

**NALLAMUTHU GOUNDER MAHALINGAM
COLLEGE (AUTONOMOUS)**



**U.G. DEPARTMENT OF COMPUTER TECHNOLOGY
(C.T.)**



SYLLABUS

2023 – 2026 Batch

(With Effect From 2023-2026 Batch and Onwards)

DEPARTMENT OF COMPUTER TECHNOLOGY

Syllabus

BATCH: 2023 – 2026

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.,

Ms. A. Kalaivani, M.C.A., M. Phil., (Ph.D).,



Nallamuthu Gounder Mahalingam College

An Autonomous Institution affiliated to Bharathiar University

Re-Accredited by NAAC and ISO 9001:2015 Certified Institution

Pollachi – 642 001.

NGM 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	<i>Problem solving</i> : Under Graduate students are to apply, algorithmic, real time and Industry standard reasoning to a variety of computational problems.
PO2	<i>Problem solving</i> : Understand the fundamental knowledge of various domains in IT Industry and change their carrier as per industry Demand.
PO3	<i>Self-directed learning</i> : Combine the knowledge of mathematics and Software Technologies in the field of Software project development
PO4	<i>Information/digital literacy</i> : Implement industry standard projects of their own choice using latest tools.
PO5	<i>Analytical reasoning</i> : Improve the aptitude skill to clear various levels of entrance exams in their carrier.
PO6	<i>Physical and mental wellness</i> : The Under Graduate students are recognize the Human Excellence and ethical responsibilities through yoga in various disciplines
PO7	<i>Reflective thinking and Communication Skills</i> : Demonstrate global Industry demand related subjects and transferable skills that is relevant to global industry and employment opportunities
PO8	<i>Self-directed learning</i> : Graduates will recognize the need for self-motivation and lifelong learning to update in technologies to be in par with changing technology
PO9	<i>Cooperation/Team work</i> : Ability to analyze the local and global impact of computing on individuals, organizations and society.
PO10	<i>Multicultural competence</i> : 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	<i>Academic skills and abilities:</i> Acquire academic excellence with professional skill for employment and higher studies.
PSO – 02	<i>Explore Software Development Solutions:</i> Create, select and apply modern tools and techniques to analyze and develop successful software in IT Industry.

Mapping

PEO PO	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**

SEMESTER I

Programme Code:	B.Sc.	Programme Title:		Bachelor of Science (Computer Technology)	
Course Code:	23UCT101	Title		Batch:	2021 - 2026
Lecture Hrs./Week or Practical Hrs./Week	4	Tutorial Hrs./Sem.	-	Semester:	I
			CCE 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

Text Book

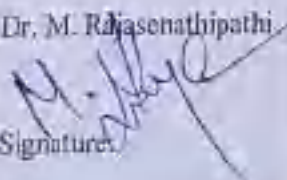
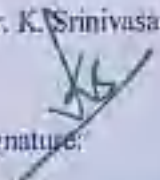
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	P. Balagurusamy	Programming in ANSI C	Tata McGraw-Hill Publishing Co&Ltd., Eighth Edition	2019

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. K.S. Leelavathi Signature: 	Name: Dr. M. Rajasenathipathi Signature: 	Name: Mr. K. Srinivasan Signature: 	Name: Dr. R. Marickachezian Signature: 

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Co-ordinator
Head of the Department of Computer Technology
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Pillai Ar.

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Controller of Examinations
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Text Book

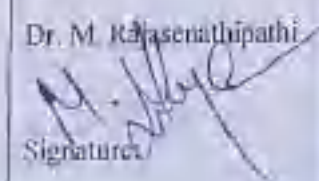
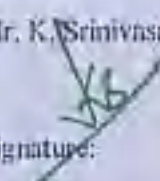
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	F.R. Salgarni	Programming in ANSI C	Tata McGraw-Hill Publishing Co. & Ltd., Eighth Edition	2019

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	Yashwant Kanetkar	Let us C	17th Edition	2020

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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
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5. https://www.geeksforgeeks.org/basics-file-handling-c/

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Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Ms. K.S. Leelayathi	Name: Dr. M. Rajasenathipathi	Name: Mr. K. Srinivasan	Name: Dr. R. Manickachezian
Signature: 	Signature: 	Signature: 	Signature: 

K. SRINIVASAN, M.C.A.
Co-ordinator
Head of the Department of Information Development Center
Reg. Member of Institution for Teacher Education
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DR. R. MANICKACHEZIAN, M.Sc. M.Ed.
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Programme Code:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	23UCT102			Title	Batch:	2023 - 2026
Lecture Hrs./Week or Practical Hrs./Week	5	Tutorial Hrs./Sem.	-	CC II: Digital Fundamentals and Computer Organization	Semester:	1
					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

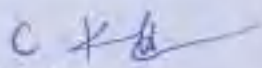
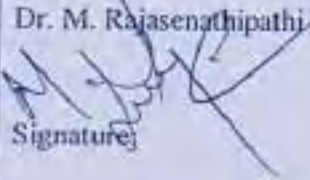
PO (PSO) CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	H	M	H	M	L	H	M	H	H	M	M	N
CO2	H	L	H	M	M	M	L	M	M	M	H	M
CO3	H	H	L	M	L	M	H	H	L	H	M	H
CO4	H	L	H	H	H	M	H	M	H	H	L	H
CO5	M	M	L	H	M	H	M	M	M	M	H	L

*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 – Alphnumeric codes – Parity method for error detection and correction.	15
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.	15
Unit III	Arithmetic and Logic circuits: Half Adder – Full Adder – Half-Subtractor – 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.	15
Unit IV	Central Processing Unit: General Register Organization – Stack Organization – Instruction Formats – Data Transfer and Manipulation – Reduced Instruction Set Computer (RISC)	15
Unit V	Memory Organization: Memory Hierarchy – Main Memory – Auxiliary Memory – Associative Memory – Cache Memory – Virtual Memory.	15
	Total Contact Hrs	75

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: Dr. R. Manickachezian  Signature:

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Dr. M. RAJASENATHIPATHI, M.A., M.C.A., B.Ed. - Co-ordinator
Curriculum Development Cell (CDC)
Head of the Department
Department of Computer Technology
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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

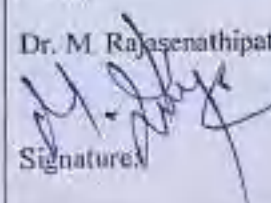
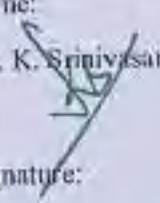
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Dr. Venkataraman, M. K.	Engineering Mathematics	Volume II, Third Edition, NPC – (Unit I).	2001
2	Kandasamy.P, Thilagavathi.K, Gunavathi. K	Numerical Methods	Revised Edition, New Delhi, S. Chand and Company Ltd, ISBN-13: 9788121914383.	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	VolI, 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.pat.edu/~sparing/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: Dr. R. Manickachezian Signature: 

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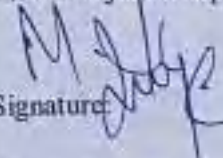
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Mapping

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: Dr. R. Manickachezian Signature: 

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Programme Code:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	23UCT103			Title	Batch:	2023 - 2026
				CC Lab I: Programming in C	Semester:	1
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

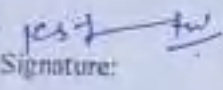
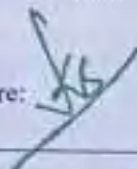
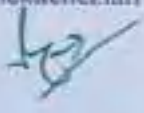
Content	Hrs
Sample Programs 1. Write a C program to illustrate the concept of operators in C. 2. Write a C program to illustrate the concept of conditional and unconditional control statements. 3. Write a C program to illustrate the concept of Arrays. 4. Write a C program to illustrate the concept of 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. K.S Leelavathi	Name: Dr. M. Rajasenathipathi	Name: Mr. K. Srinivasan	Name: Dr. R. Manickachezian
Signature: 	Signature: 	Signature: 	Signature: 

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Programme Code:	B.Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	23UCT204	Title	Batch:	2023 - 2026
Lecture Hrs./Week or Practical Hrs./Week	4	CQIII: Java programming	Semester:	II
	Tutorial Hrs./Sem.		Credits:	4

Course Objective

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

Course Outcomes

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

CO Number	CO Statement	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

	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

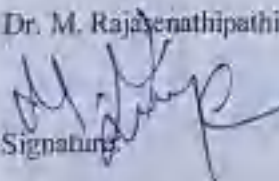
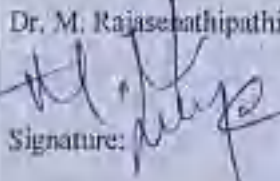
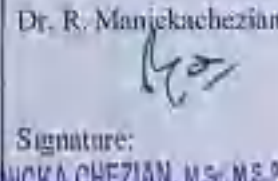
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Balagurusamy, E	Programming With JAVA A Primer	6 th Edition, Tata McGraw Hill Publications, ISBN-13: 9780070141698.	2019

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	John R. Hubbard	Programming with Java	2 nd Edition, Schaum's Outline Series, Tata McGraw Hill Publications, ISBN-13: 9780070589421.	2013
2	Timothy Budd	Understanding Object Oriented Programming with Java	2 nd Edition, Pearson Education, ISBN-13: 9780201308815.	2016
3	Deitel&Deitel	Java TM: How to Program	9 th Edition, PHI, ISBN-13: 9780136123712	2013

Web references:

1. itl.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. Rajaseenathipathi	Name: Dr. M. Rajaseenathipathi	Name: Mr. K. Srinivasan	Name: Dr. R. Manickachezian
Signature: 	Signature: 	Signature: 	Signature: 

Dr. M. Rajaseenathipathi
Head of the Department
Department of Postgraduate Studies
Kannur University, Kannur
KOLLACHI - 6942 001.

K. SRINIVASAN, MCA
Co-ordinator
Curriculum Development Cell of Dr
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Dr. R. MANICKACHEZIAN, M.Sc., M.S., Ph.D.
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Programme Code:	B.Sc.	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	23UCT205	Title	Batch:	2023 – 2026
Lecture Hrs./Week or Practical Hrs./Week	4	Tutorial Hrs./Sem.	Semester:	II
		CC IV: Data Structures	Credits:	4

Course Objective

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

Course Outcomes

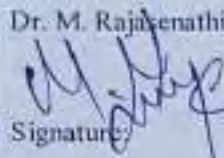
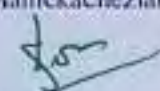
On the successful completion of the course, students will be able to

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

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: Dr. R. Manickachezian Signature: 

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Programme:	B.Sc.	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	23UCT2A1	Title:	Batch:	2023 - 2026
Lecture Hrs./Week or Practical Hrs./Week	4	Tutorial Hrs./Sem.	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

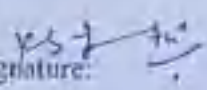
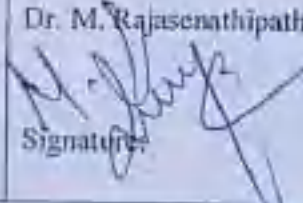
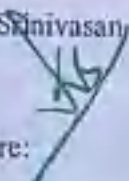
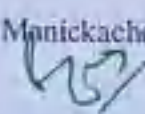
*H-High; M-Medium; L-Low

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/lemb206.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

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. M. Rajasenathipathi Signature: 	Name: Mr. K. Srinivasan Signature: 	Name: Dr. R. Manickachezian Signature: 

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Co-ordinator
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Pollachi - 642 001.

Dr. R. MANICKACHEZIAN, M.Sc., M.A., Ph.D.,
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Programme:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	23UCT2A2			Title	Batch:	2023 - 2026
Lecture Hrs./Week or Practical Hrs./Week	4	Tutorial Hrs./Sem.	-	GE II – Allied II: Mathematics II – Statistics	Semester:	II
					Credits:	4

Course objective

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

Course Outcomes

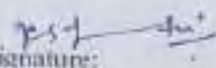
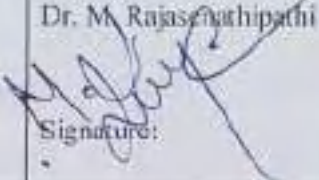
On the successful completion of the course, students will be able to

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

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: MS. K. S. Leclavathi	Name: Dr. M. Rajasenthipathi	Name: Mr. K. Srinivasan	Name: Dr. R. Manickachezian
Signature: 	Signature: 	Signature: 	Signature: 

K. SRINIVASAN, M.C.A.
Co-ordinator
Curriculum Development Cell (CDC)
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Programme Code:	B.Sc.			Programme Title:	Bachelor of Science (Computer Technology)		
Course Code:	23UCT206			Title	Batch:	2023 - 2026	
Lecture Hrs./Week or Practical Hrs./Week	-1	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

High; M-Medium; L-Low

Programme Code:	B.Sc			Programme Title:	Bachelor of Science (Computer Technology)		
Course Code:	23UCT206			Title	Batch:	2023 – 2026	
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

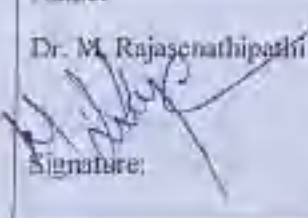
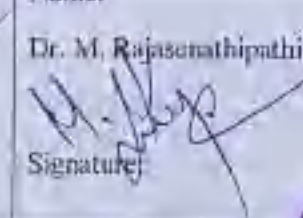
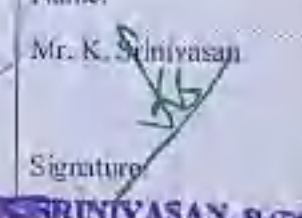
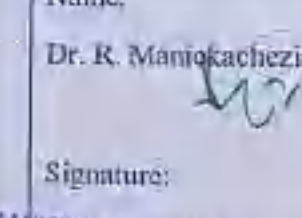
Content	Hrs
Sample Programs 1. Write a java program to illustrate the concept of Package creation 2. Write a java program to illustrate the concept of threading. 3. Write a java program to illustrate the concept of synchronization. 4. Write a java program to illustrate the concept of Exception Handling 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. Rajasenthapathi	Name: Dr. M. Rajasenthapathi	Name: Mr. K. Srinivasan	Name: Dr. R. Manickachezian
Signature: 	Signature: 	Signature: 	Signature: 

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 Head of Department
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Srinivasan, D.
 Co-ordinator
 Curriculum Development
 NGM College
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 Controller of Examinations
 NGM College (Autonomous)
 POLLACHI - 642 001

Programme Code:	B.Sc.		Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	23UCT2S1		Title	Batch:	2023 - 2026
Lecture Hrs./Week or Practical Hrs./Week	2	Tutorial Hrs./Sem.	SEC I: Naan Mudiraivan - Advanced Excel Lab	Semester:	II
				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

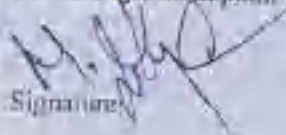
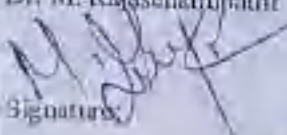
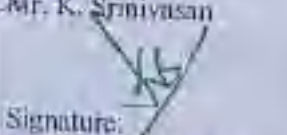
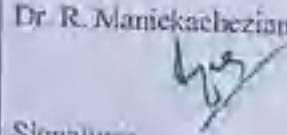
Content	Hrs
Sample Programs 1. Write a Excel program to implement the concept on Workbook and worksheet(s). 2. Write a Excel program to illustrate the concept of understanding formulas, operators in formula. 3. Write a Excel program to illustrate the concept of calculations; functions in formulas. 4. 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	40
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
Name: Dr. M. Rajasenthapathi	Name: Dr. M. Rajasenthapathi	Name: Mr. K. Srinivasan	Name: Dr. R. Manickachezian
Signature: 	Signature: 	Signature:  K. SRINIVASAN, M.C.A., Co-ordinator	Signature: 

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Programme Code:	B.Sc.	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	230CT2S2	Title	Batch:	2023 - 2026
Lecture Hrs./Week or Practical Hrs./Week	2	Tutorial Hrs./Sem.	Semester:	II
		Mudhalvan : Fundamentals of IT	Credits:	2

Course Objective

To understand the concept of Hardware Fundamentals, Operating Systems, Fundamentals of Network.

Course Outcomes

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

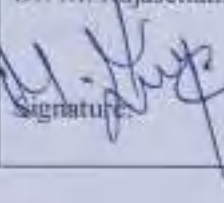
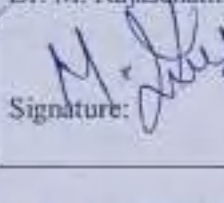
CO Number	CO Statement	Knowledge Level
CO1	Know the basic components of computer and its functionality	K3
CO2	Know the concept of Windows operating systems	K4
CO3	Know the concept of networking and their techniques	K3
CO4	Know the basic concepts of Storage devices	K4
CO5		K4

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

23UCT2S2

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

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PRINCIPAL

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 Coimbatore District

Nallamuthu Gounder Mahalingam College (Autonomous)

Type text here
Pollachi

Department of Computer Technology

Syllabus

2021 – 2024 Batch

DEPARTMENT OF COMPUTER TECHNOLOGY

Syllabus

BATCH: 2021 – 2024

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.,

Ms. A. Kalaivani, M.C.A., M. Phil., (Ph.D).,



Nallamuthu Gounder Mahalingam College

**An Autonomous Institution affiliated to Bharathiar University
Re-Accredited by NAAC and ISO 9001:2015 Certified Institution
Pollachi – 642 001.**

NGM 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	Under Graduate students are to apply, algorithmic, real time and Industry standard reasoning to a variety of computational problems
PO2	Understand the fundamental knowledge of various domains in IT Industry and change their carrier as per Industry Demand.
PO3	Combine the knowledge of mathematics and Software Technologies in the field of Software project development
PO4	Implement industry standard projects of their own choice using latest tools.
PO5	Improve the aptitude skill to clear various levels of entrance exams in their carrier.
PO6	The Under Graduate students are recognize the Human Excellence and ethical responsibilities through yoga in various disciplines
PO7	Demonstrate global Industry demand related subjects and transferable skills that are relevant to global industry and employment opportunities
PO8	Graduates will recognize the need for self-motivation to update in technologies to be in par with changing technology
PO9	Ability to analyze the local and global impact of computing on individuals, organizations and society.
P10	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	Acquire academic excellence with professional skill for employment and higher studies.
PSO – 02	Create, select and apply modern tools and techniques to analyze and develop successful software in IT Industry.

SEMESTER- V

Programme Code:	B.Sc. UCT			Programme Title:	Bachelor of Computer Technology	
Course Code:	21UCT517			Title	Batch:	2021 - 2024
Lecture Hrs./Week or Practical Hrs./Week	6	Tutorial Hrs./Sem.	2	CORE COURSE XI: OPEN SOURCE TECHNOLOGIES	Semester:	V
					Credits:	05

Course Objective

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

Course Outcomes

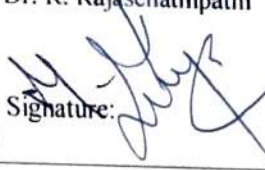
On the successful completion of the course, students will be able to

CO Number	CO Statement	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

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

Dr. M. RAJASENATHIPATHI

Head of the Department

Department of Computer Science

Vallamuthu Gounder Mahalingam College

POLLACHI - 642 001.

K. SRINIVASAN, M. Sc.

Co-ordinator

Curriculum Development Cell (CDC)

NGM College (Autonomous)

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 Computer Technology		
Course Code:	21UCT518			Title	Batch:	2021 - 2024	
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	2	CORE COURSE XII: INFORMATION SECURITY	Semester:	V	
					Credits:	05	

Course Objective

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

Course Outcomes

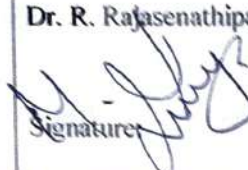
On the successful completion of the course, students will be able to

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

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:

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Programme Code:	B.Sc. C.T.			Programme Title:	Bachelor of Computer Technology	
Course Code:	20UCT5E1			Title	Batch:	2021 - 2024
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	2	DSE - I : CLOUD COMPUTING	Semester:	V
					Credits:	06

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

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

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Controller of Examinations

Nallanathu Gounder Mahalingam College (Autonomous)

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	21UCT5E2			Title	Batch:	2021 - 2024
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	2	DSE - I : EMBEDDED SYSTEMS	Semester:	V
					Credits:	05

Course Objective

To emphasize 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 basic 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

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Text Book

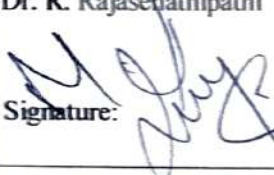
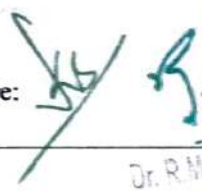
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Raj Kamal	Embedded Systems – Architecture, Programming and Design	McGraw Hill, 2 nd Edition	2013

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, 2 nd 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, 1 st Edition	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. R. Rajasenathipathi Signature: 	Name: Mr. K. Srinivasan Signature: 	Name: Dr. R. Manickachezian Signature: 

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Head of the Department

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Controller of Examinations

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POLLACHI - 642 001

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	DSE - 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

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Text Book

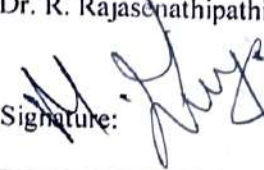
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Waman S Jawadekar	Management Information Systems Text and cases	Tata McGraw Hill Publications , 5 th Edition	2013

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_Sysrem_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 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:	21UCT519			Title	Batch:	2021 - 2024	
Lecture Hrs./Week or Practical Hrs./Week	5	Tutorial Hrs./Sem.	0	CORE COURSE LAB – VII - OPEN SOURCE TECHNOLOGIES	Semester:	V	
					Credits:	02	

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. R. Rajasenathipathi 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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Course Objective
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 Co-ordinator
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Content				Hrs
Programme Code:	B.Sc. C.T			Bachelor of Computer Technology
Course Code:	21UCT520			Batch: 2021 - 2024
Lecture Hrs./Week or Practical Hrs./Week	4	Tutorial Hrs./Sem.	0	Semester: V
			CORE COURSE LAB – VIII -WEB DESIGNING	Credits: 02

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

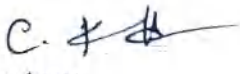
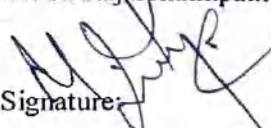
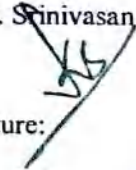
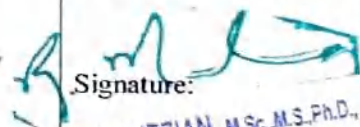
Sample Programs 1. Develop static webpages using HTML tags. 2. Prepare a webpage using OL & UL. 3. Prepare Frames which includes four html programs using frames. 4. Design and Develop webpage with the help of HTML and CSS. 5. Develop webpage using event handling in javascript 6. Embedding Javascript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

Pedagogy

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. 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 Science (Computer Technology)	
Course Code:	21UCT5AL			Title	Batch:	2021 – 2024
				Advanced Learner Course - I : SOFTWARE TESTING	Semester :	V
Lecture Hrs./Week or Practical Hrs./Week	SS	Tutorial Hrs./Sem.	SS		Credits:	04

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

Text Book

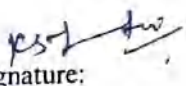
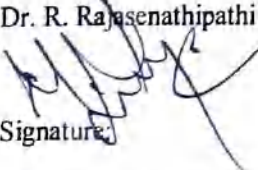
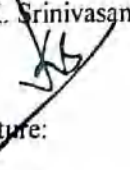
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Srinivasan Desikan and Gopalswamy Ramesh	Software Testing Principles and Practices	Pearson Education	2012
2	Limaye M.G	Software Testing Principles, Techniques and Tools	Second Reprint, TMH Publishers	2010.

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, 3 rd 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
Name: Ms. K.S.Leelavathi Signature: 	Name: Dr. R. Rajasenathipathi Signature: 	Name: Mr. K. Srinivasan Signature: 	Name: Dr. R. Manicka Chezian Signature:  Dr. R. MANICKA CHEZIAN, M.Sc., M.S., Ph.D., Controller of Examinations NGM College (Autonomous) POLLACHI - 642 001.

Dr. N. K. RAJASENATHIPATHI
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Pollachi - 642 001

Mr. K. SRINIVASAN
Co-ordinator
Department of Computer Technology
Pollachi - 642 001

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	21UCT5VA			Title	Batch:	2021 – 2024
Lecture Hrs./Week or Practical Hrs./Week	01	Tutorial Hrs./Sem.	-	VAC I- IoT (Internet of Things)	Semester:	V
					Credits:	2

Course Objective

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

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Understand the scope of the IoT system, architectures, components and supporting technologies.	K2
CO2	Analyzing existing business processes to understand and build technical strategy to develop need aligned technical solutions.	K3
CO3	Apply decision and repetition structures in program design.	K3
CO4	Implement architecture of its networks, devices, programming, data and security.	K4
CO5	Evaluate the data received through sensors in IOT and Design smart city in IOT.	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	H
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	L
CO5	H	L	H	M	H	H	M	H	M	H	L	H

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

Units	Content	Hrs
Unit I	Introduction: Definition and characteristics of IoT – IoT enabling Technologies. IoT Levels – Domain Specific IoTs: Home Automation – Cities – Environment.	10
Unit II	IoT and M2M: Introduction - M2M – Difference between IoT and M2M – Need for IoT system management.	10
Unit III	IoT platform design methodology: Introduction -IoT design methodology. IoT Physical devices and End points: What is an IoT Device? – Basic building blocks of an IoT device – Exemplary device: Raspberry Pi – About the Board.	10
	Total Contact Hrs	30

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	Vijay Madiseti and Arshdeep Bahga	Internet of Things (A Hands-on-Approach)	1 st Edition, VPT	2017

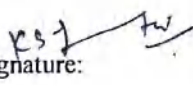
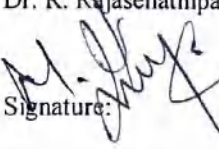
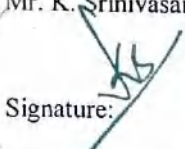
References Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Francis da Costa	Rethinking the Internet of Things: A Scalable Approach to Connecting Everything	1 st Edition, A press Publications.	2015

21UCT5VA

Web References

1. https://electronics-project-hub.com/send-data-to-thingspeak-using-esp8266/
2. https://www.instructables.com/id/ESP8266-to-IFTTT-Using-Arduino-IDE/
3. https://virtronics.com.au/Simulator-for-Arduino.html
4. https://www.slideshare.net/MohanKumarG/internetofthings-iot-aseminar-ppt-by-mohankumarg
5. https://blog.infodiagram.com/2019/07/explain-internet-of-things-powerpoint.html

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.Ed., M.Phil., Ph.D.
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	21UCT5S1			Title	Batch:	2021 – 2024
Lecture Hrs./Week or Practical Hrs./Week	2	Tutorial Hrs./Sem	0	Skill Based Major Elective I : PYTHON LAB	Semester:	V
					Credits:	03

Course Objective

To understand the basic logic statements, Strings, Lists, Dictionaries and Learn Syntax and Semantics of Python

To Build GUI applications and create Functions in python

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Remembering the concept of operators, data types, looping statements in python programming.	K1
CO2	Understanding the concepts of Input / Output operations in file.	K2
CO3	Apply and implement python concept with simple program.	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

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology		
Course Code:	21UCT5S1			Title	Batch:	2021 – 2024	
Lecture Hrs./Week or Practical Hrs./Week	2	Tutorial Hrs./Sem	0	SEC : Naan Mudhalvan : I – PYTHON LAB	Semester:	V	
					Credits:	03	

Course Objective

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CO Number	CO Statement	Knowledge Level
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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

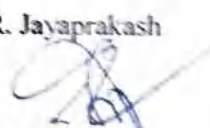
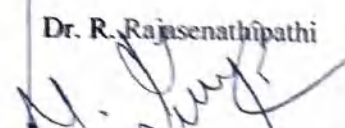
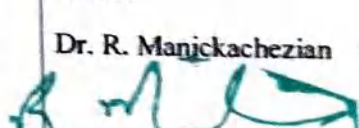
Content	Hrs
Sample Programs 1. Write a program to demonstrate basic data type in python. 2. Exercise programs on operators & I/O operations. 3. Exercise program on basic control structures & loops. 4. Exercise programs on functions. 5. Simple programming for one dimensional and two dimensional arrays. 6. Write a Python code to explore string functions. 7. Demonstrate the use of Lists, Dictionaries. 8. Write a program to implement Tuples. 9. Exercise programs on files. 10. Exercise programs on Exception handling concepts.	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: Dr. R. Jayaprakash  Signature:	Name: Dr. R. Rajasenathipathi  Signature:	Name: Mr. K. Srinivasan  Signature:	Name: Dr. R. Manickachezian  Signature:
Dr. R. RAJASENATHIPATHI, M.A. M.Sc. Ph.D. Head of the Department Department of Computer Technology Nallamthi Gender Mahila Samithi POLLACHI - 642 001 K. SRINIVASAN, M.C.A., Co-ordinator Curriculum Development Cell (CDC) NGM College (Autonomous) Pollachi - 642 001. Dr. R. 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 Computer Technology		
Course Code:	21UCT5S2			Title	Batch:	2021 - 2024	
Lecture Hrs./Week or Practical Hrs./Week	2	Tutorial Hrs./Sem	0	SEC : Naan Mudhalvan I - HTML5 WITH CSS LAB	Semester:	V	
					Credits:	03	

Course Objective

To get knowledge and practical skill to create dynamic web applications.

To develop an ability to design and implement static and dynamic website.

To Design and develop a Web site using text, images, links, lists, and tables for navigation and layout.

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 internet related concepts that are vital in understanding web development to create Dynamic Web Applications.	K1, K2
CO2	Evaluate Several Alternatives in the Design of a Web Application.	K5
CO3	Understand the important HTML tags for designing static pages and separate design from content using Cascading Style sheet.	K3
CO4	Comprehend and Propose Web Application Infrastructure and Develop A Functional Web Application.	K2, K3
CO5	Design and develop web pages using CSS styles, internal and/or external style sheets.	K3, K6

Mapping

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

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

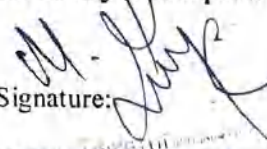
Content	Hrs
Sample Programs 1. Write HTML code to develop a static web page having the background and title page in any other color. 2. Create a page to show different attribute of Font tags and italic, bold, underline. 3. Create a page to show different attribute Design a Signup form with validation using HTML5. 4. Create a webpage with HTML5, Use paragraph and list tags. 5. Design a webpage and display it using HTML in tabular format. 6. Design a CSS to create menu. 7. Create a web page using all the attributes of the frame 8. Write a program to draw any shape using canvas tag. 9. Write a program to include video/Audio file in HTML5 page 10. Write a program to Drag and Drop the content in HTML5.	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. R. Rajaseenathipathi Signature: 	Name: Mr. K. Srinivasan Signature: 	Name: Dr. R. Manickachezian Signature: 

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Pollachi - 642 001.

SEMESTER- VI

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology		
Course Code:	21UCT621			Title	Batch:	2021 – 2024	
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	08	CORE COURSE XIII: FRAMEWORK TECHNOLOGY	Semester:	VI	
					Credits:	04	

Course Objective

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

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Understand the basic concepts of .NET framework and its components.	K1 / K2
CO2	Acquire the usage of various Elements of VB.Net to develop programs using them	K3
CO3	Implement lists and loops with VB.NET controls and iteration	K3
CO4	Assemble multiple forms, modules, and menus into working VB.NET solutions	K3/K4
CO5	Connect database by using ADO.NET and manipulate the database	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

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

Text Book

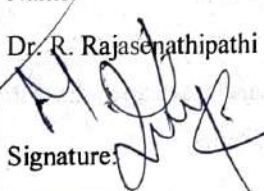
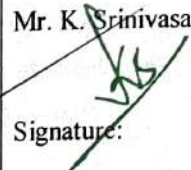
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Deitel H.M, Deitel P.J, Nieto T.R	Visual Basic.NET How to Program	Pearson Education , 6 th Edition	2012

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Kogent Learning Solutions Inc.,	.Net 3.5 Programming: Covering .Net Framework	1st Edition , DreamTech Press.	2015
2	Bill Evjen, Jason Beres, et.al,	Visual Basic.Net Programming – Black Book	2nd Edition , John Wiley & Sons	2014
3	Gary B. Shelly Thomas J. Cashman,	Microsoft Visual Basic. Net Comprehensive Concepts And Techniques	Cengage Learning India ,1st Edition	2016

Web References

1. https://www.w3schools.com/asp/
2. https://www.tutorialspoint.com/vb.net
3. https://www.nptelvideos.com/visualbasic_net/?pn=1
4. https://www.javatpoint.com/vb-net-control-statements
5. https://www.tutorialspoint.com/ASP.net

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Dr. R. Rajasenathipathi Signature: 	Name: Dr. R. Rajasenathipathi Signature: 	Name: Mr. K. Srinivasan Signature: 	Name: Dr. R. Manickachezian Signature:  Dr. R. MANICKACHEZIAN, M.Sc., M.S., Ph.D., Controller of Examinations

Dr. M. RAJASENATHIPATHI, M.A., M.C.A., M.P.N.I., Ph.D.
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 Co-ordinator
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 NGM College (Autonomous)
 Pollachi - 642 001.

NGM College (Autonomous)
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	21UCT6E1			Title	Batch:	2021 – 2024
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	4	DSE II: MOBILE COMPUTING	Semester:	VI
					Credits:	5

Course Objective

1. Understand the various concepts and techniques of WAP, GSM, CDMA, 2G, and 3G.
2. 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	PO1 0	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

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Text Book

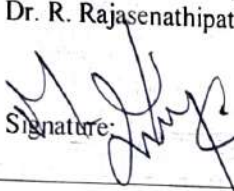
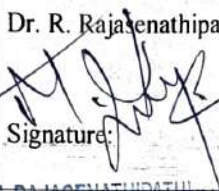
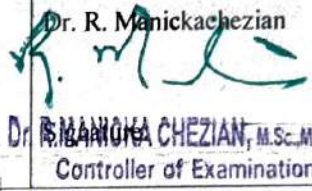
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Asoke K Talukder, Hasan Ahmed, Roopa R Yavagal	Mobile Computing: Technology, Applications and Service Creation	TMH, 2 nd Edition	2017

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, 3 rd 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
Name: Dr. R. Rajasenathipathi Signature: 	Name: Dr. R. Rajasenathipathi Signature: 	Name: Mr. K. Srinivasan Signature: 	Name: Dr. R. Manickachezian Signature: 
Dr. M. RAJASENATHIPATHI, M.A., M.Sc., M.Phil., M.D. Head of the Department Department of Computer Technology Nallamuthu Gounder Mahalingam College (Autonomous) POLLACHI - 642 001 K. SRINIVASAN, M.C.A., Co-ordinator Curriculum Development Cell (CDC) NGM College (Autonomous) Pollachi - 642 001. Dr. R. 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:	21UCT6E2			Title	Batch:	2021 – 2024
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	04	DSE II: SOFTWARE PROJECT MANAGEMENT	Semester:	VI
					Credits:	5

Course Objective

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

Course Outcomes

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

CO Number	CO Statement	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

Text Book

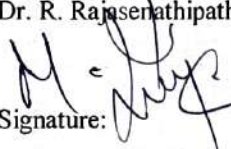
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Bob Hughes, Mike Cotterell, Rajib Mall	Software Project Management	Tata McGraw Hill Publications, 6 th Edition	2017

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

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. Rajaseenathipathi Signature: 	Name: Mr. K. Srinivasan Signature: 	Name: Dr. R. Manickachezian Signature: 

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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	DSE 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

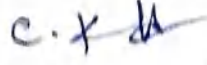
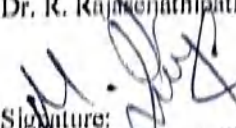
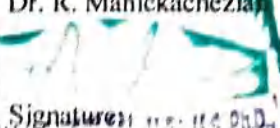
* H-High; M-Medium; L-Low

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, Geoffrey 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 C. 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.geeksforgoeks.org/grid-computing/
4. http://www.cs.kent.edu/~farrell/grid06/lectures/grid01.pdf
5. https://plt.ac.in/pltnotes/uploads/CS6703_11.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. Rajaseenathipathi  Signature: Dr. R. Rajaseenathipathi Head of the Department Department of Computer Technology NGM College (Autonomous) Pollachi - 642 001.	Name: Mr. K. Srinivasan  Signature: K. Srinivasan Co-ordinator Curriculum Development Cell (CDC) NGM College (Autonomous) Pollachi - 642 001.	Name: Dr. R. Manickachezian  Signature: Dr. R. Manickachezian Controller of Examinations NGM College (Autonomous) Pollachi - 642 001.

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	21UCT6E4			Title	Batch:	2021 – 2024
Lecture Hrs./Week or Practical Hrs./Week	06	Tutorial Hrs./Sem.	04	DSE III: ARTIFICIAL INTELLIGENCE	Semester:	VI
					Credits:	5

Course Objective

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

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 and the characteristics of the problem space	K1
CO2	Understand the problem solving using predicates.	K1/K2
CO3	Apply the concepts of game playing techniques and Expert system	K3
CO4	Analyze AI problem to be solved using prolog	K4
CO5	Evaluate different knowledge representation schemes for AI problems	K4 /K5

Mapping

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

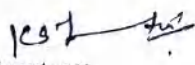
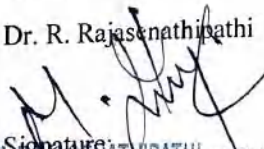
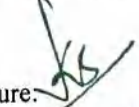
* H-High; M-Medium; L-Low

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Stuart Russell, Peter Norvig	Artificial Intelligence: A Modern Approach	Pearson Education, 3 rd Edition.	2015
2	Er. Rajiv Chopra	Artificial Intelligence: A Practical Approach	S. Chand Publications, 1 st Edition.	2016

Web Resources

1. https://nptel.ac.in/courses/106/102/106102220/
2. http://aimaterials.blogspot.com/p/syllabus.html
3. https://www.javatpoint.com/expert-systems-in-artificial-intelligence
4. https://www.tutorialspoint.com/prolog/prolog_introduction.htm
5. https://www.cet.edu.in/noticefiles/271_AI%20Lect%20Notes.pdf

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. Rajaseenathipathi Signature: 	Name: Mr. K. Srinivasan Signature: 	Name: Dr. R. Manickachezian Signature: 

Dr. R. RAJASEENATHIPATHI, M.A., M.Sc., M.Phil., Ph.D.
Head of the Department

Department of Computer Technology
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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	21UCT6E5			Title	Batch:	2021 – 2024
Lecture Hrs./Week	06	Tutorial Hrs./Sem.	04	DSE - III: UNDERWATER COMMUNICATION	Semester:	VI
					Credits:	5

Course Objective

To study the feasibility and propose solutions to integrate multimedia traffic in the underwater wireless communication network paradigm.

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 Underwater Environment	K1/K2
CO2	To understand the role of Radar, Antennas, Signals in underwater network Communication.	K2/K3
CO3	To apply different modes of underwater applications	K3
CO4	To analyze various issues associated with under water communication	K4/K5
CO5	Justify the importance of various Under Water Acoustic Software	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

Text Book

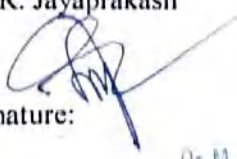
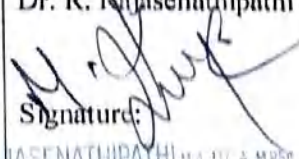
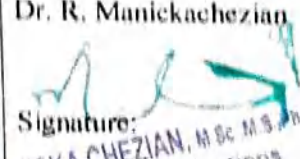
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Lurton and Xavier	An Introduction to Underwater Acoustics: Principles and Applications	Springer, 2nd Edition	2016

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Yang Xiao	Underwater Acoustic Sensor Networks	CRC Press, 1st Edition	2019
2	Dimitri Sotnik, Michael Goetz, et al	Cognitive Underwater Acoustic Networking Techniques	Springer, 1st Edition	2020

Web Resources

1. https://www.youtube.com/watch?v=FYk1tbTKkYI
2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5539468/
3. https://www.whoi.edu/science/B/people/kamaral/marinemammalacoustics.html
4. https://en.wikipedia.org/wiki/Communication_with_submarines
5. Curtin University : http://cmst.curtin.edu.au/products/underwater/

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

Course Objective

1. To learn and understand the fundamentals of image processing and its relationship between pixels.

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	DSE III: DIGITAL IMAGE PROCESSING	Semester:	VI
					Credits:	5

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

Text Book

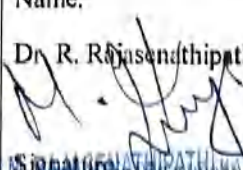
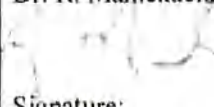
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Rafeal C. Gonzalez, Richard E. Woods	Digital Image Processing	Pearson Education, Fourth Edition	2018
2	S. Sridhar	Digital Image Processing	Oxford University Press	2016

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_ee55/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. Manickachezian	Name: Mr. K. Srinivasan	Name: Dr. R. Manickachezian
Signature: 	Signature: 	Signature: 	Signature: 

Dr. R. MANICKACHEZIAN, M.Sc., M.S., Ph.D.,
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Co-ordinator
NGM College (Autonomous)
Pollachi - 642 001.

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NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	21UCT622			Title	Batch:	2021 – 2024
Lecture Hrs./Week or Practical Hrs./Week	05	Tutorial Hrs./Sem.	0	Core Course Lab - IX : FRAMEWORK TECHNOLOGY	Semester:	VI
					Credits:	03

Course Objective

The student learn 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

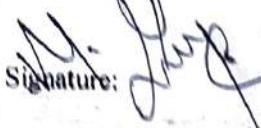
On the successful completion of the course, students will be able to

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

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

Dr. R. RAJASENATHIPATHI, M.A., M.C.A., M.Phil., Ph.D.
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Programme Code:	B.Sc.			Programme Title:	Computer Technology	
Course Code:	21UCT623			Title	Batch:	2021 – 2024
Lecture Hrs./Week or Practical Hrs./Week	4	Tutorial Hrs./Sem.	4	Project	Semester:	VI
					Credits:	4

Course Objective

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

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	To recollect the programming language concepts to think objectively, analytically, critically in developing industry oriented applications	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	
	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**

Course Designed by	Verified by HOD	Checked by	Approved by
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3.2 **Overview of the Project**

- 3.1 Modules of the Project
- 3.2 Input Design Format
- 3.3 Output Design
- 3.4 Table Design
- 3.5 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 Limitation of the Project
- 5.3 Further Scope of the Project

6 **Conclusion**

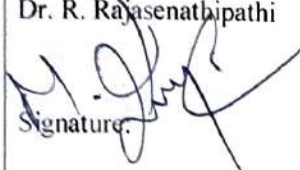
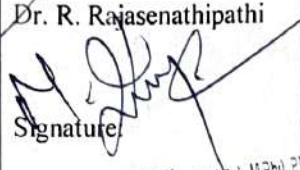
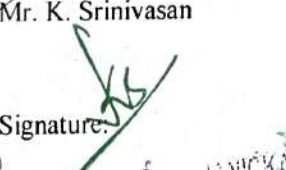
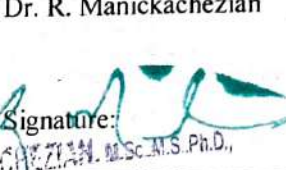
7 **Appendix**

- 7.1 Source Code
- 7.2 Screenshots and Reports

8 **References**

Size of the Project

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

Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Dr. R. Rajasenathipathi 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 Science (Computer Technology)	
Course Code:	21UCT6AL			Title	Batch:	2021 – 2024
Lecture Hrs./Week or Practical Hrs./Week	SS	Tutorial Hrs./Sem.	SS	Advanced Learner Course - II : DATA ANALYTICS	Semester:	VI
					Credits:	04

— Course Objective

To understand the fundamentals of big data analytics and the methodologies used in storing manipulating and analyze large volumes of unstructured data

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	This course prepares students to gather, describe, and analyze data, and use advanced statistical tools to support decision making	K2
CO2	To gather sufficient relevant data, conduct data analytics using scientific methods, and understand appropriate connections between quantitative analysis and real world problems	K3
CO3	Understand the exact scopes and possible limitations of each method to provide constructive guidance in decision making.	K3
CO4	To Use advanced techniques to conduct thorough and insightful analysis, and interpret the results correctly with detailed and useful information.	K4
CO5	To make better decisions by using advanced techniques in data analytics.	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	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 Definitions and Analysis Techniques: Elements, Variables, and Data Categorization, Levels of Measurement, Data Management and Indexing	SS
Unit II	Descriptive Statistics: Measures of Central Tendency, Measures of Location of Dispersions, Error Estimation and Presentation (Standard Deviation, Variance), Introduction to Probability	
Unit III	Basic Analysis Techniques: Statistical Hypothesis Generation and Testing, Chi-Square Test, T-Test, Analysis of Variance, Correlation Analysis, Maximum Likelihood Test	
Unit IV	Data Analysis Techniques-I: Regression Analysis, Classification Techniques, Clustering Techniques (K-Means, K-Nearest Neighborhood)	
Unit V	Introduction to R Programming: Introduction to R Software Tool, Statistical Computations using R (Mean, Standard Deviation, Variance, Regression, Correlation etc.)	
(*SS – Self Study)Total Contact Hrs		SS

Pedagogy

Direct Instruction, Flipped Class, Digital Presentation

Assessment Methods

Seminar, Quiz, Assignments, Group Task.

21UCT6AL

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. Rajaseenathipathi Signature: 	Name: Mr. K. Srinivasan Signature: 	Name: Dr. R. Manickachezian Signature: 

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	21UCT6VA			Title	Batch:	2021 – 2024
Lecture Hrs./Week or Practical Hrs./Week	02	Tutorial Hrs./Sem.	2	VAC-II: PC ASSEMBLY AND CCTV INSTALLATION	Semester:	VI
					Credits:	2

Course Objective

This course enables the students to understand the fundamentals of PC Assembly and CCTV Installation

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 Assemble/setup and upgrade personal computer systems	K2
CO2	Knowledge of CCTV components with modern equipments	K3
CO3	Identify and Optimize system performance techniques	K3
CO4	Know about Install and connect peripherals among different devices	K4
CO5	Diagnose and isolate faulty components of the devices	K5

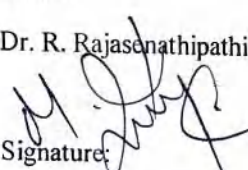
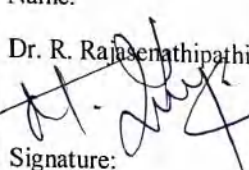
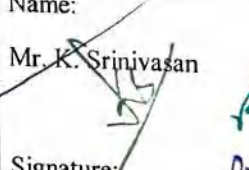
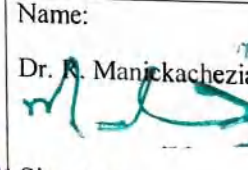
Mapping

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

Web References

1.	https://www.build-your-own-computer.net/support-files/build-your-own-computer.pdf
2.	CCTV Installation Technician – National Skill Development Corporation – Facilitator Guide
3.	https://nsdcindia.org/sites/default/files/FG-ELEQ4605-CCTV-Installation-Technician-09-03-2018.pdf
4.	https://www.instructables.com/id/How-To-Assemble-A-Basic-Desktop-PC/
5.	https://choosemy pc.net/assemblyguide/
6.	http://ptgmedia.pearsoncmg.com/images/9781587132636/samplechapter/9781587132636_ch03.pdf

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	Co-ordinator CDC	COE
Name: Dr. R. Rajasenathipathi Signature: 	Name: Dr. R. Rajasenathipathi Signature: 	Name: Mr. K. Srinivasan Signature: 	Name: Dr. R. Manickachezian Signature: 
Dr. M. RAJASENATHIPATHI Head of the Department Department of Computer Technology Nallamuthu Counder Mahalingam College (Autonomous) POLLACHI - 642 001	K. SRINIVASAN, MCA Co-ordinator Curriculum Development Cell (CDC) NGM College (Autonomous) Pollachi - 642 001.	Dr. R. 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 Computer Technology	
Course Code:	21UCT6S1			Title	Batch:	2021 - 2024
Lecture Hrs./Week or Practical Hrs./Week	2	Tutorial Hrs./Sem	0	SEC – Naan Mudhalvan II – DATA ANALYTICS (BIG DATA) 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

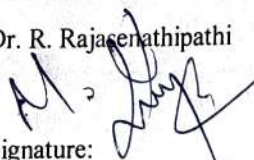
On the successful completion of the course, students will be able to

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

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: 

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Course Objective

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology		
Course Code:	21UCT6S2			Title	Batch:	2021 - 2024	
					Semester:	VI	
Practical Hrs./Week	2	Tutorial Hrs./Sem	0	SEC – Naan Mudhalvan II – DREAMWEAVER LAB	Credits:	02	

To focus on using Adobe Dreamweaver to create high quality websites.

Course Outcomes

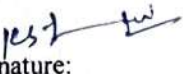
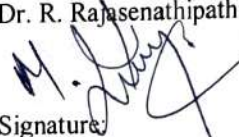
On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Identify the basic tools and components of a multimedia project.	K2
CO2	Create a website that adheres to current HTML and CSS	K3
CO3	Realize appropriate terminology to describe both web development and basic programming concepts	K4
CO4	Apply programs by implementing PHP, CSS, JavaScript, JSP, HTML in Dream Weaver	K5
CO5	Design and develop advanced aspects of the Dreamweaver interface and paradigm	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

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: 

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**NALLAMUTHU GOUNDER MAHALINGAM
COLLEGE (AUTONOMOUS)**



**U.G. DEPARTMENT OF COMPUTER TECHNOLOGY
(C.T.)**



SYLLABUS

2022 – 2025 Batch

**(With Effect From 2022-2025 Batch and
Onwards)**

DEPARTMENT OF COMPUTER TECHNOLOGY

Syllabus

BATCH: 2022 – 2025

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.,

Ms. A. Kalaivani, M.C.A., M. Phil., (Ph.D).,



Nallamuthu Gounder Mahalingam College

An Autonomous Institution affiliated to Bharathiar University

Re-Accredited by NAAC and ISO 9001:2015 Certified Institution

Pollachi – 642 001.

NGM 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	<i>Problem solving:</i> Under Graduate students are to apply, algorithmic, real time and Industry standard reasoning to a variety of computational problems.
PO2	<i>Problem solving:</i> Understand the fundamental knowledge of various domains in IT Industry and change their carrier as per industry Demand.
PO3	<i>Self-directed learning :</i> Combine the knowledge of mathematics and Software Technologies in the field of Software project development
PO4	<i>Information/digital literacy: Implement</i> industry standard projects of their own choice using latest tools.
PO5	<i>Analytical reasoning:</i> Improve the aptitude skill to clear various levels of entrance exams in their carrier.
PO6	<i>Physical and mental wellness:</i> The Under Graduate students are recognize the Human Excellence and ethical responsibilities through yoga in various disciplines
PO7	<i>Reflective thinking and Communication Skills:</i> Demonstrate global Industry demand related subjects and transferable skills that a relevant to global industry and employment opportunities
PO8	<i>Self-directed learning :</i> Graduates will recognize the need for self-motivation and Life Long Learning to update in technologies to be in par with changing technology.
PO9	<i>Cooperation/Team work:</i> Ability to analyze the local and global impact of computing on individuals, organizations and society.
P10	<i>Multicultural competence:</i> 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	<i>Academic skills and abilities:</i> Acquire academic excellence with professional skill for employment and higher studies.
PSO – 02	<i>Explore Software Development Solutions:</i> Create, select and apply modern tools and techniques to analyze and develop successful software in IT Industry.

Mapping

PEO PO	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

SEMESTER- III

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	22UCT307			Title	Batch:	2022 – 2025
Lecture Hrs./Week or Practical Hrs./Week	05	Tutorial Hrs./Sem.	06	Core Course V: ADVANCED JAVA PROGRAMMING	Semester:	III
					Credits:	03

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.

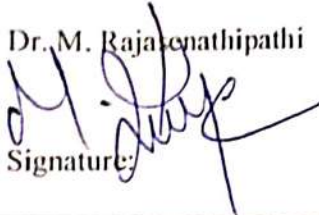
Course Outcomes

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

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: Dr. R. Manickachezian  Signature:

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	22UCT308			Title	Batch:	2022 – 2025
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	08	Core Course VI: DATABASE MANAGEMENT SYSTEM	Semester:	III
					Credits:	03

Course Objective

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

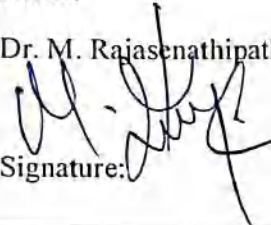
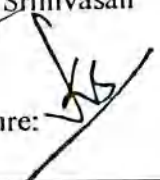
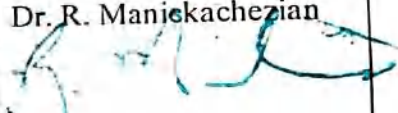
Course Outcomes

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

Web References

1. http://freecomputerbooks.com/An-Introduction-to-Relational-Database-Theory.html
2. https://swayam.gov.in/nd2_ccc19_cs05/preview
3. https://www.featuredcustomers.com
4. https://onlinecourses.nptel.ac.in/noc19_cs46/preview
5. https://www.slideshare.net/NILFSHX/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. M. 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 Science (Computer Technology)		
Course Code:	22UCT 3A3			Title	Batch:	2022 – 2025	
Lecture Hrs./Week or Practical Hrs./Week	05	Tutorial Hrs./Sem.	06	GE III: ALLIED III: SOFTWARE ENGINEERING	Semester:	III	
					Credits:	04	

Course Objective

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

Course Outcomes

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

CO Number	CO Statement	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

Text Book

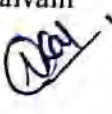
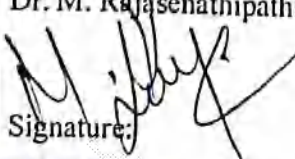
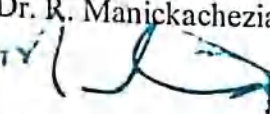
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Roger S. Pressman	Software Engineering, A Practitioner's Approach	7 th Edition, TATA McGraw-Hill Publications, ISBN-13 : 978-0071267823	2018

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Ian Sommerville	Software Engineering	9 th Edition, Addison Wesley, ISBN-13: 978-0137035151	2017
2	Stephen Schacht	Software Engineering	7 th 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
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: Dr. R. Manickachezian Signature: 

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	22UCT309			Title	Batch:	2022 – 2023
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	0	Core Course 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

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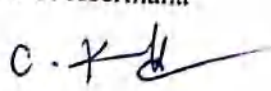
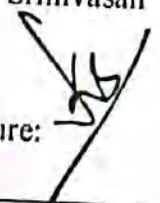
Content	Hrs
Sample Programs 1. Create a program to illustrate the concept of Introspection. 2. Create a bean program to design a simple property of the bean. 3. Create a java program to illustrate the concept of Generic Servlet. 4. Create a java program to illustrate the concept of Http Servlet. 5. Create 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: Dr. R. Manickachezian  Signature:

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	22UCT310			Title	Batch:	2022 – 2025
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.		Core Course Lab- IV- DATABASE MANAGEMENT SYSTEM LAB	Semester:	III
					Credits:	02

Course Objective

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

Course Outcomes

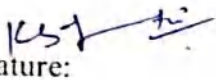
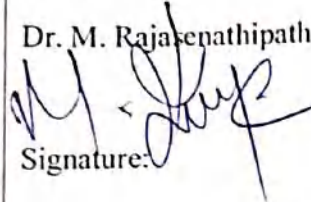
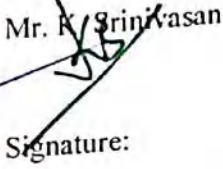
On the successful completion of the course, students will be able to

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

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. M. 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 Science (Computer Technology)		
Course Code:	22UCT3N1			Title	Batch:	2022 – 2025	
Lecture Hrs./Week or Practical Hrs./Week	01	Tutorial Hrs./Sem.	04	Skill Based NON- MAJOR ELECTIVE I - HTML LAB	Semester:	III	
					Credits:	02	

Course Objective

To understand the principles of creating an effective web page using HTML.

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 HTML tags	K3
CO2	Understand about ordered list and unordered list, creation of table, creations of forms	K4
CO3	Validate the creation of a simple webpage using basic HTML	K4
CO4	Use scripting Techniques for dynamic effects and to validate form input entry	K3
CO5	Analyze to Use appropriate client-side or Server-side 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

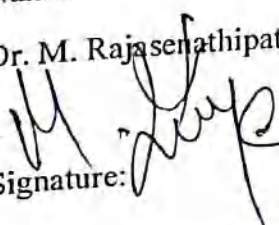
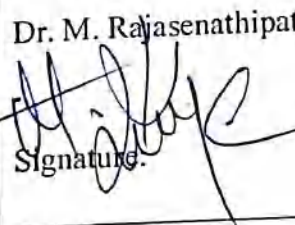
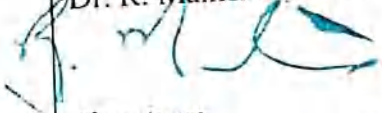
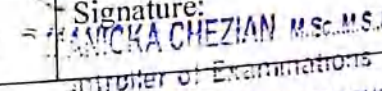
Content	Hrs
Sample Programs 1. Create a HTML document using basic HTML tags. 2. Create a HTML program with text formatting tags. 3. Create a HTML program to set the background color. 4. Create a link by using HTML tags. 5. Create a HTML program to insert an image in a document. 6. Create a HTML program to create a table. 7. Create a HTML program to implement ordered list with numbers. 8. Create a HTML program to implement ordered list with alphabets. 9. Create a HTML program to implement unordered list. 10. Create a Form with input box and submit button.	15
Total Contact Hrs	15

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: Dr. R. Manikachezian Signature:  Signature:  Dr. R. Manikachezian 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:	22UCT3N2			Title	Batch:	2022 – 2025
Lecture Hrs./Week or Practical Hrs./Week	01	Tutorial Hrs./Sem.	0	Skill Based 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

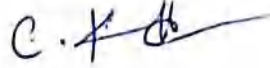
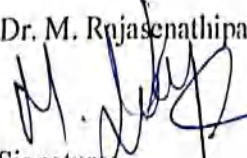
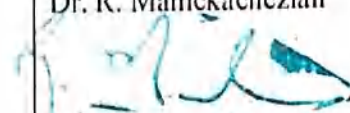
Content	Hrs
Sample Programs 1. Cropping images using Lasso Tool 2. Designing Pictures using Paint Tools 3. Designing Text using Text Tools 4. Applying Layer Effects to Images and Texts 5. Designing an Employee or Student ID card 6. Designing a seasonal greetings 7. Design a photograph applying Filter 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	15
Total Contact Hrs	15

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: Dr. R. Manickachezian  Signature:

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SEMESTER- IV

Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	22UCT411			Title	Batch:	2022-2025
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	04	Core Course VII: PYTHON PROGRAMMING	Semester:	IV
					Credits:	04

Course Objective

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

Course Outcomes

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

CO Number	CO Statement	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

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: Dr. R. Manickachezian Signature:

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	22UCT412			Title:	Batch:	2022-2025
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	4	CORE VIII: LINUX AND SHELL 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

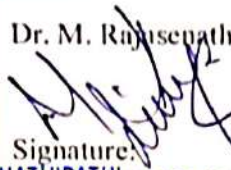
On the successful completion of the course, students will be able to

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

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. Rajaseenathipathi Signature: 	Name: Mr. K. Srinivasan Signature: 	Name: Dr. R. Manickachezian Signature: 

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	22UCT4A4			Title	Batch:	2022 – 2025
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem.	03	GE IV: Allied IV: DATA COMMUNICATION AND NETWORKS	Semester:	IV
					Credits:	03

Course Objective

1. To identify various components in a data communication system and understand state-of-the-art in network protocols, architectures and applications.
2. To enable students through the concepts of computer networks, different models and their involvement in each stage of network communication.
3. To educate the concepts of terminology and concepts of the OSI reference model and the TCP/IP reference model and protocols such as TCP, UDP and IP.

Course Outcomes

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

CO Number	CO Statement	Knowledge Level
CO1	Remember the organization of computer networks, factors influencing computer network development and the reasons for having variety of different types of networks.	K1
CO2	Understand Internet structure and can see how standard problems are solved and the use of cryptography and network security.	K2
CO3	Apply knowledge of different techniques of error detection and correction to detect and solve error bit during data transmission.	K3
CO4	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies	K4
CO5	Knowledge about different computer networks, reference models and the functions of each layer in the models	K5

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

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	22UCT413			Title	Batch:	2022 – 2025
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

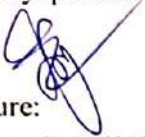
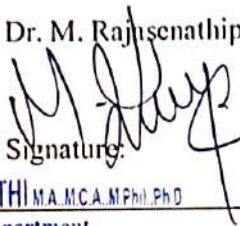
On the successful completion of the course, students will be able to

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

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: Dr. R. Manickachezian Signature: 

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Programme Code:	B.Sc. CT		Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	22UCT414		Title	Batch:	2022 – 2025
Lecture Hrs./Week or Practical Hrs./Week	04	Tutorial Hrs./Sem	0	Semester:	IV
				Credits:	02
				CC LAB VI: LINUX AND SHELL PROGRAMMINGLAB	

Course Objective

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

Course Outcomes

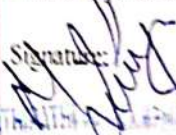
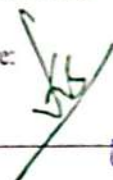
On the successful completion of the course, students will be able to

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

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: Dr. R. Manickachezian Signature: 

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Computer Technology	
Course Code:	22UCT4S1			Title	Batch:	2022 - 2025
Lecture Hrs./Week or Practical Hrs./Week	2	Tutorial Hrs./Sem	0	SEC II: Naan Mudhalvan : Desktop Publishing Lab	Semester:	IV
					Credits:	02

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

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. M. 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:	22UCT4S2			Title	Batch:	2022 - 2025
Lecture Hrs./Week or Practical Hrs./Week	2	Tutorial Hrs./Sem	0	SEC II: Naan Mudhalvan : PC Hardware & Troubleshooting	Semester:	IV
					Credits:	02

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

Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Craig Zacker, John Rourke	The Complete Reference PC Hardware	Tata McGrawHill,	2017

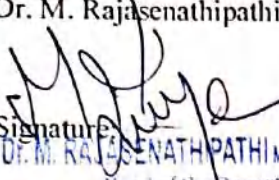
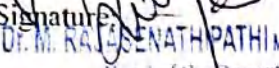
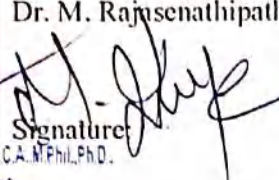
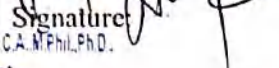
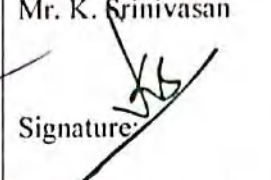
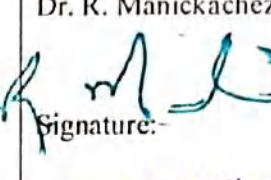
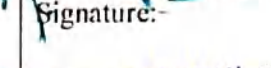
Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Govindaraju lu. B	IBM PC and clones : Hardware, Trouble shooting and Maintenance.	Second edition, Tata-McGraw Hill (ISBN 0-07-048286-1)	2017
2	Rosch. Winn L.	Hardware bible	Sixth edition, Que/Techmedia publishers, (ISBN 81-7635-696-4)	2003

Web References

1. https://www.tutorialspoint.com/computer_fundamentals/computer_hardware.htm
2. https://www.w3schools.blog/hardware
3. https://www.geeksforgeeks.org/computer-hardware/
4. https://www.studocu.com/row/document/university-of-nairobi/sociological-theories/computer-hardware-lecture-notes-10/4256736
5. https://testbook.com/blog/basic-computer-hardware-notes-pdf/

22UCT4S2

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:  Dr. M. RAJASENATHIPATHI, M.A., M.C.A., M.Phil., Ph.D. Head of the Department	Name: Dr. M. Rajasenathipathi  Signature:  Dr. M. RAJASENATHIPATHI, M.A., M.C.A., M.Phil., Ph.D. Head of the Department	Name: Mr. K. Srinivasan  Signature:  Mr. K. SRINIVASAN, M.C.A. Co-ordinator Curriculum Development Cell (CDC) NGM College (Autonomous) Pollachi - 642 001.	Name: Dr. R. Manickachezian  Signature:  Dr. R. MANICKACHEZIAN, M.Sc., M.S., Ph.D., Controller of Examinations NGM College (Autonomous) Pollachi - 642 001.

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	22UCT4N3			Title	Batch:	2022 – 2025
Lecture Hrs./Week or Practical Hrs./Week	01	Tutorial Hrs./Sem,	0	Skill Based NON-MAJOR ELECTIVE II – OFFICE AUTOMATION LAB	Semester:	IV
					Credits:	02

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

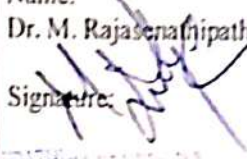
*H-High; M-Medium; L-Low

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. Rajasenthipathi Signature: 	Name: Mr. K. Srinivasan Signature: 	Name: Dr. R. Manickavasagam Signature: 

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Programme Code:	B.Sc. CT			Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	22UCT4N4			Title	Batch:	2022 – 2025
Lecture Hrs./Week or Practical Hrs./Week	01	Tutorial Hrs./Sem.	0	NON-MAJOR ELECTIVE II - CORELDRAW LAB	Semester:	IV
					Credits:	02

Course Objective

To equip the students with the basic knowledge of CorelDraw graphics suites

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 CorelDraw workspace, tools and panels	K3
CO2	Comprehend a variety of images using crop tools, zooming, curve and smart fill tools	K4
CO3	Validate the animation works using CorelDraw	K3
CO4	Develop different animations with help of Corel tools	K4
CO5	Create variety of techniques for designing methods	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

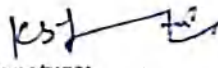
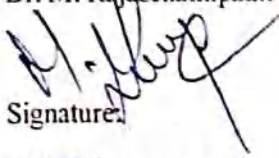
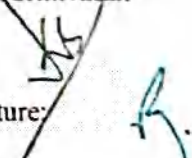
Content	Hrs.
1. Create a program using drawing tools. 2. Create a program to work with layers 3. Develop a program for Text tools 4. Create a program to work with frames 5. Create a model using Freehand Tool 6. Create a program for masking a picture 7. Create a program using bitmap files 8. Create a program to develop a layers 9. Create a program for transformation of an object 10. Create a program for animation effects	15
Total Contact Hrs.	15

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. K. S. Leelavathi Signature: 	Name: Dr. M. Rajasenathipathi Signature: 	Name: Mr. K. Srinivasan Signature: 	Name: Dr. R. Manickachezian Signature: 

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**NALLAMUTHU GOUNDER MAHALINGAM
COLLEGE (AUTONOMOUS)**



**U.G. DEPARTMENT OF COMPUTER TECHNOLOGY
(C.T.)**



SYLLABUS

2023 – 2026 Batch

(With Effect From 2023-2026 Batch and Onwards)