

NALLAMUTHU GOUNDER MAHALINGAM COLLEGE (AUTONOMOUS)-POLLACHI

398	B.Sc Computer Science	Core Elective II:MongoDB	21UCS6E6	2021
399	B.Sc Computer Science	Core Elective III:Information retrieval	21UCS6E7	2021
400	B.Sc Computer Science	Core Elective III:HTML,JAVA Script and JQuery for	21UCS6E8	2021
401	B.Sc Computer Science	Core Elective III:Angular NodeJS	21UCS6E9	2021
402	B.Sc.IT	Visual Programming	21UIT414	2021
403	B.Sc.IT	Visual Programming Lab	21UIT416	2021
404	B.Sc.IT	Skill Based Major Elective - Lab. I WebProgramming(ASP.NET)	21UIT5S12	2021
405	B.Sc.IT	Artificial Intelligence	21UIT5E12	2021
406	B.Sc.IT	Core-XIV:Skill Enhanced Course: Python Programming	21UIT621	2021
407	B.Sc.IT	Core Lab - IX: Python Programming Lab	21UIT622	2021
408	B.Sc.IT	Core Elective-II: Internet of Things	21UIT6E22	2021
409	B.Sc.IT	Core Elective-II: Block Chain Technology	21UIT6E23	2021
410	B.Sc.IT	Core Elective-II: R Programming	21UIT6E21	2021
411	B.Sc.IT	Project Planning and Management	21UIT623	2021
412	B.Sc. CT	Core IX: Linux And Shell Programming	21UCT413	2021
413	B.Sc. CT	Core VI: Database Management System	21UCT308	2021
414	B.Sc. CT	Lab - VI : Linux And Shell Programming Lab	21UCT416	2021
415	B.Sc. CT	Core Elective - I : Management Information System	21UCT5E3	2021
416	B.Sc. CT	Core Elective - II : Software Project Management	21UCT 6E2	2021
417	B.Sc. CT	Core Elective - II : Grid Computing	21UCT 6E3	2021
418	B.Sc. CT	Core Elective - III : Digital Image Processing	21UCT 6E6	2021
419	B.Sc. CT	Software Testing	21UCT5AL	2021
420	B.Sc. CT	Data Analytics	21UCT6AL	2021
421	BCA	Programming in C++	21UBC206	2021
422	BCA	Web Designing Lab	21UBC418	2021
423	BCA	Software Testing	21 UBC520	2021

BOS Highlighted



DEPARTMENT OF COMPUTER TECHNOLOGY
NALLAMUTHU GOUNDER MAHALINGAM COLLEGE

POLLACHI - 642001

11th Board of Studies Meeting in the Department of
Computer Technology

Date : 22.05.2021 Time: 10 A.M to 1P.M

Agenda

BoS / CT11.1	:	Welcome address and Opening Remarks by Chairman, Board of studies in online mode
BoS / CT11.2	:	Confirmation of the Minutes of the 11 th / Previous meeting of Board of studies in online mode held on 22.05.2021 and Action taken report of 11 th meeting of Board of studies
BoS / CT11.3	:	11.3.1 Syllabus of I BSc COMPUTER SCIENCE for semester I to VI under Regulation 2021-2022 Batch
		11.3.2 Syllabus of Value added course
BoS / CT11.4	:	Suggestion given by BOS Members



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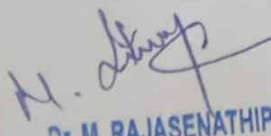
DEPARTMENT OF COMPUTER TECHNOLOGY

MINUTES OF BOS MEETING

The 11th Meeting of the Board of studies of the Department of Computer Technology was held on 22.05.2021 at 10.00 a.m. in online mode

1. The following members were present:

1	Dr.M.RAJASENATHIPATHI Head of the Department Department of computer technology NGM College, Pollachi	Chairman
2	MS. C. KEERTHANA Assistant Professor	Internal Members
3	MS. K.S. LEELAVATHI Assistant Professor Department of computer technology NGM College, Pollachi	
4	MR. R. JAYAPRAKASH Department of computer technology NGM College, Pollachi	
5	MS. A. KALAIVANI Assistant Professor Department of computer technology NGM College, Pollachi	
6	Dr. Juliana Sunil Associate Professor Department of Information Technology Rathinam College of Arts and Science, Coimbatore	University Nominee
7	Dr. Muthusamy Head of the Department Department of MCA Dr Mahalingam College of Arts and Science Pollachi	Academic Experts
8	Mr. Natarajan Shanmugasundaram Manager Product Engineer, Harman- Samsung Coimbatore	Industrial Expert
9	Mr. S. Mohana Prabher Branch Manager, R.B.L. Bank Tripur	Alumnus nominated by Principal / HoD


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10	Dr.TamilSelvan Associate Professor Department of Computer Technology Karpagam university Coimbatore	Subject Expert
11	Mr.KirubaVignesh III- CT NGM College Pollachi	Student Members
12	Ms.JefrinVinisha III- CT NGM College Pollachi	

BoS/CT 11.3

BoS/CT 11.3.1

I BSc COMPUTER TECHNOLOGY (Ito VI SEMESTER)

SEMESTER I

- 21UCT103 – Core Lab 1 – Programming in C

The presented syllabus was accepted by the experts and a **few suggestions** were given as follows:

- Lab exercise is modified as per concept level of c language
- Industrial based problems is introduced in lab exercise
- Pointer concept based lab exercise is introduced

The following papers from BSc. Computer Technology were accepted by the experts fully without further suggestions:

- 21UCT101 – Core I – Programming in c
- 21UCT102 – Core II – Digital Fundamentals and Computer Architecture
- 21UCT1A1 – Allied I – Mathematics I – Mathematical structures for Computer Science

SEMESTER II

- 21UCT206 – Core Lab II – Programming in C++with data Structures

The presented syllabus was accepted by the experts and a **few suggestions** were given as follows:

- Lab exercise is modified as per concept level of c language
- Industrial based problems is introduced in lab exercise
- oops concept based lab exercise is introduced

M. Rajasenathipathi

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- 21UCT2A2- Allied II – Mathematics II-Operations Research
New paper was introduced as per expert suggestions and Industry Expectation

The following papers from BSc. Computer Technology were accepted by the experts fully without further suggestions:

- 21UCT204 – Core III – Object oriented programming with c++
- 21UCT205 – Core IV – Data Structures

SEMESTER III

- 21UCT311 – Lab III – JAVA Programming Lab

The presented syllabus was accepted by the experts and a few suggestions were given as follows:

- Lab exercise is modified as per concept level of c language
- Industrial based problems is introduced in lab exercise
- AWT, Swings and JDBC concept based lab exercise is introduced
- 21UCT308 – core VI – Database Management System

The above paper syllabus was modified by the experts and a few suggestions were given as follows

- Three unit designed as DBMS concepts and two units designed as ORACLE
- ORACLE connectivity is introduced as Backend
- Client/server concept was introduced

The following papers from BSc. Computer Technology were accepted by the experts fully without further suggestions:

- 21UCT307 – Core V – JAVA Programming
- 21UCT309 – Core VII – Operating Systems
- 21UCT3A3 – Allied III – Software Engineering
- 21UCT311- LAB IV – Database Management System Lab
- 21UCT3N11/3N12 – Non Major Electives

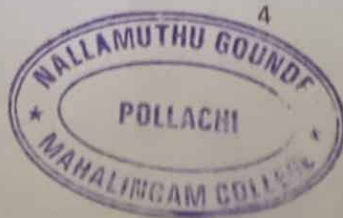
SEMESTER IV

- 21UCT412 – Lab V – Advanced JAVA Programming Lab

The presented syllabus was accepted by the experts and a few suggestions were given as follows:

- Lab exercise is modified as per concept level of c language
- Industrial based problems is introduced in lab exercise
- JSP, EJP, Three tier Architecture and JDBC concept based lab exercise is introduced

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- 21UCT4A4- Allied IV – Big Data Management
- 21UCT413 – Core IX- Linux and Shell Programming
- 21UCT416- Lab-VI – Linux and shell programming Lab

The above New paper was introduced as per expert suggestions and Industry Demand

The following papers from B.Sc. Computer Technology were accepted by the experts fully without further suggestions:

- 21UCT412 – Core VIII – Advanced JAVA Programming
- 21UCT414 – Core X – Data Communication and Networks
- 21UCT4N3/4N4 – Skill Based Non Major Electives

SEMESTER V

- 21UCT5E11/12/13- Core Elective I – Cloud Computing/Embedded system/Management Information System

- 21UCT5AL1 –Advanced Learner course-I-Software Testing

The above New paper was introduced as per expert suggestions in elective paper list and optional paper for extra credit in advanced learner.

- 21UCT518 – Core XII – Information Security

The above paper was included in Core paper instead of Elective paper, as per expert suggestions.

The following papers from BSc. Computer Technology were accepted by the experts fully without further suggestions:

- 21UCT517 – Core XI – Open source Technologies
- 21UCT518 – Core XII – Information Security
- 21UCT5S11/5S12 –Python Lab/Html5 with CSS Lab

SEMESTER VI

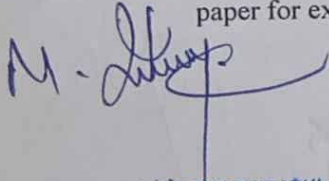
- 21UCT6E21/22/23- Core Elective II – Mobile Computing/Software Project Management/Grid Computing

- 21UCT6E31/32/33- Core Elective III – Artificial Intelligence/Digital Signal Processing

- 21UCT6AL2 –Advanced Learner course-II-Data Analytics

- 21UCT6S21 – Skill Based Elective II – Data Analytics Lab

The above New paper was introduced as per expert suggestions in elective paper list and optional paper for extra credit in advanced learner.


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The following papers from BSc. Computer Technology were accepted by the experts fully without further suggestions:

- 21UCT621 – Core XIII – Framework Technologies
- 21UCT623 – Project

These changes have been made effect for the students admitted in 2021-22 with SEMESTER NO I TO VI accordingly.

BoS/CT 12.4 SUGGESTIONS GIVEN BY THE BoS MEMBERS

12.4.1: Introduce papers related to research and methodologies

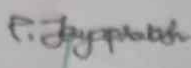
12.4.2: Introduce papers related to Management problem solving task

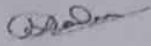
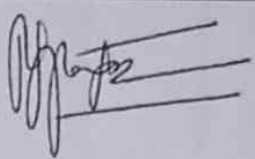
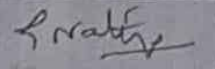
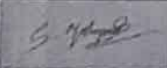
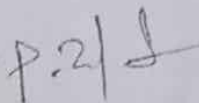
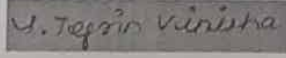
The members had a brainstorming discussion and interaction among themselves. After discussion, fruitful suggestions were incorporated appropriately in the Curriculum and Syllabi.

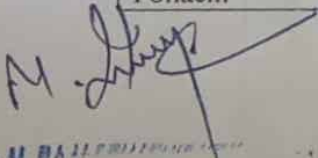
Based on the suggestions given by the members, BOS resolved to recommend the following to the Academic Council for further approval.

a) The syllabus of First Year Computer Technology under Regulation <<Regulation Number>>.

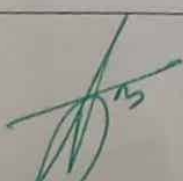
Members Present:

Chairman	
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Internal Members	
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Academic Experts	
Dr. Muthusamy Head of the Department Department of MCA Dr. Mahalingam College of Arts and Science Pollachi	
Industrial Experts	
Mr. Natarajan Shanmugasundaram Manager Product Engineer, Harman- Samsung Coimbatore	
Alumnus nominated by Principal / HoD	
Mr. S. Mohana Prabhu Branch Manager, R.B.L Bank Tripur	
Subject Expert	
Dr. Tamil Selvan Associate Professor Department of Computer Technology Karpagam university	
Student Members	
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Ms. Jefferin Vinisha III- CT NGM College Pollachi	


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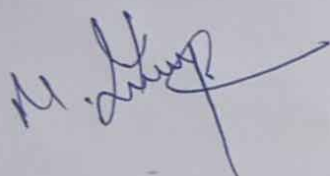



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ANNEXURE I

Minutes of the 11th Previous Meeting – Action Taken Report

S.No	Suggestion given by expert members	Action taken
1.	Industry Demand papers were introduced	Reviewed and Implemented
2.	Concept based and real time lab exercises is introduced in all practical papers	Implemented
3.	Advanced learning course papers were introduced	Implemented
4.	Guide lines for project is designed	Implemented



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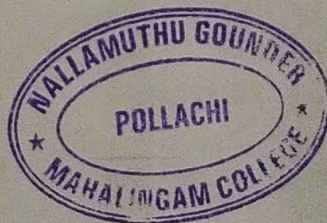
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**Percentage of Revision of B.Sc Computer Technology
Syllabus Revised for the Academic Year – 2021-2022**

B.Sc., CT							
S.No	Course Code	Course Title	Change Details	% of Changes	Content Deleted	Content Updated	Reason for Change
1	21UCT413	Core IX: Linux And Shell Programming	New Syllabus introduced	100	New Syllabus introduced for all 5 Units instead of CORE IX: Software Engineering Paper (CORE IX: Software Engineering Shifted to III Semester of this syllabus scheme)	CORE IX: Software Engineering Shifted To III Semester Of This Syllabus Scheme	As Board members suggested to introduced New paper.
2	21UCT308	Core VI: Database Management System	All contents removed in all 5 units & new content included in all units.	100	All 5 units removed	All 5 units new content added and text Book changed.	As Board members suggested.
3	21VAC404	VAC- II:PC Assembly and CCTV camera Installation	New Syllabus introduced	100	New course introduced for VAC II.	New course introduced for VAC II.	As Board members suggested to introduce more than 1 VAC Course.
4	21UCT416	Lab - VI : Linux And Shell Programming Lab	New Syllabus introduced	100	New Syllabus introduced instead of LAB - VI : SOFTWARE ENGINEERING AND TESTING Paper	New course Lab - VI : Linux And Shell Programming Lab introduced.	As Board members suggested.

Signature of the HoD

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5	21UCT5E3	Core Elective - I : Management Information System	New Elective paper has introduced and instead of Elective II: E-Commerce and few elective papers has interchanged in this current scheme.	100	New Elective paper has introduced and few elective papers have interchanged in this current scheme.	New Elective paper has introduced	As Board members suggested to made few changes.
6	21UCT 6E2	Core Elective - II : Software Project Management	New Elective paper has introduced and instead of Elective III: Multimedia Techniques and few elective papers has interchanged in this current scheme.	100	New Elective paper has introduced and few elective papers have interchanged in this current scheme.	New Elective paper has introduced	As Board members suggested to made few changes.
7	21UCT 6E3	Core Elective - II : Grid Computing	New Elective paper has introduced and instead of Elective III: Internet of Things (IoT) and few elective papers has interchanged in this current	100	New Elective paper has introduced and few elective papers have interchanged in this current scheme.	New Elective paper has introduced	As Board members suggested to made few changes.

Signature of the HoD

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Signature of the Principal

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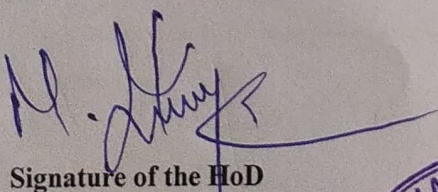
			scheme.				
8	21UCT 6E6	Core Elective - III : Digital Image Processing	New Elective paper has introduced and instead of Data Mining and Analytics and few elective papers has interchanged in this current scheme.	100	New Elective paper has introduced and few elective papers have removed and interchanged in this current scheme.	New Elective paper has introduced	As Board members suggested to made few changes.
9	21UCT5AL	Advanced Learner Course - I : Software Testing	New Paper	100	-	-	Industry Expert
10	21UCT6AL	Advanced Learner Course - II : Data Analytics	New Paper	100	-	-	Industry Expert

Total No. of Papers = 26

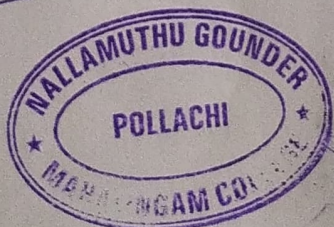
Weightage for each paper = 100

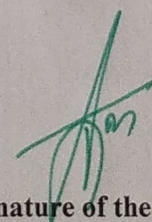
No. of Paper Newly Introduced / Revised = 10

PERCENTAGE OF SYLLABUS REVISED = $(1000/3400) \times 100 = 29.41\%$


Signature of the HoD

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21 Batch

Nallamuthu Gounder Mahalingam College - Curriculum Development Cell										
Scheme of Examination For 2021 - 2022										
Choice Based Credit System & OBES										
For Part I and Part II in First & Second Semesters Only										
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	21UTL101 / 21UHN101 / 21UFR101	Tamil Paper - I /	6	-	-	3	50	50	100	3
		Hindi Paper - I /	6	-	-					
		French Paper - I	6	-	-					
II	21UEN101	Communication Skills – I (Level I)	5	-	-	3	50	50	100	3
	21UEN102	Communication Skills – I (Level II)	5	-	-					
III	21UCT101	CORE - I : Programming in C	4	-	-	3	50	50	100	4
	21UCT102	CORE II: Digital Fundamentals and Computer Organization	4	-	-	3	50	50	100	4
	21UCT1A1	ALLIED I: Mathematics - I: Mathematical Structures For Computer Science	5	-	-	3	50	50	100	4
	21UCT103	CORE LAB -I : Programming in C	-	4	0	3	25	25	50	2
IV	21UHR101	Human Rights	1	-	-	2	-	50	50	2
	21HEC101	Human Excellence - Personal Values & SKY Yoga Practice – I	1	-	-	2	25	25	50	1
V		Extension Activities – Annexure I	-	-	-	-	-	-	-	-
CC	21CFE101	Fluency in English - I	-	-	-	-	-	-	-	-
		Online Course (Optional) (MOOC / NPTEL / SWAYAM)								Grade
Total			26	4	0	22	300	350	650	23



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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	21UTL202 / 21UHN202 / 21UFR202	Tamil Paper - II /	6	-	-	3	50	50	100	3
		Hindi Paper - II /	6	-	-					
		French Paper - II	6	-	-					
II	21UEN202	Communication Skills – II (Level I)	5	-	-	3	50	50	100	3
	21UEN203	Communication Skills – II (Level II)	5	-	-					
III	21UCT204	CORE III: Object oriented Programming with C++	4	-	-	3	50	50	100	4
	21UCT205	Core - IV :Data Structures	4	-	-	3	50	50	100	4
	21UCT2A2	Allied - II : Mathematics II – Operations Research	4	-	-	3	50	50	100	4
	21UCT206	Core Lab - II : Programming in C++ with data Structures	-	4	-	3	25	25	50	2
IV	21EVS201	Environmental Studies	2	-	-	2	-	-	50	2
	21HEC202	Human Excellence - Family Values & SKY Yoga Practice - II	1	-	-	2	25	25	50	1
V		Extension Activities - Annexure I	-	-	-	-	-	-	-	-
CC	21CFE202	Fluency in English – II	-	-	-	-	-	-	-	-
	21CMM201	Manaiyiyal Mahathuvam - I	1	-	-	2	-	50	50*	Grade
	21CUB201	Uzhavu Bharatham – I	1	-	-	2	-	50	50*	Grade
		Online Course (Optional) (MOOC / NPTEL / SWAYAM)								Grade
Total			26	4	-	26	300	350	650	23



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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		
III	21UCT307	Core V: Java Programming	5		6	3	50	50	100	4
	21UCT308	Core VI: Database Management System	5		8	3	50	50	100	4
	21UCT309	Core VII: Operating Systems	5		4	3	50	50	100	4
	21UCT3A3	Allied - III : Software Engineering	5		6	3	50	50	100	4
	21UCT310	Lab - III :Java Programming Lab	-	4	0	3	50	50	100	2
	21UCT311	Lab-IV: Database Management System Lab	-	4	0	3	25	25	50	2
IV	21UCT3N1 / 21UCT3N2	Non Major Elective - I : HTML Lab / Multimedia Lab	1	-	-	2	-	50	50	2
	21HEC303	Human Excellence - Professional Values & Ethics – III	1	-	-	2	25	25	50	1
V		Extension Activities - Annexure I	-	-	-	-	-	-	-	-
CC	21CFE303	Fluency in English – III	-	-	-	-	-	-	-	-
	21CMM302	Manaiyiyal Mahathuvam - II	1	-	-	2	-	50	50*	Grade
	21CUB302	Uzhavu Bharatham – II	1	-	-	2	-	50	50*	Grade
Total			22	8	24	28	300	300	600	23



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Pollachi - 642 001, Coimbatore District.

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		
III	21UCT412	Core VIII: Advanced Java Programming	5		4	3	50	50	100	4
	21UCT413	Core IX: Linux And Shell Programming	5		4	3	50	50	100	4
	21UCT414	Core X: Data Communication And Networks	5		3	3	50	50	100	4
	21UCT4A4	Allied IV: Big Data Management	5		3	3	50	50	100	4
	21UCT415	Lab - V: Advanced Java Programming Lab		4	0	3	50	50	100	2
	21UCT416	Lab - VI : Linux And Shell Programming Lab		4	0	3	50	50	100	2
IV	21UCT4N1/ 21UCT4N2	Non-Major Elective II - Office Automation Lab / CorelDraw Lab	1	-	-	2	-	50	50	2
	21HEC404	Human Excellence - Social Values & SKY Yoga Practice -IV	1	-	-	2	25	25	50	1
V		Extension Activities - Annexure I	-	-	-	-	-	50	50	1
CC	21CFE404	Fluency in English – IV	-	-	-	-	-	-	-	-
	21CMM403	Manaiyiyal Mahathuvam – III	1	-	-	2	-	50	50*	Grade
	21CUB403	Uzhavu Bharatham – III	1	-	-	2	-	50	50*	Grade
Total			22	8	14	28	325	425	750	24



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SEMESTER – V										
Part	Subject Code	Title of the Paper	Hrs / Week		Hrs / Sem.	Exam Hrs.	Maximum Marks		Total Marks	Credits
			L	P	T		Internal	External	100	
III	21UCT517	CORE COURSE XI: Open Source Technologies	6	-	2	3	50	50	100	5
	21UCT518	CORE COURSE XII: Information Security	6	-	2	3	50	50	100	5
	21UCT5E1 / 21UCT5E2 / 21UCT5E3	DSE - I : Cloud Computing / Embedded Systems / Management Information System	6		2	3	50	50	100	6
	21UCT519	CORE COURSE LAB - VII: Open Source Technologies	-	5	0	3	50	50	100	2
	21UCT520	CORE COURSE LAB - VIII: Web Designing	-	4	0	3	50	50	100	2
	21UCT5S1 / 21UCT5S2	SEC : Naan Mudhalvan - I : PythonLab / HTML5 With CSS Lab	2 Hours			2	25	25	50	2
IV	21HEC505	Human Excellence - National Values & SKY Yoga Practice – V	1	-	-	2	25	25	50	1
		Extension Activities - Annexure I	-	-	-	-	-	-	-	-
EC	21CFE505	Fluency in English - V	-	-	-	-	-	-	-	-
	21CSD501	Soft Skills Development – I	-	-	-	-	-	-	-	Grade
	21GKL501	General Awareness - Self Study (Online) (SBE) (Optional)	SS		-	2	-	50	50*	Grade
EC	21UCT5AL	Advanced Learner Course - I : Software Testing- Self Study (Optional)	SS		-	3	50	50	100	4*
EC	21UCT5VA	VAC I- IoT (Internet of Things) (Mandatory)	30 Hrs		2	-	25	25	50	2*
Total			19	11	6	-	300	350	650	23



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SEMESTER – VI										
Part	Subject Code	Title of the Paper	Hrs / Week		Hrs / Sem	Exam Hrs.	Maximum Marks		Total Marks	Credits
			L	P	T		Internal	External		
III	21UCT621	CORE COURSE- XIII : Framework Technology	6	-	8	3	50	50	100	4
	21UCT6E1 / 21UCT 6E2/ 21UCT 6E3	DSE- II : Mobile Computing / Software Project Management / Grid Computing	6	-	4	3	50	50	100	5
	21UCT 6E4 / 21UCT 6E5 / 21UCT 6E6	DSE - III : Artificial Intelligence /Under water Communication / Digital Image Processing	6	-	4	3	50	50	100	5
	21UCT622	CORE COURSE Lab - IX : Framework Technology	-	5	0	3	50	50	100	3
	21UCT623	Project	-	4	0	-	50	50	100	4
	21UCT6S1 / 21UCT6S2	SEC : Naan Mudhalvan - II : Data Analytics (Big Data) Lab / Dreamweaver Lab	-		2	0	2	25	25	50
IV	21HEC606	Human Excellence - Global Values & SKY Yoga Practice – VI	1	-	-	-	25	25	50	1
V		Extension Activities - Annexure I	-	-	-	-	-	-	-	-
EC	21CFE606	Fluency in English - VI	-	-	-	-	-	-	-	-
	21CSD602	Soft Skills Development - II	-	-	-	-	-	-	-	Grade
EC	21UCT6AL	Advanced Learner Course - II : Data Analytics (Optional) - Self Study	SS	-	-					
EC	21UCT6VA	VAC-II:PC Assembly and CCTV camera Installation (Mandatory)	30 Hrs	2	-					
Total			19	11	16	-	300	300	600	24
Grant Total							1750	2150	3900	140

AL – Advanced Learner Course (Optional);

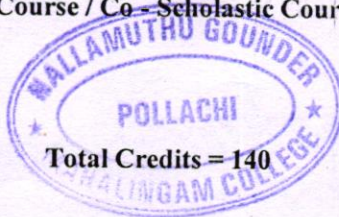
VA – Department Specific Value Added

CourseCC – Certification Course / Co – Scholastic Course
Course

* - Extra Credits & Extra Hour

Grand Total = 3900;

Total Credits = 140



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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	21UCT308			Title	Batch:	2021 – 2024
Lecture Hrs./Week or Practical Hrs./Week	05	Tutorial Hrs./Sem.	08	CORE VI:	Semester:	III
				DATABASE MANAGEMENT SYSTEM	Credits:	04

Course Objective

The learner would have to understand 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 DBMS attributes 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	Overview of database systems: Managing data – A historical perspective file systems versus a DBMS – Advantages of a DBMS – Describing and storing data in a DBMS – Queries in a DBMS– Structure of a DBMS. Database design & ER diagrams – Entities attributes and entity sets – Relationships and Relationship sets – Additional features of the ER model – conceptual database design with the ER model.	15
Unit II	Relational Model: Integrity constraints over relations – Enforcing integrity constraints – Querying relational data – Logical database design; ER to relational introduction to views – Destroying / Altering Tables & Views. Relational algebra and calculus: Relational Algebra – Relational Calculus.	15
Unit III	SQL: Queries, Programming Triggers: The form of a basic SQL Query – UNION, INTERSECT and EXCEPT – Nested Queries – Aggregate operators – Null values – Complex integrity constraints in SQL – Triggers & Active data bases. Transaction Management Overview: The ACID properties – Transactions & Schedules – Concurrent execution of transactions – Lock-based concurrency control – performance of locking – Transaction support in SQL.	15
Unit IV	Schema Refinement and normal forms: Introduction to schema refinement – Functional dependencies – Reasoning about functional dependencies – Normal forms – Properties of Decompositions – Normalization – Schema refinement in data base design – Other kinds of dependencies. Security: Introduction to database security – Access control –	15

	Discretionary access control – Mandatory access control – Additional issues to security	
Unit V	Parallel & Distributed databases: Introduction – Architecture for parallel databases – Parallel Query evaluation – Parallelizing individual operations – Parallel query optimization – Introduction to distributed databases – Distributed DBMS architecture sorting data in a distributed DBMS. Object Database Systems: Motivation Example – Structured data types – Operation on structured data types – Encapsulation & ADTS – Inheritance – Objects, OIDS and reference Types – Database design for and ORDBMS – OODBMS – comparing RDBMS OODBMS and ORDBMS.	15
	Total Contact Hrs	75

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Text Book

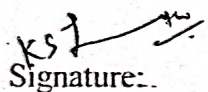
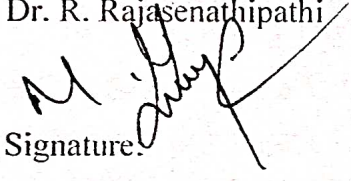
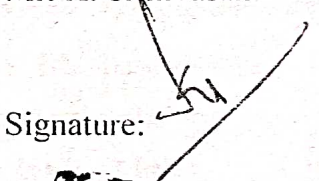
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Raghu Ramakrishnan, Johannes Gehrke	Database Management Systems	Third edition, McGraw-Hill Higher Education.	2014

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	ArunMajumdar and Pritimoy Bhattacharya	Database Management Systems	1 st Edition, TMH, ISBN-13: 978-0074622391.	2017
2	Gerald V. Post	Database Management Systems	3 rd Edition, TMH Publication, ISBN-13: 9780070635265	2018
3	Jonathan Gennick	Oracle SQLPlus Pocket Reference	2 nd 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_ceil9_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. K. S. Leelavathi  Signature:	Name: Dr. R. Rajasenathipathi  Signature:	Name: Mr. K. Srinivasan  Signature:	Name: Dr. R. Manickachezian  Signature:

Dr. M. RAJASENATHIPATHI M.A., M.C.A., M.P.H.
Head of the Department
Department of Computer Technology
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POLLACHI - 642 001.

K. SRINIVASAN, M.C.A.
Co-ordinator
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Pollachi - 642 001.

Dr. R. MANICKACHEZIAN, M.Sc., M.S., Ph.D.
Controller of Examinations
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)		
Course Code:	21UCT413			Title	Batch:	2021 – 2024	
Lecture Hrs./Week or Practical Hrs./Week	05	Tutorial Hrs./Sem.	4	CORE IX: LINUX AND SHELL PROGRAMMING	Semester:	IV	
					Credits:	04	

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.	15
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.	15
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. Communication: ‘Write’ command – ‘wall’ command –‘mail’ Command	15
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.	15
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.	15
	Total Contact Hrs	75

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Text Book

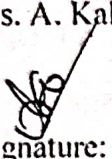
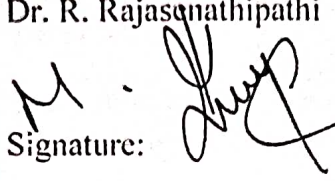
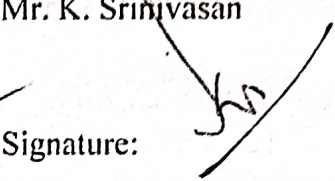
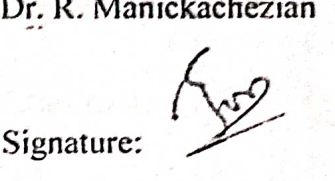
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ -EDITION	YEAR OF PUBLICATION
1	Yashavant Kanetkar	UNIX Shell Programming (Unit I – III)	BPB Publications, 3 rd Edition	2016
2	Sumitabha das	UNIX System Concepts and Applications (Unit IV, V)	Tata McGraw - Hill, Fourth edition	2014

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
Name: Ms. A. Kalaivani Signature: 	Name: Dr. R. Rajasenathipathi Signature: 	Name: Mr. K. Srinivasan Signature: 	Name: Dr. R. Manickachezian Signature: 

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Department of Computer Technology

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Co-ordinator

Curriculum Development Cell (CDC)

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)		
Course Code:	21UCT416			Title	Batch:	2021 – 2024	
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem	0	LABVI: LINUX AND SHELL	Semester:	IV	
				PROGRAMMINGLAB	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.	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	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

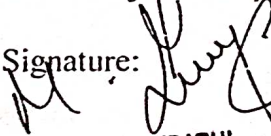
Content	Hrs.
List of Programs	
1. Write a shell script to stimulate the file commands: rm, cp, cat, mv, cmp, wc, split	
2. Write a Shell Script to implement the following: pipes, Redirection and commands.	
3. Write a shell script for displaying current date, user name, file listing and directories by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

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology		
Course Code:	21UCT5E3			Title	Batch:	2021 - 2024	
Lecture Hrs./Week or Practical Hrs./Week	6	Tutorial Hrs./Sem.	2	Core Elective - I : MANAGEMENT INFORMATION SYSTEM	Semester:	V	
					Credits:	05	

Course Objective

To inculcate knowledge to students why information systems are so important today for business and as well as educate the role of the major types of information systems in a business environment.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Tell about the basic concepts and Roles of Management Information Systems	K1
CO2	Describe the development of Business strategies, E-Business Models.	K2
CO3	Discuss about the Decision Making concepts and Knowledge Management in MIS	K2
CO4	Examine the applications in Manufacturing Sector and Service sector in Industry.	K3
CO5	Illustrate the Enterprise Management System and Information Systems processing.	K3

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	L	H	H	H	M	H	M	L	H
CO3	H	M	H	H	H	H	M	H	H	H	H	H
CO4	H	H	M	M	H	H	M	H	H	L	H	H
CO5	H	H	H	H	L	H	H	H	M	H	H	H

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

Units	Content	Hrs
Unit I	Introduction to MIS: MIS concept – Definition – Role of MIS – Impact of MIS – MIS and the User – Management as a Control system – MIS: a support to Management – Management Effectiveness and MIS – Organization as a system. Organizational Behaviour Process Management: Planning – Organizing – Staffing – Coordinating – Directing and – Controlling.	18
	Strategic Management of Business Performance: Essentiality of Strategic Planning – Tools of Planning – Strategic Management of Business Performance – What is Strategy?	
Unit II	– Class and Types of Strategies. Electronic Business Technology: Introduction to E-Business – Models of E-Business- Electronic Payment System – Security in E-Business – MIS and E-Business. A tool for business management: Internet and Web Process Management – strategic Management under Web – Web Enabled Business Management – Application system Architecture in Web – MIS in Web Environment.	18
Unit III	Decision Making: Decision-making concepts – Decision-making process– Behavioural Concepts in Decision-making – Organizational Decision-making – MIS and Decision-making – Decision Methods Tools and Procedures. Information and Knowledge: Information Concepts – Information: a quality product – Classification of Information – Methods of data and Information Collection – Value of Information – General Model of a Human as an Information Processor. Choice of Information Technology: Nature of IT decision – Strategic Decision – Configuration Design – Evaluation.	18
Unit IV	Applications in Manufacturing Sector: Personnel, Financial, Production, Raw Material and Marketing Managements. Applications in Service Sector: Introduction to Service Sector – Creating a Distinctive Service MIS Application in Service Industry – MIS: Service Industry.	18
Unit V	Management of Global Enterprise: Enterprise Management Systems – ERP system – ERP Model and Modules –Benefits of ERP –ERP Product Evolution - ERP Implementation – EMS and MIS. Technology of Information Systems: Introduction – Data Processing – Transaction Processing – Application Processing – Information System processing – Human Factors and User Interface -Real Time Systems and Good Design.	18
	Total Contact Hrs	90

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Text Book

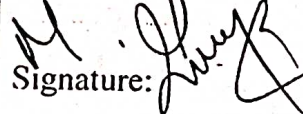
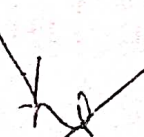
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Waman S Jawadekar	Management Information Systems Text and cases	Tata McGraw Hill Publications , 5 th Edition	2013

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	James A O'Brien & George M Marakas	Management Information Systems	Tata McGraw Hill, 10th Edition	2014
2	Kenneth C Laudon & Jane P. Laudon	Management Information Systems managing the digital firm	PHI 12th Edition,	2011
3	Mahadeo Jaiswal & Monika Mital	Management Information Systems	Oxford University Press 4th Edition	2004

Web References

1. https://ebooks.lpude.in/management/mba/term_4/DMGT505_MANAGEMENT_INFORMATION_SYSTEM.pdf
2. https://onlinecourses.nptel.ac.in/noc21_mg89/preview
3. http://www.himpub.com/documents/Chapter963.pdf
4. https://www.guru99.com/mis-tutorial.html
5. https://repository.dinus.ac.id/docs/ajar/Kenneth_C.Laudon,Jane_P_.Laudon_Management_Information_System_13th_Edition_.pdf

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

Dr. M. RAJASENATHIPATHI, M.A., M.C.A., M.Phil., Ph.D.
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 Department of Computer Technology
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Dr. R. MANICKACHEZIAN, M.Sc., M.S., Ph.D.,
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	21UCT6E2			Title	Batch:	2021 – 2024
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	04	Core Elective II:	Semester:	VI
				SOFTWARE PROJECT MANAGEMENT	Credits:	5

Course Objective

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

Course Outcomes

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

CO Number	CO Statement	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	Rob Hughes Mike Cotterell, Rajib Mall	Software Project Management	Tata McGraw Hill Publications, 6 th Edition	2017

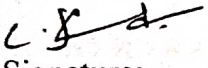
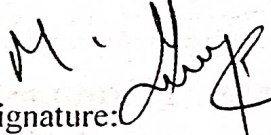
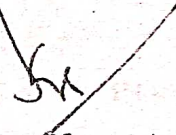
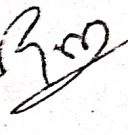
Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Roger S. Pressman	Software Engineering	Tata McGraw Hill Publications, 8 th Edition	2019
2	John M. Nicholas and Herman Steyn	Project Management for Engineering, Business and Technology	Taylor&Francis, 5 th Edition	2016
3	Er. Rishabh Anand	Principles of Software Project Management	S.K. Kataria & Sons, 1 st Edition	2014
4	Walker Royce	Software Project Management-A Unified Framework	Pearson publication, 1 st 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

21UCT6E2

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. R. Rajasenathipathi  Signature:	Name: Mr. K. Srinivasan  Signature: K. SRINIVASAN, M.C.A.,	Name: Dr. R. Manickachezian  Signature:

Dr. M. RAJASENATHIPATHI, M.A., M.C.A., M.P.M., Ph.D.
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Co-ordinator
Curriculum Development Cell (CDC)
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Controller of Examinations
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	21UCT6E3			Title	Batch:	2021 – 2024
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	04	Core Elective II: GRID COMPUTING	Semester:	VI
					Credits:	5

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	PO1 0	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

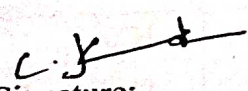
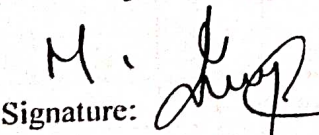
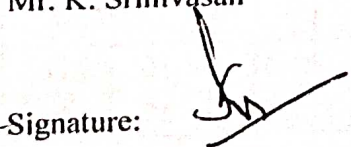
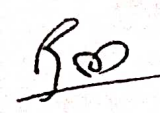
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Daniel Minoli	A Networking Approach to Grid Computing	John Wiley & Sons, Inc, 1 st Edition	2010

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, 1 st Edition	2012
3	Jorge G Barbosa , Ines Dutra	Grid Computing: Techniques & Future Prospects	Nova Science Publishers Inc, 1 st 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
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Ms. C. Keerthana  Signature:	Name: Dr. R. Rajasenathipathi  Signature:	Name: Mr. K. Srinivasan  Signature:	Name: Dr. R. Manickachezian  Signature:
M. RAJASENATHIPATHI Head of the Department Department of Computer Science Samuthu Gounder Mahalingam College (Autonomous) POLLACHI - 642 001.		K. SRINIVASAN, M.D. Co-ordinator Curriculum Development Cell (CDC) NGM College (Autonomous) Pollachi - 642 001.	DR. MANICKACHEZIAN, M.Sc., M.S., Ph.D. Controller of Examinations NGM College (Autonomous) POLLACHI - 642 001.

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	21UCT6E6			Title	Batch:	2021 – 2024
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	04	Core Elective III: DIGITAL IMAGE PROCESSING	Semester:	VI
					Credits:	5

Course Objective

1. To learn and understand the fundamentals of image processing and its relationship between pixels.
2. To understand the key concepts of image compression this estimates the degradation function

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Understand about the fundamentals of digital image processing, Sampling and quantization.	K1/K2
CO2	Acquire image enhancement, histogram processing and Filtering techniques	K2/K3
CO3	Apply image restoration and transformations, color fundamentals and its models	K3
CO4	Analyze the importance of image compression and morphological issues in image processing	K4
CO5	Exploring the concepts of Image segmentation	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	Introduction: Digital image processing - Fundamental steps in digital image processing - components of image processing system. Digital Image Fundamentals: A simple image formation model -image sampling and quantization - basic relationships between pixels.	18
Unit II	Image Enhancement in the Spatial Domain: Basic gray-level transformation – histogram processing, enhancement using arithmetic and logic operators - basic spatial filtering – smoothing and sharpening spatial filters – combining the spatial enhancement.	18
Unit III	Image Restoration: A model of the image degradation/restoration process – noise models - restoration in the presence of noise–only spatial filtering - Wiener filtering – constrained least squares filtering - geometric transforms; Introduction to the Fourier transform and the frequency domain - estimating the degradation function	18
Unit IV	Color Image Processing: Color fundamentals - color models - pseudo color image processing - basics of full– color image processing - color transforms - smoothing and sharpening - color segmentation. Image Compression: Fundamentals - image compression models - error-free compression –lossy predictive coding - image compression standards	18
Unit V	Morphological Image Processing: Preliminaries - dilation, erosion, open and closing, hit or miss transformation, basic morphologic algorithms. Image Segmentation: Detection of discontinuous - edge linking and boundary detection – thresholding - region–based segmentation. Object Recognition: Patterns and patterns classes - recognition based on decision– theoretic methods.	18
	Total Contact Hrs	90

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Text Book

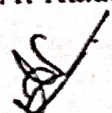
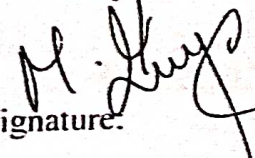
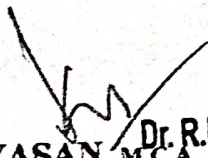
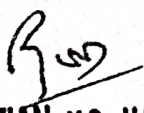
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Rafeal C. Gonzalez, Richard E. Woods	Digital Image Processing	Pearson Education, Fourth Edition	2018
2	S. Sridhar	Digital Image Processing	Oxford University Press	2016

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Jain	Fundamentals of Digital Images Processing	Pearson Education India, 1 st Edition	2015
2	S. Jayaraman, S. Esakkirajan, T. Veerakumar	Digital Image Processing	McGraw Hill, 2 nd Edition	2020

Web Resources

1. https://swayam.gov.in/nd1_noc19_cc55/preview
2. https://nptel.ac.in/courses/117/105/117105079/
3. https://www.coursera.org/learn/digital
4. https://www.tutorialspoint.com/dip/index.htm
5. https://www.electronicsforu.com/videos-slideshows/digital-image-processing

Course Designed by	Verified by HOD	Checked by	Approved by.
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Ms. A. Kalaivani	Name: Dr. R. Rajasenathipathi	Name: Mr. K. Srinivasan	Name: Dr. R. Manickachezian
Signature: 	Signature: 	Signature: 	Signature: 
Dr. M. RAJASENATHIPATHI, M.A., M.C.A., M.P.H., P.D. Head of the Department Department of Computer Technology NGM College (Autonomous)	K. SRINIVASAN, M.C.A. Co-ordinator Curriculum Development Cell (CDC) NGM College (Autonomous)	Dr. R. MANICKACHEZIAN, M.Sc., M.S., Ph.D. Controller of Examinations NGM College (Autonomous) POLLACHI - 642 001.	