2	2	-	2	-	1	-	-	3	1	-	-	1	3

*3 Point Scale – 1, 2, 3

26UCT6E4

DSE II: Software Project Management

Units	Content	Hrs
Unit I	Introduction to Software Project Management, Why is software project management is important?, What is Project, Software Project vs other types of project, Activities covered by Software Project Management Plans, Methods and Methodologies, Categorizing software Projects, Stakeholder, Setting Objectives, Project success and Failure. What is Management? Management Control, Traditional and modern Project Management Practices.	18
Unit II	An overview of Project Planning: Step 0 to 10, Selecting of an Appropriate Project Approach: Choosing methodologies and Technologies, Software Processes and Software Models, The Waterfall Model, The Spiral Model, Software Prototyping, other ways of categorizing prototypes, Incremental Delivery, RAD and Agile Methods: Extreme programming, Scrum.	18
Unit III	Software Effort Estimation: Introduction, Where are Estimates Done? Software Effort Estimation Techniques, Bottom up Estimating, The Top Down Approach, Expert Judgement, Function Point Analysis, COCOMO Model, Activity Planning	18
Unit IV	Risk Management: Risk, Categories of Risk, A Framework for Dealing with Risk, Risk Identification, Risk Assessment, Risk Planning, Risk Management, Applying PERT Technique. Resource Allocation.	18
Unit V	Monitoring and Control, Managing People in Software environments.	18
	Total Contact Hrs	**90**

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz, Assignments, Group Task.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Bob Hughes, Mike Cotterell, Rajib Mall	Software Project Management	Tata McGraw Hill Publications, New Delhi, 6th Edition	2022

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Roger S. Pressman	Software Engineering	Tata McGraw Hill Publications, 8th Edition	2021
2	John M. Nicholas and Herman Steyn	Project Management for Engineering, Business and Technology	Taylor&Francis, 5th Edition	2019
3	Er. Rishabh Anand	Principles of Software Project Management	S.K. Kataria & Sons, 1st Edition	2018
4	Walker Royce	Software Project Management-A Unified Framework	Pearson publication, 1st Edition	2017
5	https://nptel.ac.in/courses/106/105/106105218/			
6	https://freevideolectures.com/course/4071/nptel-software-project-management			
7	https://www.nptelvideos.com/video.php?id=918			
8	https://www.classcentral.com/course/swayam-software-project-management-14294			

Course Designed by	**Dr. R. Jayaprakash**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

Dr. M. RAJASENATHIPATHI M.A, M.C.A, M.Phil, Ph.D
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Dr. R. MANICKA CHEZIAN M.Sc.,M.S.,Ph.D.,
PRINCIPAL I/c
Nallamuthu Gounder Mahalingam College
Pollachi - 642 001, Coimbatore District.

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT6E5			Title	Batch:	2026-2029
				DSE: II	Semester:	VI
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	04	Data Analytics	Credits:	5

Course Objective

To Understand Business Intelligence Tools and Purpose of Business Intelligence and can able to discover the patterns , types and process of discovering patterns.

Course Outcomes

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

CO Number	CO Statement	
CO1	Learn about the fundamental concepts, importance, and applications of Data Analytics in various Industries.	PO1(3), PO2(1), PO3(2), PO4(3), PO5(2), PO8(1), PO10(3), PO11(2), PO14(2), PO15(2)
CO2	Understand how to collect, clean, and pre-processing raw data for analysis using appropriate techniques.	PO1(3),PO3(3), PO7(1), PO8(3), PO9(1), PO10(3), PO11(2), PO13(1), PO14(1)
CO3	Apply the statistical methods to summarize, visualize and interpret data sets.	PO1(3),PO3(2), PO4(3), PO7(1), PO8(2), PO13(1), PO14(1)
CO4	Analyze real word datasets and derive meaningful business insights to support decision making.	PO1(3), PO6(3), PO8(2)
CO5	Apply the data analytics tools to solve practical problems and case-studies.	PO1(3), PO2(2), PO3(3), PO8(3), PO12(1), PO13(1), PO14(2), PO15(3)

Mapping

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15
CO1	3	1	-	-	2	-	-	1	-	3	2	-	-	2	2
CO2	3	-	2	-	-	-	1	2	-	-	-	-	-	-	-
CO3	3	-	3	-	-	1	-	-	1	-	-	-	1	-	-
CO4	3	-	2	-	-	2	-	-	1	-	-	-	1	-	-
CO5	3	-	-	-	-	2	-	-	1	-	-	-	-	2	3

* 3 Point Scale – 1, 2, 3

DSE: II - Data Analytics

Units	Content	Hrs
Unit I	**Wholeness of Data Analytics:** Introduction – Business Intelligence – pattern Recognition, Data Processing Chain. **Business Intelligence Concepts and Application:** Introduction – BI for Better Decisions – Decision Types – BI Tools – BI Skills – BI Applications.	18
Unit II	**Data Warehousing (DW):** Introduction – Design Considerations for DW – DW Development approaches – DW Architecture. **Data Mining:** Introduction – Gathering and Selecting and Data – Data Cleansing and Preparation – Output of Data Mining – Evaluating Data Mining Results - Data Mining Techniques.	18
Unit III	**Data Visualization:** Introduction – Excellence in Visualization – Types of Charts – Visualization Example. **Decision Tree:** Introduction – Decision Tree Problem - Decision Tree Construction - Decision Tree Algorithms.	18
Unit IV	**Artificial Neural Networks (ANN) :** Introduction – Business Applications of ANN – Design Principles of an ANN – Representation of a Neural Network – Architecting a Neural Network – Developing an ANN – Advantages and Disadvantages of using ANN. **Clustering Analysis:** Introduction – Applications of Cluster Analysis – Definition of Cluster – Clustering Techniques – Clustering Exercise – K-means Algorithm for Clustering – Advantages and Disadvantages of K-Means Algorithm.	18
Unit V	**Big Data:** Introduction – Defining Big Data – Big Data Landscape – Big Data Technologies - Management of Big Data. **Data Science Careers and Additional Case Studies:** Popular Skills – Case Studies.	18
	Total Contact Hrs	90

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz, Assignments, Group Task.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Anil Maheshwari	Data Analytics	8th Reprint, MCGraw Hill Publishing, New Delhi, India, ISBN: 93-5260-418-0	2020

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \EDITION	YEAR OF PUBLICATION
1	Andrew Park	Data Science for Beginners	Independently Published, ISBN - 13:978 – 1914167003	2020
2	Joel Grus	Data Science from Scratch	O'Reilly Media, Inc. ISBN: ISBN: 9781491901427	2015
3	Stuart Russell, PeterNorvig	Artificial Intelligence: A Modern Approach	Pearson Education, 3rd Edition.	2015
4	Er. Rajiv Chopra	Artificial Intelligence: A Practical Approach	S. Chand Publications, 1stEdition.	2016
5	https://towardsdatascience.com/data-preprocessing-concepts-fa946d11c825			
6	https://developers.google.com/machine-learning/clustering/clustering-algorithms			
7	https://towardsdatascience.com/your-guide-to-natural-language-processing-nlp-48ea2511f6e1			
8	https://www.ibm.com/cloud/learn/natural-language-processing			

Course Designed by	Dr. K.S. Leelavathi	
Verified by HOD Name and Signature	Dr. M. Rajasenathipathi	
Approved by Chairman Academic Council	Dr.R.Manickachezian	

Dr. M. RAJASENATHIPATHI M.A.,M.C.A.,M.Phil.,Ph.D.
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Dr. R. MANICKA CHEZIAN M.Sc., M.S.,Ph.D.,
PRINCIPAL i/c
Nallamuthu Gounder Mahalingam College
Pollachi - 642 001, Coimbatore District.

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT6E6			Title	Batch:	2026-2029
					Semester:	VI
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	04	DSE II: Edge Computing	Credits:	5

Course Objective

To provide a thorough knowledge about the technology application and tool kits for Edge computing

Course Outcomes

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

CO Number	CO Statement	
CO1	Understanding the fundamentals of Edge computing	PO1(3), PO3(1), PO4(2), PO7(3), PO10(3), PO13(1)
CO2	Discussing the basics of Edge monitoring.	PO1(3), PO3(2), PO4(2), PO5(2), PO8(2), PO11(2), PO13(1), PO15(1)
CO3	Dissect Edge Computing Systems and Architectures	PO3(2), PO4(3), PO5(2), PO6(1), PO9(2), PO12(2)
CO4	Analyze the importance of Edge Computing Standards	PO3(2), PO4(2), PO5(3), PO7(2), PO10(2), PO14(3), PO15(1)
CO5	Examine the standards supporting Edge Computing services and Functionality	PO3(2), PO4(3), PO5(2), PO8(2), PO10(3), PO11(1)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO14	PO15
CO1	3	-	1	2	-	-	3	-	-	3	-	-	1	-	-
CO2	3	-	2	2	2	-	-	2	-	-	2	-	1	-	1
CO3	-	-	2	3	2	1	-	-	2	-	-	2	-	-	-
CO4	-	-	2	2	3	-	2	-	-	2	-	-	-	3	1
CO5	-	-	2	3	2	-	-	2	-	3	1	-	-	-	-

3 Point Scale – 1, 2, 3

Units	Content	Hrs
Unit I	**Overview of Edge Computing:** Definition and key concepts- History and evolution of edge computing. **Edge vs. Cloud Computing:** Differences and similarities - When to use edge computing **Key Components of Edge Computing:** Edge devices and sensors - Edge gateways and nodes - Data processing at the edge	18
Unit II	**Technologies Supporting Edge Computing:** IoT (Internet of Things) - 5G and network technologies - Edge AI and machine learning. **Architectural Models:** Edge-centric architecture - Fog computing and mist computing - Hybrid edgecloud models	18
Unit III	**Edge Computing Platforms:** Overview of popular platforms (e.g., AWS IoT Greengrass, Azure IoT Edge) - Platform capabilities and features **Developing Edge Applications:** Building simple edge applications - Using containers and lightweight runtimes	18
Unit IV	**Challenges in Edge Computing**: Security and privacy concerns - Data management and synchronization - Scalability and performance issues **Emerging Trends and Technologies:** Edge computing in conjunction with 5G and AI - Advances in edge device capabilities	18
Unit V	**The Attack Surface:** Securing the "Last Mile"—Device identity, Physical tampering, and Encrypted communication. **Edge AI:** Model compression (Quantization/Pruning) and On-device inference with TinyML	18
	Total Contact Hrs	**90**

Pedagogy and **Assessment Methods**

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz, Assignments, Group Task.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Ajit Singh	Edge Computing	Shroff Publishers & Distributors, Mumbai,India, 1 – Ed. ISBN: 9789352138883	2023

25UCT6E6

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Jie Cao, Quan Zhang, Weisong Shi	Edge Computing: A Primer	Springer, Berlin, ISBN (Print): 978-3-030-02082-8 ISBN (eBook): 978-3-030-02083-5	2022
2	Dario Sabella	Multi-access Edge Computing: Software Development at the Network Edge	Springer, Berlin. ISBN (Hardcover): 978-3-030-79617-4 ISBN (eBook): 978-3-030-79618-1	2021
3	https://link.springer.com/article/10.1007/s00607-022-01104-2			
4	https://www.sciencedirect.com/science/article/pii/S2542660524000945			
5	https://www.mdpi.com/2079-9292/11/8/1239			

Course Designed by	**Dr. R. Jayaprakash**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

Dr. M. RAJASENATHIPATHI M.A.,M.C.A.,M.Phil.,Ph.D.
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Dr. R. MANICKA CHEZIAN M.Sc.,M.S.,Ph.D.
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Pollachi - 642 001, Coimbatore District.

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT6E7			Title	Batch:	2026-2029
				DSE III: Cloud Computing	Semester:	VI
Lecture Hrs./Week	06	Tutorial Hrs./Sem.	04		Credits:	5

Course Objective

To impart the Basic Concepts of Cloud Computing and understand the Technologies and Architectures of Cloud Computing.

Course Outcomes

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

CO Number	CO Statement	
CO1	Tell about the fundamentals of cloud computing.	PO1(3), PO5(1), PO8(3), PO12(3), PO15(1)
CO2	Describe the scaling techniques in computer system and managing the cloud data.	PO2(1), PO3(2), PO4(2), PO5(2), PO6(1), PO9(3), PO14(3)
CO3	Discuss about tracing and exploring cloud services.	PO1(2), PO3(2), PO4(3), PO10(1), PO12(2), PO15(3)
CO4	Examine about cloud managing and security.	PO3(2), PO4(2), PO5(3), PO7(2), PO8(1), PO10(2), PO14(2)
CO5	Illustrate about managing desktops and devices in the cloud.	PO1(3), PO3(2), PO4(3), PO5(2), PO11(1), PO12(1), PO15(1)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO14	PO15
CO1	3	-	-	-	1	-	-	3	-	-	-	3	-	-	1
CO2	-	1	2	2	2	1	-	-	3	-	-	-	-	3	-
CO3	2	-	2	3		-	-	-	-	1	-	2	-	-	3
CO4	-	-	2	2	3	-	2	1	-	2	-	-	-	2	-
CO5	3	-	2	3	2	-	-	-	-	-	1	1	-	-	1

*3 Point Scale – 1, 2, 3

26UCT6E7

DSE III: Cloud Computing

Units	Content	Hrs
Unit I	**Introduction to Cloud Computing:** Characteristics – Models – Services Examples – 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.	18
Unit II	**Cloud services and Platforms:** Compute – Storage – Database – Application – Content Delivery – analytics – Deployment and Management – Identity and access Management – Open source Private Cloud Software. **Hadoop and MapReduce:** Apache Hadoop – MapReduce Job execution – Schedulers – Cluster setup.	18
Unit III	**Cloud Application Design:** Introduction – Design considerations – Reference Architectures – Design methodologies – Data storage approaches. **Cloud Application Benchmarking and Tuning**: Introduction – Workload Characteristics – Application Performance Metrics – Design Considerations – Benchmarking Tools – Deployment prototyping – Load Testing and Bottleneck Deduction – Hadoop Benchmarking.	18
Unit IV	**Cloud Security:** Introduction – CSA Cloud Security Architecture – Authentication – Authorization – Identity and Access Management – Data Security – Key Management – Auditing. **Cloud For Industry, Health Care and Education:** Health Care – Energy systems – Transportation systems – Manufacturing Industry – Education.	18
Unit V	**Python for Cloud:** Amazon web services – Google Platform – Windows Azure – MapReduce – Packages – Web Application Framework – Designing a RESTful Web API	18
	Total Contact Hrs	**90**

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz, Assignments, Group Task.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	ArshdeepBahga, Vijay Madisetti.	Cloud Computing – A Hands-on Approach.	Universities Press Pvt. Ltd. Hyderabad, India	2021

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Thomas Erl, ZaighamMahmood&Richardoputtini	Cloud Computing (Concepts, Technology & Architecture)	Prentice Hall Press.	2017
2	Judith Hurwitz,Robin Bloor Marcia Kaufman and Dr. Fernhalper	Cloud Computing For Dummies	Willey India Publication Edition	2020
3	Prasant Kumar Pattnaik	Fundamentals of Cloud Computing	Vikas Publishing House	2021
4	RajkimarBuyya.,et.al	Cloud Computing: Principles and Paradigms	Wiley publications	2022
5	Michael Miller	Cloud Computing: Web-Based Applications That Change the way you work and Collaborate Online	Macmillan Computer Publication,1st Edition	2024
6	https://www.motc.gov.qa/sites/default/files/cloud_computing_ebook.pdf			
7	https://onlinecourses.nptel.ac.in/noc21_cs62/preview			
8	https://data-flair.training/blogs/cloud-computing-tutorial/			
9	https://www.javatpoint.com/cloud-computing-tutorial			
10	https://www.guru99.com/cloud-computing-for-beginners.html			

Course Designed by	Dr. R. Jayaprakash	
Verified by HOD Name and Signature	Dr. M. Rajasenathipathi	
Approved by Chairman Academic Council	Dr.R.Manickachezian	

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PRINCIPAL I/c
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Pollachi - 642 001, Coimbatore District.

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT6E8			Title	Batch:	2026-2029
				DSE III: Internet of Things	Semester:	VI
Lecture Hrs./Week	06	Tutorial Hrs./Sem.	04		Credits:	5

Course Objective

To imparts a sound understanding of the basic electronics, microcontroller architectures, sensors, IoT architecture and communication protocols.

Course Outcomes

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

CO Number	CO Statement	
CO1	Understand the scope of the IoT system, architectures, components andsupporting technologies.	PO1(3)
CO2	Analyzing existing business processes to understand and build technicalstrategy to develop need aligned technical solutions.	PO3(1), PO4(3), PO5(2), PO9(2), PO12(3)
CO3	Apply decision and repetition structures in program design.	PO3(2), PO4(2), PO5(3), PO14(2)
CO4	Implement architecture of its networks, devices, programming, data andsecurity.	PO11(2)
CO5	Evaluate the data received through sensors in IOT and Design smart city inIOT.	PO3(2), PO8(2), PO9(1), PO10(3), PO15(1)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO14	PO15
CO1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	1	3	2	-	-	-	2	-	-	3	-	-	-
CO3	-	-	2	2	3	-	-	-	-	-	-	-	-	2	-
CO4	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
CO5	-	-	2	-	-	-	-	2	1	3	-	-	-	-	1

Point Scale – 1, 2, 3

Units	Content	Hrs
Unit I	**Introduction:** Definition and characteristics of IoT – IoT enabling Technologies. IoT Levels – **Domain Specific IoTs**: Home Automation – Cities – Environment – Energy – Agriculture – Health and Life Style.	18
Unit II	**IoT and M2M:** Introduction - M2M – Difference between IoT and M2M – Need forIoT system management.	18
Unit III	**IoT Platform Design Methodology:** Introduction -IoT Design Methodology. **IoT Physical devices and End points:** What is an IoT Device? – Basic building blocks of an IoT device – Exemplary device: Raspberry Pi – About the Board.	18
Unit IV	**IoT Physical Servers and Cloud Offerings:** Introduction to Cloud Storage Models and Communication APIs – WAMP – Xively Cloud for IoT – Amazon Web Services for IoT.	18
Unit V	**Case Studies Illustrating IoT Design:** Introdution – **Home Automation**: Smart Lighting - Home Intrusion Detection – **Agriculture:** Smart Irrigation.	18
	Total Contact Hrs	**90**

Pedagogy and **Assessment Methods**

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz, Assignments, Group Task

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Vijay Madisetti and Arshdeep Bahga	Internet of Things (A Hands-on-Approach)	1st Edition, VPT (Vardhaman Prakashan Technical), Meerut, India	2017

References Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Francis da Costa	Rethinking the Internet of Things: A Scalable Approach to Connecting Everything	1st Edition, A press Publications.	2015
2	https://electronics-project-hub.com/send-data-to-thingspeak-using-esp8266/			
3	https://www.instructables.com/id/ESP8266-to-IFTTT-Using-Arduino-IDE/			
4	https://virtronics.com.au/Simulator-for-Arduino.html			
5	https://www.slideshare.net/MohanKumarG/internetofthings-iot-aseminar-ppt-by-mohankumarg			
6	https://blog.infodiagram.com/2019/07/explain-internet-of-things-powerpoint.html			

Course Designed by	**Dr. R. Jayaprakash**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT6E9			Title	Batch:	2026-2029
				DSE III:Mobile Computing	Semester:	VI
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	4		Credits:	5

Course Objective

Understand the various concepts and techniques of WAP, GSM, CDMA, 2G, and 3G.
Gain knowledge about different mobile platforms and application development.

Course Outcomes

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

CO Number	CO Statement	
CO1	Understand various networks, standards, communication medium,Spread spectrum technology	PO1(2),PO2(1),PO3(1),PO4(1),PO5(1),PO10(3),PO11(2),PO15(2)
CO2	Analyze the basic concepts of wireless networks.	PO1(3),PO2(2),PO3(2),PO4(2),PO5(2),PO9(1),PO10(3),PO12(1)PO13(1),PO14(1)
CO3	Deploy the mobile applications to the devices.	PO1(3), PO4(3),PO5(2),PO7(2),PO8(2),PO10(3),PO12(1)
CO4	Demonstrate basic skills for cellular networks design.	PO1(3),PO4(3),PO5(3),PO7(1) PO8(2),PO10(3),PO11(3),
CO5	Examine to design and develop mobile computing solutions using various components of mobile computing	PO1(3), PO2(2),PO8(3), PO9(1),PO10(3),PO11(3),PO15(3)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO14	PO15
CO1	2	1	1	1	1	-	-	-	3	2	-	-	-	2	2
CO2	3	2	2	2	2	-	-	1	3	-	1	1	1	-	3
CO3	3	-	-	3	2	2	2	-	3	-	1	-	-	-	3
CO4	3	-	-	3	3	1	2	-	3	3	-	-	-	-	3
CO5	3	2	-	-	-	-	3	1	3	3	-	-	-	3	3

• 3 Point Scale – 1, 2, 3

26UCT6E9

DSE III:Mobile Computing

Units	Content	Hrs
Unit I	Introduction: Mobility of Bits and Bytes – Wireless the Beginning – Mobile Computing – Dialogue Control – Networks – Middleware and Gateways – Application and services - Security in mobile computing – Standards _ Why is it necessary – Standard bodies. Mobile Computing Architecture: Architecture for mobile computing – Three-tier architecture – Mobile computing through Internet – Making existing applications mobile enabled.	18
Unit II	Mobile Computing Through Telephony: Evaluation of telephony – Multiple access procedures – Mobile computing through telephone – IVR Application –Voice XML – TAPI. Emerging Technologies: Blue Tooth – RFID – WiMAX – Mobile IP – IPv6 – Java Card.	18
Unit III	GSM: Global System for mobile communications – GSM Architecture – GSM Entities – Call routing in GSM – PLMN Interfaces – GSM Addresses and Identifiers – Network Aspects in GSM – GSM Frequency allocations – Authentications and Security. SMS: Strengths – Architecture – SM MT – SM MO – VAS through SMS	18
Unit IV	GPRS: GPRS and packet data network – Architecture – Network Operations – Data services – Applications - Limitations – Billing and Charging. WAP: WAE – User agent & UAProf – WML – WSP – WTP – WDP – Gateway. MMS: Architecture – Transaction Flows	18
Unit V	CDMA and 3G: Spread spectrum technology. IS 95: Speech and Channel Coding – Architecture – Channel Structure. CDMA vs. GSM – Wireless Data. 3G: IMT & CDMA 2000 – Applications on 3G. Wireless LAN: Advantages – IEEE 802.11 standards – Types – 802.11 Architecture – Mobility – Deploying – Mobile Ad Hoc networks and sensor networks – Security – Wi-Fi vs. 3G	18
	Total Contact Hrs	**90**

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz, Assignments, Group Task

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Asoke K Talukder, Hasan Ahmed, Roopa R Yavagal	Mobile Computing: Technology, Applications and Service Creation	Tata McGraw-Hill Publishing Company Limited *(TMH)*, New Delhi, India, 2nd Edition	2017

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Jochen Schiller	Mobile Communication	Pearson Education Asia, 2nd Edition	2017
2	Christoffer Andersson	GPRS and 3G Wireless Applications	John Wiley and son's	2012
3	Raj Kamal	Mobile Computing	Oxford University Press, 3rd Edition	2019
4	https://nptel.ac.in/courses/106/106/106106147/			
5	https://www.tutorialspoint.com/mobile_computing/index.htm			
6	https://minigranth.in/mobile-computing-tutorial/bluetooth-technology-mobile-computing			
7	https://www.educba.com/gprs-architecture/			
8	https://www.javatpoint.com/wireless-lan-introduction			

Course Designed by	Dr. R. Jayaprakash	
Verified by HOD Name and Signature	Dr. M. Rajasenathipathi	
Approved by Chairman Academic Council	Dr.R.Manickachezian	

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Programme Code:	B.Sc., CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT620			Title	Batch:	2026-2029
				CC LAB IX: Framework Technologies Lab	Semester:	VI
Lecture Hrs./Week or Practical Hrs./Week	5	Tutorial Hrs./Sem.	-		Credits:	2

Course Objective

The student learns how to design, code, test and debug programs using VB.Net and ADO.Net.
To utilize .NET framework to build distributed enterprise applications.

Course Outcomes

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

CO Number	CO Statement	KnowledgeLevel
CO1	Analyze and apply the VB.NET IDE Framework	PO1(3), PO2(1), PO3(2), PO4(2), PO5(2), PO8(1), PO10(3), PO11(2), PO15(2)
CO2	Develop, design and implement VB.Net program using variouscontrols.	PO1(3), PO2(2), PO3(3), PO4(3), PO5(3), PO6(1), PO7(2), PO8(2), PO9(1), PO10(3), PO11(2), PO13(1), PO14(1), PO15(2)
CO3	To validate the concept of files and exception handling mechanism	PO1(3), PO2(2), PO3(3), PO4(3), PO5(3), PO6(1), PO7(1), PO8(3), PO9(1), PO10(3), PO11(2), PO13(1), PO14(1), PO15(2)
CO4	Implement ADO.Net connectivity	PO1(3), PO2(2), PO3(3), PO4(3), PO5(3), PO6(2), PO7(1), PO8(3), PO9(1), PO10(3), PO11(2), PO13(1), PO14(1), PO15(2)
CO5	Create their own applications with reports.	PO1(3), PO2(3), PO3(3), PO4(3), PO5(3), PO6(2), PO7(3), PO8(2), PO9(2), PO10(3), PO11(3), PO12(1), PO13(1), PO14(3), PO15(3)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO14	PO15
CO1	3	1	2	2	2	-	-	1	-	3	2	-	-	-	2
CO2	3	2	3	3	3	1	2	2	1	3	2	-	1	1	2
CO3	3	2	3	3	3	1	1	3	1	3	2	-	1	1	2
CO4	3	2	3	3	3	2	1	3	1	3	2	-	1	1	2
CO5	3	3	3	3	3	2	3	2	2	3	3	1	1	3	3

3 Point Scale – 1, 2, 3

CC LAB IX:Framework Technologies Lab

Units	Content	Hrs
Unit 1	**Sample Programs** **<u>VB.NET – Console Application</u>** 1. Create a Console Application for a simple stack operation in VB.Net 2. Create a Console Application for a simple queue operation in VB.Net 3. Develop a console application to illustrate the concept of exception handling using VB.Net 4. Develop a console application to illustrate the concept of Hash table using VB.Net 5. Develop a console application to illustrate the concept of Inheritance 6. Develop a console application to illustrate the concept of File handling **<u>VB.NET – Windows Application</u>** 1. Develop a Windows Form Application to generate the Bio-Data of a student 2. Develop a Windows Form Application to illustrate the concept of Tree-Node Control 3. Develop a Windows Form Application to perform the operations of a calculator 4. Develop a Windows Form Application to calculate and generate a telephone a bill 5. Develop a Windows Forms application to create and generate an E.B. Bill 6. Develop a Windows Form application to perform the operations of a Banking System. 7. Develop a windows forms application to create a notepad. 8. Create a Windows form application to develop a Basic Login form 9. Create a Windows Form application to develop an Employee Pay slip 10. Create a Windows Form application to develop a Vehicle invoice generation System 11. Create a Windows Form application to develop a Library book issue details system.	75
	Total Contact Hrs	75

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz, Assignments, Group Task.

Course Designed by	**Dr. R. Jayaprakash**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc., CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT621			Title	Batch:	2026-2029
				CC LAB X:	Semester:	VI
Lecture Hrs./Week or Practical Hrs./Week	5	Tutorial Hrs./Sem.	-	Cloud Workspace Lab	Credits:	2

Course Objective

To reinforce human connections is even more important when people are working remotely and interacting with their customers digitally.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	To illustrate the concept of quickly schedule meetings and events and get reminders about upcoming activities using calendar	PO1 (3), PO3 (1), PO4 (2)
CO2	Understand and integrate skills such as creating, editing, sharing, and customizing documents using documents.	PO1 (3), PO3 (2), PO4 (2), PO5 (2)
CO3	Validate the idea of creating and presenting professional presentations for sales, projects, training modules, and much more using Slides	PO3 (2), PO4 (3), PO5 (2), PO6 (1)
CO4	Develop data visualization options in Google Sheets, as well as how to use Google Forms	PO3 (2), PO4 (2), PO5 (3), PO10 (2)
CO5	Illustrate the concept of GMail and drives	PO3 (2), PO4 (3), PO5 (2), PO10 (3), PO11 (1)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO14	PO15
CO1	3	-	1	2	-	-	-	-	-	-	3	-	1	2	-
CO2	3	-	2	2	2	-	-	-	-	-	3	-	2	2	2
CO3	-	-	2	3	2	-	-	-	-	-	-	-	2	3	2
CO4	-	-	2	2	3	-	-	-	2	-	-	-	2	2	3
CO5	-	-	2	3	2	-	-	-	3	1	-	-	2	3	2

* 3 Point Scale – 1, 2, 3

CC LAB X:Cloud Workspace Lab

Content	Hrs
Sample Programs 1. Calendar: Create and manage events 2. Docs: Create and manage comments and action items, set preferences tosuit your work style, and use the Google Docs Explore tool. 3. Drive: Organize, protect, and share files. 4. Gmail : Compose, send, and reply to messages. 5. Meet & Chat : Manage video meetings and collaborate using instant messages 6. Sheets: Create and edit spreadsheets directly in your browser—no othersoftware is required. 7. Sheets Advanced Topic: Apply themes and conditional formatting, anduse advanced formulas and functions 8. Slides: Create and collaborate on professional presentations for proposals, sales, marketing, or training 9. Form: To create online forms and surveys with multiple question types	75
Total Contact Hrs	75

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation,

Course Designed by	**Dr. R. Jayaprakash**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Pollachi - 642 001, Coimbatore District.

Programme Code:	B.Sc.			Programme Title:	Computer Technology	
Course Code:	26UCT622			Title	Batch:	2026-2029
				Project	Semester:	VI
Lecture Hrs./Week or Practical Hrs./Week	-	Tutorial Hrs./Sem.	-		Credits:	4

Course Objective

1. To understand and select the task based on their core skills.
2. To get the knowledge about analytical skill for solving the selected task.
3. To get confidence for implementing the task and solving the real time problems.
4. Express technical and behavioral ideas and thought in oral settings.
5. Prepare and conduct oral presentations

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	To recollect the programming language concepts to think objectively, analytically, critically in developing industry oriented applications	PO1(2), PO2(2), Po3(2), PO4(1), PO5(2), PO7(2), PO9(2), PO12(2), PO13(2), PO15(2)
CO2	To comprehend about the data base connectivity using front end and back end tools	PO1(2), PO11(1), PO12(2)
CO3	To validate the application software by various types of testing and its implementation in real environment	PO2(3), PO4(3), PO10(3), PO11(3), PO13(3)
CO4	Design engineering solutions to complex problems utilizing a systems approach.	PO7(3), PO2(3), PO4(3), PO12(3), PO14(3),
CO5	Demonstrate the knowledge, skills and attitudes of a professional engineer.	PO1(2), PO2(3), PO8(2), PO9(2), PO11(2), PO12(3), PO15(3)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO14	PO15
CO1	2	2	2	1	2	-	2	-	2	-	-	2	2	-	2
CO2	2	-	-	-	-	-	-	-	-	-	1	2	-	-	-
CO3	-	3	-	3	-	3	-	-	-	3	3	2	3	-	-
CO4	-	3	-	3	-	-	3	-	-	-	-	3	-	3	-
CO5	2	3	-	-	-	-	-	2	2	-	2	3	-	-	3

* 3 Point Scale – 1, 2, 3

COMPUTER SCIENCE PROJECT and VIVA VOCE

Guidelines

Introduction

The title of the project work and the organization will be finalized at the end of fifth Semester. Each student will be assigned with a Faculty for guidance. The Project work and coding will be carried by using the facility of computer science lab as well as in the organization. Periodical review will be conducted to monitor the progress of the project work. Project report will be prepared and submitted at the end of the semester. External examiner appointed by the Controller of Examination will conduct the viva voce examination along with respective guide.

Area of Work

- Web Based Development
- Mobile app development
- Website development
- IoT Projects
- Big Data and Data Mining Projects
- Cloud Computing Projects
- Networking Projects
- Artificial Intelligence and Machine learning Projects
- Data Analytics Projects using Python, R, Tableau etc.

- System Software
- Web Security Projects
- Image Processing

Methodology

Arrangement of Contents

The sequence in which the project report material should be arranged and bound as follows:

1. Cover Page & Title Page
2. Bonafide Certificates
3. Declaration
4. Acknowledgement
5. Synopsis
6. Table of Contents
7. Chapters
8. Appendix
9. References

Format of Table of Contents

TABLE OF CONTENTS

Chapter No.	Title	Page No.
i	**Certificates**	
ii	**Declaration**	
iii	**Acknowledgement**	
iv	**Synopsis**	
1.	**Introduction**	

Introduction

Objective of the Project

Company Profile

System Specification

Hardware Specification

Software Specification

2 **System Study**

Existing System

2.1.2 Drawbacks

Proposed System

Planning and Scheduling

3 **System Design**

3.2 Overview of the Project

Modules of the Project

Input Design Format

Output Design

Table Design

Supporting Diagrams (ER/DFD/Use Case)

4 **Implementation and Testing**

Coding Methods

Testing Approach

Implementation and Maintenance

5 **Project Evaluation**

Project Outcome

Limitation of the Project

Further Scope of the Project

6 **Conclusion**

7 **Appendix**

Source Code

Screenshots and Reports

8 **References**

Size of the Project

The Project Report contents should be maximum of not exceeding 70 pages.

Course Designed by	**Dr. R. Jayaprakash**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	26UCT6S1			Title	Batch:	2026 - 2029
					Semester:	VI
Lecture Hrs./Week or Practical Hrs./Week	2	Tutorial Hrs./Sem	0	SEC IV – Naan Mudhalvan: MERN Stack Development Lab	Credits:	01

Course Objective

To educate the basic techniques for extracting information from large datasets such as the web and large document repositories.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	To keep in mind about the data analysis using Excel.	PO1(3), PO2(2), PO3(2), PO4(2), PO5(2),PO7(1), PO8(2), PO10(2),PO11(2), PO13(1)
CO2	To realize about sorting, cost benefit analysis, calculating mean and standard deviation	PO1(3), PO2(2),PO6(3), Po15(2)
CO3	To validate the use of analysis tools to conduct regression and forecasting and calculate descriptive statistics	PO1(3), PO2(2), PO4(3),PO5(3),PO11(3),PO15(3)
CO4	Visualize the data using basic graphs and plots	PO1(3), PO2(2),PO7(2), PO8(3), PO10(3), PO15(2)
CO5	Dissect the outliers if any in the data set and adapt techniques for handling multi-dimensional data	PO1(3), PO2(3), PO3(2), PO5(3), PO9(2), PO11(3), PO13(2), PO14(3), PO15(3)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO14	PO15
CO1	3	2	2	2	2	1	2	-	2	2	-	1	-		3
CO2	3	2									-			2	3
CO3	3	2		3	3					3	-	2		2	3
CO4	3	2				2	3		3		-			2	3
CO5	3	3	2		3			2		3		2	3	3	3

* 3 Point Scale – 1, 2, 3

SEC IV – Naan Mudhalvan:

MERN Stack Development Lab

Units	Content	Hrs
Unit I	**Sample Programs** 1. Create a Program Simple Calculator application using React JS 2. Create a Voting application Using React JS 3. Create a Simple Login form Using React JS 4. Write a Node .js Program to replace string using regular expression 5. Write a node .js Program to get file or directories of a directory in JSON format. 6. Create HTTP server and Interacting with client using Node JS 7. Create new Recode in Mongo DB with all Operations 8. Create a REST backend API with Express 9. Configure the Controllers with Mongo DB 10. Build Migration of Data into Mongo DB 11. Develop an application to store , Maintain data using Node JS 12. Build a full stack app with React, Redux, Node, Express and Mongo DB.	30
	Total Contact Hrs	**30**

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation Seminar, Quiz, Assignments, Group Task.

Course Designed by	**Dr. R. Jayaprakash**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	26UCT6S2			Title	Batch:	2026 - 2029
				SEC II – Naan Mudhalvan : Animation Lab	Semester:	VI
Practical Hrs./Week	2	Tutorial Hrs./Sem	0		Credits:	01

Course Objective

To focus on using Photoshop and Flash to become expertise in life-drawing and related techniques.

Course Outcomes

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

CO Number	CO Statement	
CO1	Gained basic concepts and understanding of tools related to 3D production	PO1(3), PO2(1), PO3(2), PO4(2), PO5(2), PO8(1), PO10(3), PO11(2), PO15(2)
CO2	To familiarize with various approaches, methods and techniques of Animation Technology.	PO1(3), PO2(2), Po3(3), PO4(3), PO5(3), PO7(1), PO8(2), PO10(3)
CO3	Emphasis will be on conceptualization, creativity, and visual aesthetics	PO1(3), PO4(3), PO6(1), PO8(1), PO9(1), PO12(3), PO13(1), PO14(1)
CO4	Developing concepts, storyboarding and production of several 2 dimensional animations will be accomplished.	PO1(3), PO3(3), PO6(3), PO8(3), PO9(1), PO11(3), PO15(2)
CO5	Takes through various aspects of animation using a variety of 2 dimensional software.	PO1(3), PO4(3), PO6(3), PO9(1), PO10(3), PO15(2)

* 3 Point Scale – 1, 2, 3

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO14	PO15
CO1	3	1	2	2	2	-	1	-	3	2	-	-	-	2	3
CO2	3	2	3	3	3	1	2	-	3	-	-	-	-	-	3
CO3	3	-	-	3	-	-	2	1	-	-	3	1	1	-	3
CO4	3	-	3	-	-	-	3	1	-	3	-	-	-	2	3
CO5	3	-	-	3	-	-	-	1	3	2	-	-	-	2	3

* 3 Point Scale – 1, 2, 3

SEC II – Naan Mudhalvan : Animation Lab

Units	Content	Hrs
Sample Programs	Using Photoshop and Animation, • Volcano Eruption • Drawing and Creating Text with Effects • Rotating Globe • Fog Effect • Lightning Effect • Animated Effect • Raining Effect • Cropping an Object	30
	Total Contact Hrs	30

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation, Seminar, Quiz, Assignments, Group Task.

Course Designed by	**Dr. R. Jayaprakash**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

Dr. M. RAJASENATHIPATHI M.A.,M.C.A.,M.Phil.,Ph.D.
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	26UCT6AL			Title	Batch:	2026-2029
Lecture Hrs./Week or Practical Hrs./Week	SS	Tutorial Hrs./Sem.	SS	Advanced Learner Course (ALC) –II Agentic AI Systems	Semester:	VI
					Credits:	02

Course Objective

To clearly define the core concepts, components, and characteristics of Agentic AI and enable students to implement agent-based applications using industry-relevant platforms.

Course Outcomes

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

CO Number	CO Statement	
CO1	Understanding the fundamental architecture of an Agentic AI system	PO1(2),PO2(1),PO3(1),PO4(1), PO5(1),PO10(3),PO11(2),PO15(2)
CO2	Design and construct a multi-agent system to collaboratively solve a complex, real-world problem	PO1(3),PO2(2),PO3(2),PO4(2), PO5(2),PO9(1),PO10(3),PO12(1)PO13(1),PO14(1)
CO3	Analyzing the performance and limitations of different AI agent frameworks for specific business needs	PO1(3), PO4(3),PO5(2),PO7(2),PO8(2),PO10(3),PO12(1)
CO4	Implement advanced prompt engineering strategies, such as Chain-of-Thought, for enhancing agent reasoning capabilities.	PO1(3),PO4(3),PO5(3),PO7(1)PO8(2),PO10(3),PO11(3),
CO5	Critique the ethical risks and governance challenges associated with deploying autonomous and self-improving AI agents.	PO1(3), PO2(2),PO8(3), PO9(1),PO10(3),PO11(3),PO15(3)

Mapping

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO14	PO15
CO1	2	1	1	1	1	-	-	-	3	2	-	-	-	2	2
CO2	3	2	2	2	2	-	-	1	3	-	1	1	1	-	3
CO3	3	-	-	3	2	2	2	-	3	-	1	-	-	-	3
CO4	3	-	-	3	3	1	2	-	3	3	-	-	-	-	3
CO5	3	2	-	-	-	-	3	1	3	3	-	-	-	3	3

*3 Point Scale – 1, 2, 3

Advanced Learner Course (ALC) –II

Agentic AI Systems

Units	Content	Hrs
Unit I	**Understanding of Agentic AI:** What is Agentic AI? - What are the advantages of Agentic AI? - How Agentic AI works? - Examples of Agentic AI - Challenges for Agentic AI systems - Real-World Applications and Current Market Adoption.	SS
Unit II	**Agentic AI and Generative AI:** Agentic AI vs. generative AI - Features of Agentic AI and generative AI.	
Unit III	**Agentic AI and Generative AI:** Use cases for Agentic AI and generative AI - Types of AI agents.	
Unit IV	**Agentic AI Architecture and Core Components**: Components of AI agents - Agentic architecture: Overview - How Agentic architecture works.	
Unit V	**Types of Agentic Architectures**: Single-agent architectures, Multi-agent architectures, Agentic frameworks.	
	(*SS – Self Study)Total Contact Hrs	SS

Pedagogy and Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation,

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Ken Huang	Agentic AI – Theories and Practices	1st Edition, Springer Cham, Switzerland. ISBN: 978-3-031-90025-9 .	2025

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Anjanava Biswas & Wrick Talukdar	Building Agentic AI Systems: Create Intelligent, Autonomous AI Agents That Can Reason, Plan, and Adapt	1nd Edition, ISBN-10: 1803238755, ISBN-13: 978-1803238753 / Packt Publishing	2025
2	https://labs.adaline.ai/p/the-5-levels-of-agentic-ai			
3	https://www.uipath.com/ai/agentic-ai			
4	https://www.ibm.com/think/topics/agentic-ai			
5	https://www.virtuosoqa.com/post/agentic-ai-vs-generative-ai			
6	https://cloud.google.com/discover/what-is-agentic-ai			

Course Designed by	**Dr. R. Jayaprakash**	
Verified by HOD Name and Signature	**Dr. M. Rajasenathipathi**	
Approved by Chairman Academic Council	**Dr.R.Manickachezian**	

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DEPARTMENT OFCOMPUTER TECHNOLOGY

NALLAMUTHU GOUNDER MAHALINGAM COLLEGE

POLLACHI - 642001

16th Board of Studies Meeting in the Department of Computer Technology

Date: 07.03.2026 Time: 10.00 A.M to 2.00 P.M

Agenda

BoS / CT 16.1	:	Welcome address and Opening Remarks by Chairman, Board of studies in the DEPARTMENT OF COMPUTER TECHNOLOGY.
BoS / CT 16.2	:	Confirmation of the Minutes of the 15th / Previous meeting of Board of studies in the DEPARTMENT OF COMPUTER TECHNOLOGY held on 07.03.2026 and Action taken report of 15th meeting of Board of studies
BoS / CT 16.3	:	16.3.1 Syllabus of I BSc COMPUTER TECHNOLOGY under Regulation 2026
		16.3.2 Syllabus of II BSc COMPUTER TECHNOLOGY under Regulation 2026
		16.3.3 Syllabus of III BSc COMPUTER TECHNOLOGY under Regulation 2026
		16.3.4 Syllabus Ratification of II B.Sc COMPUTER TECHNOLOGY (Batch : 2024-2027) for semester V to VI under Regulation 2026.
		Any other Discussions if any
BoS / CT 16.4	:	Suggestion given by BOS Members
BoS / CT 16.5	:	Any other items

BoS/CT 16.3

BoS/CT 16.3.4

'6.3.4 Syllabus Ratification of II B.Sc COMPUTER TECHNOLOGY (Batch : 2024-2027) for emester V to VI under Regulation 2026.

Training and Placement Cell, through the Minutes of the Meeting of the Computer Science Cl Heads, resolved to introduce a **WIPRO CoE (Centre of Excellence) Course titled Enterprise Digital Workspace (DWS) for the batch 2024–2027**. The course is introduced for Computer Science Cluster students including B.Sc. Computer Science, B.Sc. CT, B.Sc. IT, BCA, and etc., programmes. The total duration of the course is 180 hours, distributed across Semester V and Semester VI, with 90 hours in each semester, carrying 4 credits per semester.

S. No	Semester	Course Title
1	V	**Add-On Diploma Course:** Enterprise Digital Workspace (DWS) – I
2	VI	**Add-On Diploma Course:** Enterprise Digital Workspace (DWS) – II

same courses was offered to the Batch 2023–2026 as an Advanced Learners Course (AL I & II), and the credits earned were recorded in the Consolidated Mark Statement.

Further, the proposal was placed before the Board of Studies (Computer Technology) and was **approved** and **resolved in the 16th Board of Studies meeting held on 07.03.2026.**