Nallamuthu Gounder Mahalingam College (Autonomous)

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Affiliated to Bharathiar University, Coimbatore.

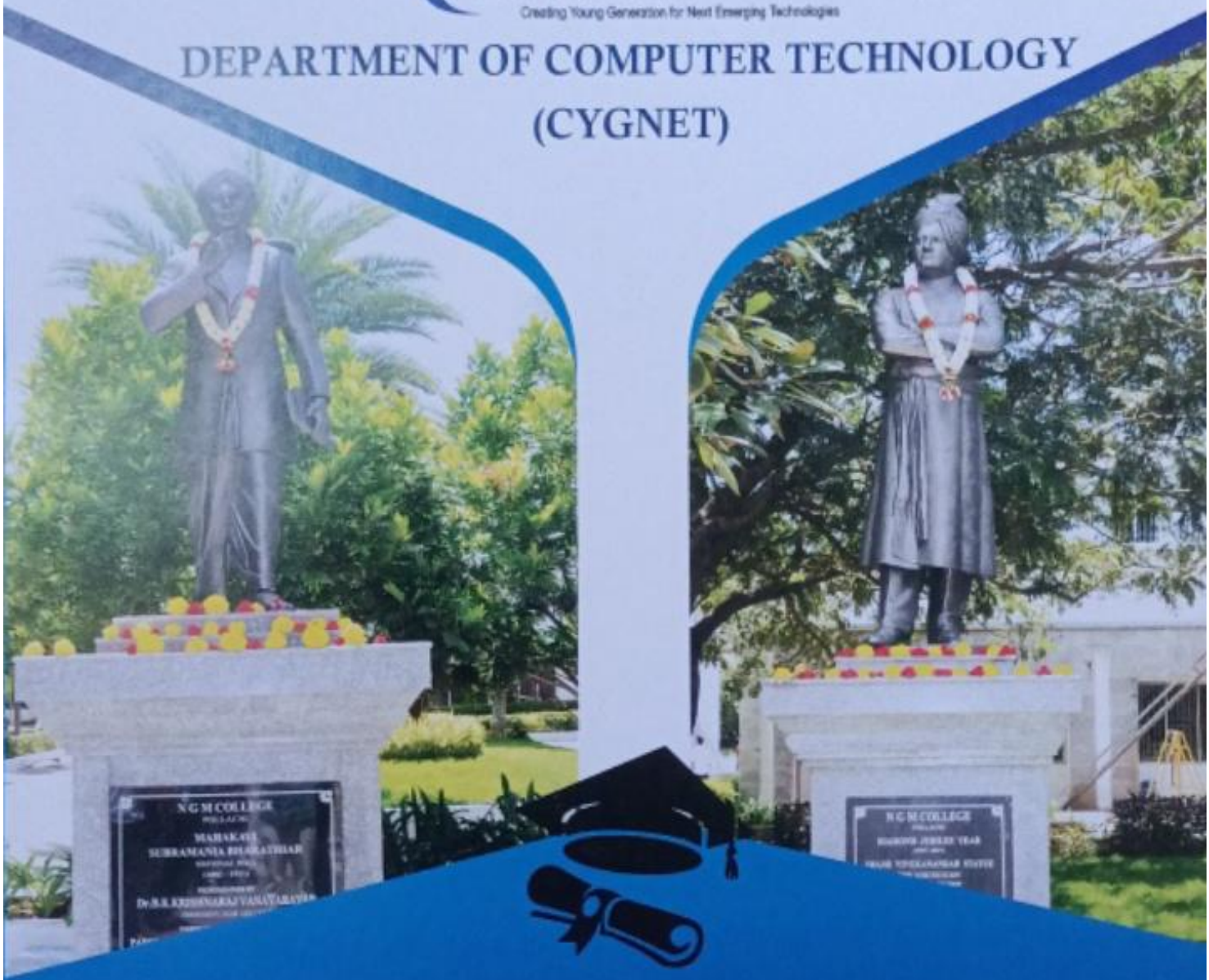
POLLACHI - 642 001.

NGMC EXPANSION WITH EXCELLENCE

CYGNET

Creating Young Generation for Next Emerging Technologies

DEPARTMENT OF COMPUTER TECHNOLOGY (CYGNET)



Ranked in the Rank Band 95 among Colleges in India by MHRD - NIRF 2023

ACADEMIC COUNCIL MEETING

EMPOWER THE YOUTH TO ENRICH THE NATION

18.06.2024

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Estd. 1957

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Academic Council Meeting

18.06.2024

DEPARTMENT OF COMPUTER TECHNOLOGY - CYGNET

CT

NALLAMUTHU GOUNDER MAHALINGAM COLLEGE
(AUTONOMOUS)
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Affiliated to Bharathiar University, Coimbatore
Ranked 95th among Colleges in India by NIRF Ranking 2023

POLLACHI – 642 001

MEETING OF THE ACADEMIC COUNCIL : 18.06.2024

PROGRAMME

DAY: TUESDAY **TIME: 02.30 p.m.**

1. Welcome by the Principal and Introduction of New Members.
2. Preliminary presentation of the OFFICIAL AGENDA by the Principal (Chairman of the Academic Council).
3. All the Official Resolutions will be moved as per the Official Agenda.

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POLLACHI – 642 001

NGMC EXPANSION WITH EXCELLENCE

LIST OF ACADEMIC COUNCIL MEMBERS

(Meeting on 18.06.2024 – Tuesday – 02.30 p.m.)

1.	Principal	:	Dr. R. Manicka chezian
2.	Curriculum Development Cell	:	**(Chairman)**
		:	Mr. K. Srinivasan
3.	Head of Departments	:	**(Co-Ordinator)**
	(Aided Programmes)	:	Dr. P. Maheswari
		:	Dr. S. Muthukumaravel
		:	Dr. V. Inthumathi
		:	Dr. T.E. Manjulavalli
		:	Dr. Indumathy Ramasamy
		:	Dr. A. Logamadevi
		:	Dr. S. Somasundaram
		:	Mr.K.Srinivasan
		:	Dr. K.Mangaiyarkarasi
		:	Mr.N.Anbuarasu
4.	Physical Director	:	Dr. P. Bruntha
5.	Librarian	:	Dr. R. Ashok Kumar
	(Special Invitees)	:	Dr. S. Vijayakumar
6.	Director	:	Dr.S.Saravanababu
7.	Dean-Research	:	Dr.S.Umapathy
	(Self – Financing Programmes)		
8.	Head Of Departments	:	Dr. N. Radha
	(Self-Financing Programmes)	:	Dr.T. Rajkumar
		:	Dr. G. Vignesh
		:	Dr. L. Ranjit
		:	Dr. M. Sakthi
		:	Dr. P. Anitha
		:	Mrs.K.Vimaladevi
		:	Dr. R. Rakkimuthu
		:	Dr. T. Parameswari
		:	Dr. N. Bagyalakshmi
		:	Dr. R. Nandhakumar
		:	Mr.D. Bhuvanendran
		:	Dr. K. Haridas
		:	Dr. P. Archanaa
		:	Mr. K. Vijayakumar
		:	Dr. M.V. Sathyabama
		:	Dr. G. Akilandeswari
		:	Dr. M. Rajasenathipathi
		:	Dr. M. Jeeva
		:	Dr. S.B. Gayathri
		:	Dr. M. Akilanayaki
		:	Dr. N. Bhuvaneshkumar
		:	Dr. E. Ramadevi
		:	Dr. S. Niraimathi
		:	Ms. S. Jeyalakshmi

(...2...)

		Ms. D. Dhirowpathi Mr. N. Henry Narwil
9	Associate NCC Officer	Dr. M. Chithiraiselvan
10.	NSS Programme Co-ordinator	Dr. R. Somasundaram
11	Senior Teachers of Different Levels of Teaching Staff by Rotation on the Basis of Seniority	Ms. N.Revathi Dr. J. Jayasudha
12	Four Management Nominees	**Industry** Thiru. T. Rajkumar, Director, Sakthi Group of Companies, Chairman – Confideration of Indian Textile Industries, Chairman – Sri Maha Sakthi Mills Ltd., Coimbatore
		Academic Dr. Vijila Edwin Kennedy, Principal, KCT Liberal Arts and Science College, Coimbatore
		Management Representative Mr. G. Muniasamy, Executive Director, Kumaraguru Institutions, Coimbatore.
13	Three Nominees of the Bharathiar University	Dr. R. Sathishkumar Professor & Head Department of Biotechnology, Bharathiar University, Coimbatore.
		Dr. A. Ponnusamy, Syndicate Member, Principal, Hindustan College of Arts & Science College, Coimbatore.
		Dr. M. Punithavalli, Professor,Department of Computer Applications, Bharathiar University, Coimbatore.
14	Member Secretary	Mr.K.Srinivasan, Head of Department of Computer Science

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POLLACHI

31st MEETING OF THE ACADEMIC COUNCIL

Date : 18.06.2024 **Venue : Board Room**

Day : Tuesday **Time : 2.30 P.M.**

AGENDA

ITEM INTRODUCTION OF NEW MEMBERS.

I. SYLLABI & SCHEME OF EXAMINATIONS for PART-I: TAMIL for UG DEGREE PROGRAMMES (AIDED & SELF-FINANCING) (I to IV SEMESTERS – 2024-2026 BATCH)

II. SYLLABI & SCHEME OF EXAMINATIONS for PART-I: HINDI for UG DEGREE PROGRAMMES (AIDED & SELF-FINANCING) (I to IV SEMESTERS – 2024-2026 BATCH)

III. SYLLABI & SCHEME OF EXAMINATIONS for PART-I: FRENCH for UG DEGREE PROGRAMMES (AIDED & SELF- FINANCING) (I to IV SEMESTERS – 2024-2026)

IV. SYLLABI & SCHEME OF EXAMINATIONS FOR PART-II: ENGLISH for UG DEGREE PROGRAMMES (AIDED & SELF-FINANCING) (I to VI SEMESTERS–2024-2026 BATCH).

V. SYLLABI & SCHEME OF EXAMINATIONS for B.Sc.-MATHEMATICS (AIDED) DEGREE PROGRAMME (I to VI SEMESTERS – 2024-2027 BATCH and ANCILLARY MATHEMATICS SYLLABI for B.Sc.-PHYSICS & B.Sc.-CHEMISTRY DEGREE PROGRAMMES (I & II SEMESTERS – 2024-2027 BATCH).

VI. SYLLABI & SCHEME OF EXAMINATIONS for B.Sc.-PHYSICS DEGREE PROGRAMME (AIDED) (I to VI SEMESTERS – 2024-2027 BATCH) and ANCILLARY PHYSICS SYLLABI for B.Sc.-MATHEMATICS & B.Sc.-CHEMISTRY DEGREE PROGRAMMES (III & IV SEMESTERS – 2024-2027 BATCH).

VII. SYLLABI & SCHEME OF EXAMINATIONS for B.Sc.-CHEMISTRY DEGREE PROGRAMME (AIDED) (I to VI SEMESTERS – 2024-2027 BATCH) and ANCILLARY CHEMISTRY SYLLABI for B.Sc.-PHYSICS, B.Sc.-BOTANY & B.Sc.-ZOOLOGY DEGREE PROGRAMMES (III & IV SEMESTERS – 2024-2027 BATCH).

VIII. SYLLABI & SCHEME OF EXAMINATIONS for B.Sc.-BOTANY DEGREE PROGRAMME (AIDED) (I to VI SEMESTERS – 2024-2027 BATCH) and ANCILLARY BOTANY SYLLABI for B.Sc.-ZOOLOGY DEGREE PROGRAMME (I & II SEMESTERS – 2024-2027 BATCH).

(...2...)

IX. SYLLABI & SCHEME OF EXAMINATIONS for B.Sc.-ZOOLOGY DEGREE PROGRAMME (AIDED) (I to VI SEMESTERS – 2024-2027 BATCH) and ANCILLARY ZOOLOGY SYLLABI for B.Sc.-BOTANY DEGREE PROGRAMME (I & II SEMESTERS – 2024-2027 BATCH).

X. SYLLABI & SCHEME OF EXAMINATIONS for B.Sc.-COMPUTER SCIENCE DEGREE PROGRAMME (AIDED & SELF-FINANCING) (I & VI SEMESTERS – 2024-2027 BATCH.

XI. SYLLABI & SCHEME OF EXAMINATIONS for B.A.-HISTORY DEGREE PROGRAMME (AIDED) (I to VI SEMESTERS – 2024-2027 BATCH)

XII. SYLLABI & SCHEME OF EXAMINATIONS for B.A.-ECONOMICS DEGREE PROGRAMME (AIDED) (I to VI SEMESTERS – 2024-2027 BATCH).

XIII. SYLLABI & SCHEME OF EXAMINATIONS for B.A.-ENGLISH LITERATURE DEGREE PROGRAMME (AIDED) I & VI SEMESTERS (2024-2027 BATCH).

XIV. SYLLABI & SCHEME OF EXAMINATIONS for B.Com. DEGREE PROGRAMME (AIDED & SELF-FINANCING) (I to VI SEMESTERS-2024-2027 BATCH), B.A-ECONOMICS DEGREE PROGRAMME (AIDED) (I SEMESTER - 2024-2027 BATCH) AND ANCILLARY SYLLABI FOR B.SC-COMPUTER SCIENCE DEGREE PROGRAMMING (AIDED & SELF FINANCING IV-SEMESTER 2024-2027 BATCH)

XV. SYLLABI & SCHEME OF EXAMINATIONS for M.Sc.-MATHEMATICS DEGREE PROGRAMME (AIDED) (I to IV SEMESTERS – 2024-2026 BATCH).

XVI. SYLLABI & SCHEME OF EXAMINATIONS for M.Sc.-PHYSICS DEGREE PROGRAMME (AIDED) (I to IV SEMESTERS – 2024-2026 BATCH).

XVII. SYLLABI & SCHEME OF EXAMINATIONS for M.Com. DEGREE PROGRAMME (AIDED) (I to IV SEMESTERS – 2024-2026 BATCH).

XVIII. SYLLABI & SCHEME OF EXAMINATIONS for M.A.-ENGLISH LITERATURE DEGREE PROGRAMME (SELF-FINANCING) (I to IV SEMESTERS–2024-2026 BATCH).

XIX. SYLLABI & SCHEME OF EXAMINATIONS for M.A.-TAMIL LITERATURE DEGREE PROGRAMME (SELF-FINANCING) (I to IV SEMESTERS–2024-2026 BATCH).

XX. SYLLABI & SCHEME OF EXAMINATIONS for M.Com.-I.B DEGREE PROGRAMME (SELF-FINANCING) (I to IV SEMESTERS–2024-2026 BATCH)

XXI. SYLLABI & SCHEME OF EXAMINATIONS for M.S.W. DEGREE PROGRAMME (SELF-FINANCING) (I to IV SEMESTERS–2024-2026 BATCH).

XXII. SYLLABI & SCHEME OF EXAMINATIONS for M.Sc.-COMPUTER SCIENCE DEGREE PROGRAMME (SELF-FINANCING) (I to IV SEMESTERS–2024-2026 BATCH).

(...3...)

XXIII. SYLLABI & SCHEME OF EXAMINATIONS for M.Com.-C.A. DEGREE PROGRAMME (SELF-FINANCING) (I to IV SEMESTERS–2024-2026 BATCH).

XXIV. SYLLABI & SCHEME OF EXAMINATIONS for M.Sc.-CHEMISTRY DEGREE PROGRAMME (SELF-FINANCING) (I to IV SEMESTERS–2024-2026 BATCH).

XXV. SYLLABI & SCHEME OF EXAMINATIONS for M.Sc.-BOTANY DEGREE PROGRAMME (SELF-FINANCING) (I to IV SEMESTERS–2024-2026 BATCH).

XXVI. SYLLABI & SCHEME OF EXAMINATIONS for B.B.A. DEGREE PROGRAMME (SELF-FINANCING) (I to VI SEMESTERS – 2024-2027 BATCH).

XXVII. SYLLABI & SCHEME OF EXAMINATIONS for B.Com.-C.A. DEGREE PROGRAMME (SELF-FINANCING) (I to VI SEMESTERS – 2024-2027 BATCH).

XXVIII. SYLLABI & SCHEME OF EXAMINATIONS for B.C.A. DEGREE PROGRAMME (SELF-FINANCING) (I to VI SEMESTERS – 2024-2027 BATCH).

XXIX. SYLLABI & SCHEME OF EXAMINATIONS for B.A.-TAMIL LITERATURE DEGREE PROGRAMME (SELF-FINANCING) (I to VI SEMESTERS – 2024-2027 BATCH).

XXX. SYLLABI & SCHEME OF EXAMINATIONS for B.Sc.-INFORMATION TECHNOLOGY DEGREE PROGRAMME (SELF-FINANCING) (I to VI SEMESTERS – 2024-2027 BATCH).

XXXI. SYLLABI & SCHEME OF EXAMINATIONS for B.Com.-E-COMMERCE DEGREE PROGRAMME (SELF-FINANCING) (I to VI SEMESTERS–2024-2027 BATCH).

XXXII. SYLLABI & SCHEME OF EXAMINATIONS for B.Com.-FINANCE DEGREE PROGRAMME (SELF-FINANCING) (I to VI SEMESTERS – 2024-2027 BATCH).

XXXIII. SYLLABI & SCHEME OF EXAMINATIONS for B.Sc.-COMPUTER TECHNOLOGY DEGREE PROGRAMME (SELF-FINANCING) (I to VI SEMESTERS – 2024-2027 BATCH). to be approve

XXXIV. SYLLABI & SCHEME OF EXAMINATIONS for B.Com.-BANKING AND INSURANCE DEGREE PROGRAMME (SELF-FINANCING) (I to VI SEMESTERS – 2024-2027 BATCH).

XXXV. SYLLABI & SCHEME OF EXAMINATIONS for B.Com.- PROFESSIONAL ACCOUNTING DEGREE PROGRAMME (SELF-FINANCING) (I to VI SEMESTERS – 2024-2027 BATCH).

(...4...)

XXXVI. SYLLABI & SCHEME OF EXAMINATIONS for B.Com.-BUSINESS PROCESS SERVICES DEGREE PROGRAMME (SELF-FINANCING) (I to VI SEMESTERS – 2024-2027 BATCH).

XXXVII. SYLLABI & SCHEME OF EXAMINATIONS for B.Com.-I.B DEGREE PROGRAMME (SELF-FINANCING) (I to VI SEMESTERS – 2024-2027 BATCH).

XXXVIII. SYLLABI & SCHEME OF EXAMINATIONS for B.Sc.-COMPUTER SCIENCE WITH DATA ANALYTICS DEGREE PROGRAMME (SELF-FINANCING) (I & VI SEMESTERS – 2024-2027 BATCH). AND (III TO VI SEMESTERS – 2023 – 2026 BATCH).

XXXIX. SYLLABI & SCHEME OF EXAMINATIONS for B.Sc.-COMPUTER SCIENCE WITH ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING DEGREE PROGRAMME (SELF-FINANCING) (I & VI SEMESTERS – 2024-2027 BATCH). AND (III TO VI SEMESTERS – 2023 – 2026 BATCH).

XL. SYLLABI & SCHEME OF EXAMINATIONS for B.S.W DEGREE PROGRAMME (SELF-FINANCING) (I to VI SEMESTERS – 2024-2027 BATCH). AND (III TO VI SEMESTERS – 2023 – 2026 BATCH).

XLI. SYLLABI & SCHEME OF EXAMINATIONS for HUMAN EXCELLENCE FOR UG DEGREE PROGRAMMES (AIDED & SELF-FINANCING) (I to VI SEMESTERS – 2024-2027 BATCH).

XLII. PRIVATE RESOLUTIONS.

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ITEM-XXXIII: REVISED SYLLABI AND SCHEME OF EXAMINATIONS for B.Sc.-COMPUTER TECHNOLOGY for U.G. DEGREE PROGRAMMES (SELF-FINANCING)

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The BOARD of STUDIES in B.Sc.-COMPUTER TECHNOLOGY met on TUESDAY-18.06.2024 and formulated REVISED SYLLABI for U.G. DEGREE PROGRAMMES (SELF-FINANCING).

The revised materials are annexed.

The Standing Committee of the Academic Council recommends and

Dr. M. RAJASENATHIPATHI moves that

i) The REVISED SYLLABI be approved and

SYLLABI & SCHEME OF EXAMINATIONS for B.Sc.-COMPUTER TECHNOLOGY DEGREE PROGRAMME (SELF-FINANCING) (I to VI SEMESTERS – 2024-2027 BATCH).

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NALLAMUTHU GOUNDER MAHALINGAM
COLLEGE (AUTONOMOUS)



U.G. DEPARTMENT OF COMPUTER TECHNOLOGY

(C.T.)

CYGNET

SYLLABUS

2024 – 2027 Batch

(With Effect From 2024-2027 Batch and Onwards)

DEPARTMENT OF COMPUTER TECHNOLOGY

Syllabus

BATCH: 2024 – 2027

Faculty Members

Dr. M. Rajasenathipathi, M.C.A., M. Phil.,Ph.D.,

Ms. C. Keerthana, M.Sc., M. Phil., (Ph.D).,

Ms. K. S. Leelavathi, M.Sc., M. Phil., NET., SET., (Ph.D).,

Dr. R. Jayaprakash, M.C.A., M.Phil., Ph.D.,

Dr. A. Kalaivani, M.C.A., M. Phil., Ph.D.,

Ms. D. Poongodi, M.C.A., M. Phil.,

Nallamuthu Gounder Mahalingam College

An Autonomous Institution affiliated to Bharathiar University

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Pollachi – 642 001.

NALLAMUTHU GOUNDER MAHALINGAM COLLEGE

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.

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 OF COMPUTER TECHNOLOGY

Vision

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

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:

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.
PEO5	Apply the knowledge of various levels of security in computer field.

Program Outcomes:

PO1	***Problem solving:*** Under Graduate students are to apply, algorithmic, real time and Industry standard reasoning to a variety of computational problems.
PO2	***Problem solving:*** Understand the fundamental knowledge of various domains in IT Industry and change their currier as per industry Demand.
PO3	***Self-directed learning:*** Combine the knowledge of mathematics and Software Technologies in the field of Software project development
PO4	***Information/digital literacy:*** Implement industry standard projects of their own choice using latest tools.
PO5	***Analytical reasoning***: Improve the aptitude skill to clear various levels of entrance exams in their carrier.
PO6	***Physical and mental wellness:*** The Under Graduate students are recognize the Human Excellence and ethical responsibilities through yoga in various disciplines
PO7	***Reflective thinking and Communication Skills***: Demonstrate global Industry demand related subjects and transferable skills that a relevant to global industry and employment opportunities
PO8	***Self-directed learning*** : Graduates will recognize the need for self-motivation and lifelong learning toupdate in technologies to be in par with changing technology
P09	***Cooperation/Team work***: Ability to analyze the local and global impact of computing on individuals, organizations and society.
P10	***Multicultural competence:*** Identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large.

Program Specific Outcomes:

PSO – 01	*Professional Skills*: The graduates will acquire academic excellence with professional skill for employment and higherstudies.
PSO – 02	*Modern Tool Usage*: The graduates will get knowledge to create, select and apply modern tools and techniques to analyze and developsuccessful software in IT Industry.

Mapping

PO \ PEO	PEO1	PEO2	PEO3	PEO4	PEO5
PO1	H	M	M	M	L
PO2	H	L	H	M	M
PO3	H	H	M	M	L
PO4	H	M	H	H	H
PO5	M	H	L	H	M
PO6	H	M	H	M	L
PO7	H	L	H	H	M
PO8	M	H	M	H	M
PO9	H	M	M	H	H
PO10	M	M	L	H	H
PSO-01	H	H	H	H	H
PSO-02	H	H	H	H	H

*H-High; M-Medium; L-Low

B.Sc.– For Computer Technology

(FOR THE CANDIDATES ADMITTED FROM THE ACADEMIC YEAR 2024 - 2027 ONWARDS)

I toVI 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	24UTL1C1	Tamil Paper-I	5	-	-	3	25	75	100	3
	24UHN1C1	Hindi Paper-I								
	24UFR1C1	French Paper-I								
II	24UEN101 / 24UEN102	Communication Skills – I (Level I) / Communication Skills – I (Level II)	5	-	-	3	25	75	100	3
III	24UCT101	**CC I**: Programming in C	4			3	25	75	100	4
	24UCT102	**CC II**: Digital Fundamentals and Computer Organization	4			3	25	75	100	4
	24UCT1A1/ 24UCT1A2	**GE I – Allied I**: Mathematics - I: Discrete Mathematics / Mathematical Structures For Computer Science	5			3	25	75	100	4
	24UCT103	**CC Lab I**: Programming in C		4			20	30	50	2
IV		**AECC I:** Environmental Studies	2	-	-	2	-	50	50	2
	24HEC101	Human Excellence - Personal Values & SKY Yoga Practice - I	1	-	-	2	20	30	50	1
V		Extension Activities – Annexure I	-	-	-	-	-	-	-	-
EC		Online Course (Optional) (MOOC / NPTEL / SWAYAM)								Grade
Total			**30**				**165**	**485**	**650**	**23**

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

CC – Core Course; GE – Generic Elective; AECC - Ability Enhancement Compulsory Course

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	24UTL2C2	TamilPaper-II	5	-	-	3	25	75	100	3
	24UHN2C2	Hindi Paper-II								
	24UFR2C2	French Paper-II								
II	24UEN202 / 24UEN203	Communication Skills – II (Level I) / Communication Skills – II (Level II)	5	-	-	3	25	75	100	3
III	24UCT204	**CC III**: Java programming	4			3	25	75	100	4
	24UCT205	**CC IV**: Data Structures	4			3	25	75	100	4
	24UCT2A1 / 24UCT2A2	**GE II – Allied II**: Mathematics II – Operations Research / Statistics	5			3	25	75	100	4
	24UCT206	**CC Lab II**: Java programming Lab		4		3	20	30	50	2
IV	24UCT2S1/ 24UEL2S1	**SEC I**: Naan Mudhalvan : Advanced Excel Lab/ Professional Skills		2		2	20	30	50	2
	24HEC202	Human Excellence - Family Values & SKY Yoga Practice - II	1			2	20	30	50	1
V		Extension Activities - Annexure I	-	-	-	-	-	-	-	-
EC	24CMM201	ManaiyiyalMahathuvam - I			15 Hrs.	2	-	50	50	Grade
	24CUB201	UzhavuBharatham - I			15 Hrs.	2	-	50	50	Grade
		Online Course (Optional) (MOOC / NPTEL / SWAYAM)								Grade
Total			**30**				**185**	**465**	**650**	**23**

EC – Extra Credit Course / Certificate Course / Co-scholastic Course / Job Oriented Course
CC – Core Course; GE – Generic Elective; AECC - Ability Enhancement Compulsory Course;
SEC – Skill Enhancement Course

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	24UTL3C3	Tamil Paper-III	3	-	-	3	25	75	100	3
	24UHN3C3	Hindi Paper-III								
	24UFR3C3	French Paper-III								
II	24UEN3C3	Communication Skills – III	3	-	-	3	25	75	100	3
III	24UCT307	**CC V**: Advanced Java Programming	4			3	25	75	100	4
	23UCT308	**CC VI**: Database Management Systems	4			3	25	75	100	4
	24UCT3A1 / 24UCT3A2	**GE III – Allied III**: Operating Systems / Fundamentals of Blockchain Technology	5			3	25	75	100	4
	24UCT309	**CC Lab III**: Advanced Java Programming Lab		4		3	20	30	50	2
	24UCT310	**CC Lab IV**: Database ManagementSysterns Lab		4		3	20	30	50	2
IV	24UCT3N1/ 24UCT3N2	**Non-Major Elective I**: Office Automation Lab / Multimedia Lab		2	-	2	-	50	50	2
	24HEC303	Human Excellence - Professional Values & Ethics - SKY Yoga Practice - III	1	-	-	2	20	30	50	1
V		Extension Activities - Annexure I	-	-	-	-	-	-	-	-
EC	24CMM302	ManaiyiyalMahathuvam - II			15 Hrs.	2	-	50	50	Grade
	24CUB302	UzhavuBharatham - II			15 Hrs.	2	-	50	50	Grade
	24UCT3VA	**VAC I:** Web Based Scripting Languages			30 Hrs.					2*
Total			**30**				**185**	**515**	**700**	**25**

EC – Extra Credit Course / Certificate Course / Co-scholastic Course / Job Oriented Course
CC – Core Course; GE – Generic Elective; VAC-Department Specific Value Added Course;
*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	24UTL4C4	Tamil Paper-IV	3	-	-	3	25	75	100	3
	24UHN4C4	Hindi Paper-IV								
	24UFR4C4	French Paper-IV								
II	24UEN4C4	Communication Skills – IV	3	-	-	3	25	75	100	3
III	24UCT411	**CC VII**: Python Programming	4			3	25	75	100	3
	24UCT412	**CC VIII** – LINUX Programming	4			3	25	75	100	3
	24UCT4A1 / 24UCT4A2	**GE IV – Allied IV**: Computer Networks / Software Testing	4			3	25	75	100	3
	24UCT413	**CC Lab V**: Python Programming Lab		4		3	20	30	50	2
	24UCT414	**CC Lab VI:** LINUX Programming Lab		3		3	20	30	50	2
IV	24UCT4S1/ 24UCT4S2	**SEC II: Naan Mudhalvan :** R Programming Lab / Desktop Publishing Lab		2		2	20	30	50	2
	24UCT4N1/ 24UCT4N2	**Non-Major Elective Paper -II** : Scripting Languages Lab / Pencil 2 D	-	2	-	2	-	50	50	2
	24HEC404	Human Excellence - Social Values & SKY Yoga Practice - IV	1	-	-	2	20	30	50	1
V		Extension Activities - Annexure I	-	-	-	-	-	-	50	1
EC	24CMM403	ManaiyiyalMahathuvam - III			15 Hrs.	2	-	50	50	Grade
	24CUB403	UzhavuBharatham - III			15 Hrs.	2	-	50	50	Grade
	24UCT4VA	**VAC II:** An Introduction to AI CHATBOT Framework			30 Hrs.					2*
Total			**30**				**205**	**545**	**800**	**25**

EC – Extra Credit Course / Certificate Course / Co-scholastic Course / Job Oriented Course
CC – Core Course; GE – Generic Elective; SEC – Skill Enhancement Course; VAC-Department Specific Value Added Course; *Extra Credits;

SEMESTER - V										
Part	Subject Code	Title of the Paper	Hrs. / Week		Hrs. / Sem.	Exam Hrs.	Maximum Marks		Total Marks	Credit
			L	P	T		Internal	External		
III	24UCT515	**CC IX**: Open Source Technologies (PHP & MySQL)	5			3	25	75	100	4
	24UCT516	**CCX**: Information and Cyber Security	5			3	25	75	100	5
	24UCT5E1/ 24UCT5E2/ 24UCT5E3	**DSE -I:**[#]	6			3	25	75	100	5
	24UCT517	**CC Lab VII**: Open Source Technologies (PHP & MySQL) Lab		5		3	20	30	50	2
	24UCT518	**CC Lab VIII**: Web Designing Lab		5		3	20	30	50	2
IV	24UCT5S1 / 24UCT5S2	**SEC III**: Framework Technologies Lab / UI/UX Programming Lab		3		2	20	30	50	2
	24HEC505	Human Excellence - National Values & SKY Yoga Practice - V	1	-	-	2	20	30	50	1
EC	24CSD501	Soft Skills Development - I	-		-	-	-	-	-	Grade
	24GKL501	General Awareness - Self Study	SS		-	2	-	50	50	Grade
	24UCT5AL	**ALC - I**: (Optional)-Self Study: Digital Marketing	SS					100	100	2**
Total			**30**				155	495	500	21

Discipline Specific Elective (DSE) – I[#]
24UCS5E1: Software Engineering
24UCS5E2: Data Science
24UCS5E3: Embedded Systems

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)

SEMESTER - VI										
Part	Subject Code	Title of the Paper	Hrs. / Week		Hrs. / Sem.	Exam Hrs.	Maximum Marks		Total Marks	Credi
			L	P	T		Internal	External		
III	24UCT619	**CC XI :** Mobile Application Development	5			3	25	75	100	4
	24UCT6E4 / 24UCT6E5 / 24UCT6E6	**DSE -II:**[ss]	6			3	25	75	100	4
	24UCT6E7 / 24UCT6E8 / 24UCT6E9	**DSE -III:**[sss]	6			3	25	75	100	4
	24UCT620	**CC Lab IX**: Mobile Application Development Lab		5		3	20	30	50	2
	24UCT621	**CC Lab X:** Google Workspace Lab		5		3	20	30	50	2
	24UCT622	Project	-	-		3	25	75	100	4
IV	24UCT6S1/ 24UCT6S2	**SEC IV**: **Naan Mudhalvan:** Big Data Analytics Lab / Animation Lab		2		3	20	30	50	2
	24HEC606	Human Excellence - Global Values & SKY Yoga Practice - VI	1	-	-	2	20	30	50	1
EC	24CSD602	Soft Skills Development - II								Grade
	24UCT6AL	**ALC - II**: (Optional)- Self Study: Data Mining and Warehousing	SS					100	100	2**
Total			**30**				**180**	**420**	**600**	**23**
Grand Total									**3900**	**140**

Discipline Specific Elective (DSE) – II [ss]
24UCT6E4: Artificial Intelligence and Machine Learning
24UCT6E5: Software Project Management
24UCT6E6: Grid Computing

Discipline Specific Elective (DSE) – III [sss]
24UCT6E7: Cloud Computing
24UCT6E8: Ethical Hacking
24UCT6E9: Mobile Computing

List of Abbreviations:

CC – Core Course
GE – Generic Elective
VAC –Value Added Course
ALC – Advanced Learner Course
EC – Extra Credit Course / Certificate Course / Co-scholastic Course / Job Oriented Course
AECC –Ability Enhancement Compulsory Course
DSE – Discipline-Specific Elective
SEC – Skill Enhancement Course
*Extra Credits; **Credits – Based on course content maximum of 4 credits

Grand Total = 3900; Total Credits = 140

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. 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)	100	40	60	30	05	05

3. Project:

Paper	Maximum Marks	Marks for		
		CIA	CEE	
			Evaluation	Viva-voce
Project	100	25	50	25

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

x

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 Computer Science Cluster

Maximum Marks: 100 Marks

Components for CIA: 25 Marks

Criterion	Mode of Evaluation	Marks	Total
I	Synopsis, Company Profile, System Specification, Existing System, Proposed System OR (For Android Developments) Planning Stage	05	25
II	Supporting Diagrams like system flowchart, ER, DFD, Use case and Table Design OR UI and UX Design Application Architect and Prototyping	05	
III	Coding, Input forms, Output format, Testing OR Development, Testing	05	
IV	Preparation of Report & Submission	10	

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		

COMPUTER SCIENCE PROJECT and VIVA VOCE

Guidelines

Introduction

The title of the project work and the organization will be finalized at the end of the 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 the computer science lab as well as in the organization. The periodical review will be conducted to monitor the progress of the project work. The project report will be prepared and submitted at the end of the semester. An external examiner appointed by the Controller of Examination will conduct the viva voce examination along with a 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**	
	1.1 Introduction	
	1.2 Objective of the Project	
	1.3 Company Profile	
	1.4 System Specification	
	1.4.1 Hardware Specification	
	1.4.2 Software Specification	
2	**System Study**	
	2.1 Existing System	
	2.1.2 Drawbacks	
	2.2 Proposed System	
	2.3 Planning and Scheduling	
3	**System Design**	
	3.1 Overview of the Project	
	3.2 Modules of the Project	
	3.3 Input Design Format	
	3.4 Output Design	
	3.5 Table Design	
	3.6 Supporting Diagrams (ER/DFD/Use Case)	
4	**Implementation and Testing**	
	4.1 Coding Methods	

4.2 Testing Approach
4.3 Implementation and Maintenance
5 **Project Evaluation**
5.1 Project Outcome
5.2 Limitations of the Project
5.3 Further Scope of the Project
6 **Conclusion**
7 **Appendix**
7.1 Source Code
7.2 Screenshots and Reports
8 **References**

Size of the Project

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

STUDENT SEMINAR EVALUATION RUBRIC

Grading Scale:

A	B	C	D
8-10	5-7	3-4	0-2

CRITERIA	A - Excellent	B - Good	C - Average	D - Inadequate
Organization of presentation	Information presented as an interesting story in a logical, easy-to-follow sequence	Information presented in logical sequence; easy to follow	Most of the information is presented in sequence	Hard to follow; sequence of information jumpy
Knowledge of the subject & References	Demonstrated full knowledge; answered all questions with elaboration **&** Material sufficient for clear understanding **AND** exceptionally presented	At ease; answered all questions **but** failed to elaborate **&** Material sufficient for clear understanding **AND** effectively presented	At ease with information; answered most questions **&** Material sufficient for clear understanding **but** not clearly presented	Does not have a grasp of information; answered only rudimentary Questions **&** Material not clearly related to the topic **OR** background dominated seminar
Presentation Skills using ICT Tools	Uses graphics that explain and reinforce text and presentation	Uses graphics that explain the text and presentation	Uses graphics that relate to text and presentation	Uses graphics that rarely support text and presentation
Eye Contact	Refers to slides to make points; engaged with the audience	Refers to slides to make points; eye contact the majority of the time	Refers to slides to make points; occasional eye contact	Reads most slides; no or just occasional eye contact
Elocution – (Ability to speak English language)	Correct, precise pronunciation of all terms The voice is clear and steady; the audience can hear well at all times	Incorrectly pronounces a few terms Voice is clear with few fluctuations; the audience can hear well most of the time	Incorrectly pronounces some terms Voice fluctuates from low to clear; difficult to hear at times	Mumbles and/or Incorrectly pronounces some terms Voice is low; difficult to hear

WRITTEN ASSIGNMENT RUBRIC

Grading Scale:

A	B	C	D	F
13-15	10-12	7-9	4-6	0-3

CRITERION	A - Excellent	B - Good	C - Average	D - Below Average	F - Inadequate
Content & Focus	Hits on almost all content exceptionally clear	Hits on most key points and the writing is interesting	Hits in basic content and writing are understandable	Hits on a portion of content and/or digressions and errors	Completely off track or did not submit
Sentence Structure & Style	• Word choice is rich and varies • Writing style is consistently strong • Students own formal language	• Word choice is clear and reasonably precise • Writing language is appropriate to the topic • Words convey intended message	• Word choice is basic • Most writing language is appropriate to the topic • Informal language	• Word choice is vague • Writing language is not appropriate to the topic • Message is unclear	• Not Adequate
Sources	Sources are cited and are used critically	Sources are cited and some are used critically	Some sources are missing	Sources are not cited	Sources are not at all cited
Neatness	Typed; Clean; Neatly bound in a report cover; illustrations provided	Legible writing, well-formed characters; Clean and neatly bound in a report cover	Legible writing, some ill-formed letters, print too small or too large; papers stapled together	Illegible writing; loose pages	Same as below standard
Timeliness	Report on time	Report one class period late	Report two class periods late	Report more than one week late	Report more than 10 days late

SEMESTER I

Programme Code:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT101			Title	Batch:	2024 - 2027
				Title	Semester:	I
Lecture Hrs./Week or Practical Hrs./Week	4	Tutorial Hrs./Sem.	-	CC I: Programming in 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	Knowledge Level
CO1	To remember data types, identifier, arrays, strings and pointers	K1
CO2	To understand how to write and use control statements and functions in C	K2
CO3	To implement the concept of pointers, structure and union	K3
CO4	To evaluate string functions and file Operations in C programming for a given application	K4
CO5	To evaluate random file operations, preprocessor and command line arguments	K5

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	M	M	M	L	H	M	M	M	M	M	M
CO2	H	L	H	M	M	M	L	M	M	M	M	M
CO3	H	H	M	M	L	H	H	H	L	H	M	H
CO4	H	M	H	H	H	M	H	H	H	H	L	H
CO5	M	M	L	H	M	H	M	M	M	M	H	M

*H-High; M-Medium; L-Low

Units	Content	Hrs
Unit I	**Introduction to C** : Overview of C – History and Importance of C – Basic Structure of C programs -Development of program logic skills through Flowchart and Algorithm – Programming Style– 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 – Type conversion in expressions– 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-Nesting of functions-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

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

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., 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

Web References

1. https://www.javatpoint.com/data-types-in-c
2. https://www.tutorialspoint.com/cprogramming/c_arrays.html
3. https://www.programiz.com/c-programming/c-functions
4. https://www.programiz.com/c-programming/c-pointers
5. https://www.geeksforgeeks.org/basics-file-handling-c/

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Ms. D. Poongodi Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT102			Title	Batch:	2024 - 2027
				Title	Semester:	I
Lecture Hrs./Week or Practical Hrs./Week	4	Tutorial Hrs./Sem.	–	CC II: Digital Fundamentals and Computer Organization	Credits:	4

Course Objective

To convert the knowledge on digital circuits, logic gates and about interfacing of various components.

To cover the various digital components used in the Organization and Hardware design of digital computers

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	To recollect number system, Binary Codes concepts	K1
CO2	To understand the concepts of Boolean laws, logic gates, Karnaugh map for Minimization of POS and SOP form of Boolean expressions.	K2
CO3	To apply arithmetic and logic circuits, different sequential circuits with flipflops, registers.	K3
CO4	To analyze the concept of Register Organization, Data Transfer and Manipulation, Registers and Memory Organization.	K4
CO5	To evaluate memory hierarchy and types of memory	K5

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	M	H	M	L	H	M	H	H	M	M	M
CO2	H	L	H	M	M	M	L	M	M	M	H	M
CO3	H	H	L	M	L	M	H	H	L	H	M	H
CO4	H	L	H	H	H	M	H	M	H	H	L	H
CO5	M	M	L	H	M	H	M	M	M	M	H	L

*H-High; M-Medium; L-Low

Units	Content	Hrs
Unit I	Number Systems and Binary Codes: Digital Electronics – Integrated circuits or Chip - Decimal System - Binary system – Octal System – Hexadecimal System – Binary addition – Binary Multiplication and Division – 1's Complement of a binary Number-9's Complement - 10's Complement - BCD – Gray Code - Excess-3 Code — Alphanumeric codes – Parity method for error detection and correction.	12
Unit II	Boolean Algebra-Logic Gates– Karnaugh Map and Minimization: Boolean Algebra – Gates – Inverter or NOT Gate – OR Gate – AND Gate – NOR Gate – NAND Gate – De Morgan's Theorems – Exclusive OR Gate – Exclusive NOR Gate – Karnaugh Map – Canonical Form I – Karnaugh Map - Construction and Properties – Minimization of SOP form using Karnaugh map - Minimization of POS form using Karnaugh map.	12
Unit III	Arithmetic and Logic circuits: Half Adder – Full Adder — Half- Subractor – Full-Subtractor - Sequential Circuits, Flip-Flops: Flip-Flops- R-S Flip- Flops- Positive Edge Triggered J-K Flip-Flop- Registers: Register – Decoder – Encoder – Multiplexer – Demultiplexer.	12
Unit IV	Central Processing Unit: General Register Organization – Stack Organization – Instruction Formats – Data Transfer and Manipulation – Reduced Instruction Set Computer (RISC).	12
Unit V	Memory Organization: Memory Hierarchy – Main Memory – Auxiliary Memory – Associative Memory – Cache Memory – Virtual Memory.	12
	Total Contact Hrs	**60**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Puri.V.K	Digital Electronics Circuits and Systems	22nd Reprint, TATA Mc-Graw Hill Publications, ISBN-13: 978-0074633175	2017
2	Morris Mano. M	Computer System Architecture	3rd Edition	2017

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Donald P Leach, Albert Paul Malvino, Gautam Saha	Digital Principles and Applications	8th Edition, TATA McGraw-HillPublications.	2014
2	Mandal S K	Digital Electronics: Principles and Applications	1st Edition, ISBN-13:978-0070153820.	2017
3	Saini S.P.S	Computer System Architecture and Organization	S. K. Kataria & Sons Publication, ISBN-13:978-8189757731	2015
4	Hamacher.C, Zvonko.V, Zaky.S	Computer Organization	5thEdition Tata Mc Graw Hill Publication, ISBN-13:9781259005275	2017

Web References

1. https://circuitglobe.com/number-system-in-digital-electronics.html
2. https://www.tutorialspoint.com/digital_circuits/digital_circuits_logic_gates.html
3. https://www.tutorialspoint.com/digital_circuits/digital_circuits_flip_flops.html
4. https://www.tutorialspoint.com/computer_fundamentals/computer_cpu.htm
5. https://www.tutorialsmate.com/2020/04/types-of-computer-memory.html

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Ms. C. Keerthana Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT1A1			Title	Batch:	2024 - 2027
				GE I – Allied I: Mathematics - I: Discrete Mathematics	Semester:	I
Lecture Hrs./Weekor Practical Hrs./Week	5	Tutorial Hrs./Sem.	–		Credits:	4

Course Objective

To instruct the concepts of Set Theory, Relations, Languages and Graph Theory.

Course Outcomes (CO)

K1	CO1	To keep in mind about the Set theory and its laws
K2	CO2	To understand the law relating to Prepositional calculus, Tautologies and Contradiction
K3	CO3	To implement the conceptual knowledge of Relations and Functions
K4	CO4	To evaluate the elements related to various aspects of Graph Theory and its representation

Syllabus

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- Algebra of sets and Duality.	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.	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

Power Point Presentations, Quiz, Assignment, Case Study

Books for Study

1. Sharma J. K, (2020) "Discrete Mathematics", 3rd Edition, MacMillan India Ltd, ISBN-13: 9780230322301.

Books for Reference

1. Tremblay J.P, Manohar R, (2017), "Discrete Mathematics Structures with Applications to Computer Science", TATA McGraw-Hill Publications.
2. Dr. Venkataramen .M.K, Dr Sridharan .N, Chandarasekaran .N, (2003) "Discrete Mathematics" The National publishing Company Chennai. ISBN-13: 9788172863722.
3. http://pdfebooklibrary.com/ebooks/discrete-mathematics-book-download.pdf

Mapping

PSO / CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	M	M	M	H
CO2	S	H	H	S	M
CO3	H	S	M	L	H
CO4	S	H	H	M	M

S-Strong H-High M-Medium L-Low

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Ms. A. Kalaivani Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT1A2			Title	Batch:	2024 - 2027
Lecture Hrs./Week or Practical Hrs./Week	5	Tutorial Hrs./Sem.	–	GE I – Allied I: Mathematics - I: Mathematical Structures For Computer Science	Semester:	I
					Credits:	4

Course Objective

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

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	To remember an in-depth knowledge in Matrices, Determinants, Inverse of a matrix, Rank of a Matrix and Eigen value Problems	K1
CO2	To understand the concepts of numerical differentiation and integration	K2
CO3	To apply an appropriate numerical method for solving algebraic	K3
CO4	To figure out the concept of Mean, Median, Mode, Measures of dispersion and the law relating to Correlation and Regression	K4
CO5	To evaluate the concept of correlation and correlation evaluation regression	K5

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	M	M	M	L	H	M	H	H	M	M	M
CO2	M	H	H	M	M	M	L	M	H	H	H	M
CO3	H	H	L	H	L	M	H	H	L	H	L	H
CO4	L	L	H	H	H	M	H	M	H	H	L	H
CO5	M	M	L	L	M	H	M	M	H	M	H	L

*H-High; M-Medium; L-Low

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 - **Numerical solution of ordinary differential equations:** Taylor method.	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

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

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, NPC – (Unit I).	2001
2	Kandasamy.P, Thilagavathi.K, Gunavathi. K	Numerical Methods	Revised Edition, New Delhi, S. Chand and Company Ltd, ISBN-13: 9788121914383.	2013
3	Pillai.R.S.N, Bagavathi.V	Statistical Methods	New Delhi, Sultan Chand and Sons Company Limited, (Unit IV &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

Web references:

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

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Ms. A. Kalaivani Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT103			Title	Batch:	2024 - 2027
				CC Lab I:Programming in C	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	Knowledge Level
CO1	To remember the concept of data types, decision making and looping control statements	K1
CO2	To get the idea of array, strings and functions in C	K2
CO3	To access the file information through open/close and reading/writing operations in a file	K3
CO4	To remember the concept of pointers	K4
CO5	To get the idea of file functions	K5

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	M	M	M	L	H	M	H	H	M	H	M
CO2	M	M	H	L	M	M	L	H	H	H	H	M
CO3	H	H	L	H	H	M	H	H	L	H	L	H
CO4	L	H	H	H	H	H	H	M	H	H	L	H
CO5	M	M	L	L	M	H	M	L	H	M	H	L

*H-High; M-Medium; L-Low

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. 4. Write a C program to illustrate the concept of string and its functions. 5. Write a C program to illustrate the concept of Functions. 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. 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

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Ms. D. Poongodi Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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SEMESTER- II

Programme Code:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)
Course Code:	24UCT204			Title	Batch: 2024 - 2027
Lecture Hrs./Week or Practical Hrs./Week	4	Tutorial Hrs./Sem.	–	CC III: Java programming	Semester: II
					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	Knowledge Level
CO1	Remember about classes, objects, members of a class and relationships among them needed for a specific problem	K1
CO2	Comprehend the concepts of inheritance, interface and package	K2
CO3	Examine error handling techniques using exception handling	K3
CO4	Evaluate the concepts of thread, applet and files	K4
CO5	Developed skills in designing abstract window toolkit	K5

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	L	H	H	H
CO2	H	M	H	M	H	H	M	H	M	H	M	L
CO3	H	M	H	M	H	L	M	H	M	H	M	H
CO4	M	H	L	H	M	M	H	M	H	M	H	M
CO5	H	L	H	M	H	H	M	H	M	L	M	H

*H-High; M-Medium; L-Low

Units	Content	Hrs
Unit I	Fundamentals of Object – oriented programming – Introduction – Object-object oriented programming –Objects and Classes – Data abstraction and Encapsulation – Inheritance – Polymorphism – Dynamic Binding – Message Communication – Benefits of OOP – Applications of OOP – Java Evolution – History –Java features – How java differs from C and C++ - Java and the Internet – Java and World Wide Web – Web Browsers – 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 –Type Casting – Operators and Expressions – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators –Conditional Operator – Bitwise operator – Special Operators – Arithmetic Expressions – Evaluation of Expressions – 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 Else if ladder – the switch statement – the ?: operator.	12
Unit III	Decision Making and Looping – The While Statement – the Do statement – The For statement – Jumps in Loops – Labeled Loops – 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 – Final Variables – Final Classes – Finalizer Methods – Abstract Methods and classes – Methods with Varargs – Visibility Control – Arrays and Strings – Wrapper classes – Enumerated types.	12
Unit IV	Interfaces – Defining Interfaces – Extending Interfaces – Implementing Interfaces – Accessing Interface variables – Packages – Java API Packages – Naming Conventions – Creating Packages – Accessing a Package – Using a Package – Adding a class to a package – Hiding classes – static import – Multithreaded	12

	Programming – Creating Threads – Extending the Thread classes – Stopping and Blocking a Thread – Lifecycle of Thread – Using Thread methods	
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 – other useful I/O classes – Using the file class – I/O functions – Creating of files – Reading / Writing characters – Reading /writing bytes – Handling Primitive data types – Random Access files – Interactive I/O – Other stream classes.	12
	Total Contact Hrs	**60**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

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, 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

Web references:

1. iiti.ac.in/people/~tanimad/JavaTheCompleteReference.pdf
2. http://www.onlineprogrammingbooks.com/learning-java-4th-edition/
3. https://www.javatpoint.com/serialization-in-java
4. https://www.journaldev.com/2452/serialization-in-java
5. https://www.tutorialspoint.com/java/index.htm

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Dr. M. Rajasenathipathi Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT205			Title	Batch:	2024 – 2027
				CC IV: Data Structures	Semester:	II
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	Knowledge Level
CO1	To remember arrays, stack/queue operations and trees	K1
CO2	To understand and develop skills to analyze simple linear and non linear datastructures	K2
CO3	To apply the concept of linked lists, graphs and trees for the realworldproblems	K3
CO4	To evaluate file organizations, various searching and sorting methodologies	K4
CO5	To apply the concept of Binary trees	K5

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	M	H	M	L	H	M	H	H	M	M	M
CO2	M	H	H	L	H	M	L	H	H	M	H	M
CO3	H	H	L	H	H	L	H	M	L	H	L	H
CO4	L	H	M	H	H	H	H	M	H	H	M	H
CO5	M	M	L	L	M	H	M	L	H	M	H	M

*H-High; M-Medium; L-Low

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 Tree Traversals – 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: Linear search– Binary search. Sorting: Merge sort and Quick sort.	12
	Total Contact Hrs	**60**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

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 MCGrawHill Publications 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, 1st Indian Print, ISBN-13:978-131724224.	2009

Web references:

1. https://www.w3schools.in/cplusplus-tutorial/working-with-files/
2. https://www.javatpoint.com/ds-stack-vs-queue
3. https://www.javatpoint.com/ds-linked-list
4. https://www.javatpoint.com/binary-tree
5. https://www.javatpoint.com/bubble-sort

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
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Programme:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT2A1			Title	Batch:	2024 - 2027
Lecture Hrs./Week or Practical Hrs./Week	5	Tutorial Hrs./Sem.	–	GE II – Allied II: Mathematics II – Operations Research	Semester:	II
					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	Knowledge Level
CO1	To recollect the modeling tools and computational tools as well as analytic skills to evaluate the problems.	K1
CO2	To understand how to translate real world problem given in words into a mathematical formulation.	K2
CO3	To apply mathematical optimization techniques, existing optimization tool kits to write computer programs and to implement algorithms and solve problems.	K3
CO4	To analyze the problem situation leading to better control, better co-ordination, better systems and finally better decisions.	K4
CO5	To analyze the concept of CPM and PERT	K5

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	M	H	M	L	H	M	H	H	M	M	H
CO2	M	M	H	L	MH	M	L	H	H	H	H	M
CO3	H	H	L	H	H	M	H	M	L	H	L	H
CO4	L	H	M	H	H	H	H	M	H	H	L	L
CO5	M	M	L	L	M	H	M	L	H	M	H	M

*H-High; M-Medium; L-Low

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- Simplex Method.	15
Unit II	Transportation Problem: North West Corner Method- Least Cost Method- Vogel's Approximation Method- Moving towards optimality UV 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

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

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, 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

Web references:

1. https://ncert.nic.in/ncerts/l/lemh206.pdf
2. https://www.mygreatlearning.com/blog/transportation-problem-explained/
3. https://www.researchgate.net/publication/245280760_Deterministic_Inventory_Models_for_Variable_Production
4. https://link.springer.com/chapter/10.1007%2F978-3-662-08011-5_10
5. https://en.wikipedia.org/wiki/Network_congestion

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Name: MS. D. Poongodi Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT2A2			Title	Batch:	2024 - 2027
				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	Knowledge Level
CO1	To remember the formula of different Means, Median, Mode, Deviations, Correlation, Regression, Probability, Chi square test, Degree of Freedom, etc..	K1
CO2	To understand the concepts Central tendency, Dispersion, Correlation and regression, Probability and Sampling theory.	K2
CO3	To solve the problems by using formula to apply the programs.	K3
CO4	To analyze the solution is right or wrong.	K4
CO5	To evaluate the results through the program outputs	K5

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	M	H	M	L	H	M	H	H	M	M	H
CO2	M	M	H	L	MH	M	L	H	H	H	H	M
CO3	H	H	L	H	H	M	H	M	L	H	L	H
CO4	L	H	M	H	H	H	H	M	H	H	L	L
CO5	M	M	L	L	M	H	M	L	H	M	H	M

*H-High; M-Medium; L-Low

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.	15
Unit III	Correlation: Karl Pearson's Coefficient of Correlation – Rank correlation. Regression: Regression Equations - Difference between correlation & Regression	15
Unit IV	Probability: Permutation and Combination- Important terms in probabilityMeasurement of Probability: Classical Approach- Relative Frequency theory of probability – Personalistic view of probability – Axiomatic Approach of probability. Theorems of probability: Addition – Multiplication – Odds.	15
Unit V	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, Test of goodness of fit, Test of Independence.	15
	Total Contact Hrs	**75**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

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

Web references:

1. Statistics Tutorial | Tutorialspoint
2. A Complete Tutorial On Statistics And Probability | Edureka
3. https://books.google.co.in/books?id=FmuH3IcYIRYC&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false
4. https://content.kopykitab.com/ebooks/2016/07/8069/sample/sample_8069.pdf
5. https://www.gacwrmd.in/learning/Maths/STATISTICS-I-%207BMA5C2.pdf

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: MS. D. Poongodi Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT206			Title	Batch:	2024 - 2027
Lecture Hrs./Week or Practical Hrs./Week	4	Tutorial Hrs./Sem.	–	CC Lab II: Java programming Lab	Semester:	II
					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	Knowledge Level
CO1	Understand the basic concepts of Java Programming with emphasis on ethics and principles of professional coding	K3
CO2	Demonstrate the creation of objects, classes and methods and the concepts of constructor, methods overloading, Arrays, branching and looping	K4
CO3	Create data files and Design a page using AWT controls and Mouse Events in Java programming Implement the concepts of code reusability and debugging.	K3
CO4	Develop applications using Strings, Interfaces and Packages and applets	K4
CO5	Construct Java programs using Multithreaded Programming and Exception Handling	K4

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	M	L	H	M	M	H	M	M	H
CO2	M	H	H	L	H	M	L	H	H	M	H	M
CO3	H	H	L	H	H	L	H	M	L	H	L	H
CO4	L	H	M	M	H	H	H	M	H	H	M	H
CO5	M	M	L	L	M	H	M	L	H	M	H	M

*H-High; M-Medium; L-Low

Content	Hrs
Sample Programs 1. Write a java program to illustrate the concept of Package creation. 2. Write a java program to illustrate the concept of threading. 3. Write a java program to illustrate the concept of synchronization. 4. Write a java program to illustrate the concept of Exception Handling Mechanism. 5. Write a java program to develop an Applet. 6. Write a java program to implement to the concept of decision-making statements. 7. Write a java applet program to illustrate the concept of multithreading. 8. Write a java program using file concept. 9. Write a java program to illustrate the concept of control statements 10. Write a java program to illustrate the concept of Useful I/O Classes	60
Total Contact Hours	**60**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Dr. M. Rajasenathipathi Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc.			**Programme Title:**	Bachelor of Science (Computer Technology)
Course Code:	24UCT2S1			**Title**	**Batch:** 2024 - 2027
				Part IV - SEC I: Naan Mudhalvan: Advanced Excel Lab	**Semester:** II
Lecture Hrs./Week or Practical Hrs./Week	2	**Tutorial Hrs./Sem.**	–		**Credits:** 2

Course Objective

To develop understanding of machine learning through optimal data processing and structured representation.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	To optimize the use of MS-Excel for powerful data analysis	K3
CO2	To apply correct data visualization technique to gain optimal presentation of data	K4
CO3	To apply enhanced features of MS-Excel.	K3
CO4	Develop applications using Workbook and worksheets	K4
CO5	Construct programs using Charts types and uses, Chart depiction	K4

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	M	L	H	M	M	H	M	M	H
CO2	M	H	H	L	H	M	L	H	H	M	H	M
CO3	H	H	L	H	H	L	H	M	L	H	L	H
CO4	L	H	M	M	H	H	H	M	H	H	M	H
CO5	M	M	L	L	M	H	M	L	H	M	H	M

*H-High; M-Medium; L-Low

Content	Hrs
Sample Programs 1. Write a Excel program to implement the concept on Workbook and worksheets. 2. Write a Excel program to illustrate the concept of understanding formulas; operators in formula. 3. Write a Excel program to illustrate the concept of calculations; functions in formulas. 4. Write a Excel program to illustrate the concept of data and time, math functions. 5. Write a Excel program to an importing and exporting data, co-authoring. 6. Write a Excel program to implement to the concept ranges. 7. Write a Excel program to illustrate the concept Charts types. 8. Write a Excel program using Pivot Table. 9. Write a Excel program to illustrate the concept of Data Validation 10. Write a Excel program to illustrate the concept of Sorting and Filtering	30
Total Contact Hours	**30**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
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SEMESTER- III

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT307			Title	Batch:	2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	06	CC V: Advanced Java Programming	Semester:	III
					Credits:	04

Course Objective

To inculcate the students to understand the advanced JAVA concepts and develop Java based applications by applying these advanced concepts to implement in web-based applications.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Create Applications using Swing Components.	K4
CO2	Understand about Servlets and Server Side Includes	K2
CO3	Implement JDBC connectivity and Java Server Pages	K3
CO4	Review the various types of beans	K4
CO5	Understand and apply Well-Formed XML and different types of XML Schemas	K5

Mapping

PO /PSO / CO	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H	H	H
CO2	H	M	H	M	H	H	M	H	M	H	H	M
CO3	H	M	H	M	H	H	M	H	M	H	L	M
CO4	M	H	L	H	M	M	H	L	H	M	M	H
CO5	H	L	H	M	H	H	L	H	M	H	H	M

*H-High; M-Medium; L-Low

Units	Content	Hrs
Unit I	Tour of Swing: JApplet- Icons and Labels – JText Fields – JButtons – JCombo Boxes - JTabbed Panes – JScroll Panes – JTrees – JTables– Exploring Swing.	12
Unit II	Servlet Overview and Architecture, Movement to Server-Side Java – Java Servlet - Practical applications for Java Servlets – Java Servlet Alternatives – Reasons to Use Java Servlets – Java Servlet Architecture. Servlet Basics – The Life Cycle of a Servlet – A Basic Servlet – Basic Servlet Source – Building and Installing the Basic Servlet – The HTML Required to Invoke the Servlet – Dissecting the Basic Servlet.	12
Unit III	JSP –Conditions – Directives – Declarations- Implicit Variables – Scriptlets – Expressions. Servlet Sessions: Session Tracking – Working with Cookies.	12
Unit IV	Enterprise Java Bean: Introduction – Enterprise Java Bean Technology - Types of Bean - Examples of EJB. Server-Side includes - Servlet chaining: Uses for Servlet chain - Invoking a Servlet Chain– A practical Example using Servlet Chaining.	12
Unit V	Servlets and JDBC– Two and Three-tier Database Access Models – JDBC Driver Types – JDBC Basics – A Basic JDBC Servlet – JDBC RMI.	12
	Total Contact Hrs	**60**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Herbert Schildt	JAVA 2: The Complete Reference	5th Edition, Tata-McGraw Hill, ISBN-13: 9780070495432	2017
2	James Goodwill	Developing Java Servlets	2nd Edition, Tech media, ISBN-13 : 978-0672321078	2014
3	Rima Patel Sriganesh, Gerald Brose, Micah Silverman.	Mastering Enterprise Java Beans 3.0	Wiley India Edition, Wiley India Pvt. Ltd, ISBN-13 : 978-0471785415 .	2011

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	SubrahmanyamAllaramaju,Cedric Buest , Marc Wilcox, Sameer Tyagi	Professional Java Server Programming J2EE	1.3 Edition, WROX Press Ltd, ISBN-13: 9781861005373	2001
2	Jayson Falkner and Kevin Jones.	The J2EE Technology Web Tier	1stEdition,Addison-Wesley Professional ISBN: 0321136497.	2004

Web References

1. https://www.tutorialspoint.com/javascript
2. https://www.w3schools.com/
3. https://www.swayaminfotech.com/blog/tag/j2ee/
4. https://onlinecourses.nptel.ac.in/noc19_cs84/preview
5. https://www.tutorialspoint.com/listtutorial/Web-Application-J2EE-perspective/3142

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT308			Title	Batch:	2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	04	CC VI: Database Management Systems	Semester:	III
					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	K1
CO2	Comprehend deep knowledge about the basics of Relational Model and ACID properties	K2
CO3	Apply joins and set operators, control structures and embedded SQL for data management and retrieval techniques	K3
CO4	Analyze the basic issues of transaction processing, concurrency control and understand the importance of Normalization	K4
CO5	Familiarity on Parallel, Object Oriented & Distributed databases	K4

Mapping

PO / PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H	H	H
CO2	H	M	H	M	H	M	H	M	H	M	H	H
CO3	H	M	H	M	H	M	H	M	H	M	H	L
CO4	M	H	M	H	L	H	M	H	L	H	M	M
CO5	H	L	H	L	H	M	H	L	H	M	H	H

*H-High; M-Medium; L-Low

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 – Anchored Declaration – Assignment Operation – Substitution Variables – Printing – **Control Structures and Embedded SQL**: Control Structures – SQL in PL/SQL – Data	12

	Manipulation – Transaction Control Statements.	
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 – Packages – Triggers. Case study: Connection of front-end VB 6.0 and Back end Oracle 9i.	12
	Total Contact Hrs	**60**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Nilesh Shah	Database Systems Using Oracle	Second edition, PHI Publication. 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	3rd 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

Web References

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

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Ms. D. Poongodi Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)
Course Code:	24UCT3A1			Title	Batch: 2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	05	Tutorial Hrs./Sem.	04	GE III – Allied III: Operating Systems	Semester: III
					Credits: 04

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, scheduling and memory allocations	K1
CO2	Comprehend the various process management concepts including scheduling, synchronization, and deadlocks	K2
CO3	Implement CPU Scheduling algorithms for process scheduling and deploy a deep knowledge about the memory management concepts including swapping, paging and segmentation	K3
CO4	Review synchronization problems, accessing methods in Files, Disk scheduling	K4
CO5	Demonstrate an understanding of different I/O techniques in operating system.	K4

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	M	M	H	H	H	H	H	H	H	H	L	H
CO2	H	M	H	M	H	M	H	H	M	H	M	H
CO3	M	M	H	M	H	M	H	L	M	H	M	H
CO4	M	H	M	H	L	H	M	M	H	M	H	M
CO5	M	L	H	L	H	M	H	H	M	H	M	L

*H-High; M-Medium; L-Low

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.	15
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.	15
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.	15
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.	15
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).	15
	Total Contact Hrs	75

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

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, ISBN-13 9789812530554	2017

Reference Books

S.No	Author	Title of The Book	Publishers \ Edition	Year Of Publication
1	Achyut.SGodbole	Operating Systems	1st Edition, TMH Publications, ISBN- 9780070591134.	2010
2	H. M Deitel	Operating Systems	3nd Edition, Pearson Education Publication, ISBN 13: 9780536212153.	2012

Web References

1. http://nptel.ac.in/courses/106108101/13
2. https://developer.android.com/topic/performance/memory-overview.html
3. https://www.geeksforgeeks.org/operating-system-types-operating-systems-awaiting-author/
4. https://www.slideshare.net/ashanrajpar/operating-system-presentation-60556413
5. https://www.os-book.com/OS9/slide-dir/index.html

Course Designed by	Verified by HOD	Checked by	Approved by
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology
Course Code:	24UCT3A2			Title	Batch: 2024 - 2027
Lecture Hrs./Week or Practical Hrs./Week	5	Tutorial Hrs./Sem.	-	GE III: Allied III: Fundamentals of Blockchain Technology	Semester: III
					Credits: 4

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	Knowledge Level
CO1	To keep in mind the fundamentals of block chain technology and crypto currency.	K1
CO2	To understand the mining mechanism in block chain.	K2
CO3	To apply and identify security measures, and various types of services that allow people to trade and transact with bitcoin.	K3
CO4	To analyze security, privacy, and efficiency of a given Blockchain system.	K4
CO5	To Assess the concepts of Blockchain, Cryptocurrency, Bitcoin and Digital Signature.	K5

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	M	H	H	H	M	H	M	H	H	H	H	H
CO2	M	H	H	M	M	M	H	M	H	M	M	H
CO3	M	M	M	H	H	M	H	H	M	H	H	H
CO4	H	H	H	H	H	M	H	H	H	M	H	H
CO5	H	H	H	H	H	H	H	H	H	H	H	H

*H-High; M-Medium; L-Low

Units	Content	Hrs
Unit I	Block Chain – Introduction – Problems with centralized System – Overview – Fundamentals.	15
Unit II	Bitcoin: Introduction – Transaction life cycle - Block chain2.0 – Smart Contracts. Block in Block chain Architecture - Distributed Consensus - Economics behind Block Chain Consensus	15
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.	15
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.	15
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.	15
	Total Contact Hrs	**75**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

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	Princeton University Press	2016
2	Antonopoulos	Mastering Bitcoiin: Unlocking Digital Cryptocurrencies	O'Reilly Media Inc	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

Web References

1. https://www.slideshare.net/Mithileysh/blockchain-technology-181440314
2. https://www.slideshare.net/asrithak/blockchain-technology-ppt
3. https://www.buffalo.edu/content/dam/www/ubblockchain/files/basics/001%20What%20is%20Blockchain.pdf
4. https://blockchain.cse.iitk.ac.in/slides-NPTEL-BlockchainTechnologyApplications.pdf
5. https://mrcet.com/downloads/digital_notes/CSE/IV%20Year/CSE%20B.TECH%20IV%20YEAR%20II%20SEM%20BCT%20(R18A0534)%20NOTES%20Final%20PDF.pdf

Course Designed by	Verified by HOD	Checked by	Approved by
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POLLACHI - 642 001.

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT309			Title	Batch:	2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	0	CC Lab III: Advanced Java Programming Lab	Semester:	III
					Credits:	02

Course Objective

To build GUI applications and connect to JDBC, create Web applications using server side programming languages – Servlets, JSP and Java beans.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Recollect the concept of Swing Components and cookies	K3
CO2	Understand and integrate Servlets, JDBC and JSP to develop web applications	K4
CO3	Validate the idea of Java Beans to build enterprise applications	K3
CO4	Develop an request object method using enterprise applications	K4
CO5	Illustrate the concept of Server-side Includes and Servlet chaining	K4

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	L	H	H	H
CO2	H	M	H	M	H	H	M	H	M	H	M	L
CO3	H	M	H	M	H	L	M	H	M	H	M	H
CO4	M	H	L	H	M	M	H	M	H	M	H	M
CO5	H	L	H	M	H	H	M	H	M	L	M	H

*H-High; M-Medium; L-Low

Content	Hrs
Sample Programs 1. Create a program to illustrate the concept of Introspection. 2. Create a bean program to design a simple property of the bean. 3. Create a java program to illustrate the concept of Generic Servlet. 4. Create a java program to illustrate the concept of Http Servlet. 5. Create a java program to illustrate the concept of Servlet chaining. 6. Create a java program to illustrate the concept of Server-side Includes. 7. Create a java program to illustrate the concept of Request Object Method. 8. Create a java program to illustrate the concept of JDBC Connectivity. 9. Create a jsp program to illustrate the concept of Implicit Objects. 10. Create a program to illustrate the concept of Sessions in JSP.	60
Total Contact Hrs	**60**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Ms. C. Keerthana Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)
Course Code:	24UCT310			Title	Batch: 2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	-	CC Lab IV: Database Management Systems Lab	Semester: III
					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	Knowledge Level
CO1	Recollect the basic commands such as DDL, DML, TCL	K3
CO2	Understand about various set, join operations and group functions in PL/SQL	K4
CO3	Develop various set and join operation in SQL	K4
CO4	Use PL/SQL stored procedure, stored functions, cursors and packages to query the database.	K4
CO5	Validate the PL/SQL cursors, GROUPBY clauses	K4

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H	H	H
CO2	H	M	H	H	H	M	H	M	H	H	M	H
CO3	H	M	H	H	H	M	H	M	H	L	M	H
CO4	M	H	L	M	M	H	L	H	M	M	H	M
CO5	H	L	H	H	H	L	H	M	H	H	M	H

*H-High; M-Medium; L-Low

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

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Ms. D. Poongodi Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT3N1			Title	Batch:	2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	02	Tutorial Hrs./Sem.	0	Part IV - Non-Major Elective I: Office Automation Lab	Semester:	III
					Credits:	02

N1

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	Knowledge Level
CO1	Keep in mind about the menus and icons functionalities in MS Word	K3
CO2	Understand and apply mathematical functions to calculate mean, median and standard deviation using Excel	K3
CO3	Apply different build in functions and their usage.	K4
CO4	Prepare a power point presentation for a range of events	K4
CO5	Include graphs, tables and images to power point presentation	K3

Mapping

PO / PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	L	H	H	H
CO2	H	M	H	M	H	H	M	H	M	H	M	L
CO3	H	M	H	M	H	L	M	H	M	H	M	H
CO4	M	H	L	H	M	M	H	M	H	M	H	M
CO5	H	L	H	M	H	H	M	H	M	L	M	H

*H-High; M-Medium; L-Low

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.	30
Total Contact Hrs.	**30**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Ms. A. Kalaivani Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc. CT			**Programme Title:**	Bachelor of Science (Computer Technology)
Course Code:	24UCT3N2			**Title**	**Batch:** 2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	02	**Tutorial Hrs./Sem.**	0	Part IV: Non-Major Elective I - Multimedia Lab	**Semester:** III **Credits:** 02

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	Knowledge Level
CO1	Keep in mind the concept of Basic Multimedia Techniques	K3
CO2	Discuss the application of multimedia concepts in the development of information visualization and business applications.	K4
CO3	Validate the creation of a simple applications using multimedia tools	K4
CO4	Use scripting Techniques for dynamic effects and to validate form input entry	K3
CO5	Comprehend and analyse the fundamentals of animation, virtual reality, underlying technologies, principles and applications.	K4

Mapping

PO / PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	L	H	H	H
CO2	H	M	H	M	H	H	M	H	M	H	M	L
CO3	H	M	H	M	H	L	M	H	M	H	M	H
CO4	M	H	L	H	M	M	H	M	H	M	H	M
CO5	H	L	H	M	H	H	M	H	M	L	M	H

*H-High; M-Medium; L-Low

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	30
Total Contact Hrs	**30**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
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Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT3VA	Title	Batch:	2024-2027
		Value Added Course 1: Web Based Scripting Languages	Semester	III
Hrs/Week:	2	Total Hours : 30	Credits:	02*

Course Objective

Students will gain the skills and Web-based experience needed for entry into application and development careers.

- To learn the fundamentals of web designing.
- To design and develop standard and interactive web pages.
- To learn some popular web scripting languages.

Course Outcomes (CO)

K1	CO1	To remember Hyper Text Markup Language Tags for formatting, creating Table, frames and forms in a web page
K2	CO2	To Design and develop a website
K3	CO3	Acquire programming skills in scripting language.
K4	CO4	To interpret the web techniques and tools in developing efficient website

Syllabus

Unit – 1 **[10 Hours]**

Hyper Text Markup Language and Graphics: Introduction to Hyper Text Markup Language – Document Structure Tags – Formatting Tags – List Tags – Hyper Link Tags **Tables:** Introduction – The Table Tags – Alignment – Controlling Other Table Attributes – Spanning Multiple Rows and Columns – Table Section and Column Properties.

Unit - II **[10 Hours]**

Frames: Introduction – Setting up a Frames Document – Placing Content in Frames with the <FRAME>Tag **Forms:**Creating Forms – Labeling Input Fields –Form Field Event Handlers – Passing Form Data.

UNIT – III **[10 Hours]**

Style Sheets: Introduction – Style Sheets - Types of Style Sheet - Linking to Style Information in a Separate File – Embedded Style Information – Inline Style Information – External Style Sheet.

Power point Presentations, Seminar, Quiz, and Assignment.

Books for Study

1. EricLadd, Jim O'Donnell, (2017), "Using Html 4,Xml,Java 1.2", Platinum Edition, 1st Edition, ISBN-13: 9788120315396.

Books for Reference

1. AtulKahate, (2015), "Web Technologies", Tata McGraw Hill, Sixth Reprint, ISBN-13: 9789332900912.
2. Goldberg, (2012), "XML",2nd Edition, Pearson India,ISBN-13 9788131734742.
3. Thomas A. Powell, (2014), "Html & CSS: The Complete Reference, 5th Edition, McGraw Hill Education, ISBN-13 9780070701946.
4. http://freecomputerbooks.com/webHtmlBooks.html
5. https://www.tutorialspoint.com/html/html_style_sheet.htm

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
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SEMESTER- IV

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT411			Title	Batch:	2024-2027
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	04	CC VII: Python Programming	Semester:	IV
					Credits:	03

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	Knowledge Level
CO1	To develop python programs for core python and data types using objects and functions.	K4
CO2	To develop python programs for List, Stack, Queues.	K2
CO3	To implement File Objects and Object-Oriented Programming using python.	K3
CO4	To manage Errors and Exceptions and summarize the Network Programming.	K4
CO5	Understand and apply Well-Formed Object Oriented Features.	K5

Mapping

PO / PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H	H	H
CO2	H	M	H	M	H	H	M	H	M	H	H	M
CO3	H	M	H	M	H	H	M	H	M	H	L	M
CO4	M	H	L	H	M	M	H	L	H	M	M	H
CO5	H	L	H	M	H	H	L	H	M	H	H	M

*H-High; M-Medium; L-Low

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

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

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	2019
2	Anurag Gupta, G P Biswas	Python Programming	McGraw Hill Education	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

Web References

1. http://docs.python.org/3/tutorial/index.html.
2. http://interactivepython.org/courselib/static/pythonds.
3. http://www.ibiblio.org/g2swap/byteofpython/read/
4. https://www.edureka.co/blog/polymorphism-in-python
5. https://www.programiz.com/python-programming/inheritance

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Dr. R. Jayaprakash Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)
Course Code:	24UCT412			Title	Batch: 2024-2027
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	4	CC VIII: LINUX Programming	Semester: IV 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	Knowledge Level
CO1	Remember the operating system architecture and low level interfaces that are required to build Linux systems	K1
CO2	Understand different commands used by system administrator and file related commands	K2
CO3	Apply various Linux operating system commands and utilities in Linux systems	K3
CO4	Evaluate the shell scripts with different programming goals	K4
CO5	Analyze different types of shell associated commands	K5

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H	H	H
CO2	H	M	H	M	H	M	H	M	H	H	M	H
CO3	H	M	H	M	H	M	H	M	H	H	M	H
CO4	M	H	L	H	M	H	L	H	M	M	H	L
CO5	H	L	H	M	H	L	H	M	H	H	L	H

*H-High; M-Medium; L-Low

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 nohupCommand Killing a 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-shell variables-cd command-merging stream-expr command-eval command-shell programs.	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 - cpio- afio- shutdown – mount –unmount – df - find commands-creating device files-installing and managing printers.	12
	Total Contact Hrs	**60**

Pedagogy

24UCT412

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Text Book

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

Web References

1. https://www.tutorialspoint.com/unix
2. https://lecturenotes.in/subject/455/linux-programming-lp
3. https://linuxconfig.org/linux-command-line-tutorial
4. https://www.guru99.com/unix-linux-tutorial.html
5. https://onlinecourses.swayam2.ac.in/aic20_sp26/preview

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)
Course Code:	24UCT4A1			Title	Batch: 2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	03	GE IV – Allied IV: Computer Networks	Semester: IV
					Credits: 03

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	Knowledge Level
CO1	Remember computer network basics, network architecture, and TCP/IP and OSI reference models.	K1
CO2	Understand the knowledge about essential protocols and their operations.	K2
CO3	Apply aspects of network security.	K3
CO4	Familiarize the different types of protocols.	K4
CO5	Evaluate detection and correction of errors in transmission.	K5

Mapping

PO / PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H	H	H
CO2	H	M	H	M	H	H	M	H	M	H	H	M
CO3	H	M	H	M	H	H	M	H	M	H	L	M
CO4	M	H	L	H	M	M	H	L	H	M	M	H
CO5	H	L	H	M	H	H	L	H	M	H	H	M

*H-High; M-Medium; L-Low

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 – Radio Transmission – Microwave Transmission – Infrared and Millimeter Waves – Light Waves.	12
Unit III	**Communication Satellites:** Geostationary, Medium-Earth Orbit, Low Earth-orbit Satellites – Satellites versus Fiber. **Data-Link Layer:** Error Detection and correction– Elementary Data-link Protocols–Sliding Window Protocols.	12
Unit IV	**Network Layer:** Routing algorithms – Congestion Control Algorithms – IPv4 Addresses – IPv6 Addresses. **Transport Layer:** Elements of Transport Protocols – Internet Transport Protocols: TCP – Quality of Service.	12
Unit V	**Application Layer:** DNS –E-mail: SMTP, POP– File Transfer Protocol– HTTP – Telnet Protocols. **Case Studies:** Network Security.	12
	Total Contact Hrs	**60**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Andrew S. Tanenbaum	Computer Networks	5th Edition, Prentice Hall, 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

Web References

1. https://onlinecourses.swayam2.ac.in/cec19_cs07/preview
2. https://www.tutorialspoint.com/data_communication_computer_network/index.htm
3. http://www.engppt.com/2009/12/networking-fourozan-ppt-slides.html
4. https://www.slideshare.net/SalihinNirbhoy/basic-computer-networking-tutorial
5. https://www.slideshare.net/HarpreetDhaliwal/presentation-on-data-communication

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Dr. M. Rajasenathipathi Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT4A2			Title	Batch:	2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	4	Tutorial Hrs./Sem.	2	GE IV – Allied IV: : Software Testing	Semester:	IV
					Credits:	03

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	Knowledge Level
CO1	Understand the basic concepts and the processes that lead to software testing	K2
CO2	Design test cases from the given requirements using Black box testing techniques	K3
CO3	Identify the test cases from Source code by means of white box testing techniques	K3
CO4	Know about user acceptance testing and generate test cases for it	K4
CO5	Examine the test adequacy criteria to complete the testing process	K5

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	M	H	H	H
CO2	H	M	H	L	H	H	H	M	L	H	H	H
CO3	H	H	M	H	L	H	M	H	H	H	H	H
CO4	H	H	H	M	H	M	H	L	H	H	H	H
CO5	H	H	H	H	M	H	L	H	H	H	H	H

*H-High; M-Medium; L-Low

24UCT4A2

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	**60**

Pedagogy Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods Seminar, Quiz, Assignments, Group Task.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Srinivasan Desikan and Gopalswamy Ramesh	Software Testing Principles and Practices	Pearson Education	2016
2	Limaye M.G	Software Testing Principles, Techniques and Tools	Second Reprint, TMH Publishers	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

Web References

1. https://nptel.ac.in/courses/106/101/106101163/
2. https://www.guru99.com/software-testing-seven-principles.html
3. https://www.geeksforgeeks.org/software-engineering-seven-principles-of-software-testing/
4. http://www.cse.hcmut.edu.vn/~hiep/KiemthuPhanmem/Tailieuthamkhao/Introduction%20to%20Software%20Testing.pdf
5. https://www.tutorialspoint.com/software_testing/index.htm

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT413			Title	Batch:	2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	0	CC Lab V: Python Programming Lab	Semester:	IV
					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 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	Knowledge Level
CO1	To develop python programs for list and control statements and understand the Different loops such as "for", "while" and "do-while".	K1
CO2	To Manage Errors and Exception and summarization of networks	K2
CO3	To implement File Objects and Object-Oriented Programming using python.	K3
CO4	Analyze the use control structures in programming.	K4
CO5	Design Python scripting language to develop innovative real time applications.	K6

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H	H	H
CO2	H	H	H	H	H	H	H	M	H	L	H	H
CO3	H	M	H	H	M	H	L	H	M	H	H	H
CO4	H	H	M	H	H	L	H	H	L	M	H	H
CO5	H	H	H	M	H	H	H	H	H	H	H	H

*H-High; M-Medium; L-Low

Content	Hrs.
List of 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

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT414			Title	Batch:	2024 – 2027
				CC LAB VI: LINUX Programming Lab	Semester:	IV
Lecture Hrs./Week or Practical Hrs./Week	03	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	Knowledge Level
CO1	Apply the various Linux distributions.	K3
CO2	Evaluate the basic set of commands and utilities in Linux systems.	K4
CO3	Validate various shell scripts with different programming concepts.	K3
CO4	Apply and change the ownership and file permissions using advance Unix commands.	K4
CO5	Create shell scripts for real time applications.	K5

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H	H	H
CO2	H	M	H	M	H	M	H	M	H	M	H	M
CO3	H	M	H	M	H	M	H	M	H	M	H	M
CO4	M	H	L	H	M	H	L	H	M	H	L	H
CO5	H	L	H	M	H	L	H	M	H	L	H	M

*H-High; M-Medium; L-Low

Content	Hrs.
List of Sample 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	45
Total Contact Hrs.	45

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Course Designed by	Verified by HOD	Checked by	Approved by
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT4S1			Title	Batch:	2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	02	Tutorial Hrs./Sem.	0	Part IV: SEC II: Naan Mudhalvan : R Programming Lab	Semester:	IV
					Credits:	02

Course Objective

To enable the students to write program in use of basic functions, Create their own customized functions, Construct tables and figures for descriptive statistics.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Enable to build programming logic and thereby developing skills in Programming.	K3
CO2	Clear understanding on how to organize data and analyze data using real time examples.	K4
CO3	Validate various new data sets and functions	K3
CO4	Apply built in real time cases for analysis and visualization.	K4
CO5	Create projects for real time applications.	K5

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H	H	H
CO2	H	M	H	M	H	M	H	M	H	M	H	M
CO3	H	M	H	M	H	M	H	M	H	M	H	M
CO4	M	H	L	H	M	H	L	H	M	H	L	H
CO5	H	L	H	M	H	L	H	M	H	L	H	M

*H-High; M-Medium; L-Low

Content	Hrs.
List of Programs 1. Write a program to check whether a year (integer) entered by the user is a leap year or not? 2. Write an R program to find the sum of natural numbers without formula using the if-else statement and the while loop. 3. Write an R program to make a simple calculator that can add, subtract, multiply and divide using switch cases and functions. 4. Write a program to perform searching within a list (1 to 50). If the number is found in the list, print that the search is successful otherwise print that the number is not in the list. 5. Create a list and data frame that stores the marks of any three subjects for 10 students. Find out the total marks, average, maximum marks and minimum marks of every subject. 6. Write the steps to import data from Excel to CSV files and apply data viewer functions like rm(),dim(), head(), tail(), sorting, filtering, searching to view few set of rows.. 7. Write a program to create two 3 X 3 matrices A and B and perform the following operations a) Transpose of the matrix b) addition c) subtraction. 8. Write an R program to create a list containing strings, numbers, vectors and logical values and do the following manipulations over the list. a. Access the first element in the list b. Give the names to the elements in the list c. Add element at some position in the list d. d. Remove the element	30
Total Contact Hrs.	**30**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	24UCT4S2			Title	Batch:	2024 - 2027
Lecture Hrs./Week or Practical Hrs./Week	2	Tutorial Hrs./Sem	0	Part IV: SEC II: Naan Mudhalvan : Desktop Publishing Lab	Semester:	IV
					Credits:	2

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	Knowledge Level
CO1	To keep in mind about the formatted text and graphics.	K3
CO2	To realize about the Print Industry, Printing technology	K4
CO3	To validate the Designing standards, Print layout Design and creative visualization for intuitive layout	K5
CO4	Visualize the special effects, Exporting drawings, outlining & filling objects	K4
CO5	Drawing lines, shapes .inserting pictures, objects, tables, templates	K6

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	M	H	H	H	H	M	H	H	H	H
CO2	H	H	H	H	H	H	H	H	L	H	H	M
CO3	H	H	H	M	H	L	H	H	H	M	H	H
CO4	L	H	L	H	L	H	M	M	L	H	M	H
CO5	H	H	H	H	M	H	H	H	H	M	H	L

* H-High; M-Medium; L-Low

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

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

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Name and Signature	Name and Signature	Co-ordinator CDC	COE
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	24UCT4N1			Title	Batch:	2024 - 2027
Lecture Hrs./Week or Practical Hrs./Week	2	Tutorial Hrs./Sem	0	Part IV: Non-Major Elective Paper -II : Scripting Languages Lab	Semester:	IV
					Credits:	02

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	Knowledge Level
CO1	Understand VB Script language programming constructs and ability to understand the differences between Scripting languages and programming languages	K1
CO2	Gain knowledge of JavaScript language programming constructs.	K2
CO3	Understand the important HTML tags for designing static pages and separate design from content using Cascading Style sheet.	K3
CO4	Develop a dynamic web page using client side and server side scripting language.	K4
CO5	Able to gain some fluency programming in HTML and Java Scripting.	K5

Mapping

PO /PSO / CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2
CO1	H	H	H	H	H	H	H
CO2	H	M	H	H	H	H	H
CO3	H	H	M	H	L	H	H
CO4	H	H	H	H	M	H	H
CO5	H	H	M	H	H	M	H

*H-High; M-Medium; L-Low

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.	30
Total Contact Hrs	**30**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	24UCT4N2			Title	Batch:	2024 - 2027
Lecture Hrs./Week or Practical Hrs./Week	2	Tutorial Hrs./Sem	0	Part IV: Non-Major Elective Paper -II : Pencil 2D	Semester:	IV
					Credits:	02

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	Knowledge Level
CO1	Recall the concepts of 2D animation.	K1
CO2	Understand the tools and attributes, bitmap and vector graphics used in 2D animation	K2
CO3	Design and implement various 2D animation effect using Pencil 2D.	K3
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.	K4
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.	K5

Mapping

PO /PSO / CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2
CO1	H	H	H	H	H	H	H
CO2	H	M	H	H	H	H	H
CO3	H	H	M	H	L	H	H
CO4	H	H	H	H	M	H	H
CO5	H	H	M	H	H	M	H

*H-High; M-Medium; L-Low

24UCT4N2

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.	30
Total Contact Hrs	**30**

Pedagogy

Assessment Methods

Direct Instruction, Flipped Class, Digital Presentation

Seminar, Quiz, Assignments, Group Task.

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Programme Code:	B.Sc.	**Programme Title:**	Bachelor of Science (Computer Technology)	
Course Code:	24UCT4VA	**Title**	**Batch:**	2024-2027
		Value Added Course: An Introduction to AI CHATBOT Framework	**Semester**	II/IV/VI
Hrs/Week:	2	**Total Hours:** 30	**Credits:**	02

Course Objective

The course imparts a sound learning of how artificial intelligence powers ChatBot, get an overview of the Bot ecosystem and Bot anatomy, and study different types of bots and use cases. Identify best practices for defining a ChatBot use case and use a rapid prototyping framework to develop a use case for a personalized ChatBot.

Course Outcomes (CO)

K1	CO1	To understand in-depth of conversation design, including on boarding, flows, utterances, entities, and personality
K2	CO2	To realize the scope of the different approaches used to develop ChatBots
K3	CO3	To analyzing the processes from demonstrate, test, and iterate a fully-functional, interactive ChatBot using a commercial platform.
K4	CO4	To analysis and evaluate the data received through demonstrate how NLP is used in developing ChatBot and Design a ChatBot for public use and interaction.

Syllabus

Units	Content	Hrs
Unit I	**Introduction**: Benefits from Chatbots for a Business, A Customer-Centric Approach in Financial Services, Conversational ChatBot Landscape. **Identifying the Sources of Data**: ChatBot Conversations, Training ChatBot for Conversations, Personal Data in ChatBot, and Introduction to the General Data Protection Regulation (GDPR).	10
Unit II	**ChatBot Development Essentials**: ChatBot Development Approaches, Rules-Based Approach, AI-Based Approach, Conversational Flow, Key Terms in ChatBot, Utterance, Intent, Entity, Channel, Human Takeover, Use Case: 24x7 Insurance Agent.	10
Unit III	**Building a ChatBot Solution**: Business Considerations, ChatBot Vs Apps, Growth of Messenger Applications, Direct Contact Vs Chat, Success Metrics, Customer Satisfaction Index, Completion Rate, Bounce Rate, Generic Solution Architecture for Private ChatBot. **Natural Language Processing, Understanding, and Generation**: ChatBot Architecture, Popular Open Source NLP and NLU Tools.	10
	Total Contact Hrs	**30**

Power point Presentations, Seminar, Quiz, and Assignment.

Books for Study

1. Abhishek Singh, Karthik Rama subramanian, ShreyShivam, "Building an Enterprise Chatbot: Work with Protected Enterprise Data Using Open-Source Frameworks", ISBN 978-1-4842-50341, Apress, 2019.

Books for Reference

1. James D. HJanarthanam and Srini, Hands-on chatbots and conversational UI development: Build chatbots and voice user interfaces with C (1 ed.), Packt Publishing Ltd, 2017. ISBN 97817882946693.
2. Galitsky, Boris., Developing Enterprise Chatbots (1 ed.), Springer International Publishing, 2019. ISBN 978-303004298
3. Kelly III, John E. and Steve Hamm, Smart machines: IBM's Watson and the era of cognitive computing (1 ed.), Columbia University Press, 2013. ISBN 978- 0231168564.

Reference Links

1.https://www.coursera.org/learn/building-ai-powered-chatbots

2. https://www.udemy.com/course/landbot-designing-conversation-building-chatbot/

3. https://www.edx.org/learn/chatbots/ibm-ai-chatbots-without-programming

4. https://futureskillsprime.in/course/ai-chatbots-without-programming

5. https://in.skillup.online/courses/AI-chatbots-without-programming/

6. https://www.youtube.com/watch?v=oxYrHbsPPEU

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SEMESTER- V

Programme Code:	B.Sc. UCT			Programme Title:	Bachelor of Computer Technology	
Course Code:	24UCT515			Title	Batch:	2024 - 2027
Lecture Hrs./Week or Practical Hrs./Week	5	Tutorial Hrs./Sem.	2	CC IX: Open Source Technologies (PHP & MySQL)	Semester:	V
					Credits:	04

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	Knowledge Level
CO1	Obtaining the basic concepts of PHP	K1
CO2	Gain the basic knowledge on Decision making and Looping	K1, K2
CO3	Understand the concept in string manipulation and arrays	K1, K3
CO4	Gain detailed knowledge on MySQL Commands	K4
CO5	Obtain knowledge about database manipulation using MySQL and design dynamic web pages.	K5, K6

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	M	H	H	H	M	H	H	M	H
CO2	H	H	M	H	H	L	H	H	H	H	H	H
CO3	H	M	H	H	H	H	L	H	H	H	H	M
CO4	H	H	H	M	H	L	H	M	H	M	M	H
CO5	H	M	H	H	H	H	H	H	H	H	H	H

*H-High; M-Medium; L-Low

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 – Performing Other File and Directory Operations.	15
Unit IV	**Working with Databases and SQL:** Introducing Databases and SQL – Creating and Populating a Database – Using PHP's MySQLi Extension – 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
Unit V	**Python Basics:** Introduction – Installation – Data types and Data structures –Control flow – Functions – Modules – Packages – File handling – Date/Time – Operations – Classes.	15
	Total Contact Hrs	**75**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

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 , 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

Web References

1. https://www.tutorialspoint.com/php/
2. https://www.siteground.com/tutorials/php-mysql/
3. https://onlinecourses.swayam2.ac.in/aic20_sp32/preview
4. https://www.geeksforgeeks.org/php-mysql-database-introduction/
5. https://www.w3schools.com/php/php_mysql_intro.asp

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	24UCT516			Title	Batch:	2024 - 2027
				CC X: Information and Cyber Security	Semester:	V
Lecture Hrs./Week or Practical Hrs./Week	05	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	Knowledge Level
CO1	Remember and understand the fundamentals of security algorithm in various layers.	K1, K2
CO2	Analyze the various symmetric key and public key algorithms	K4
CO3	Understand the techniques to secure data in Hash algorithms.	K2
CO4	Assess cyber security risk management policies in order to adequately protect critical information and assets.	K3
CO5	Analyze the various attacks in networks and discover how to protect personal data, securing simple computer networks, and safe Internet usage.	K4

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H	M	H
CO2	H	H	H	M	H	H	L	M	H	H	M	H
CO3	H	H	L	H	H	M	H	H	H	H	H	H
CO4	H	H	M	L	H	H	L	H	H	M	H	M
CO5	H	H	H	H	H	H	H	H	H	H	H	H

*H-High; M-Medium; L-Low

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.	15
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 – An Overview Of Asymmetric Cryptography - The RSA Algorithm.	15
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).	15
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.	15
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.	15
	Total Contact Hrs	75

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Text Book

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

Web References

1. https://onlinecourses.swayam2.ac.in/nou21_cs01/preview
2. https://www.tutorialspoint.com/cryptography/index.htm
3. https://www.guru99.com/how-to-make-your-data-safe-using-cryptography.html
4. https://www.gatevidyalay.com/tag/cryptography-and-network-security-tutorial/
5. https://www.javatpoint.com/cyber-security-tutorial

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)
Course Code:	24UCT5E1			Title	Batch: 2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	06	DSE I: Software Engineering	Semester: III
					Credits: 05

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	Knowledge Level
CO1	Keep in mind layers of process models, Requirement gathering phases design concepts and testing strategies	K1
CO2	Picture out the main aspects of software engineering and evaluate requirements for a software system and analyzing the requirements through modeling	K2
CO3	Apply the process of analysis and design using the object-oriented approach	K3
CO4	Interpret the design engineering and various Testing tactics	K4
CO5	Inculcate knowledge on Software engineering concepts in turn gives a roadmap to design a new software project.	K4

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	L	H	H	H
CO2	H	M	H	M	H	H	M	H	M	H	M	L
CO3	H	M	H	M	H	L	M	H	M	H	M	H
CO4	M	H	L	H	M	M	H	M	H	M	H	M
CO5	H	L	H	M	H	H	M	H	M	L	M	H

*H-High; M-Medium; L-Low

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 -Incremental process models - Evolutionary process models.	18
Unit II	**System Engineering**: Computer-Based Systems – The system engineering Hierarchy. **Requirements Engineering:** Requirements Engineering Tasks – Initiating the Requirements Engineering Process – Eliciting Requirements – Building the Analysis Model.	18
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.	18
Unit IV	**Design Engineering**: Design process and Design quality - Design concepts - the design model. **Creating an architectural design**: Software architecture - Data design - Architectural Design.	18
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 - Basis path Testing – Control Structure Testing - Black-Box Testing. **Testing for Web Apps**: Performance testing: Performance testing objectives - Load testing – Stress Testing.	18
	Total Contact Hrs	**90**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

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, 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

Web References

1. https://nptel.ac.in/courses/106/105/106105218/
2. https://swayam.gov.in/nd1_noc19_cs70/preview
3. https://freevideolectures.com/course/4071/nptel-software-project-management
4. https://www.nptelvideos.com/video.php?id=918
5. https://www.w3schools.in/sdlc-tutorial/software-development-life-cycle-sdlc/

Course Designed by	Verified by HOD	Checked by	Approved by
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	24UCT5E2			Title	Batch:	2024 - 2027
				DSE-I[a]:	Semester:	V
Lecture Hrs./Week or Practical Hrs./Week	6	Tutorial Hrs./Sem.	2	Data Science	Credits:	5

Course Objective

To develop the student's knowledge in the basic concepts of Machine Learning and Deep Learning.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Recollect the fundamentals of Data Science	K1
CO2	Understand the basic concepts of Data Wrangling and the process of data flow.	K2
CO3	Apply the basic concepts in Natural Language Processing and Neural Networks.	K3
CO4	Analyze the concept of Machine Learning and Deep Learning.	K4
CO5	Evaluate ML algorithms and gain knowledge on Outliers.	K5

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	M	H	H	H	H	H	H	H	H
CO2	H	H	L	H	L	H	H	M	H	L	M	H
CO3	H	M	H	H	H	M	H	H	H	H	H	H
CO4	H	H	H	L	H	H	L	H	M	H	H	H
CO5	H	H	H	H	H	H	H	H	H	H	H	H

*H-High; M-Medium; L-Low

Units	Content	Hrs
Unit I	Data Wrangling – Definition -Analytic Process – Cross Industry Standard for Data Mining – Sources of Data – The Data Science Process – Process Flow – The Data Scientist Role–Data Wrangling Steps.	18
Unit II	Natural Language Processing – Statistical Language Models – Unigram Model – Bigram Model – N-gram Models – Logistic Regression – Neural Network – DNN - NTypes of Neural Network.	18
Unit III	Machine Learning – What is Machine Learning?–Components of Machine Learning – Types – ML algorithms. Data Preprocessing – Why Data Preprocessing? – Data Transformations – Identifying and Handling the missing values.	18
Unit IV	Comparison of K-Means and DB Scan – Deep Learning – What is Deep Learning? – Applications of Deep Learning.	18
Unit V	- Encoding the Categorical Data – Ways to Encode - Normalization vs Standardization- - Case studies on Machine Learning Algorithms – Outliers.	18
	Total Contact Hrs	**90**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Juraf sky and Martin	Speech and Language Processing (Unit1 to5)	Prentice Hall,2nd Edition	2008

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \EDITION	YEAR OF PUBLICATION
1	Joel Grus	Data Science from Scratch	O'Reilly Media, Inc. ISBN: ISBN: 9781491901427	2015
2	Joel Grus	K-means and hierarchical clustering with Python	O'Reilly Media, Inc. ISBN: ISBN: 9781491966174	2016
3	Sanjiv Ranjan Das	Data Science, Theories , Models , Algorithms, and Analytics	O' Reilly Series, SPD	2016
4	Vijay Kotu, Bala Deshpande	Data Science Concepts and Practice	Elsevier Inc., Second Edition	2019
5	Avrim Blum, John Hopcroft, and Ravindran Kannan	Foundations of Data Science	Elsevier Inc.,	2018

Web References

1. https://towardsdatascience.com/data-preprocessing-concepts-fa946d11c825
2. https://developers.google.com/machine-learning/clustering/clustering-algorithms
3. https://towardsdatascience.com/your-guide-to-natural-language-processing-nlp-48ea2511f6e1
4. https://www.ibm.com/cloud/learn/natural-language-processing

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	24UCT5E3			Title	Batch:	2024 - 2027
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	2	DSE-I#: Embedded Systems	Semester:	V
					Credits:	05

Course Objective

To emphasizes on comprehensive treatment of embedded hardware and real time operating systems along with case studies, in tune with the requirements of Industry.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Understand the basics concepts in embedded systems	K1, K2
CO2	Understand the knowledge on hardware & software components and developing tools in embedded systems.	K2
CO3	Understand the working of ARM processor and learn to write programs in ARM processor	K2
CO4	Understand the basic concepts of real time operating systems using the concepts of RTOS.	K2
CO5	Develop embedded applications	K3, K6

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	M	H	H	H	H	H	H	H	H
CO2	H	H	L	H	L	H	H	M	H	L	M	H
CO3	H	M	H	H	H	M	H	H	H	H	H	H
CO4	H	H	H	L	H	H	L	H	M	H	H	H
CO5	H	H	H	H	H	H	H	H	H	H	H	H

*H-High; M-Medium; L-Low

Units	Content	Hrs
Unit I	**Introduction to Embedded System**: Embedded System – Processor Embedded into the System – Embedded Hardware units and Devices in a System – Embedded Software in a system – Examples of embedded system – Embedded system on chip and use of VLSI circuit - Classification of embedded systems – Skills required for an embedded System Designer.	18
Unit II	**Devices and buses for device networks**: I/O Types and Examples – Serial Communication devices: Synchronous, Iso-Synchronous and Asynchronous communication from serial devices – Parallel Device Ports - Timer and counting devices – Watchdog timer – Real time clock – Network Embedded Systems – Serial Bus Communication Protocol.	18
Unit III	**Device drivers and Interrupts servicing mechanism**: ISR concept - Device drivers – Interrupt servicing mechanism – Context and the periods for context-switching, dead-line and interrupt latency – Device Driver Programming: Writing physical device-driving ISRs in a system- Parallel port device drivers.	18
Unit IV	**Programming concepts and embedded programming in C and C++**: Embedded programming in C++ and in Java. **Program modeling concepts in single and multi processor systems**: Program Models – DFG Models – State Machine Programming Models for Event-controlled Program Flow – Modeling of Multiprocessor Systems.	18
Unit V	**Inter – process communication and synchronization of processes, Threads and Tasks:** Multiple processes in an application – Multiple Threads in an application – Tasks- Task States- **Real time operating systems**: Operating system services – Real time operating systems – Basic Design using RTOS: Principles – RTOS Task scheduling Models, Interrupt Latency and Response of the Tasks as Performance Metrics: Cooperative Scheduling model-Cyclic and Round Robin Scheduling models – Preemptive Scheduling model.	18
	Total Contact Hrs	**90**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Raj Kamal	Embedded Systems – Architecture, Programming and Design	McGraw Hill, 2nd Edition	2018

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Shibu K V	Introduction to Embedded Systems	McGraw Hill Education, 2nd Edition	2017
2	Lyla B Das	Embedded Systems-An Integrated Approach	Pearson Edition	2013
3	Elicia White	Making Embedded Systems	O' Reilly Series, SPD	2011
4	Daniel W. Lewis	Fundamentals of Embedded Software	PHI Education Publications, 1stEdition	2007

Web References

1. https://onlinecourses.nptel.ac.in/noc21_cs09/preview
2. https://profile.iiita.ac.in/bibhas.ghoshal/IEMB_2018/Lectures/ES_basics.pdf
3. https://www.tutorialspoint.com/embedded_systems/index.htm
4. https://www.javatpoint.com/embedded-system-tutorial
5. https://www.bharathuniv.ac.in/colleges1/downloads/courseware_eee/Notes/NE1/BEE%20049-%20design%20of%20embedded%20system.pdf

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Dr. R. Jayaprakash Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	24UCT517			Title	Batch:	2024 - 2027
Lecture Hrs./Week or Practical Hrs./Week	5	Tutorial Hrs./Sem.	0	CC Lab VII: Open Source Technologies (PHP & MySQL) Lab	Semester:	V
					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	Knowledge Level
CO1	Write PHP scripts using operators to perform various functions	K6
CO2	Implement different types of PHP functions and the concepts of files and directories	K3
CO3	Write regular expressions including modifiers, operators, and meta characters	K6
CO4	Create PHP scripts using array	K6
CO5	Evaluate the database connectivity using PHP and SQLite and Develop dynamic web pages.	K5, K3

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	M	H	M	H	H	H	H	H	H	H	H
CO2	H	H	M	H	L	H	H	M	L	M	H	H
CO3	H	M	H	M	H	M	H	H	H	L	M	H
CO4	H	H	M	H	L	H	M	L	M	H	H	M
CO5	H	H	M	H	H	H	M	H	H	H	H	H

*H-High; M-Medium; L-Low

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	75
Total Contact Hrs	75

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Dr. M. Rajasenathipathi Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology
Course Code:	24UCT518			Title	Batch: 2024 - 2027
Lecture Hrs./Week or Practical Hrs./Week	5	Tutorial Hrs. /Sem.	0	CC Lab VIII: Web Designing Lab	Semester: V
					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	Knowledge Level
CO1	Analyze a web page and identify its elements and attributes	K3
CO2	Create a HTML page with formatting text tags, tables and lists	K6
CO3	Create a HTML file with Frames	K6
CO4	Create web pages using DHTML and XML documents	K6
CO5	Build dynamic web pages using JavaScript (client side programming)	K3, K6

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H	H	H
CO2	H	H	H	H	H	L	H	M	H	H	H	H
CO3	H	M	H	H	H	H	L	H	H	H	H	H
CO4	H	H	M	H	M	H	H	L	H	M	H	H
CO5	H	H	H	H	H	H	H	H	L	H	H	H

*H-High; M-Medium; L-Low

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.	75
Total Contact Hrs	75

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Ms. C. Keerthana Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT5S1			Title	Batch:	2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	03	Tutorial Hrs./Sem.	0	Part IV: SEC III: Framework Technologies Lab	Semester:	V
					Credits:	02

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	Knowledge Level
CO1	Analyze and apply the VB.NET IDE Framework	K3
CO2	Develop, design and implement VB.Net program using various controls.	K4
CO3	To validate the concept of files and exception handling mechanism	K5
CO4	Implement ADO.Net connectivity	K4
CO5	Create their own applications with reports.	K5

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H	L	H
CO2	L	M	H	M	H	M	H	L	H	M	H	M
CO3	H	M	H	M	H	M	H	M	H	M	H	L
CO4	M	H	M	L	M	H	M	H	M	H	M	H
CO5	H	M	H	M	H	M	H	M	H	L	H	M

* H-High; M-Medium; L-Low

Units	Content	Hrs
	Sample Programs **VB.NET – Console Application** 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 an application which is similar to notepad using menus. **VB.NET – Windows Application** 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.	45
	Total Contact Hrs	45

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT5S2			Title	Batch:	2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	03	Tutorial Hrs./Sem.	0	Part IV: SEC III: UI/UX Programming Lab	Semester:	V
					Credits:	02

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	Knowledge Level
CO1	Understand iterative user-centered design of graphical user interfaces.	K1
CO2	Apply the user Interfaces to different devices and requirements.	K2
CO3	Create high quality professional documents and artifacts related to the design process. Design interactive elements and animations to improve user engagement.	K3
CO4	Implement Theme the visual look and feel of the user experiences and implement user interface applications	K4
CO5	Create effective and compelling screen based experiences.	K5

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H	L	H
CO2	L	M	H	M	H	M	H	L	H	M	H	M
CO3	H	M	H	M	H	M	H	M	H	M	H	L
CO4	M	H	M	L	M	H	M	H	M	H	M	H
CO5	H	M	H	M	H	M	H	M	H	L	H	M

*H-High; M-Medium; L-Low

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	45
	Total Contact Hrs	**45**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
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Programme Code:	B.Sc. CT			**Programme Title:**	Bachelor of Science (Computer Technology)
Course Code:	24UCT5AL			**Title**	**Batch:** 2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	SS	**Tutorial Hrs./Sem.**	SS	Advanced Learner Course **(ALC) –I:** Digital Marketing	**Semester:** V
					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	Knowledge Level
CO1	Understand the role of digital marketing in marketing strategy	K2
CO2	Identify the key elements of a digital marketing strategy	K1
CO3	Analyze the role that social marketing plays in the digital marketing	K3
CO4	Demonstrate common digital marketing tools such as SEO and Social media	K4
CO5	Apply conceptual frame works of digital marketing	K5

Mapping **24UCT5AL**

PO / PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	M	H	H	H
CO2	H	M	H	L	H	H	H	M	L	M	H	M
CO3	H	H	M	H	L	H	M	H	H	H	L	H
CO4	H	H	H	M	H	M	H	L	H	M	H	H
CO5	H	H	H	H	M	H	L	H	H	H	H	M

*H-High; M-Medium; L-Low

Units	Content	Hrs
Unit I	Introduction to Digital Marketing: Introduction - Original and Development of Digital Marketing - Internet Users: Penetration and Kind of Internet Use - Digital Marketing 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 – Data Collection – Key Metrics – Outcome Analysis – Experience Analysis.	
	(*SS – Self Study)Total Contact Hrs	SS

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

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 Education2nd 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

Web References

1. https://www.simplilearn.com/
2. https://www.michaelpage.ae/
3. https://digitalnow.undp.org/
4. https://www.facebook.com/business/small-business/advertise?
5. https://www.izito.co.in/

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
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SEMESTER- VI

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	24UCT619			Title	Batch:	2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	05	Tutorial Hrs./Sem.	08	Core Course XI: Mobile Application Development	Semester:	VI
					Credits:	04

Course Objective

To provide in depth knowledge on Mobile Application Development and making them to develop apps using Android Programming.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Understand the concept of android development platform, and applications.	K1 / K2
CO2	Understand the concept of configuring and creating android applications.	K3
CO3	Create an activity, intents, different event handling methods and menus	K3
CO4	Know working with views, view groups and content provider	K3/K4
CO5	Apply the concept of graphics and animation in developing android application	K4/K5

Mapping

PO /PSO CO	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H	H	H
CO2	H	M	H	M	H	M	H	H	M	L	H	M
CO3	H	M	L	M	H	M	H	H	M	M	H	M
CO4	M	H	M	H	M	H	M	L	H	H	M	H
CO5	H	M	H	M	H	M	H	H	M	M	H	M

*H-High; M-Medium; L-Low

Units	Content	Hrs
Unit I	Introducing android (listing the version history of android platform - discussing android APIs - Describing the android architecture - application framework - exploring the features of android) - The Manifest file. Downloading and installing android (downloading and installing the android SDK - setting up android virtual device - setting up android physical device) Developing and executing the first android application (using eclipse IDE to create an application - running your application - exploring the application - using command line tools)	15
Unit II	Working with Activities: Creating an activity - Starting an activity - Managing the lifecycle of an activity - Applying themes and styles to an activity. Using intents: Exploring intent objects - Linking the activities using intent - Obtaining results from intent - Passing data using an intent object.	15
Unit III	Working with the user interface using Views and View Groups: Working with View Groups - The Linear Layout - the Relative Layout - The Scroll View layout - the Table Layout - the Frame Layout. Working with Views (Using the Text View - using Edit Text view - using the Button view - using the Radio Button view - using the Check Box view - using the Image Button view - using the Toggle Button view - using the Rating Bar view) Creating menus - the option menu - the context menu - The submenus.	15
Unit IV	Notifying the user:- Creating the Toast notification - Creating the status bar notification - creating the Dialog notification. Introducing the data storage options: Using Preference - using the internal storage: Exploring the methods used for internal storage- Using the SQLite database: Creating the database helper class.	15
Unit V	Working with content providers:- Exploring the android provider package - creating user-defined content provider - consuming user-defined content provider. Working with Animations:-The Property Animation - View Animation - Drawable Animation.	15
	Total Contact Hrs	**75**

Pedagogy

24UCT619

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	Pradeep Kothari	Android application development (with KitKat Support)	Black Book, dreamtech press	2018

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	S. Sydhani begum	Mobile App Development - Android Programs Using Eclipse: Android Programs Using Eclipse Indigo	Notion Press	2019
2	Wallace Jackson	Android Applications for Absolutes Beginners	Apress, 3rd Edition	2014
3	W. Frank Ableson, RobiSen, Chris King	Android in Action	Manning Publications, 2nd Edition	2011

Web References

1. https://www.javatpoint.com/how-to-setup-android-for-eclipse-ide
2. https://info448-s17.github.io/lecture-notes/resources-and-layouts.html
3. https://www.tutorialspoint.com/android/index.htm
4. https://www.codeproject.com/Articles/825700/Beginners-Guide-to-Android-Animation-Graphics
5. https://www.geeksforgeeks.org/android-app-development-fundamentals-for-beginners/

24UCT619

Course Designed by	Verified by HOD	Checked by	Approved by
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT6E4			Title	Batch:	2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	04	DSE: II Artificial Intelligence and Machine Learning	Semester:	VI
					Credits:	4

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 machinelearning, 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	Knowledge Level
CO1	Learn about the artificial intelligence problem, the characteristics of the problem space, and the difference between continuous class labels.	K1
CO2	Understand the problem solving using predicates and predict the continuous class variable using linear regression analysis.	K2
CO3	Apply the concepts of game playing techniques and predict the binary class variable using algorithms.	K3
CO4	Analyze AI problem to be solved and its application in business	K4
CO5	Apply the assessment method to find the better number of PCA and Clusters for the given data	K5/K6

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	L	H	H	H
CO2	H	M	H	M	H	M	H	H	M	M	H	M
CO3	H	L	H	M	H	M	H	H	M	M	L	M
CO4	M	H	M	H	M	H	M	M	H	H	M	H
CO5	H	M	H	M	L	M	H	H	M	M	H	M

* H-High; M-Medium; L-Low

Units	Content	Hrs
Unit I	**Problems and search:** AI Techniques-Defining the problem as a State Space Search – Production Systems – Problem Characteristics – Production system Characteristics – Heuristic Search Techniques – Generate and test – Hill Climbing – Best-first Search – Problem Reduction – Constraint Satisfaction – Mean-Ends Analysis.	18
Unit II	**Knowledge Representation**: Representations and Mappings- Approaches to Knowledge Representation – Issues in knowledge representation – Representing simple Facts in Logic - Procedural versus Declarative Knowledge – Logic Programming – Forward versus Backward reasoning.	18
Unit III	**Semantic Nets:** Frames - Conceptual Dependency - Game Playing – Overview– The minimax search procedure – Adding Alpha - Beta cutoffs. **Expert System** : Definition – Characteristics of Expert System – Architecture & Description of Modules – Backward Chaining.	18
Unit IV	**Introduction to Machine Learning Algorithms:** Introduction to Machine learning – Statistical Learning – types of Machine Learning –learning models: geometric, probabilistic and logistic models, introduction to supervised, unsupervised and reinforcement learning – model evaluation – model implementation – model accuracy Indicators.	18
Unit V	**Supervised Learning –Regression Analysis:** Introduction to parametric machine learning method- linear model and its assumptions- simple linear regression- **Classification Techniques – Decision Tree**: Introduction to decision tree algorithms- classification tree- characteristics of classification tree – Induction algorithms- **Logistic Regression**: Introduction to logistic regression- assumptions involved in logistic regression **Unsupervised Learning**: Introduction to data dimension reduction techniques, linearityof variables.	18
	Total Contact Hrs	**90**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Elaine Rich, Kevin Knight,Shivashankar B Nair	Artificial Intelligence	Tata McGraw Hill ,3rd Edition	2017
2	Douglas C. Montgomery, Elizabeth A. Peck, G. Geoffrey Vining	Introduction to Linear Regression Analysis	A John Wiley & Sons, Fifth Edition	2018
3	Ethem Alpaydm	Introduction to Machine Learning	The MIT Press	2016

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \EDITION	YEAR OF PUBLICATION
1	Norman R Draper, Harry Smith	Applied Regression Analysis	John Wiley & Sons, Third Edition	2015
2	Barbara G. Tabachnick, Linda S. Fidell	Using Multivariate Statistics	Pearson Education Inc	2020
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

Web Resources

1. https://www.geeksforgeeks.org/machine-learning/
2. https://www.cs.cmu.edu/~hn1/tex/machine-learning/notes.pdf
3. https://www.tutorialspoint.com/machine_learning/machine_learning_tutorial.pdf
4. https://u-aizu.ac.jp/~qf-zhao/TEACHING/ML/ML.html
5. https://www.javatpoint.com/machine-learning-techniques

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Ms. A. Kalaivani Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT6E5			Title	Batch:	2024 – 2027
				DSE II: Software Project Management	Semester:	VI
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	04		Credits:	4

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	Knowledge Level
CO1	Identify the activities of Software Project Management	K2
CO2	Select appropriate approach for software project	K2/K3
CO3	Manage people in software environment	K3
CO4	Create a critical path and a precedence network for a project.	K4
CO5	Generate project schedule and can construct, design and develop network diagram for different type of Projects.	K4/K5

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H	L	H
CO2	H	M	L	M	H	M	H	M	H	M	H	M
CO3	H	M	H	M	H	M	H	L	H	M	H	M
CO4	M	H	M	H	M	H	M	H	M	H	M	H
CO5	L	M	H	M	H	M	H	M	H	M	H	M

*H-High; M-Medium; L-Low

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

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

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, 6th Edition	2017

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	2019
2	John M. Nicholas and Herman Steyn	Project Management for Engineering, Business and Technology	Taylor&Francis, 5th Edition	2016
3	Er. Rishabh Anand	Principles of Software Project Management	S.K. Kataria & Sons, 1st Edition	2014
4	Walker Royce	Software Project Management-A Unified Framework	Pearson publication, 1st Edition	2015

Web Resources

1. https://nptel.ac.in/courses/106/105/106105218/
2. https://freevideolectures.com/course/4071/nptel-software-project-management
3. https://www.nptelvideos.com/video.php?id=918
4. https://www.classcentral.com/course/swayam-software-project-management-14294
5. https://www.w3schools.in/sdlc-tutorial/software-development-life-cycle-sdlc

Course Designed by	Verified by HOD	Checked by	Approved by
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Name: Ms. C. Keerthana Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT6E6			Title	Batch:	2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	04	DSE II: GRID COMPUTING	Semester:	VI
					Credits:	4

Course Objective

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

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Understanding the fundamentals of grid computing	K1
CO2	Discussing the basics of grid monitoring.	K2/K3
CO3	Dissect Grid Computing Systems and Architectures	K4
CO4	Analyze the importance of Grid Computing Standards	K4/K5
CO5	Examine the standards supporting Grid Computing services and Functionality	K5

Mapping

PO /PSO CO	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	L	H	H	H	H	H
CO2	H	M	H	M	H	M	H	M	H	M	H	M
CO3	H	M	H	L	H	M	H	M	H	M	H	M
CO4	L	H	M	H	M	H	M	H	M	H	M	H
CO5	H	M	H	M	H	M	H	M	H	L	H	M

*H-High; M-Medium; L-Low

Units	Content	Hrs
Unit I	Introduction: Grid Computing-Key Issues – Applications – Other Approaches – Grid Computing Standards – Pragmatic Course of Investigation.	18
Unit II	Grid Benefits & Status of Technology: Motivations – History of Computing, Communications and Grid Computing – Grid Computing Prime Time – Suppliers and Vendors –Economic Value – Challenges.	18
Unit III	Components of Grid Computing Systems and Architectures: Basic Constituent Elements-A Functional View – A Physical View – Service View.	18
Unit IV	Grid Computing Standards-OGSI: Standardization – Architectural Constructs –Practical View – OGSA/OGSI Service Elements and Layered Model – More Detailed View.	18
Unit V	Standards Supporting Grid Computing-OGSA: Functionality Requirements – OGSA Service Taxonomy – Service Relationships – OGSA Services – Security Considerations.	18
	Total Contact Hrs	**90**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Daniel Minoli	A Networking Approach to Grid Computing	John Wiley & Sons, Inc, 1st Edition	2018

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Joseph	Grid Computing	Pearson Education India	2014
2	Kai Hwang, Geoffery C. Fox and Jack J. Dongarra	Distributed and Cloud Computing: Clusters, Grids, Clouds and the Future of Internet	Morgan Kaufman Publisher,1st Edition	2012
3	Jorge G Barbosa , Ines Dutra	Grid Computing: Techniques & Future Prospects	Nova Science Publishers Inc, 1st Edition	2015

Web Resources

1. https://www.slideshare.net/poojadixit19/grid-computing-standards
2. http://www.cs.kent.edu/~farrell/grid06/lectures/grid08.pdf
3. https://www.geeksforgeeks.org/grid-computing/
4. http://www.cs.kent.edu/~farrell/grid06/lectures/grid01.pdf
5. https://pit.ac.in/pitnotes/uploads/CS6703_II.pdf

Course Designed by	Verified by HOD	Checked by	Approved by
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Programme Code:	B.Sc. C.T.			Programme Title:	Bachelor of Computer Technology	
Course Code:	24UCT6E7			Title	Batch:	2024 - 2027
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	2	DSE-III* :Cloud Computing	Semester:	V
					Credits:	04

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	Knowledge Level
CO1	Tell about the fundamentals of cloud computing.	K1
CO2	Describe the scaling techniques in computer system and managing the cloud data.	K2
CO3	Discuss about tracing and exploring cloud services.	K2
CO4	Examine about cloud managing and security.	K3
CO5	Illustrate about managing desktops and devices in the cloud.	K3

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	M	H	H	H	M	H	M
CO2	H	M	L	H	H	H	H	L	M	H	H	H
CO3	H	H	M	H	L	H	M	H	H	L	H	M
CO4	H	H	H	H	H	H	H	H	H	M	H	H
CO5	H	H	M	H	H	M	H	L	H	H	H	H

*H-High; M-Medium; L-Low

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

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

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.	2016

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.	2013
2	Judith Hurwitz,Robin Bloor Marcia Kaufman and Dr. Fernhalper	Cloud Computing For Dummies	Willey India Publication Edition	2010
3	Prasant Kumar Pattnaik	Fundamentals of Cloud Computing	Vikas Publishing House	2014
4	RajkimarBuyya.,et.al	Cloud Computing: Principles and Paradigms	Wiley publications	2013
5	Michael Miller	Cloud Computing: Web-Based Applications That Change the way you work and Collaborate Online	Macmillan Computer Publication,1st Edition	2008

Web References

1. https://www.motc.gov.qa/sites/default/files/cloud_computing_ebook.pdf
2. https://onlinecourses.nptel.ac.in/noc21_cs62/preview
3. https://data-flair.training/blogs/cloud-computing-tutorial/
4. https://www.javatpoint.com/cloud-computing-tutorial
5. https://www.guru99.com/cloud-computing-for-beginners.html

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Ms. D. Poongodi Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)
Course Code:	24UCT6E8			Title	Batch: 2024 – 2027
Lecture Hrs./Week	06	Tutorial Hrs./Sem.	04	DSE III: Ethical Hacking	Semester: VI
					Credits: 4

Course Objective

To help students understand how ethical hacking is used as a method to prevent hacking. To facilitate students, appreciate the need for understanding non-technology aspects of ethical hacking such as legal frameworks, documentation and report writing.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Explain the importance of numerous methods of real-world informationintelligence	K1/K2
CO2	Differentiate the processes of vulnerability assessment and ethical hacking from penetration testing.	K2/K3
CO3	Comprehend the importance of appropriate countermeasures for managing vulnerabilities	K3
CO4	To familiarize with the methodologies that can be used to hack into a target	K4/K5
CO5	To appreciate the wide variety of attacks that can be performed against a wireless network	K5

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	L	H	H	H	M	H	H	H	H
CO2	H	M	H	M	H	M	H	H	L	M	H	M
CO3	H	M	H	M	H	M	H	H	H	M	H	M
CO4	M	H	L	H	M	H	M	L	M	H	M	L
CO5	H	M	H	M	H	M	H	M	H	M	H	M

*H-High; M-Medium; L-Low

Units	Content	Hrs
Unit I	Introduction To Hacking: Terminologies, Categories of Penetration Test, Writing Reports, Structure of a Penetration Testing Report, Vulnerability Assessment Summary, Risk Assessment, Methodology, Linux Basics: File Structure, Cron Job, Users, Common Applications ,BackTrack, Services.	18
Unit II	Information Gathering, Target Enumeration And Port Scanning Techniques: Active, Passive and Sources of information gathering, Copying Websites Locally, NeoTrace, Cheops-ng, Intercepting a Response, What Web, Net craft, Basic Parameters, Code Exploit Scanner, Interacting with DNS Servers, Fierce, Zone Transfer with Host Command and Automation, DNS Cache Snooping- Attack Scenario, Automating Attacks.	18
Unit III	Assessment & Network Sniffing: Introduction to Vulnerability Assessment - Pros and Cons, NMap, Updation of database, Testing SCADA Environments with Nmap, Nessus, Sniffing: Types, Hubs versus Switches, Modes, MITM Attacks, ARP Protocol Basics-working, Attacks, DoS Attacks, Dsniff tool, Using ARP Spoof to Perform MITM Attacks, Sniffing the Traffic with Dsniff, Sniffing Pictures with Drifnet, Urlsnarf and Webspy .	18
Unit IV	Remote Exploitation : Understanding Network Protocols, Attacking Network Remote Services, Common Target Protocols, tools for cracking network remote services, Attacking SMTP, Attacking SQL Servers, Client Side Exploitation Methods: E-Mails Leading to Malicious Attachments & Malicious Links, Compromising Client Side Update, Malware Loaded on USB Sticks, **Post exploitation:** Acquiring Situation Awareness, Privilege Escalation, Maintaining Access, Data Mining, Identifying and Exploiting Further Targets, Windows Exploit DevelopmentBasics.	18

Unit V	Wireless Hacking :Requirements , Aircracking , Hidden SSIDs , Monitor Mode , Monitoring Tool- Beacon Frames on Wireshark ,Airodump-ng , Wireless Adapter in Monitor Mode , Determining the Target , Cracking a WPA/WPA2 Wireless Network Using Aircrack-ng , Capturing Packets and Four-Way Handshake	18
	Total Contact Hrs	**90**

Pedagogy

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	Rafay Baloch	Ethical Hacking and Penetration Testing Guide	CRC Press	2015

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Patrick Engebretson	The Basics of Hacking and Penetration Testing : Ethical Hacking and Penetration Testing Made Easy	Syngress Media , Second Revised Edition	2013
2	MichaelT. Simpson, Kent Backman, JamesE. Corley	Hands On Ethical Hacking and Network Defense	Cengage Learning	2012

Web Resources

1. https://www.guru99.com/ethical-hacking-tutorials.html
2. https://www.javatpoint.com/ethical-hacking-tutorial
3. https://www.tutorialspoint.com/ethical_hacking/index.htm
4. https://www.futurelearn.com/info/blog/what-is-ethical-hacking-guide-for-beginners
5. https://www.certiology.com/tutorials/ethical-hacking-tutorial.html

Course Designed by	Verified by HOD	Checked by	Approved by
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	24UCT6E9			Title	Batch:	2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	4	DSE III: MOBILE COMPUTING	Semester:	VI
					Credits:	4

Course Objective

2. Understand the various concepts and techniques of WAP, GSM, CDMA, 2G, and 3G.
3. 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	Knowledge Level
CO1	Understand various networks, standards, communication medium, Spread spectrum technology	K1/K2
CO2	Analyze the basic concepts of wireless networks.	K2/K3
CO3	Deploy the mobile applications to the devices.	K3
CO4	Demonstrate basic skills for cellular networks design.	K4/K5
CO5	Examine to design and develop mobile computing solutions using various components of mobile computing	K5

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H	H	H
CO2	H	L	H	M	H	M	H	H	M	M	L	M
CO3	H	M	H	M	H	M	H	H	M	M	H	M
CO4	M	H	M	H	M	H	M	L	H	H	M	H
CO5	H	M	H	M	L	M	H	H	M	M	H	M

*H-High; M-Medium; L-Low

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

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

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	TMH, 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

Web Resources

1. https://nptel.ac.in/courses/106/106/106106147/
2. https://www.tutorialspoint.com/mobile_computing/index.htm
3. https://minigranth.in/mobile-computing-tutorial/bluetooth-technology-mobile-computing
4. https://www.educba.com/gprs-architecture/
5. https://www.javatpoint.com/wireless-lan-introduction

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
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Programme Code:	B.Sc.			Programme Title:	Computer Technology	
Course Code:	24UCT620			Title	Batch:	2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	5	Tutorial Hrs./Sem.	-	CC LAB IX: Mobile Application Development Lab.	Semester :	VI
					Credits:	2

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	Knowledge Level
CO1	Learn the basic concepts of Android Programming	K3
CO2	know how to create various user interfaces with Toast messages and simple applications	K4
CO3	Develop programs using API controls	K3
CO4	Learn the basic concepts of Android Programming	K4
CO5	Knows working with SQLite database	K4

Mapping

PO / PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	L	H	H	H
CO2	H	M	H	M	H	H	M	H	M	H	M	L
CO3	H	M	H	M	H	L	M	H	M	H	M	H
CO4	M	H	L	H	M	M	H	M	H	M	H	M
CO5	H	L	H	M	H	H	M	H	M	L	M	H

*H-High; M-Medium; L-Low

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.	75
Total Contact Hrs	75

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Dr. M. Rajasenathipathi Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

K. SRINIVASAN, M.C.A.,
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Programme Code:	B.Sc.			Programme Title:	Computer Technology	
Course Code:	24UCT621			Title	Batch:	2024 – 2027
					Semester:	VI
Lecture Hrs./Week or Practical Hrs./Week	5	Tutorial Hrs./Sem.	-	CC LAB X: Google Workspace	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	K3
CO2	Understand and integrate skills such as creating, editing, sharing, and customizing documents using documents.	K4
CO3	Validate the idea of creating and presenting professional presentations for sales, projects, training modules, and much more using Slides	K3
CO4	Develop data visualization options in Google Sheets, as well as how to use Google Forms	K4
CO5	Illustrate the concept of GMail and drives	K4

Mapping

PO / PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	L	H	H	H
CO2	H	M	H	M	H	H	M	H	M	H	M	L
CO3	H	M	H	M	H	L	M	H	M	H	M	H
CO4	M	H	L	H	M	M	H	M	H	M	H	M
CO5	H	L	H	M	H	H	M	H	M	L	M	H

*H-High; M-Medium; L-Low

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

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Dr. R. Jayaprakash Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc.			Programme Title:	Computer Technology	
Course Code:	24UCT622			Title	Batch:	2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	-	Tutorial Hrs./Sem.	-	Project	Semester:	VI
					Credits:	2

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	K3
CO2	To comprehend about the data base connectivity using front end and back end tools	K4
CO3	To validate the application software by various types of testing and its implementation in real environment	K5
CO4	Design engineering solutions to complex problems utilizing a systems approach.	K4
CO5	Demonstrate the knowledge, skills and attitudes of a professional engineer.	K5/K6

Mapping

PO / PSO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	H	H	H	H
CO2	H	M	H	M	H	M	H	H	H	M	H	M
CO3	H	M	H	M	H	M	H	H	H	M	H	M
CO4	M	H	M	H	M	H	M	H	H	H	M	H
CO5	H	M	H	M	H	M	H	H	H	M	H	M

*H-High; M-Medium; L-Low

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	

System Study

2 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	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Dr. R. Jayaprakash Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology
Course Code:	24UCT6S1			Title	Batch: 2024 - 2027
Lecture Hrs./Week or Practical Hrs./Week	2	Tutorial Hrs./Sem	0	Part IV: SEC IV – Naan Mudhalvan: Big Data Analytics Lab	Semester: VI Credits: 02

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.	K3
CO2	To realize about sorting, cost benefit analysis, calculating mean and standard deviation	K4
CO3	To validate the use of analysis tools to conduct regression and forecasting and calculate descriptive statistics	K5
CO4	Visualize the data using basic graphs and plots	K4
CO5	Dissect the outliers if any in the data set and adapt techniques for handling multi-dimensional data	K6

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	M	H	H	H	H	M	H	H	H	H
CO2	H	H	H	H	H	H	H	H	L	H	H	M
CO3	H	H	H	M	H	L	H	H	H	M	H	H
CO4	L	H	L	H	L	H	M	M	L	H	M	H
CO5	H	H	H	H	M	H	H	H	H	M	H	L

*H-High; M-Medium; L-Low

Units	Content	Hrs
Unit I	**Sample Programs** 1. Illustrates how to create a basic spreadsheet by entering text, numbers, and formulas. 2. Illustrate the formatting of cells and columns. 3. Create a spreadsheet to perform "what if?" calculations using Built-in functions. 4. Demonstrate the ease of creating charts. 5. Sort the data and print portions of a worksheet. 6. Illustrates how to dress up a table using special formats and how to export a table or chart into a Microsoft Word document. 7. Demonstrate a basic cost-benefit analysis using Excel. 8. Consolidate several worksheets into one and to link several worksheets to a master worksheet. 9. Illustrate the use of analysis tools for conducting bivariate regression and forecasting. 10. Use a worksheet to calculate descriptive statistics (e.g., mean, standard deviation)	30
	Total Contact Hrs	**30**

Pedagogy Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods Seminar, Quiz, Assignments, Group Task.

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Ms. D. Poongodi Signature:	Name: Dr. R. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	24UCT6S2			Title	Batch:	2024 - 2027
Practical Hrs./Week	2	Tutorial Hrs./Sem	0	Part IV: SEC II – Naan Mudhalvan : Animation Lab	Semester:	VI
					Credits:	02

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	Knowledge Level
CO1	Gained basic concepts and understanding of tools related to 3D production	K2
CO2	To familiarize with various approaches, methods and techniques of Animation Technology.	K3
CO3	Emphasis will be on conceptualization, creativity, and visual aesthetics	K4
CO4	Developing concepts, storyboarding and production of several 2 dimensional animations will be accomplished.	K5
CO5	Takes through various aspects of animation using a variety of 2 dimensional software.	K6

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	M	H	H	H	H	M	H	H	M	H
CO2	H	M	H	L	H	H	H	H	L	H	H	M
CO3	H	H	H	M	H	L	H	H	H	M	H	H
CO4	M	H	L	H	L	H	M	H	H	H	H	H
CO5	H	H	H	H	M	H	H	H	H	M	L	H

* H-High; M-Medium; L-Low

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

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Ms. D. Poongodi Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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Programme Code:	B.Sc. CT			**Programme Title:**	Bachelor of Science (Computer Technology)	
Course Code:	24UCT6AL			**Title**	**Batch:**	2024 – 2027
Lecture Hrs./Week or Practical Hrs./Week	SS	**Tutorial Hrs./Sem.**	SS	Advanced Learner Course **(ALC) –II** Data Mining and Warehousing	**Semester:**	VI
					Credits:	02*

Course Objective

To give a better understanding of various concepts of Data mining includes KDD, Association rules, Classification, Clustering, different types of mining and also about big data analytics.

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 the various concepts of data mining	K2
CO2	To understand the types of data mining and analytics	K1
CO3	To execute data mining algorithms for finding hidden interesting patterns in data	K3
CO4	To evaluate various data mining algorithms and analysis of big data.	K4
CO5	Apply conceptual frame works of data mining	K5

Mapping

24UCT6AL

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	H	H	H	H	H	H	H	M	H	H	H
CO2	H	M	H	L	H	H	H	M	L	M	H	M
CO3	H	H	M	H	L	H	M	H	H	H	L	H
CO4	H	H	H	M	H	M	H	L	H	M	H	H
CO5	H	H	H	H	M	H	L	H	H	H	H	M

*H-High; M-Medium; L-Low

Units	Content	Hrs
Unit I	**Data mining and the data warehouse**: Introduction - Data mining -Kinds of data- functionalities- classification- Task Primitives-Integration with database or warehouse-Major issues. **Mining frequent patterns, association and correlations**: Basic concepts. **Efficient and scalable frequent item set mining methods:** Aprior Algorithm-Generating association rules.	
Unit II	**Classification and prediction:** Definition – Issues - **classification by Decision tree* Induction – Bayesian classification-rule based classification - classification by back propagation - support vector machine.	
Unit III	**Cluster analysis:** Definition - types of data in cluster analysis - categorization of major clustering methods - partitioning methods - hierarchical methods.	SS
Unit IV	Spatial data mining - multimedia data mining - text mining - mining the www - **data mining Applications.*	
Unit V	**Data warehousing:** Data warehousing Components – Building a Data warehouse – Mapping the Data Warehouse to a Multiprocessor Architecture – DBMS Schemas for Decision Support – Data Extraction, Cleanup, and Transformation Tools – Metadata.	
	(*SS – Self Study)Total Contact Hrs	**SS**

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Jiawei Han and Micheline Kamber	Data Mining concepts and techniques	Elsevier publication.	2005

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Dr. Aravind Sathi	Big Data Analytics:Disruptive Technologies for Changing the Game	MC Press publication, first edition	2012
2	Margaret H. Dunham	Data Mining Introductory and Advanced Topics	Pearson Education Publications	2009
3	Alex Berson and Stephen J.Smith	Data Warehousing, Data Mining and OLAP	Tata McGraw – Hill Publications.	2008

Web References

1. https://www.javatpoint.com/data-mining
2. https://www.ibm.com/topics/data-mining
3. https://bootcamp.rutgers.edu/blog/what-is-data-mining/
4. https://www.geeksforgeeks.org/data-mining/
5. https://www.simplilearn.com/what-is-data-mining-article

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Ms. C. Keerthana Signature:	Name: Dr. M. Rajasenathipathi Signature:	Name: Mr. K. Srinivasan Signature:	Name: Mr. K. Srinivasan Signature:

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PRIVATE RESOLUTION

Upon successful completion of courses from Swayam / NPTEL / UGC approved portal, which have durations of 30, 45, or 60 hours, students are eligible to receive 2, 3, or 4 credits respectively. These credits can be applied as a compensatory course in Part-IV (Except Environmental Studies) or as an Extra Credit course. Additionally, the completion of these courses can be reflected in the consolidated mark sheets for undergraduate and postgraduate programs.

NGM COLLEGE (AUTONOMOUS) POLLACHI

MINUTES OF THE 31ST MEETING OF THE ACADEMIC COUNCIL

The 31st Meeting of the Academic council was held on 18.06.2024 (Tuesday) at 2.30 p.m at the Board Room under the Chairmanship of Dr.R.Manicka chezian, Principal.The Chairman welcomed the University Nominees, expert Members of the Management Nominees and the Members of the Academic Council. He introduced and invited the new Members who were inducted in the Academic Council.

The Chairman reiterated that with regard to Curriculum design and development, it is to be ensured about the satisfaction of the stakeholders' expectation, especially the industry, to make the students more skilled and employable .He requested the Member Secretary Mr.K.Srinivasan to invite the HoDs of each department to present the syllabi and the scheme of Examinations.

Mr.K.Srinivasan, Member Secretary presented the power point explaining the entire Curriculum Design of the institution and the Credits and Marks for each course. He also exemplified the significance of the Choice Based Credit System and the salient features of Bloom's Taxonomy on Outcome Based Education.

When Dr.R.Sathishkumar, the University Nominee, invited Dr.S.Umapathy, Dean Research, to explain the Research activities, the latter replied that one minor and 2 major projects are to be done by the research scholar and a sum of Rs.25000 is paid for each staff for six months. Moreover the research scholar should publish at least 2 papers.

Mr.G.Muniasamy, Executive Director of Kumaraguru Institutions, explained that NGM College Management has offered abundant opportunities for the Members of the teaching faculty to claim their requirements for the laboratories. Moreover, he said that the Management is highly liberal to provide the Members of the teaching staff whatever they need to enrich the infra structure of the institution and the curriculum related aspects.

Dr.M.Punithavalli, University nominee, made a few suggestions to include some of the fundamental computer courses such as DFS, N/W and OS in the computer science programme. She also suggested that all the departments should publish Newsletters at the end of each semester by incorporating the students' achievements and the departments' activities and accomplishments. Some of the concepts such as C/C++ and C with Data structure are to be included to enrich the domain knowledge of the students .

Mr.K.Srjnivasan, Co-ordinator for Curriculum Development Cell, exemplified the Curriculam Structure of all UG & PG Programmes

The meeting concluded with the vote of thanks by Dr.V.Inthumathi, HoD of Mathematics

NGM COLLEGE (AUTONOMOUS) POLLACHI

Office of the Controller of Examinations

Graduate Pass Percentage - May - 2024

UG Programmes (Aided)

S. No.	Programme Name	No. of students appeared	No. of students Passed	Percentage
1	B.Sc. - Mathematics	43	37	86.0%
2	B.Sc. - Physics	24	22	91.7%
3	B.Sc. - Chemistry	45	33	73.3%
4	B.Sc. - Botany	13	10	76.9%
5	B.Sc. - Zoology	27	23	85.2%
6	B.Sc. - Computer Science	49	46	93.9%
7	B.A. - History	46	33	71.7%
8	B.A. - Economics	46	39	84.8%
9	B.A. - English Literature	55	51	92.7%
10	B.Com (Aided)	60	60	100.0%
	Total	408	354	86.8%

UG Programmes (S.F)

S. No.	Programme Name	No. of students Appeared	No. of students Passed	Percentage
11	B.Com	80	79	98.8%
12	B.Sc. - Computer Science	108	108	100.0%
13	B.B.A	57	57	100.0%
14	B.C.A	117	114	97.4%
15	B.Com (Computer Applications)	172	170	98.8%
16	B.A. - Tamil Literature	30	29	96.7%
17	B.Sc. - Information Technology	51	51	100.0%
18	B.Com (E-Commerce)	56	56	100.0%
19	B.Com (Finance)	46	45	97.8%
20	B.Sc. - Computer Technology	33	33	100.0%
21	B.Com (Banking & Insurance)	31	30	96.8%
22	B.Com (Professional Accounting)	60	60	100.0%
23	B.Com (Business Process Services)	22	22	100.0%
24	B.Com - International Business	26	26	100.0%
	Total	889	880	99.0%

PG Programmes (Aided & S.F)

S. No.	Programme Name	No. of students appeared	No. of students Passed	Percentage
25	M.Sc. - Mathematics	25	19	76.0%
26	M.Sc. - Physics	20	20	100.0%
27	M.Com	38	38	100.0%
28	M.A. - English Literature	22	22	100.0%
29	M.A. - Tamil Literature	19	19	100.0%
30	M.Com - International Business	22	22	100.0%
31	M.S.W.	34	33	97.1%
32	M.Sc. - Computer Science	24	24	100.0%
33	M.Com (Computer Applications)	32	32	100.0%
34	M.Sc. - Chemistry	20	20	100.0%
35	M.Sc. - Botany	10	10	100.0%
	Total	266	259	97%
	Overall UG & PG	1563	1493	96%

CONTROLLER OF EXAMINATIONS



"A College is a temple of wisdom, seed bed of character, model of discipline, training ground of democracy and a nursery of great hearts, strong mind, true faith and willing hands. Hence, education has a pivotal role in harvesting the available resources to contribute to the prosperity of the nation"

- Arutchelvar Dr. N. Mahalingam

Holistic Education for the wholesome development of Human personality for the overall well-being of the Humanity as a whole.

Dr. B. K. Krishnaraj Vanavarayar
President