Department of Computer Technology

Syllabus

2017 – 2020 Batch

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.

Part	Subject Code	Subject	Ins.Hours Per Week	Exam Hours	CIA	ESE	Total	Credit
		SEMESTER III						
III	17 UCT 307	CORE V: JAVA PROGRAMMING	5	3	25	75	100	4
	17 UCT 308	CORE VI: WEB DESIGNING (HTML, DHTML, XML, JavaScript)	5	3	25	75	100	4
	17 UCT 309	CORE VII: OPERATING SYSTEMS	5	3	25	75	100	5
	17 UCT3A3	ALLIED III: COMPUTER SYSTEM ARCHITECTURE	5	3	25	75	100	4
	17 UCT 310	PROGRAMMING LAB - III (JAVA)	4	3	20	30	50	2
	17 UC T311	PROGRAMMING LAB - IV (WEB DESIGNING)	4	3	20	30	50	2
IV	17 HEC 303	HUMAN EXCELLENCE - PROFESSIONAL VALUES & SKY YOGA PRACTICE - III	1	2	25	25	50	1
	17UCT3N1/ 17 UCT3N2	SKILL BASED NON- MAJOR ELECTIVE I - HTML LAB / MULTIMEDIA LAB	1	2	-	50	50	2
V	17 UNS401/ 17 UNC402/ 17 USG 403	EXTENSION ACTIVITIES (NSS/NCC/SPORTS AND GAMES)	-					
TOTAL			30	-	165	435	600	24
		SEMESTER IV						
III	17 UCT 412	CORE VIII: OPENSOURCE TECHNOLOGIES (PHP and MySQL)	5	3	25	75	100	4
	17 UCT 413	CORE IX: RELATIONAL DATABASE MANAGEMENT SYSTEM & ORACLE	5	3	25	75	100	4
	17 UCT 414	CORE X: DATA COMMUNICATION AND NETWORKS	5	3	25	75	100	4
	17 UCT4A4	ALLIED IV: MICROPROCESSOR AND ALP	5	3	25	75	100	4
	17 UCT 415	PROGRAMMING LAB - V (OPENSOURCE TECHNOLOGIES)	4	3	20	30	50	2
	17 UCT 416	PROGRAMMING LAB - VI (RELATIONAL DATABASE MANAGEMENT SYSTEM)	4	3	20	30	50	2
IV	17 HEC 404	HUMAN EXCELLENCE - SOCIAL VALUES & SKY YOGA PRACTICE - IV	1	2	25	25	50	1
	17UCT4N3/ 17 UCT4N4	SKILL BASED NON-MAJOR ELECTIVE II - OFFICE AUTOMATION LAB / CORELDRAW LAB	1	2	-	50	50	2
V	17 UNS401/ 17 UNC402/ 17 USG 403	NSS/NCC/SPORTS AND GAMES	-	-	-	50	50	1
TOTAL								24

Part	Subject Code	Subject	Ins.Hours Per Week	Exam				Credit
				Hours	CIA	ESE	Total	
		SEMESTER V						
III	17 UCT 517	CORE XI: FRAMEWORK TECHNOLOGY	5	3	25	75	100	3
	17 UCT 518	CORE XII: INTRODUCTION TO COMPUTER GRAPHICS AND MULTIMEDIA	5	3	25	75	100	3
	17 UCT 519	CORE XIII: FUNDAMENTALS OF SOFTWARE ENGINEERING AND TESTING	5	3	25	75	100	5
	17 UCT 520	ELECTIVE I	5	3	25	75	100	5
	17 UCT 521	PROGRAMMING LAB -VII (FRAMEWORK TECHNOLOGY)	4	3	40	60	100	2
	17 UCT 522	PROGRAMMING LAB - VIII (GRAPHICS and MULTIMEDIA)	4	3	40	60	100	2
IV	17 HEC 505	HUMAN EXCELLENCE - NATIONAL VALUES & SKY YOGA PRACTICE - V	1	2	25	25	50	1
	17 GKL501	GENERAL KNOWLEDGE AND GENERAL AWARENESS	SS	2	-	50	50	2
	17 UCT5S1/ 17 UCT 5S2	SKILL BASED MAJOR ELECTIVE I - HTML 5 with CSS / VISUAL BASIC	1	2	-	50	50	2
TOTAL			30	-	205	545	750	25
		SEMESTER VI						
III	17 UCT 623	CORE XIV: J2EE TECHNOLOGIES	6	3	25	75	100	4
	17 UCT 624	ELECTIVE-II	6	3	25	75	100	5
	17 UCT 625	ELECTIVE-III	6	3	25	75	100	5
	17 UCT 626	PROGRAMMING LAB - IX:(J2EE TECHNOLOGIES)	5	3	40	60	100	2
	17 UCT 627	INDUSTRY ORIENTED PRACTICALS	5	3	40	60	100	4
IV	17 HEC 606	HUMAN EXCELLENCE - GLOBAL VALUES & SKY YOGA PRACTICE - VI	1	2	25	25	50	1
	17 UCT6S3/ 17 UCT6S4	SKILL BASED MAJOR ELECTIVE II - DATA ANALYTICS(BIG DATA) / DREAMWEAVER	1	2	-	50	50	2
TOTAL			30	-	180	420	600	23
TOTAL			180	-	1055	2845	3900	140

LIST OF MAJOR ELECTIVE PAPERS

Elective -I	A. Cloud Computing
	B. Distributed Computing
	C. Digital Image Processing
Elective -II	A. Embedded Systems
	B. Animation Techniques
	C. Underwater Communication
Elective -III	A. Information & Cyber Security
	B. Mobile Computing
	C. Data Mining

Bloom's Taxonomy Based Assessment Pattern

(K-Knowledge; U-Understanding; A-Application)

1. Theory: 75 Marks (Part 1, Part II and Part III)

(i) TEST- I & II and ESE:

Knowledge Level	Section	Marks	Description	Total
K1	A (Answer all)	10x1=10	Q. No. 1 – 5 MCQ Q. No. 6 – 10 Define	75
K2	B (Either or pattern)	5x5=25	Q. No. 11 – 15 Short Answers	
K3& K4	C (Answer any 4 out of 6) Q. No. 16 is Compulsory	4x10=40	Q. No. 16 – 21 Descriptive/ Detailed	

2. Theory: 50 Marks (Part IV)

Knowledge Level	Section	Marks	Description	Total
K1	A(Answer all)	10x1=10	Q. No. 1 – 5 MCQ Q. No. 6 – 10 Define	50
K2	B (Answer 5 out of 8)	5 x 8=40	Q. No. 11 – 18 Descriptive/ Detailed	

3. Practical Examinations:

Knowledge Level	Section	Marks	Total
K3	Practicals & Record work	60/ 30	100/ 50
K4		40/ 20	
K5			

Components of Continuous Assessment

Components		Calculation	CIA Total
Test 1	75	$\frac{75+75+25}{7}$	25
Test 2	75		
Assignment/ Seminar	25		

Programme Outcomes

PO1. To apply the knowledge of current computing techniques, skills, and tools necessary for solving real-world problems with attention to team work, effective communication, critical thinking and problem solving skills.

PO2. To recognize the importance of professional development by pursuing postgraduate studies or face competitive examinations that offer challenging and rewarding careers in computing.

Programme Specific Outcomes

PSO1 Ability to apply knowledge in mathematical and computer fundamentals.

PSO2 To develop and work with a range of software and hardware technologies thereby to build technical skills in various application areas.

PSO3 To ensure students in performing intensive practical training to solve computer oriented problems.

PSO4 To effectively communicate computing concepts and solutions to bridge the gap between computing industry experts and business leaders to create and initiate innovation.

PSO5 To understand the professional, ethical, legal, security and social issues and responsibilities.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17 UCT 101	Title CORE I: C PROGRAMMING	Batch:	2017 - 20
			Semester	I
Hrs/Week:	04		Credits:	03

Course Objective

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

Course Outcomes (CO)

K1	CO1	To remember data types, identifier, arrays, strings and pointers
K2	CO2	To understand how to write and use control statements and functions in C
K3	CO3	To implement the concept of pointers, structure and union
K4	CO4	To evaluate string functions and file Operations in C programming for a given application

Syllabus

Unit - I (HOURS)

Introduction: Need of Languages – *Categories of Languages** – Why C Language – History of C Language - Structure of a C Program. What is C character set – Identifier – Rules for Identifier or word – Variable – Constant - Data types – Declaration of a variable – Expressions – Operators – Evaluation of an Expression and precedence of operators – Size of() Operator – Typecasting. **Statements:** Input and Output Statements – Escape sequence Characters - Unformatted I/O Statements – Library Functions. 10

Unit - II

Control Statements: Unconditional Control statements – Conditional Control statements – Looping Statements – break statement – continue Statement. Arrays: Introduction - Declaration – Refer the values of the Array Variable – Assigning Data for Array – Multi- 10

Dimensional Array – Two-Dimensional Array – *How to process Elements in Two* – Dimensional Array – Array Index Out of Bounds.

Unit - III

Strings: Introduction – Assigning Values – *Reading a string – Library Functions**. **Functions:** Introduction –Parameter / Argument – return statement – Types of Functions – Calling with Expression – Passing Array to the Function – Recursive Function.

Unit - IV

Pointers: Introduction –Pointer – Operators in Pointer – Declaration – Pointer and Expressions – Pointers and Arrays – Pointers and Strings – Pointers and Functions – Call by Value – Call by Reference – Passing Array to the Function – Passing String to the Function – Array of Pointers – Calling functions using pointers. **Structure and Unions:** Structure – Declaration – Referring Data in Structure – Assigning values – Array of Structures – Structure and pointer – Structure and Functions. **Union:** Difference between structure and union - typedef – Enumerated data type.

Unit - V

Files: Introduction – Declaring File Type Variable – Open/Close operations of File – Reading / Writing character in a File – Check end of File – Read/Write –Line of Characters – Read / Write Record in the File – Random File Operations – fseek(), ftell(), rewind(). **Preprocessor:** Introduction - #define, #include – Command Line Arguments.

Note: **Italicized* texts are for self study

Power point Presentations, Seminar, Quiz, Assignment

Books for Study

1. Karthikeyan. E, (2008), "A Text Book on C – Fundamentals, Data Structures and Problem Solving", Prentice-Hall, ISBN: 978-81-203-3424-3.

(17UCT101)

Books for Reference

1. Ashok N Kamthane, (2004), "Programming and Data Structures" – Pearson Education, First Indian Print, ISBN: 81-297-0327-0.
2. Yashavant Kanetkar, (2012), "Let Us C", 13th Edition, BPB Publications, ISBN-13: 9788183331630.
3. Pradip Dey, Manas Ghosh, (2008), "Computer Fundamentals and Programming in C", Oxford Publications.
4. https://www.syncfusion.com/resources/techportal/ebooks/objective-c

Mapping

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

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

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Ms. C. Keerthana	Name: Dr. J. Thilagavathi	Name: Dr. M. Durairaju	Name: Dr. R. Muthukumaran
Signature:	Signature:	Signature:	Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Dr. M. DURAIRAJU, M.Sc., M.Phil., B.Ed., PGDCA, Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT102	Title CORE II: DIGITAL COMPUTER FUNDAMENTALS	Batch:	2017 - 20
			Semester	I
Hrs/Week:	04		Credits:	04

Course Objective

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

Course Outcomes (CO)

K1	CO1	To recollect number system, Boolean laws, logic gates and memory concepts
K2	CO2	To understand the concepts of memory using registers and programmable logic arrays
K3	CO3	To apply Karnaugh map for Minimization of POS and SOP form of Boolean expressions
K4	CO4	To analyze arithmetic and logic circuits, different sequential circuits with flip flops, registers and counters

Syllabus

(HOURS

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 – Double precision Numbers - Floating Point Representation – *1's Complement of a binary Number** - BCD – Excess-3 Code – Gray Code – Alphanumeric codes – Weighted Codes – Parity method for error detection and correction.

10

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 – Implicants – Don't Care Combinations – Irredundant expressions – Minimization of SOP form using Karnaugh map - Minimization of POS form using Karnaugh map.

Unit - III

Arithmetic and Logic circuits: Arithmetic and Logic circuits – Half Adder – Full Adder – Parallel Binary Adders – BCD Adder – 2's Complement Adder – Half-Subtractor – Full-Subtractor – Parallel Binary Subtractor – 2's Complement Subtractor – 2's Complement Adder/Subtractor – Binary Multiplier – Binary Divider – Comparator.

Unit - IV

Sequential Circuits, Flip-Flops: Sequential circuits – Flip-Flops – R-S Flip-Flops – Clock Signals – Clocked R-S Flip-Flop – Data Latch or D-Flip-Flop –Clocked Data Latch – Positive Edge Triggered Data Flip-Flop - Positive Edge Triggered J-K Flip-Flop - T Flip-Flop – Master-Slave J K Flip-Flop. **Registers:** Registers – Shift registers – Shift-left Register - Shift-Right Register – Decoder – Encoder – Multiplexer – Demultiplexer.

Unit - V

Counters: Counters – Ring Counter – Synchronous Up/Down Counter – Programmable Counter. **Semiconductor memories:** Memory Unit – Concept of Memory Using Registers – Read Only Memories – *Random Access Memories** – Programmable Array Logic (PAL) – Programmable Logic Arrays (PLA) – Buffer – Cache Memory.

Note: **Italicized* texts are for self study

Power point Presentations, Seminars, Quiz, Assignment

Books for Study

1. Puri.V.K, (2011), "Digital Electronics Circuits and Systems", 22nd Reprint, TATA Mc-Graw Hill Publications, ISBN-10: 0- 07- 463317-1.

Books for Reference

1. Donald P Leach, Albert Paul Malvino, Gautam Saha, (1994), "Digital Principles and Applications", 6th Edition, TATA McGraw-Hill Publications.
2. Mandal S K, (2010), "Digital Electronics: Principles and Applications", 1st Edition, ISBN-13: 9780070153820.
3. https://books.google.co.in/books/about/Digital_Computer_Fundamentals.html?id=0zSPIRaL9RkC

Mapping

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	H	H	M	M
CO2	H	H	L	M	M
CO3	M	H	M	S	M
CO4	M	M	L	H	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	CDC	COE
Name: Ms. C. Keerthana Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc., M.Phil., B.Ed., PGDSC, Ph.D.
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT1A1	Title	Batch:	2017 - 20
		ALLIED I: MATHEMATICAL STRUCTURES FOR COMPUTER SCIENCE	Semester	I
Hrs/Week:	05		Credits:	04

Course Objective

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

Course Outcomes (CO)

K1	CO1	To remember an in-depth knowledge in Matrices, Determinants, Inverse of a matrix, Rank of a Matrix and Eigen value Problems
K2	CO2	To understand the concepts of numerical differentiation and integration
K3	CO3	To apply an appropriate numerical method for solving algebraic or transcendental equation
K4	CO4	To figure out the concept of Mean, Median, Mode, Measures of dispersion and the law relating to Correlation and Regression

Syllabus

(Hours)

Unit – I — (13)

Matrices – Introduction – Determinants – Inverse of a matrix – Rank of a Matrix – Eigen value Problems.

Unit – II — (13)

System of Simultaneous Linear algebraic Equation: Gauss elimination, Gauss Jordan, Gauss Seidel methods. **The solution of Numerical Algebraic and Transcendental equation** – Bisection method – Newton Raphson method – False position method.

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 & Runge-kutta method.

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.

Unit – V

Correlation: Karl Pearson's coefficient of correlation – **Rank correlation regression:** Regression Equations – *Difference between Correlation and Regression**.

Note: **Italicized* texts are for self study

Power point Presentations, Group Discussions, Seminar, Quiz, Assignment

Books for Study

1. Dr. Venkataraman. M. K, "Engineering Mathematics" Volume II, Third Edition, NPC – (Unit I).
2. Kandasamy. P, Thilagavathi. K, Gunavathi. K, (2006), "Numerical Methods", Revised Edition, New Delhi, S. Chand and Company Ltd, ISBN-13: 9788121914383. (Unit II & III).
3. Pillai.R.S.N, Bagavathi.V, (2005), "Statistical Methods", New Delhi, Sultan Chand and Sons Company Limited, (Unit IV & V).

Books for Reference

1. BalaGurusamy .E, (1999), "Numerical methods", First Edition, Tata MC-Graw Hill, ISBN-13: 9780074633113

2. Gupta .S.C, Kapoor .V.K, (2007), "Fundamental of Mathematical Statistics", Sultan Chand and Sons, ISBN-13:9788180540042.

3. https://www.scribd.com/doc/205496933/Mathematical-Structures-for-Computer-Science

Mapping

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

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

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Ms. K. S. Leelavathi Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Dr. M. DURAIRAJU, M.Sc., M.Phil., B.Ed., PGDGC., Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17 UCT 103	Title	Batch:	2017 - 20
		PROGRAMMING LAB – I 'C'	Semester	I
Hrs/Week:	04		Credits:	02

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 (CO)

K3	CO1	To remember the concept of data types, decision making and looping control statements
K4	CO2	To get the idea of array, strings and functions in C
K5	CO3	To access the file information through open/close and reading/writing operations in a file

Sample Programs

1. Write a C program check whether the given number is Armstrong or not (Using if condition)
2. Write a C program to find maximum or minimum in an array (Using Single Dimensional array, Switch Case).
3. Write a C program to find the factorial of a given number (Using for loop.).
4. Write a C program to generate Fibonacci series. (Using For loop)
5. Write a C program to generate N prime numbers. (Using For loop)
6. Write a C program to find whether the number is palindrome or not (Using String Functions).
7. Write a C program to check whether the given year is leap year or not (Using if – else condition).
8. Write a C program to generate a Pascal triangle. (Using For loop)

17UCT

9. Write a C program to check whether a person is eligible for voting or not. (Using if else condition).
10. Write a C program to perform linear search in a given array. (Using For loop)
11. Write a C program to display transpose matrix of a given number. (Using Two Dimensional Array)
12. Write a C program for matrix multiplication. (Using Two Dimensional Array)
13. Write a C program to perform string concatenation. (Using String Functions)
14. Write a C program for sorting a string Using user defined function. (Using String Functions)
15. Write a C program to convert uppercase to lower case and vice versa. (Using String Functions)
16. Write a C program to insert or delete an element in an array. (Using Single Dimension Array)
17. Write a C program to arrange the array of numbers in ascending or descending order. (Using Two Dimensional Array)
18. Write a C program to find GCD of two numbers. (Using recursion)
19. Write a C program for dynamic memory allocation. (Using Pointers)
20. Write a C program to merge two files. (Using Files)
21. Write a C program to read and write to the file Using fread() and fwrite() functions. (Using Files)
22. Write a C program to create a file and store the information about a person. (Using File
23. Write a C program to count numbers of words, blank spaces, special symbols, vowels i a given text using pointers.
24. Write a C program to display a character along with its location in a file Using ftell().

Power point Presentations, Experience Discussion, Case Study

(17UCT103)

Mapping

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

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

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Ms. C. Keerthana Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT204	Title	Batch:	2017 - 20
		CORE III: OBJECT ORIENTED PROGRAMMING WITH C++	Semester	II
Hrs/Week:	04		Credits:	03

Course Objective

To provide in-depth coverage of object-oriented programming principles and techniques in C++.

Course Outcomes (CO)

K1	CO1	To recollect keywords, tokens, data types, oops concepts and control structures in C++
K2	CO2	To understand the design issues involved with variable allocation and binding, functions, classes and objects
K3	CO3	To apply features of object oriented programming to solve real world problems using constructors, destructors and operator overloading concepts
K4	CO4	To interpret the concepts of pointers, managing console I/O operators and file operations in C++

(Hours)

Syllabus (11)

Unit - I

Principles of Object-Oriented Programming: Procedure-Oriented Programming – Object Oriented Programming Paradigm – Basic Concepts of OOP – *Benefits of OOP**. **Beginning with C ++:** Structure of C ++ Program. **Tokens, Expressions and Control Structures:** Tokens – Keywords – Identifiers - Data types – Declaration of Variables – Dynamic Initialization of Variables – Reference Variables – Operators – Scope Resolution Operator – Expressions - Operator Precedence – Control Structures.

Unit - II

Functions in C++: The Main () Function – Function Prototype – Call by Reference – Return by Reference - Inline Functions – Default Arguments – Function Overloading – Friend and Virtual Functions. **Classes and Objects:** Specifying Class – Defining Member Functions – Private Member Functions – Array with a Class – Static Data Members – Static Member Functions – Array of Objects – Objects as Function Arguments – Returning Objects – Const Member Functions.

Unit - III

Constructors and Destructors: Constructors – Parameterized Constructors – Multiple Constructors in a class – Copy Constructors - Dynamic Constructors – Destructors. **Operator Overloading and Type Conversion:** Defining Operator Overloading Function – Overloading Unary Operators – Overloading Binary Operators – Overloading Operators with Friend Functions – *Rules for Overloading Operators**.

Unit - IV

Inheritance: Defining Derived Classes – Types of Inheritance – Virtual Base Classes – Abstract Classes – Nesting of Classes. **Pointers, Virtual Functions and Polymorphism:** Pointers to Objects – this Pointer – Pointers to Derived Classes – Virtual Function - Pure Virtual Functions.

Unit - V

Managing Console I/O Operators: C++ Streams – Stream Classes – Unformatted I/O Operator – Formatted Console I/O Operations. **Working with Files:** Classes for File Stream Operations – Opening and Closing a File – Detecting end–of-File - File Open Modes – File Pointers and Their Manipulators.

Note: **Italicized* texts are for self study

Power point Presentations, Seminar, Quiz, Assignment

Books for Study

1. BalaGurusamy .E, (1998), "Object Oriented Programming with C++", TMH Publication, ISBN-13: 9781259062216.

Books for Reference

1. Ashok N Kamthane, (2003), "Object-Oriented Programming with ANSI and Turbo C++", Pearson Education publication, ISBN-13:9788131703830.
2. Maria Litvin and Gary Litvin, (2002), "C++ for you", Vikas Publication, ISBN-13: 9788125912026.
3. John R Hubbard, (2002), "Programming with C++", 2nd Edition, TMH Publication, ISBN-13: 9780071353465.
4. Bhushan Trivedi, (2007) "Programming with Ansi C++", Oxford University Press, ISBN-13: 9780198063087.
5. https://www.syncfusion.com/resources/techportal/ebooks/cplusplus

Mapping

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

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

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Dr. J. Thilagavathi J.R-md Signature:	Name: Dr. J. Thilagavathi J.R-md Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642001

Dr. M. DURAIRAJU, M.Sc., M.Phil., B.Ed., PGDGC, Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)

Dr. R. MUTHUKUMAR
Controller of Examinatio
NGM College (Autonomo
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT205	Title	Batch:	2017 - 20
		CORE IV: DATA STRUCTURES AND ALGORITHMS	Semester	II
Hrs/Week:	04		Credits:	04

Course Objective

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

Course Outcomes (CO)

K1	CO1	To remember arrays, stack/queue operations and trees
K2	CO2	To understand and develop skills to analyze simple linear and non linear data structures
K3	CO3	To apply the concept of linked lists, graphs and trees for the real world problems
K4	CO4	To evaluate file organizations, various searching and sorting methodologies

Syllabus

Unit - I [10 Hrs]

Introduction - Definition – Structure and properties of Algorithms – Development of an Algorithm – Data structures and Algorithms – Data structure – Definition and Classification. **Arrays:** Introduction – *Array Operations** - Number of elements in an array, representation of Arrays in Memory, Applications.

Unit - II [10 Hrs]

Stacks: Introduction – Stack Operations – Applications .**Queues:** Circular Queues – Other types of Queues – Applications.

Unit - III [10 Hrs]

Linked Lists: Introduction – Singly Linked Lists – Circular Linked Lists – Doubly Linked Lists – Applications.

Unit - IV [11 Hrs]

Trees: Introduction – Trees – Basic Terminologies - Representation of Trees. **Binary Trees:** Basic Terminologies and Types - Representation of Binary Trees - Binary Tree Traversals – Applications. **Graphs:** Introduction – Definition and basic Terminologies.

Unit - V [11 Hrs]

File Organizations: Introduction – Files - Keys – Basic File Operations – Sequential File Organizations – Indexed sequential File Organizations – Direct File Organizations. **Searching:** *Linear search** – Binary search. **Sorting:** Merge sort and Quick sort.

Note: **Italicized* texts are for self study

Power point Presentations, Group Discussions, Seminar, Quiz, Assignment

Books for Study

1. GAV Pai, (2011), "Data Structures and Algorithms – Concepts, Techniques and Applications", Tata MCGrawHill Publications, ISBN-13: 978-0-07-066726-6.

Books for Reference

1. Aaron M Tanenbaum, Yedidyeh langsam, Moshe J Augenstein,(2009) "Data Structure using C", Facsimile Edition, PHI Publication, ISBN-13: 9780131997462.
2. Ellis Horowitz and Sartaj Sahni, (1999), "Fundamentals of Data Structure", 2nd Edition, Galgotia Book Source, ISBN-13: 9780716782636.

3. Ashok N Kamthane, (2004), "Programming and Data Structures", Pearson Education, 1st Indian Print, ISBN: 81-297-0327-0.

4. https://www.syncfusion.com/resources/ebooks/datastructurespart1

5. https://www.syncfusion.com/resources/ebooks/datastructurespart2

Mapping

PSO / CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	H	M	M	M
CO2	H	M	M	H	H
CO3	M	M	H	M	M
CO4	M	S	L	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	CDC	COE
Name: Mr. R. Jayaprakash Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc., M.Phil., B.Ed., PGDGC., Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT2A2	Title	Batch:	2017 - 20
		ALLIED II: DISCRETE MATHEMATICS	Semester	II
Hrs/Week:	04		Credits:	04

Course Objective

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

Course Outcomes (CO)

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

Syllabus

Unit – I [10 Hrs]

Set theory-Introduction-Set & its Elements - Set Description - Types of sets-*Venn-Euler Diagrams**- Set operations & Laws of set theory-Fundamental products-partitions of sets - minsets- Algebra of sets and Duality-Inclusion and Exclusion principle.

Unit – II [10 Hrs]

Mathematical logic – Introduction - Prepositional calculus – Basic logical operations - Tautologies - Contradiction - Argument - Method of proof.

Unit – III [10 Hrs]

Relations – Binary Relations – Set operation on relations-Types of Relations – Partial order relation – Equivalence relation – Composition of relations – Functions – Types of functions – Invertible functions – *Composition of functions**.

Unit – IV [11 Hrs]

Graph Theory – Basic terminology – Paths, Cycle and Connectivity – Sub graphs – Types of graphs – Isomorphic Graphs, Homeomorphic Graphs.

Unit – V [11 Hrs]

Representation of graphs in computer memory – Eulerian Graph and Hamiltonian Graph – Shortest path problems: Unweighted Graph and Weighted Graph – Planar Graph.

Note: Note: **Italicized* texts are for self study

Power Point Presentations, Quiz, Assignment, Case Study

Books for Study

1. Sharma J. K, (2005) "Discrete Mathematics", 3rd Edition, MacMillan India Ltd, ISBN-13 9780230322301.

Books for Reference

1. Tremblay J.P, Manohar R, (2002), "Discrete Mathematics Structures with Applications to Computer Science", TATA McGraw-Hill Publications.
2. Dr. Venkataramen .M.K, Dr Sridharan .N, Chandarasekaran .N, (2000) "Discrete Mathematics" The National publishing Company Chennai. ISBN-13: 9788172863722.
3. http://pdfebooklibrary.com/ebooks/discrete-mathematics-book-download.pdf

(17UCT2A2)

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	CDC	COE
Name: Mr. R. Jayaprakash Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)
Course Code:	17UCT206	Title	Batch: 2017 - 20
		PROGRAMMING LAB - II (C++)	Semester II
Hrs/Week:	04		Credits: 03

Course Objective

To develop the programming ability in C++ by knowing the OOPS concepts like Encapsulation, Abstraction, Inheritance, Polymorphism, Exception handling.

Course Outcomes (CO)

K3	CO1	To recollect the structure of the C++ programming language
K4	CO2	To understand how to implement copy constructors and class member concept of data abstraction and encapsulation and to overload functions and operators in C++
K5	CO3	To access how inheritance promote code reuse, how virtual functions implement dynamic binding with polymorphism, how to design and implement generic classes with C++ templates and how to use exception handling in C++ programs

Sample Programs

1. Write a C++ program to check given two strings are equal or not using user defined function.
2. Write a C++ program to swap two numbers by function through pass by value, address and reference.
3. Write a C++ program to calculate the area of regular hexagon using user-defined function with arguments and return value.
4. Write a C++ program to find largest of two numbers using inline function.
5. Write a C++ program to find volume of cube, cylinder and rectangle using function overloading.

6. Write a C++ program to find LCM of two numbers using recursive function.
7. Write a C++ program to display numbers in Floyd triangle format using class.
8. Write a C++ program to find sum of individual digits of natural numbers using class.
9. Write a C++ program to solve the second order quadratic equation using class.
10. Write a C++ program to find mean of two numbers using friend function.
11. Write a C++ program to check prime number or not using constructor, destructor and copy constructor.
12. Write a C++ program for stack operation.
13. Write a C++ program for queue operation.
14. Write a C++ program for single linked list operation.
15. Write a C++ program for merging and sorting of two arrays.
16. Write a C++ program to overload ++ unary operator.
17. Write a C++ program to concatenate two strings by overloading binary operator ++ using member function.
18. Write a C++ program to overload binary operator '+' and '-'using friend function.
19. Write a C++ program to process employee pay slip processing using single inheritance.
20. Write a C++ program to process student details using multiple inheritance.
21. Write a C++ program using hybrid inheritance.
22. Write a C++ program using "virtual" keyword.
23. Write a C++ program for conversion of one class to another class.
24. write a C++ program to display successor and predecessor of a given number using concept of pointer to derived and base class.
25. Write a C++ program to illustrate the concept of new and delete operators.
26. Write a C++ program to perform file operations using read() and write() functions.
27. Write a C++ program to convert uppercase to lowercase and vice versa in a file.
28. Write a C++ program to copy from one file to another file using command line arguments.
29. Write a C++ program to merge two files into one file
30. Write a C++ program for class template.
31. Write a C++ program for function template.

(17UCT206)

Power point Presentations, Activity

Mapping

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	H	S	S	S
CO2	H	S	S	S	H
CO3	S	S	S	H	H

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

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Dr. J. Thilagavathi J.P.md Signature:	Name: Dr. J. Thilagavathi J.P.md Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT307	Title	Batch:	2017 - 20
		CORE V: JAVA PROGRAMMING	Semester	III
Hrs/Week:	05		Credits:	04

Course Objective

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

Course Outcomes (CO)

K1	CO1	To remember about classes, objects, members of a class and relationships among them needed for a specific problem
K2	CO2	To comprehend the concepts of inheritance, interface and package
K3	CO3	To implement error handling techniques using exception handling
K4	CO4	To evaluate the concepts of thread, applet and files

Syllabus

Unit – I [13 Hrs]

Java Evolution – History, Features, How Java differs from C and C++, Java support systems, Java environment – Overview of Java Language – Constants, Variables and Data Types - *Operators and Expressions** – Decision Making and Branching.

Unit – II [13 Hrs]

Classes, Objects and Methods – Arrays, Strings and Vectors – **Interfaces:** Multiple Inheritances – **Packages:** Putting Classes Together.

Unit – III [13 Hrs]

Multithreaded Programming: Creating Threads – Extending the Thread Class – Stopping and Blocking a Thread – Life Cycle of a Thread – Using Thread Methods – Thread

Exceptions – Thread Priority – Synchronization – Implementing the Runnable Interface. **Managing Errors and Exceptions:** Types of Errors – Exceptions – Syntax of Exception Handling Code – *Multiple Catch Statements** – Using Finally Statements – Throwing our Own Exceptions – Using Exceptions for Debugging.

Unit – IV [13 Hrs]

Applet Programming: How Applets Differ From Applications – Preparing to Write Applets – Building Applet Code – Applet Life Cycle – Creating an Executable Applet – Applet Tag – Adding Applet to HTML File – Running the Applet – More About Applet Tag – Passing Parameters to Applets – Aligning the Display– Displaying Numerical Values – Getting Input From the User. **Graphics Programming** –The Graphics Class – Lines and Rectangles – Circles and Ellipses – Drawing Arcs – Drawing Polygons – Line Graphs – Using Control Loops in Applets – Drawing Bar Chart.

Unit – V [13 Hrs]

Managing Input / Output Files in Java: Concept of Streams – Stream Classes – Byte Stream Classes – Character Stream Classes – Using Streams – Other Useful I/O Classes – Using the File Class – Input / output Exceptions – Creation of Files – Reading / Writing Characters – Reading / Writing Bytes – Handling Primitive Data Types – Concatenating and Buffering Files – Random Access Files – Interactive Input and Output – Other Stream Classes.

Note: **Italicized* texts are for self study

Power point Presentations, Seminar, Assignment, Experience Discussion

Books for Study

1. Balagurusamy. E, (2011), "Programming With JAVA A Primer", 2nd Edition, Tata McGraw Hill Publications, ISBN-13: 9780070141698.

Books for Reference

1. John R. Hubbard, (2007), "Programming with Java", 2nd Edition, Schaum's Outline Series, Tata McGraw Hill Publications, ISBN-13: 9780070589421.

(17UCT 307)

2. Patrick Naughton, (1996), "Java HandBook", 2nd Edition Osborne/McGraw-Hill, ISBN-13: 978-0078821998
3. Timothy Budd, (2007), "Understanding Object Oriented Programming with Java", Pearson Education, ISBN-13: 9780201308815.
4. Deitel & Deitel, (2008), "Java TM: How to Program", 7th Edition, PHI, ISBN-13: 9780136123712.
5. iiti.ac.in/people/~tanimad/JavaTheCompleteReference.pdf
6. http://www.onlineprogrammingbooks.com/learning-java-4th-edition/

Mapping

PSO / CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	M	S
CO2	H	S	H	H	H
CO3	S	H	S	M	H
CO4	M	H	S	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	CDC	COE
Name: Dr. J. Thilagavathi Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc., M.Phil., B.Ed., PGDCC., Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMARA
Controller of Examination
NGM College (Autonomou
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT308	Title	Batch:	2017 - 20
		CORE VI: Web Designing (HTML, DHTML, XML, Javascript)	Semester	III
Hrs/Week:	05		Credits:	04

Course Objective

To understand the principles of creating an effective web page using HTML, DHTML, CSS and XML.

Course Outcomes (CO)

K1	CO1	To remember HTML Tags for formatting, creating Table, frames and forms in a web page
K2	CO2	To get the idea of Javascript, DHTML and XML programming
K3	CO3	To deploy a web page using style sheets in HTML Documents
K4	CO4	To interpret the web techniques and tools in developing efficient website

Syllabus

Unit -I [13 Hrs]

HTML and Graphics: Document Structure Tags – Formatting Tags – List Tags – Hyper Link Tags – Image and Image maps **Image Maps:** Client-Side Image Maps – Server-side Image Maps – Using Server-side and Client-Side Image maps together. **Tables:** Introduction – The Table Tags – Alignment – Controlling Other Table Attributes – Spanning Multiple Rows and Columns – Table Section and Column Properties.

(17UCT308)

Unit -II [13 Hrs]

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

Unit -III [13 Hrs]

Style Sheets: Introduction – Style Sheets - Types of Style Sheet - Linking to Style Information in a Separate File – Embedded Style Information – Inline Style Information – External Style Sheet - *Tips for Style Users**. Style Sheet Software Tools: Microsoft Front Page – AllaireHome Site.

Unit -IV [13 Hrs]

Introduction to Java Scripting – Introduction – The Java Script Language – Programming with Java Script – Java Script and Web Browsers. The Web Browser Object Model: The Window – Location– History – Document – Link, Area and Anchor – Form – Image – Java Script Objects.

Unit -V [13 Hrs]

XML Overview – Linking with XML - Using Style sheets with XML -**Anatomy of an XML Document:** XML Markup – A Sample XML Documents – Markup Declarations – Element Markup – Attribute Markup – *Naming Rules** – Comments. **Creating XML Documents:** Markup Declarations – Element Declarations – Element Content Models – Attribute Declarations. **Creating XML Document Type Definitions:** DTDs Validation-Document Type Declarations – Standalone XML Documents - Developing the DTD from XML.

Note: **Italicized* texts are for self study

Power point Presentations, Seminar, Quiz, Assignment.

Books for Study

1. Erric Ladd, Jim O'Donnell, (1999), "Using Html 4, Xml, Java 1.2", Platinum Edition, 1st Edition, ISBN-13: 9788120315396.

(17UCT308)

Books for Reference

1. Atul Kahate, (2007), "Web Technologies", Tata McGraw Hill, Sixth Reprint, ISBN-13: 9789332900912.
2. Goldberg, (2007), "XML", 2nd Edition, Pearson India, ISBN-13 9788131734742.
3. Thomas A. Powell, (2010), "Html & CSS: The Complete Reference, 5th Edition, McGraw Hill Education, ISBN-13 9780070701946.
4. http://freecomputerbooks.com/webHtmlBooks.html
5. https://www.tutorialspoint.com/html/html_style_sheet.htm

Mapping

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

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

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Ms. K. S. Leelavathi Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001.

Dr. M. DURAIRAJU, M.Sc., M.Phil., B.Ed., PGDCC, Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT309	Title	Batch:	2017 - 20
		CORE VII: OPERATING SYSTEMS	Semester	III
Hrs/Week:	05		Credits:	05

Course Objective

To gain insight on to the fundamentals of Operating Systems and explore on Process, Storage and File management of Operating Systems.

Course Outcomes (CO)

K1	CO1	To keep in mind about operating system services, process, scheduling and memory allocations
K2	CO2	To comprehend the various process management concepts including scheduling, synchronization, and deadlocks
K3	CO3	To implement CPU Scheduling algorithms for process scheduling and deploy a deep knowledge about the memory management concepts including swapping, paging and segmentation
K4	CO4	To review synchronization problems, accessing methods in Files, Disk scheduling

Syllabus

Unit - I [13 Hrs]

Operating-System Structures: System Components- Operating System Services –System Calls – System Programs – System Structure.

17UCT3(

Unit - II [13 Hrs]

Process Management: Process Concept – Process scheduling – Operations on Process – Cooperating Processes – Inter-process Communication **CPU Scheduling :** Basic Concepts – Scheduling Criteria – Scheduling Algorithms – Multiple-Processor Scheduling – Real Time Scheduling – **Process Synchronization:** The Critical-Section Problem – Semaphores – Classic problems of Synchronization.

Unit - III [13 Hrs]

Deadlocks: Deadlock Characterization – Methods for handling Deadlock – Deadlock prevention – Deadlock avoidance – Deadlock detection – Recovery from Deadlock – **Memory Management:** Storage Management – Swapping – Contiguous Memory allocation – Paging – Segmentation.

Unit - IV [13 Hrs]

Storage Management: Virtual memory – Demand Paging –Page Replacement: FIFO Page Replacement – Optimal Page Replacement – LRU Page Replacement – File concept – *Access methods** – Directory Structure .

Unit - V [13 Hrs]

File System Structure – Allocation methods - Disk Structure – Disk Scheduling – Disk management – **Case study:** Linux, Windows XP, *Android OS (Memory management)**.

Note: **Italicized* texts are for self study

Power point Presentations, Group Discussions, Seminar, Quiz, Assignment, Case Study

Books for Study

1. Abraham Silberschatz, Peter Baer Galvin, Greg Gagne (2011), "Operating System Concepts" 6th Edition, John Wiley and Sons, ISBN-13 9789812530554.

Books for Reference

1. Achyut.S Godbole(2002), "Operating Systems", 1st Edition, TMH Publications, ISBN-139780070483736.
2. H. M Deitel (2003), "Operating Systems", 2nd Edition, Pearson Education Publication.

3. D.M. Dhamdhere (2008), "Systems Programming and Operating Systems ", 2nd Revised Edition.
4. http://www.faadooengineers.com/threads/9773-Operating-system-by-galvin-pdf-Free-Download
5. http://nptel.ac.in/courses/106108101/13
6. https://developer.android.com/topic/performance/memory-overview.html

Mapping

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

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

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Ms. J. Priya Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Dr. M. DURAIRAJU, M.Sc., M.Phil., B.Ed., PGDSC., Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Programme Code:	B. Sc	**Programme Title:**	Bachelor of Science (Computer Technology)	
Course Code:	17UCT3A3	**Title**	**Batch:**	2017 - 20
		ALLIED III: COMPUTER SYSTEM ARCHITECTURE	**Semester**	III
Hrs/Week:	05		**Credits:**	04

Course Objective

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

Course Outcomes (CO)

K1	CO1	To remember the organization and design of a basic digital computer
K2	CO2	To get the idea of general register organization of a typical CPU
K3	CO3	To execute arithmetic algorithms with digital hardware and also present the I/O organization of CPU
K4	CO4	To analyze the memory hierarchy models and memory method concepts

Syllabus

Unit – I [13 Hrs]

Basic Computer Organizations and Design: Instruction Codes – Computer Registers– Computer Instructions –Timing Control – Instruction Cycle – Memory-Reference Instructions –Input-Output and Interrupt.

Unit – II [13 Hrs]

Central Processing Unit: General Register Organization – Stack Organization – Instruction Formats – Addressing Modes – Data Transfer and Manipulation – Program Control – Reduced Instruction Set Computer(RISC).

17UCT3A

Unit- III [13 Hrs]

Computer Arithmetic: Addition and Subtraction – Multiplication Algorithms – Division Algorithms – Floating-Point Arithmetic Operations: Register Configuration – Addition and Subtraction.

Unit – IV [13 Hrs]

Input-Output Organization: *Peripheral Devices** – Input-Output Interface – Asynchronous Data Transfer – Modes of Transfer – Priority Interrupt – Direct Memory Access(DMA) – Input-Output Processor(IOP).

Unit - V [13 Hrs]

Memory Organization: Memory Hierarchy – Main Memory – Auxiliary Memory – Associative Memory – Cache Memory – *Virtual Memory** – Memory Management Hardware.

Note: **Italicized* texts are for self study

Power point Presentations, Seminar and Assignment

Books for Study

1. Morris Mano. M, (1992), "Computer System Architecture", 3rd Edition, Pearson Education, ISBN: 978-81-317-0070-9.

Books for Reference

1. John I Hennessy, "Computer Architecture", 4th Edition, ISBN: 97831207260.
2. Saini S.P.S, (2010), "Computer System Architecture and Organization", S.K. Kataria & Sons Publication, ISBN-13: 9788189757731.
3. Hamacher.C, Zvonko.V, Zaky.S, (2011), "Computer Organization", 5th Edition Tata McGraw Hill Publication, ISBN-13: 9781259005275.
4. https://imlearner.files.wordpress.com/2010/08/computer-system-architecture-3rd-ed-morris-mano-p98.pdf

(17UCT3A3)

Mapping

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

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

Course Designed by	Verified by HoD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Mr. R. Jayaprakash Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT310	Title	Batch:	2017 - 20
		PROGRAMMING LAB - III (JAVA)	Semester	III
Hrs/Week:	04		Credits:	02

Course Objective

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

Course Outcomes (CO)

K3	CO1	To recollect the concepts of control structures, polymorphism, inheritance, method overriding in Java
K4	CO2	To understand interface, package and multithreading
K5	CO3	To validate exception handling, file handling and to develop applets

Sample Programs

1. Write a java program to perform Arithmetic operations using Switch Case.
2. Write a java program to calculate the factorial of a given number. (Using Recursion)
3. Write a java program to check whether the given string is a palindrome or not. (Using If–Else condition)
4. Write a java program to get student information and display it using array.
5. Write a java program for subclass using polymorphism, inheritance, method overriding and constructor.
6. Write a java program to find the largest of three numbers. (Using Conditional Operator)
7. Write a java program to merge and sort the given number of two arrays. (Using Single Dimensional Array)
8. Write a java program to perform the addition of two matrices. (Using Two Dimensional Array)
9. Write a java program to perform the comparison of two strings. (Using String Function)
10. Write a java program to calculate tax from the given current tax rate using the concept of Interface.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)
Course Code:	17UCT310	Title	Batch: 2017 - 20
		PROGRAMMING LAB - III (JAVA)	Semester III
Hrs/Week:	04		Credits: 02

Course Objective

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

Course Outcomes (CO)

K3	CO1	To recollect the concepts of control structures, polymorphism, inheritance, method overriding in Java
K4	CO2	To understand interface, package and multithreading
K5	CO3	To validate exception handling, file handling and to develop applets

Sample Programs

1. Write a java program to perform Arithmetic operations using Switch Case.
2. Write a java program to calculate the factorial of a given number. (Using Recursion)
3. Write a java program to check whether the given string is a palindrome or not. (Using If–Else condition)
4. Write a java program to get student information and display it using array.
5. Write a java program for subclass using polymorphism, inheritance, method overriding and constructor.
6. Write a java program to find the largest of three numbers. (Using Conditional Operator)
7. Write a java program to merge and sort the given number of two arrays. (Using Single Dimensional Array)
8. Write a java program to perform the addition of two matrices. (Using Two Dimensional Array)
9. Write a java program to perform the comparison of two strings. (Using String Function)
10. Write a java program to calculate tax from the given current tax rate using the concept of Interface.

(17UCT310)

11. Write a java program to perform the usage of vector class.
12. Write a java program to illustrate the concept of Package creation.
13. Write a java program to illustrate the concept of multithreading using sleep() and stop() functions.
14. Write a java program to illustrate the concept of synchronization.
15. Write a java program to illustrate the concept of Exception Handling Mechanism.
16. Write a java program to develop an applet for calculator.
17. Write a java program to draw a face in Applet Programming.
18. Write a java applet program to illustrate the movement of a car.
19. Write a java program to create a new file and rename it.
20. Write a java program to illustrate the concept of copying bytes from one file to another.

Power point Presentations

Mapping

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	S	S	H	M
CO2	H	H	S	M	H
CO3	S	S	S	M	H

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

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Dr. J. Thilagavathi J.R-md Signature:	Name: Dr. J. Thilagavathi J.R-md Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT311	Title	Batch:	2017 - 20
		PROGRAMMING LAB – IV (WEB DESIGNING)	Semester	III
Hrs/Week:	04		Credits:	02

Course Objective

To learn and develop an efficient website using HTML, DHTML, CSS, Javascript and XML components.

Course Outcomes (CO)

K3	CO1	To recollect the html tags for designing table, frames and forms in a web page
K4	CO2	To understand style sheets and java script to create interactive web pages
K5	CO3	To validate the DHTML programs and XML programming for constructing user friendly websites

Sample Programs

1. Prepare a webpage for our college using basic HTML tags.
2. Prepare a College Alumni Cell webpage using HTML tags.
3. Prepare a Departmental store details using OL & UL.
4. Prepare Frames which includes 4 html programs using frames.
5. Prepare an Industrial Visit agenda for Two days using tables.
6. Prepare a webpage for seven wonders using HTML tags.
7. Prepare an Advertisement for any one high sale product using frames.
8. Prepare a Bio-data form using DHTML.
9. Prepare an E-Mail creation form using DHTML.
10. Prepare your Proctorial form details using DHTML.
11. Create a home page using xml.
12. Writing XML web Documents which make use of XML Declaration, Element Declaration, Attribute Declaration
13. Usage of Internal DTD, External DTD, Entity Declaration.

14. Design a catalog using XML.
15. Create a java script code block using arrays to generate the current data in words.
16. Create a web page which accepts user information and user commands on the web site to Check if all the text fields have been entered with data else display an alert.
17. Create a web page using image files, which switch between one another as the mouse Pointer moves over the images.
18. Using Java Script's Window and document objects and their properties and various
19. Writing Java Script snippet which make use of Java Script's inbuilt as well as user.

Power point Presentations

Mapping

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	H	H	M
CO2	H	H	H	S	M
CO3	M	H	H	H	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	CDC	COE
Name: Ms. K. S. Leelavathi Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. R. MUTHUKUMARA
Controller of Examinations
NGM College (Autonomou
POLLACHI - 642 001.

Dr M DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT3N1	Title	Batch:	2017 - 20
		Skill Based NON-MAJOR ELECTIVE I - HTML LAB	Semester	III
Hrs/Week:	01		Credits:	02

Course Objective

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

Course Outcomes (CO)

K3	CO1	To keep in mind the concept of Basic HTML tags
K4	CO2	To understand about ordered list and unordered list, creation of table, creations of forms
K5	CO3	To validate the creation of a simple webpage using basic HTML

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 (circle and square).
10. Create a Form with input box and submit button.
11. Create a Form with radio button input.
12. Create a simple webpage.

Power point Presentations

17UCT3N1

Mapping

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	M	M
CO2	H	H	S	M	L
CO3	S	S	H	H	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	CDC	COE
Name: Ms. K. S. Leelavathi Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Dr. M DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT3N2	Title	Batch:	2017 - 20
		Skill Based NON-MAJOR ELECTIVE I - MULTIMEDIA LAB	Semester	III
Hrs/Week:	01		Credits:	02

Course Objective

To design and develop multimedia applications using Photoshop and Flash tools.

Course Outcomes (CO)

K3	CO1	To keep in mind the basic concept of Photoshop tools and menus
K4	CO2	To understand drop shadow and scaling effects in an image
K5	CO3	To access the Web Page functionalities using Photoshop

Sample Programs

1. Convert Black and White Photo to Color Photo using Photoshop.
2. Create an animation to represent the growing Moon.
3. Create an animation to indicate a Ball bouncing on Steps.
4. Remove background noise from a photograph.
5. Create an animated cursor.
6. Fill text in with an image.
7. Create a drop shadow and scale its effects on a layer.
8. Adjust the perspective of an image using the Crop tool.
9. Create a mask based on color and change that color.
10. Create a Web Page using Photoshop.

Power point Presentations

Mapping

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	M	L
CO2	H	H	S	M	L
CO3	S	M	H	H	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	CDC	COE
Name: Ms. J. Priya Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. R. MUTHUKUMAR
Controller of Examinatio
NGM College (Autonomo
POLLACHI - 642 001.

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDCE.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT412	Title	Batch:	2017 - 20
		CORE VIII: OPENSOURCE TECHNOLOGIES (PHP and MySQL)	Semester	IV
Hrs/Week:	05		Credits:	04

Course Objective

To learn the process of executing a PHP-based script with MySQL on a web server.

Course Outcomes (CO)

K1	CO1	To keep in mind PHP basic syntax and PHP object-oriented classes
K2	CO2	To understand functions available to deal with file and directory operations
K3	CO3	To implement cookies, sessions and headers
K4	CO4	To evaluate the database connectivity using PHP MySOL/MySQLi/SQLite extensions and to figure out the error handling methods

Syllabus

Unit - I [13 Hrs]

Introducing PHP: History – Unique features – Basic Development Concepts – Creating your First PHP Script – Sample Applications. **Using Variables and Operators:** Storing Data in Variables – Understanding PHP's Data types – Setting and Checking Variable Data Types – Using Constants – *Manipulating Variables with Operators** – Handling Form Input.

Unit - II [13 Hrs]

Controlling Program Flow: Writing Simple Conditional Statements – Writing More Complex Conditional Statements – Repeating Actions with Loops – Working with String and Numeric Functions. **Working with Arrays:** Storing Data in Arrays – Processing Arrays with

17 UCT 412

Loops and Iterations – Using Arrays with Forms – Working with Array Functions – *Working with Dates and Times**.

Unit - III [13 Hrs]

Using Functions and Classes: Creating User-Defined Functions – Creating Classes – Using Advanced OOP Concepts. **Working with Files and Directories:** Reading Files – Writing Files – Processing Directories – Performing Other File and Directory Operations.

Unit - IV [13 Hrs]

Working with Databases and SQL: Introducing Databases and SQL – Creating and Populating a Database – Using PHP's MySQLi Extension – Adding or Modifying Data – Handling Errors. Using PHP's SQLite Extension – Using PHP's PDO Extension – Using a MySQL Database – Switching to a different Database.

Unit - V [13 Hrs]

Working with Cookies, Sessions and Headers: Working with Cookies – Saving and Restoring User Preferences – Working with Sessions – Using HTTP Headers. **Handling Errors:** Handling Script Errors – Using Exceptions – Validating form Input – Logging Errors –Debugging Errors.

Note: **Italicized* texts are for self study

Power point Presentations, Group Discussions, Seminar, Quiz, Assignment

Books for Study

1. Vikram Vaswani, (2009), "PHP: A Beginner's Guide", Second Reprint, Tata McGraw Hill Publications, ISBN-13: 9780070140691.

Books for Reference

1. Tim Converse, (2000), "PHP 4 Bible", IDG Books Worldwide, INC, An International Data Group Company, ISBN-13: 9788126501472.
2. Rasmus Lerdorf, Kevin Tatroe, (2011), "Programming PHP", 2nd Edition, O'Reilly Media, 1st Edition, ISBN-13: 9788184042719.

(17UCT412)

3. Luke Welling; Laura Thomson, (2010), "PHP and MySQL-Web Development", 4th Edition, ISBN-13: 9788131729878.

4. http://cdn.phpreferencebook.com/wp-content/uploads/2008/12/php_reference_-_beginner_to_intermediate_php5.pdf

Mapping

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

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

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Dr. J. Thilagavathi Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT413	Title	Batch:	2017 - 20
		CORE IX: RELATIONAL DATABASE MANAGEMENT SYSTEM & ORACLE	Semester	IV
Hrs/Week:	05		Credits:	04

Course Objective

To introduce the fundamental concepts of Relational DBMS using ORACLE.

Course Outcomes (CO)

K1	CO1	To keep in mind relationships, Normal forms, Basic DDL Commands, DML Commands, Grouping Functions using SQL
K2	CO2	To comprehend deep knowledge about the basics of SQL and construct queries using ORACLE
K3	CO3	To apply joins and set operators, control structures and embedded SQL for data management and retrieval techniques
K4	CO4	To analyze the basic issues of transaction processing, concurrency control and understand the importance of PL/SQL Cursors and Exceptions

Syllabus

Unit - I [13 Hrs]

Database Concepts – A Relational approach: Database – Relationships – DBMS – The Relational Data Model – Integrity Rules – Theoretical Relational Languages. **Database Design – Data Modeling and Normalization:** Data Modeling – Dependency – Database Design – Normal forms – Dependency Diagrams –Denormalization – Another Example of Normalization.

(17UCT413)

Unit - II [13 Hrs]

Oracle9i – An Overview: Personal Database – Client/Server Databases - Oracle9i: An Introduction – The SQL *Plus Environment – SQL – Logging into SQL *Plus – SQL *Plus Commands – Oracle Errors and Online Help – Alternate Text Editors - SQL *Plus Worksheet – *i*SQL *Plus. **Oracle Tables – Data Definition Language:** Naming Rules and Conventions – Data Types – Constraints – Create, Display, Alter, Drop, *Rename and Truncating Oracle Table** – Table Types – Spooling – Error codes.

Unit - III [13 Hrs]

Working with Tables - Data Management and Retrieval: DML – Adding a New Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – Retrieving Data from a Table – Arithmetic Operations – Restricting Data with a WHERE clause – Sorting – Revisiting Substitution Variables – DEFINE Command – CASE structure. **Functions and Grouping:** Built-In functions – Grouping Data.

Unit - IV [13 Hrs]

Multiple Tables: Joins and Set operators: Join – Set Operators. **PL/SQL – A Programming Language:** History – Fundamentals of PL/SQL – PL/SQL Block Structure – Comments – Data Types – *Other Data Types** – Variable Declaration – Anchored Declaration – Assignment Operation – Bind variables – Substitution Variables – Printing – Arithmetic Operators. **Control Structures and Embedded SQL:** Control Structures – Nested Blocks – SQL in PL/SQL – Data Manipulation – Transaction Control Statements.

Unit - V [13 Hrs]

PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors – Implicit & Explicit Cursor Attributes – Cursor FOR loops – SELECT...FOR UPDATE Cursor – WHERE CURRENT OF Clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions. **PL/SQL Composite Data Types:** Composite Data Types – PL/SQL Records – PL/SQL Records – PL/SQL Tables – PL/SQL Varrays. **Named Blocks:** Procedures – Functions – Packages – Triggers – Data Dictionary Views. Case study: Connection of front end VB 6.0 and Back end Oracle 9i.

Note: **Italicized* texts are for self study

(17UCT413)

Power point Presentations, Group Discussions, Seminar, Quiz, Assignment

1. Nilesh Shah, (2009), "Database Systems Using Oracle", 2nd Edition, PHI Publication, Indian Reprint, ISBN-13: 9788120332362.

Books for Reference

1. Arun Majumdar and Pritimoy Bhattacharya, (2007), "Database Management Systems", 1st Edition, TMH, ISBN-13: 9780074622391.
2. Gerald V. Post, (2006), "Database Management Systems", 3rd Edition, TMH Publication, ISBN-13: 9780070635265.
3. Jonathan Gennick, (2005), "Oracle SQLPlus Pocket Reference", 0th Edition, E. H. J. Pallett Publication, ISBN-13: 9788173669330
4. http://freecomputerbooks.com/An-Introduction-to-Relational-Database-Theory.html

Mapping

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

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

(17UCTA13)

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Ms. K. S. Leelavathi Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT414	Title	Batch:	2017 - 20
		CORE X: DATA COMMUNICATION AND NETWORKS	Semester	IV
Hrs/Week:	05		Credits:	04

Course Objective

To become skilled at the primary concepts of networking and its topologies with OSI model and various transmission control protocols.

Course Outcomes (CO)

K1	CO1	To remember analog and digital signals, topologies and various modes of data transmission
K2	CO2	To understand the theory behind the OSI protocol stack
K3	CO3	To implement various types of internetworking devices
K4	CO4	To review transmission control protocols like UDP, DNS, E-mail and MIME

Syllabus

Unit- I [13 Hrs]

Introduction to Data Communications and Networking: Data Communications- Protocols - Analog and Digital Signals. Analog and Digital Transmission Methods – Modes of Data Transmission and Multiplexing.

Unit -II [13 Hrs]

Transmission Errors: Detection and Correction. **Transmission Media:** Guided Media, Unguided Media. **Network Topologies:** Mesh, Star, Tree, Ring, Bus. Switching Basics- Circuit switching - *Packet switching** - Message switching - Router and Routing.

(17UCT414)

Unit- III [13 Hrs]

Network Protocols and OSI Model: OSI layer Functions. Local Area Networks (LAN), Metropolitan Area Networks (MAN) and Wide Area Networks (WAN) – Integrated Services Digital Network (ISDN) – Frame Relay.

Unit -IV [13 Hrs]

Internetworking Concepts, Devices, Internet Basics, History and Architecture: Internetworking Devices, Repeaters, Bridges, Routers and Gateways. **An Introduction to TCP / IP, IP:** TCP/IP Basics, TCP/IP Example, The concept of IP Address.

Unit -V [13 Hrs]

TCP/IP Part II: User Datagram Protocol (UDP) - UDP Packet, Difference between UDP and TCP – Domain Name System (DNS) – Electronic Mail (Email) – Introduction – E-Mail Transfer protocols – MIME – E-Mail Privacy – *Spam in E-Mail and Phishing**.

Note: **Italicized* texts are for self study

Power point Presentations, Group Discussions, Seminar, Quiz, Assignment

Books for Study

1. Achyut S.Godbole, (2010), "Data Communications and Networks", Tata McGraw-Hill Publishing Company Limited, ISBN-13: 978-0-07-047297.

Books for Reference

1. Behrouz A. Forouzan, (2007), "Data Communications and Networking", 2nd Edition TataMcGraw-Hill Publishing Company Limited, ISBN-13: 9780070499355.
2. Andrew S. Tanenbaum, (2002), "Computer Networks", 4thEdition, Prentice Hall, ISBN-13:978817781652.
3. http://iit.qau.edu.pk/books/Data%20Communications%20and%20Networking%20By%20Behrouz%20A.Forouzan.pdf

(19UCT414)

Mapping

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	M	M
CO2	H	S	H	M	M
CO3	M	S	H	M	M
CO4	H	S	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	CDC	COE
Name: Ms. J. Priya Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT4A4	Title	Batch:	2017 - 20
		ALLIED IV: MICROPROCESSOR AND ALP	Semester	IV
Hrs/Week:	05		Credits:	04

Course Objective

To know about Intel 8086, Intel 386 and 486 microprocessors, Memory and I/O addressing and MOTOROLA microprocessors.

Course Outcomes (CO)

K1	CO1	To remember the microprocessor basic concepts, types of processors and instruction sets
K2	CO2	To get the idea of assembly language program for 8086
K3	CO3	To deploy designing of memory and I/O addressing of various microprocessors
K4	CO4	To review interfacing of A/D converter and applications

Syllabus

Unit - I [13 Hrs]

Introduction to Microprocessors: Evolution of Microprocessors – Single- chip Microcomputer – Embedded Microprocessors – Bit-Slice Processors – Microprogramming – RISC and CISC Processors – Scalar and Superscalar Processors – Vector Processors – Array Processors – Digital Signal Processors. **16-Bit Intel Microprocessors:** Intel 8086 – Pin Description of Intel 8086 – Register organization of 8086 – BIU and EU – Interrupts – 8086 Based Computer System – Addressing Modes of 8086.

(17UCT444)

Unit - II [13 Hrs]

8086 Instruction Set – Instruction Groups – Addressing Mode Byte – Segment Register Selection – Segment Override – 8086 Instructions. **Assembly Language Programs for 8086:** Largest Number, Smallest Number in a Data Array – Numbers in Ascending and Descending Order – Block Move or Relocation (Byte Move) – Block Move (Byte Move) using REP Instruction – Sum of a Series:16-Bit, 32-Bit – Multi byte Addition.

Unit - III [13 Hrs]

Intel 386 and 486 Microprocessors: Intel 386 and 486 Microprocessor – 486DX Architecture – Register Organization of 486 Microprocessor – Memory Organization – Operating Modes of Intel 486 – Virtual Memory – Memory Management Unit – Gates – Interrupts and Exceptions – Addressing Modes of 80486 – Pin Configuration – *Input devices** – Output devices.

Unit - IV [13 Hrs]

Memory and I/O Addressing – 8086 Addressing and Address Decoding: Address decoders – ROM addressing decoding - RAM address decoding. **Programmable I/O Ports:** PPI Intel 8255 and Intel 82C55 – Operating modes of 8255 – BSR – Control groups – Control word – DMA Data Transfer. **MOTOROLA Microprocessors :** MOTOROLA 68000, MOTOROLA 68020, MOTOROLA 68030, MOTOROLA 68040.

Unit - V [13 Hrs]

An Interfacing of A/D Converter and Applications: Introduction – Interfacing of ADC 0808 or ADC 0809 to Intel 8086 – Bipolar to Unipolar Converter – Sample and Hold Circuit, LF 398 – Microprocessor-based Measurement and Control of Physical Quantities. **Other Processors :** Pentium Microprocessors – Pentium Pro Microprocessor – *Comparsion of core i3 vs core i5 vs core i7**.

Note: **Italicized* texts are for self study

Power point Presentations, Group Discussions, Seminar, Quiz, Assignment, Case Study

Books for Study

1. Badri Ram, (2009), "Advanced Microprocessors and Interfacing", Tata McGraw-Hill Publishing Company Limited, ISBN-13:9780070434486.

2. https://techtimely.wordpress.com/2011/07/01/difference-between-intel-core-i3i5-i7-processors/ (Unit V - Comparsion of core i3 vs core i5 vs core i7)

Books for Reference

1. Ray A.K, Bhurchandi K.M, (2007), "Advanced Microprocessors and Peripherals", 2nd Edition, Tata McGraw-Hill Publishing Company Limited, ISBN: 13-9780070140622.

2. Douglas Hall, (2006), "Microprocessors & Interfacing", McGraw Hill, 2nd Edition, ISBN-13:9781259006159.

3. John Uffenbeck, "The 8086/88 Family: Design, Programming & Interfacing", 1st Edition, PHI, ISBN-13: 9788120309333.

4. http://www.nptel.ac.in/courses/Webcourse-contents/IISc-BANG/Microprocessors%20and%20Microcontrollers/pdf/Lecture_Notes/LNm1.pdf

Mapping

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

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

(17UCT4A4)

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Ms. C. Keerthana Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMAR
Controller of Examinatio
NGM College (Autonomo
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT415	Title	Batch:	2017 - 20
		PROGRAMMING LAB – V OPEN SOURCE TECHNOLOGIES	Semester	IV
Hrs/Week:	04		Credits:	02

Course Objectives

To devise and build an efficient web based applications using PHP script with MySQL on a web server.

Course Outcomes (CO)

K3	CO1	To recollect array functions, file and directory functions, date and time functions in PHP Script
K4	CO2	To understand functions and classes, cookies, sessions and about handling script errors
K5	CO3	To access the database using PHP's MySQLite/PDO extensions

Sample Programs

1. Develop a PHP Script to find the Greatest among the given numbers using for loop.
2. Develop a PHP Script to sort the given numbers using one dimensional array.
3. Develop a PHP Script to check whether the given string is a palindrome or not.
4. Develop a PHP Script to illustrate the concept of numeric Functions
5. Develop a PHP Script to display the Array elements
6. Develop a PHP Script to illustrate the concept of Array Functions
7. Develop a PHP Script to illustrate the concept of Array Iterator
8. Develop a PHP Script to illustrate the concept of Date and Time functions
9. Develop a PHP Script to find the factorial of the number using Recursion
10. Develop a PHP Script to illustrate the concept of Class and extending it

(AUCTA15)

11. Develop a PHP Script to illustrate the concept of Constructor and Destructor
12. Develop a PHP Script to illustrate the concept of File Functions
13. Develop a PHP Script to illustrate the concept of Directory Iterator
14. Develop a PHP Script to illustrate the concept of Default Arguments
15. Develop a PHP Script to illustrate the concept of Encryption and Decryption
16. Develop a PHP Script to read a specific segment of a file.
17. Develop a PHP Script to retrieve records from a database using MySQLite
18. Develop a PHP Script to retrieve records as objects from a database using MySQLite
19. Develop a PHP Script to Add or Modify data in a Database using PDO
20. Develop a PHP Script to illustrate the concept of Cookies
21. Develop a PHP Script to illustrate the concept of Sessions
22. Develop a PHP Script to illustrate the concept of Prepared Statements
23. Develop a PHP Script to illustrate the concept of Debugging Errors
24. Develop a PHP Script to illustrate the concept of Exception Handling
25. Develop a PHP Script to illustrate the concept of Custom Exception

Power point Presentations

Mapping

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

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

(17UCT415)

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Dr. J. Thilagavathi Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT416	Title	Batch:	2017 - 20
		PROGRAMMING LAB – VI RELATIONAL DATABASE MANAGEMENT SYSTEM	Semester	IV
Hrs/Week:	04		Credits:	02

Course Objectives

To enable the students to know about ORACLE and SQL with practical Knowledge.

Course Outcomes (CO)

K3	CO1	To recollect the basic commands such as DDL, DML, TCL
K4	CO2	To understand about various set, join operations and group functions in PL/SQL
K5	CO3	To validate the PL/SQL cursors, GROUPBY clauses

Sample Programs

1. Write a query for DDL commands.
2. Write a query for DML commands.
3. Write a query for TCL commands.
4. Write a query for NOT NULL, CHECK, UNIQUE constraints.
5. Write a PL/SQL program to check the given number is odd or even.
6. Write a DATE, ARITHMETIC, NUMBER functions in SQL operations.
7. Write a query for JOIN operations (Self join, Outer join, Equi join)
8. Write a PL/SQL program to find the given number is prime or not.
9. Write a query for set operators (Union, Union all, Minus, Intersect)

(17UCT416)

10. Write a PL/SQL program to display the Fibonacci series for a given number.
11. Write a query for following i) ROWID ii) SYNONYM iii) SEQUENCE.
12. Write a PL/SQL program for user-defined exception to evaluate the commission.
13. Write a PL/SQL program using functions to display the factorial of the given number.
14. Write a PL/SQL program to check the given string is palindrome or not.
15. Write a PL/SQL block to delete and update using trigger.
16. Write a query for the HAVING clause.
17. Write a query for CONVERSION and GROUP function (Arithmetic and numeric).
18. Write a PL/SQL program for cursor (Explict) with parameter.
19. Write a query for GROUP BY clause.
20. Write a Program for personal details using Visual Basic as frontend and Oracle as backend.
21. Write a Program for student mark list using Visual Basic as frontend and Oracle as backend.

Power point Presentations

Mapping

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	H	H	M
CO2	H	H	H	S	H
CO3	S	M	H	H	M

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

(17UCT416)

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Ms. K.S. Leelavathi Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT4N3	Title	Batch:	2017 - 20
		Skill Based NON-MAJOR ELECTIVE II – OFFICE AUTOMATION LAB	Semester	IV
Hrs/Week:	01		Credits:	02

Course Objective

To provide an in-depth training for creating documents using MS Word, working with spreadsheets using MS Excel, making presentations using MS Power Point.

Course Outcomes (CO)

K3	CO1	To keep in mind about the menus and icons functionalities in MS Word
K4	CO2	To understand and apply mathematical functions to calculate mean, median and standard deviation using Excel
K5	CO3	To Prepare a power point presentation for a range of events

Sample Programs

MS WORD

1. Type the text, check spelling and grammar, bullets and numbering list items, align the text to left, right, justify and centre.
2. Prepare a job application letter enclosing your bio-data.
3. Performing mail merge operation and preparing labels.
4. Preparing a neatly aligned, error free document, add header and footer, also perform find and replace operation.
5. Prepare a document in newspaper column layout.

MS EXCEL

6. Worksheet Using formulas.
7. Worksheet Manipulation for electricity bill preparation.

(17 UCT 41

8. Drawing graphs to illustrate class performance.

9. An excel worksheet contains monthly Sales Details of five companies.

MS POWER POINT

10. Prepare a power point presentation with at least three slides for Department inaugural function.

11. Draw an organization chart with minimum three hierarchical levels.

12. Design an advertisement campaign with minimum three slides.

13. Insert an excel chart into a power point slide.

Power Point Presentations, Activity

Mapping

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

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

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Ms. C. Keerthana Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)

Dr. R. MUTHUKUMAR
Controller of Examination
NGM College (Autonomo
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT4N4	Title	Batch:	2017 - 20
		Skill Based NON-MAJOR ELECTIVE II - CORELDRAW LAB	Semester	IV
Hrs/Week:	01		Credits:	02

Course Objectives

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

Course Outcomes (CO)

K3	CO1	To keep in mind about CorelDraw workspace, tools and panels
K4	CO2	To comprehend a variety of images using crop tools, zooming, curve and smart fill tools
K5	CO3	To validate the animation works using CorelDraw

Sample Programs

1. Create a Logo
2. Create a Flower
3. Create a Text effects
4. Create a Olympic Ring
5. Create a Banner
6. Create a Car
7. Create a Invitation
8. Create a Poster
9. Create a Home
10. Create a animation to fly an airplane

Power point Presentations, Case study

17UCT4N4

Mapping

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	S	H	M	M
CO2	H	H	S	H	M
CO3	S	S	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	CDC	COE
Name: Mr. R. Jayaprakash Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT517	Title	Batch:	2017 - 20
		FRAMEWORK TECHNOLOGY	Semester	V
Hrs/Week:	05		Credits:	03

Course Objective

To address the requirements of developers to become experts in .NET environment.

Course Outcomes (CO)

K1	CO1	To keep in mind about .NET framework fundamentals
K2	CO2	To understand the control statements, arrays and procedures
K3	CO3	To implement the concept of GUI, files and streams
K4	CO4	To analyze about database connectivity with .NET framework

Syllabus

Unit – I [13 Hrs]

Introduction to Visual Basic .NET: Visual Basic .NET- Introduction to Microsoft.NET- .NET Framework and the common language runtime.

Introduction to the Visual Studio.NET IDE: Introduction – Overview of the visual studio .NET IDE - Menu bar and Toolbar –Visual Studio.NET IDE windows.

Introduction to Visual Basic Programming: Introduction – simple programs – memory concepts- Arithmetic - Decision Making – Using a dialog to display a message.

Unit – II [13 Hrs]

Control Structures: Introduction – Control Structures- if/then selection structure-if/then/else Selection Structure – While, Do while/loop, Do Until/Loop Repetition Structures – *Assignment Operators** – For Next – Select Case – do/loop while – do/loop until – exit key word – logical operators.

(17UCT 517)

Procedures: Introduction – Modules, classes and procedures – sub procedures – function procedures – methods – Arguments Promotion – Option Strict and Data type conversions – value types and reference types – passing arguments: pass – by-value vs. pass-by-reference – duration of identifiers – scope rules.

Unit – III [13 Hrs]

Arrays: Introduction - arrays - declaring and allocating arrays - examples - passing arrays to procedures - By Val vs By Ref. – for each/next repetition structure.

Graphical user interface concepts: Introduction – windows forms – event handling model – control properties and layout – labels, textboxes and buttons – group boxes and panels – *checkboxes and radio buttons** – picture boxes – mouse event handling – keyboard event handling.

Menus – Link labels – List boxes and checked list boxes – Combo boxes – Tree views – List views – Tab control –MDI windows – Visual inheritance – User defined controls.

Unit – IV [13 Hrs]

Files and Streams: Introduction – Data Hierarchy – Files and Streams – Classes File and Directory – Creating a Sequential-Access File – Reading data from a Sequential-Access File - Random-Access Files - Creating a Random-Access File - Writing Data Randomly to a Random-Access File - Reading Data Sequentially from a Random-Access File.

Unit – V [13 Hrs]

Database, SQL and ADO. NET: Introduction – relational database model- SQL – ADO.NET object model – programming with ADO.NET – extracting from a database – modifying a database - reading and writing XML files.

ASP.NET, web forms and web controls: Introduction – simple HTTP transaction – system architecture – web controls – session tracking.

Note: **Italicized* texts are for self study

Power point Presentations, Seminar, Assignment

(17UCTS17)

Books for Study

1. Deitel H.M, Deitel P.J, Nieto T.R, "Visual Basic.NET How to Program", 2nd Edition, Pearson Education, ISBN-13: 9780130389374.

Books for Reference

1. Kogent Learning Solutions Inc., (2010), ".Net 3.5 Programming: Covering.Net Framework", 1st Edition, DreamTech Press, ISBN-13:9788177228342.
2. Bill Evjen, Jason Beres, et.al, (2002), "Visual Basic.Net Programming – Black Book", Wiley Dream Tech India (p) Ltd. ISBN: 81-265-0254-1.
3. Tim Anderson, "VB.Net programming in Easy Steps", 1st Edition, Dream Tech, ISBN-13: 9788177221930.
4. https://www.syncfusion.com/resources/techportal/details/ebooks/aspnetmultitenant

Mapping

PSO / CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	S	S	H	L
CO2	S	S	S	M	M
CO3	H	H	S	M	S
CO4	H	S	H	H	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	CDC	COE
Name: Mr. R. Jayaprakash Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
642 001.

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT518	Title	Batch:	2017 - 20
		CORE XII: INTRODUCTION TO COMPUTER GRAPHICS AND MULTIMEDIA	Semester	I
Hrs/Week:	04		Credits:	04

Course Objective

To impart knowledge about 2D Geometric Transformations and Algorithms, Unicode standard, Multimedia Components like Text, Audio, Video and Compression.

Course Outcomes (CO)

K1	CO1	To keep in mind about video display devices and output primitives
K2	CO2	To understand about text and image file formats
K3	CO3	To implement 2D transformations and viewing functions
K4	CO4	To analyze about principles of animation and data compression techniques

Syllabus

Unit - I [15 Hrs]

Overview of Graphics Systems: Video display devices-Cathode-Ray Tubes-Raster Scan Displays-Random Scan Display-Color CRT monitors. **Output Primitives:** Points and Lines – Line-Drawing algorithms – Loading frame Buffer – Line function – Circle-Generating algorithms – Ellipse-generating algorithms. **Attributes of Output Primitives:** Line Attributes – Color and Grayscale Levels – Area-fill attributes – Character Attributes.

Unit - II [16 Hrs]

2D Geometric Transformations: Basic Transformations – Matrix Representations – Composite Transformations – Other Transformations. **2D Viewing:** The Viewing Pipeline –

(17UCT512)

Viewing Co-ordinate Reference Frame – Window-to-Viewport Co-ordinate Transformation - 2D Viewing Functions – Clipping Operations.

Unit - III [16 Hrs]

Text: Types of Text – Unicode Standard – Font – Insertion of Text – Text compression – File formats. **Image:** Image Types – Seeing Color – *Color Models** – Basic Steps for Image Processing – Scanner – Digital Camera – Interface Standards – Specification of Digital Images – CMS – Device Independent Color Models – Image Processing software – File Formats – Image Output on Monitor and Printer.

Unit - IV [15 Hrs]

Audio: Introduction – Acoustics – Nature of Sound Waves – Fundamental Characteristics of Sound – Microphone – Amplifier – *Loudspeaker** – Digital Audio – MIDI – Basics of Staff Notation – Sound Card – Audio Transmission – Audio File formats and CODECs – Audio Recording Systems – Audio and Multimedia – Voice Recognition and Response - Audio Processing Software.

Unit - V [16 Hrs]

Video: Analog Video Camera – Transmission of Video Signals – Video Signal Formats – Video File Formats and CODECs – Video Editing – Video Editing Software. **Animation:** Types of Animation – Computer Assisted Animation – Creating Movement -- Principles of Animation – Some Techniques of Animation – Animation on the Web – Special Effects – Rendering Algorithms. **Compression:** MPEG-1 Audio – MPEG-1 Video.

Note: **Italicized* texts are for self study

Power Point Presentations, Group Discussions, Seminar, Quiz, Assignment

Books for Study

1. Donald Hearn, M.Pauline Baker, "Computer Graphics", 2nd edition, PHI, ISBN: 81-23-0944-8 (Unit I & II)
2. Ranjan Parekh, "Principles of Multimedia", 2008, TMH, ISBN-10:0-07-058833-3, (Unit III, IV & V)

(17UCT518)

Books for Reference

1. Amarendra N Sinha, Arun D Udai, "Computer Graphics", TMH.
2. Tay Vaughan, "Multimedia: Making it Work", 7th edition, TMH.

Mapping

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

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

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Ms. J. Priya Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc	**Programme Title:**	Bachelor of Science (Computer Technology)	
Course Code:	17UCT 519	**Title**	**Batch:**	2017 - 20
		CORE XIII: FUNDAMENTALS OF SOFTWARE ENGINEERING AND TESTING	**Semester**	V
Hrs/Week:	05		**Credits:**	05

Course Objective

To communicate information about software development approaches, process models, requirement engineering, building analysis model, design methodologies and software testing.

Course Outcomes (CO)

K1	CO1	To keep in mind layers of process models, Requirement gathering phases design concepts and testing strategies
K2	CO2	To picture out the main aspects of software engineering and evaluate requirements for a software system and analyzing the requirements through modeling
K3	CO3	To apply the process of analysis and design using the object-oriented approach
K4	CO4	To interpret the design engineering and various Testing tactics

Syllabus

Unit - I [13 Hrs]

Introduction to Software Engineering: The evolving role of software - Changing Nature of Software - *Software myths**.

A Generic view of process: Software engineering - A layered technology - a process framework - The Capability Maturity Model Integration (CMMI).

(17UCT519)

Process models: The waterfall model - Incremental process models - Evolutionary process models.

Unit - II [13 Hrs]

System Engineering: Computer-Based Systems – The system engineering Hierarchy – System Modeling.

Requirements Engineering: A bridge to design and construction- Requirements Engineering Tasks – Initiating the Requirements Engineering Process - Eliciting Requirements – Building the Analysis Model.

Unit - III [13 Hrs]

Building the Analysis Model: Requirement analysis – analysis Modeling approaches – Data modeling concepts – Object-Oriented Analysis- Scenario-Based Modeling – Flow-Oriented Modeling – Class-Based Modeling – Creating a Behavioral Model.

Unit - IV [13 Hrs]

Design Engineering: Design process and Design quality - Design concepts - the design model.

Creating an architectural design: Software architecture - Data design - Architectural Design – Mapping Data Flow into a Software Architecture.

Unit - V [13 Hrs]

Testing Strategies: A strategic approach to software testing – *Software TestingLifecycle* * - Test strategies for conventional software, Validation testing, System testing, The art of Debugging.

Testing Tactics: Black-Box and White-Box Testing - White- Box Testing - Basis path Testing – Control Structure Testing - Black-Box Testing – Functional and Non Functional Testing.

Note: **Italicized* texts are for self study

Power point Presentations, Group Discussions, Seminar, Quiz, Assignment

(17UCT519)

Books for Study

1. Roger S. Pressman, (2005), "Software Engineering, A Practitioner's Approach", 6th Edition, TATA McGraw-Hill Publications, ISBN: 007-124083-7.

Books for Reference

1. Ian Sommerville, (2004), "Software Engineering", 7th Edition, Addison Wesley, ISBN-13: 978-0321210265.
2. Stephen Schach, (2007), "Software Engineering", 7th Edition, New Delhi, Tata McGraw Hill Publishing Company, ISBN-13: 9780070647770.
3. http://www.slideshare.net/rhspcte/software-engineering-ebook-roger-s-pressman
4. http://softwaretestingfundamentals.com/software-testing-life-cycle/
5. http://www.softwaretestingclass.com/functional-testing-vs-non-functional-testing/

Mapping

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

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

(17UCT519)

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Ms. K. S. Leelavathi Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc., M.Phil., B.Ed., PGDGC., Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT520	Title	Batch:	2017 - 20
		ELECTIVE I: CLOUD COMPUTING	Semester	V
Hrs/Week:	05		Credits:	05

Course Objective

To make out facts about cloud computing, developing cloud services, Cloud Storage, Cloud Computing at Work, Cloud computing Security Issues and Challenges.

Course Outcomes (CO)

K1	CO1	To keep in mind about the basic concepts cloud overviews, architecture, storage and virtualization
K2	CO2	To understand different cloud models and services
K3	CO3	To carry out the migration of cloud and best practices in cloud
K4	CO4	To interpret the problems, analyze, and evaluate various cloud computing solutions

Syllabus

Unit - I [12 Hrs]

Cloud computing Basics: Cloud Computing Overview – Applications – Internet and the Cloud – First Movers in the Cloud. **Your Organization and cloud computing:** *Benefits – Limitations** - Security Concerns.

Unit - II [13 Hrs]

Cloud Computing Technology: Hardware and Infrastructure – Clients – Security – Network – Services. **Accessing the cloud:** Platforms – Web Applications – Web APIs – *Web Browsers**. **Cloud Storage:** Overview – Cloud storage providers – Standards.

Unit -III [14 Hrs]

Cloud Computing Services: Infrastructure as a service – Platform as a service – Software as a service – Software plus services. Business Applications – Operational Benefits – Economic Benefits – Tips for Evaluating SaaS – Staffing Benefits. Deleting your Datacenter. **Cloud Services:** Google – Microsoft – Amazon – IBM.

Unit - IV [12 Hrs]

Cloud Computing at Work: Overview – Driving forces – Company Offerings – Industries. **Software plus services:** Overview – Mobile device Integration – Providers – Microsoft online. **Local clouds and thin clients:** Virtualization in your organization - Server solutions – Thin Clients.

Unit- V [13 Hrs]

Migrating to the cloud: Cloud services for Individuals – Enterprise – class cloud Offerings – Migration. **Future of Cloud Computing:** Analyze your services – Best Practices – Evolution of Cloud Computing in Future. Cloud computing Security Issues and Challenges.

Note: **Italicized* texts are for self study

Power point Presentations, Group Discussions, Seminar, Quiz, Assignment, Case Study

Books for Study

1. Anthony T.Velte, Toby J.Velte, Robert Elsenpeter (2010), "Cloud Computing: A Practical Approach", Tata McGraw-Hill, 1st Edition, ISBN-13: 978-0-07-068351-8.

Books for Reference

1. Michael Miller, (2008), "Cloud Computing: Web-Based Applications That Change the way you work and Collaborate Online", Macmillan Computer Publication, 1st Edition, ISBN-13: 9780789738035.
2. http://cs.ecust.edu.cn/~yhq/course_files/cloud/Cloud%20Computing%20Bible.pdf

(17UCT520)

Mapping

PSO / CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	M	M	S	H
CO2	S	M	M	H	M
CO3	L	H	L	M	M
CO4	M	M	L	H	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	CDC	COE
Name: Mr. R. Jayaprakash Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT521	Title	Batch:	2017 - 20
		PROGRAMMING LAB VII (FRAMEWORK TECHNOLOGY)	Semester	V
Hrs/Week:	04		Credits:	02

Course Objective

To utilize the .NET framework to build distributed enterprise applications.

Course Outcomes (CO)

K3	CO1	To recollect the concept of control statements, arrays, functions
K4	CO2	To understand the basic concepts of .NET framework and then develop console and windows application
K5	CO3	To validate the concept of files and exception handling mechanism

Sample Programs

VB.NET – Console Application

1. Create a Console Application for a simple stack operation in VB.Net
2. Create a Console Application for a simple queue operation in VB.Net
3. Develop a console application to illustrate the concept of exception handling using VB.Net
4. Develop a console application to illustrate the concept of Hash table using VB.Net
5. Develop a console application to illustrate the concept of Inheritance
6. Develop a console application to illustrate the concept of File handling

VB.NET – Windows Application

1. Develop a Windows Form Application to generate the Bio-Data of a student
2. Develop a Windows Form Application to illustrate the concept of Tree-Node Control
3. Develop a Windows Form Application to perform the operations of a calculator
4. Develop a Windows Form Application to calculate and generate a telephone a bill

(17UCT521

5. Develop a Windows Forms application to create and generate an E.B. Bill
6. Develop a Windows Form application to perform the operations of a Banking System.
7. Develop a windows forms application to create a notepad.
8. Create a Windows form application to develop a Basic Login form
9. Create a Windows Form application to develop an Employee Pay slip
10. Create a Windows Form application to develop a Vehicle invoice generation System
11. Create a Windows Form application to develop a Library book issue details system.

Power point Presentations

Mapping

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

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

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Mr. R. Jayaprakash Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001.

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMARA
Controller of Examination
NGM College (Autonomou
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT522	Title	Batch:	2017 - 20
		PROGRAMMING LAB - VIII (GRAPHICS and MULTIMEDIA)	Semester	V
Hrs/Week:	04		Credits:	02

Course Objective

To impart knowledge about 2D Geometric Transformations and Algorithms, Unicode standard, Multimedia Components like Text, Audio, Video and Compression.

Course Outcomes (CO)

K3	CO1	To keep in mind about the various graphics drawing algorithms
K4	CO2	To understand the 2D, 3D transformations and clipping techniques
K5	CO3	To implement an interactive multimedia presentation by using multimedia tools

Syllabus

Graphics:

1. Write a C program to generate a line using DDA Algorithm.
2. Write a C program to generate a line using Bresenham's Line Drawing Algorithm.
3. Write a C program to generate a circle using circle drawing algorithm.
4. Write a C program to generate a circle using Mid-point Circle Algorithm.
5. Write a C program to generate an ellipse using Mid-point Ellipse Algorithm.
6. Write a C program to generate different types of lines.
7. Write a program to generate a chessboard using graphics.
8. Illustrate the concept of translation, scaling, rotation.
9. Write a C program for window–to-viewport conversion.
10. Write a C program to illustrate the concept of 2D Reflection.

(17UCT522)

Multimedia:

11. Create a Sunflower using Ellipse tool Adobe Photoshop.
12. Create a Poster using Adobe Photoshop.
13. Enable an onion skin concept using Adobe Photoshop.
14. Create a Calendar using Adobe Photoshop.
15. Create Morphing effects by using Adobe Photoshop.
16. Create a Webpage using Adobe Photoshop.
17. Animate a Flying Butterfly using Macromedia Flash 8.
18. Animate shapes using Macromedia Flash 8.
19. Animate text using Macromedia Flash 8.
20. Animate a Fog effect using Macromedia Flash 8

Power point Presentations

Mapping

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

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

(17UCT522)

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Ms. J. Priya Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT5S1	Title	Batch:	2017 - 20
		Skill Based MAJOR ELECTIVE I – HTML55 with CSS LAB	Semester	V
Hrs/Week:	01		Credits:	02

Course Objectives

To learn and develop an interactive webpage using HTML5.

Course Outcomes (CO)

K3	CO1	To keep in mind about various elements and attributes in HTML5
K4	CO2	To realize about canvas tags to create code based drawings in HTML5
K5	CO3	To validate programs with audio and video in HTML5, web worker, SVG

Sample Programs

1. Write a Program to add new elements in HTML5.
2. Write a Program to illustrate <section> element in HTML5.
3. Write a Program to illustrate <nav> element in HTML5.
4. Write a Program to illustrate <fig> and <fig caption>element in HTML5.
5. Write a program to draw a Circle using canvas tag.
6. Write a program to fit an image in a cell using canvas tag.
7. Write a program to draw a star using SVG.
8. Write a program to include video/Audio file in HTML5 page
9. Write a program to Drag and Drop the content in HTML5.
10. Write a program to illustrate Web Workers in HTML5.
11. Write a program for setting different background color for elements using CSS.
12. Write a program for setting different right side border in CSS.

(17UCT551)

13. Write a program for setting the color for visited/unvisited links using CSS.

14. Write a program for setting the height and width of an image using % in CSS.

Mapping

PSO / CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	S	H	M	M
CO2	H	H	S	H	M
CO3	S	S	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	CDC	COE
Name: Ms. K.S. Leelavathi Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc., M.Phil., B.Ed., PGDGC., Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT5S2	Title	Batch:	2017 - 20
		Skill Based MAJOR ELECTIVE I – VISUAL BASIC LAB	Semester	V
Hrs/Week:	01		Credits:	02

Course Objectives

To guide the students in developing applications using Visual Basic.

Course Outcomes (CO)

K3	CO1	To keep in mind about form objects including data arrays, control arrays, text boxes, message boxes, dialog boxes, labels, controls, menus, frames, picture boxes
K4	CO2	To realize procedures, sub-procedures, and functions to create manageable code
K5	CO3	To decide, design, create, build and debug Visual Basic applications

Sample Programs

1. Create a program to perform arithmetic operations using functions.
2. Create a program to count the number of characters in the given String using loops.
3. Create an application form in visual basic.
4. Create a program to perform arithmetic operations using calculator.
5. Create a program to perform various string functions.
6. Create a program to select items from the list box.
7. Create a program to perform Quiz in visual basic.
8. Create a program to compute simple interest and compound interest in visual basic.
9. Create a menu editor form in visual basic.
10. Create an application to Maintain Student Details in visual basic.
11. Create an application to maintain Departmental store Details in visual basic.

17UCT582

12. Create an application to maintain Library Details in visual basic.

Mapping

PSO / CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	S	H	M	M
CO2	H	H	S	H	M
CO3	S	S	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	CDC	COE
Name: Ms. J. Priya Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT 623	Title	Batch:	2017- 20
		CORE XIV: J2EE TECHNOLOGIES	Semester	VI
Hrs/Week:	06		Credits:	04

Course Objective

To aim at imparting expertise in Web Application Development using J2EE tools.

Course Outcomes (CO)

K1	CO1	To remember the swing components
K2	CO2	To understand about servlets and Server Side Includes
K3	CO3	To implement JDBC connectivity and Java Server Pages
K4	CO4	To review the various types of beans

Syllabus

Unit - I [E 15 Hrs]

Tour of Swing: JApplet- Icons and Labels – Text Fields – Buttons – Combo Boxes - Tabbed Panes – Scroll Panes – Trees – Tables – Exploring Swing.

Unit - II [16 Hrs]

Servlet Overview and Architecture, Movement to Server-Side Java – Java Servlet - Practical applications for Java Servlets – Java Servlet Alternatives – *Reasons to Use Java Servlets** – Java Servlet Architecture.

Servlet Basics – The Life Cycle of a Servlet – A Basic Servlet – Basic Servlet Source – Building and Installing the Basic Servlet – The HTML Required to Invoke the Servlet – Dissecting the Basic Servlet.

(17UCT623)

Unit - III [16 Hrs]

Server-Side includes - Servlet chaining: Uses for Servlet chain - Invoking a Servlet Chain– A practical Example using Servlet Chaining. Servlets and JDBC – Two and Three-tier Database Access Models – JDBC Driver Types – JDBC Basics – A Basic JDBC Servlet.

Unit IV [15 Hrs]

JSP – Conditions – Directives – Declarations- Implicit Variables – Scriptlets – Expressions. Servlet Sessions: Session Tracking – Working with Cookies.

Unit V [16 Hrs]

Java Beans– *Advantages of Java Beans** – Application Builder tools – The BDK – JAR Files – Introspection - Developing a simple bean – Using Bound Properties – Using the Bean Info Interface – Constrained properties – Persistence – Customizer. Enterprise Java Bean: Introduction – Enterprise Java Bean Technology - Types of Bean - Examples of EJB.

Note: **Italicized* texts are for self study

Power point Presentations, Group Discussions, Seminar, Quiz, Assignment

Books for Study

1. Herbert Schildt (2002), "JAVA 2: The Complete Reference", 5th Edition, Tata-McGraw Hill, ISBN-13: 9780070495432.
2. James Goodwill, (1999), "Developing Java Servlets", 1st Edition, Techmedia, ISBN 81-7635-325-6.
3. Rima Patel Sriganesh, Gerald Brose, Micah Silverman (2009), "Mastering Enterprise Java Beans 3.0", Wiley India Edition, Wiley India Pvt. Ltd, ISBN: 81-265-0921-X. (Unit V- Enterprise Java Bean)

Books for Reference

1. Subrahmanyam Allaramaju, Cedric Buest, Marc Wilcox, Sameer Tyagi ,(2001), "Professional Java Server Programming J2EE", 1.3 Edition, WROX Press Ltd, ISBN-13: 978-1861005373.

(17UCT623)

2. Jayson Falkner and Kevin Jones, (2003), "The J2EE Technology Web Tier", Addison-Wesley Professional, 1st Edition, ISBN-13: 978-0321136497.

3. http://nomembershipreqiered.net/j2ee-complete-reference-herbert-schildt-pdf-free-download-t9443.html

Mapping

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

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

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Ms. J. Priya Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Dr. M. [illegible] M.Sc.,M.Phil.,M.Ed.,PGDSC,Ph.D.,
[illegible] / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT624	Title	Batch:	2017 - 20
		ELECTIVE III: EMBEDDED SYSTEMS	Semester	VI
Hrs/Week:	06		Credits:	5

Course Objective

To introduce real-time systems and embedded computing systems.

Course Outcomes (CO)

K1	CO1	To keep in mind the basic concepts of Embedded System, Microcontroller, Ports and embedded programming in C, C ++ and Java
K2	CO2	To understand the concepts of devices and buses for device networks, internal architecture and interfacing of different peripheral devices with Microcontrollers
K3	CO3	To deploy in depth knowledge in Device drivers and Interrupts servicing mechanism, inter-process communication and synchronization of processes
K4	CO4	To analyze a vast experience about Real Time Operating Systems and its applications and program modeling concepts in a single and multi processor systems

Syllabus

Unit - I [16 Hrs]

Introduction to Embedded System: Embedded System – Processor Embedded into the System – Embedded Hardware units and Devices in a System – Embedded Software in a system – Examples of embedded system – Embedded system on chip and use of VLSI circuit - Classification of embedded systems – *Skills required for an embedded System Designer**.

(17UCT624)

Unit - II [15 Hrs]

Devices and buses for device networks: I/O Types and Examples – Serial Communication devices: Synchronous, Iso-Synchronous and Asynchronous communication from serial devices – Parallel Device Ports - Timer and counting devices – Watchdog timer – *Real time clock** – Network Embedded Systems – Serial Bus Communication Protocol.

Unit - III [16 Hrs]

Device drivers and Interrupts servicing mechanism: Device drivers – Interrupt servicing mechanism – Context and the periods for context-switching, dead-line and interrupt latency – Device Driver Programming: – Parallel port device drivers – Serial port device drivers – Device drivers for IPTD.

Unit - IV [15 Hrs]

Programming concepts and embedded programming in C and C++: Embedded programming in C++ and in Java. **Program modeling concepts in single and multi processor systems:** Program Models – DFG Models – State Machine Programming Models for Event-controlled Program Flow – Modeling of Multiprocessor Systems

Unit - V [16 Hrs]

Inter – process communication and synchronization of processes. Tasks and threads: Multiple processes in an application – Multiple Threads Shared Data – Inter process communication. **Real time operating systems:** Operating system services – I/O subsystem – Real time operating systems – Basic Design using RTOS – RTOS Task scheduling Models, Interrupt Latency and Response of the Tasks as Performance Metrics.

Note: **Italicized* texts are for self study

Power point Presentations, Group Discussions, Seminar, Quiz, Assignment

Books for Study

1. Raj Kamal, (2011), "Embedded Systems – Architecture, Programming and Design", 2nd Edition, TMH, ISBN-13:978-0-07-066764-8.

(17UCT624)

Books for Reference

1. Daniel W. Lewis, (2007), "Fundamentals of Embedded Software", 1st Edition, PHI Education Publications, ISBN: 81-7808-604-2.

2. Shibu K V, (2009), "Introduction to Embedded Systems", 1st Edition, McGraw Hill Education, ISBN-13: 9780070145894.

3. http://www.dauniv.ac.in/downloads/EmbsysRevEd_PPTs/Chap01Lesson_1Emsys.pdf

Mapping

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

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

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Ms. K. S. Leelavathi Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc., M.Phil., B.Ed., PGDGC., Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc.	**Programme Title:**	Bachelor of Science (Computer Technology)	
Course Code:	17UCT625	**Title**	**Batch:**	2017 - 20
		INFORMATION & CYBER SECURITY	**Semester**	VI
Hrs/Week:	06		**Credits:**	05

Course Objective

To develop the knowledge about Cyber Security, Cryptography, Symmetric/Asymmetric Key Algorithms and other security techniques.

Course Outcomes (CO)

K1	CO1	To remember about the concepts of Attacks on computers, Encryption and Decryption Methods, Substitution and Transposition Techniques
K2	CO2	To understand how DES and RSA Algorithm works
K3	CO3	To apply the conceptual knowledge of Digital Certificates and Secure Socket Layer
K4	CO4	To analyze the elements related with Cryptographic Algorithms used in S/MIME and Virtual Private Network

Syllabus

Unit – I [15 Hrs]

Attacks on Computers and Computer Security: Introduction – Need For Security –Types Of Attacks. **Cryptography - Concepts and Techniques:** Introduction – Plain Text and Cipher Text – Substitution Techniques - Transposition Techniques – Encryption and Decryption.

Unit – II [16 Hrs]

Symmetric Key Algorithms: Introduction – Algorithm Types – An Overview Of Symmetric Key Cryptography – **Data Encryption Standard (DES):** How DES Works? **Asymmetric**

(17UCT625)

Key Algorithms, Digital Signature And RSA: Introduction – An Overview Of Asymmetric Cryptography - The RSA Algorithm.

Unit – III [16 Hrs]

Digital Certificate and Public Key Infrastructure (PKI): Digital Certificates: Introduction – The Concept of Digital Certificate – Certificate Authority – Technical Details. The PKIX Model. **Internet Security Protocols:** Introduction – Basic Concepts – Secure Socket Layer – (SSL) – *Secure Hyper Text Transfer Protocol (SHTTP)**.

Unit – IV [15 Hrs]

Email Security: PGP – How PGP Works? - **S / MIME: Introduction** – Cryptographic Algorithms used in S/MIME – Security in GSM –Security in 3G.**User Authentication And Kerberos:** Introduction – Authentication Basics – **Passwords:** Introduction – Clear Text Passwords - Kerberos.

Unit – V [16 Hrs]

Cryptography In JAVA: Introduction – Cryptographic Solution Using JAVA. Network **Security Firewalls And Virtual Private Networks** (VPN): Introduction – Brief Introduction To TCP/IP – **Fire Walls:** Introduction – *Types of Firewalls**. Virtual Private Networks (VPN) – Intrusion.

Note: **Italicized* texts are for self study

Power point Presentations, Group Discussions, Seminar, Quiz, Assignment

Books for Study

1. Atul Kahate, (2007), "Cryptography and Network Security", 2nd Edition, Tata McGraw-Hill Publication, and ISBN-13: 9780070648234.

Books for Reference

1. Mark Rhodes-Ousley, Roberta Bragg, Keith Strassberg, (2004), "Network Security: The Complete Reference", Tata McGraw-Hill. ISBN: 0-07-222697-8.

(19UCT62C)

2. William Stallings, (2006), "Cryptography and Network Security Principles and Practices", 4th Edition, ISBN: 978-81-203-3018-4.

3. Brijendra singh, (2009), "Network Security and Management", 2nd Edition, PHI Publication, ISBN - 13: 9788120339101.

4. https://www.scribd.com/doc/159080504/Cryptography-Network-Security-Atul-Kahate

Mapping

PO / CO	PO1	PO2	PO3	PO4	PO5
CO1	H	S	M	M	S
CO2	H	H	M	L	S
CO3	S	S	M	M	S
CO4	S	M	H	S	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	CDC	COE
Name: Mr. R. Jayaprakash Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. M. DURAIRAJU, M.Sc., M.Phil., B.Ed., PGDCC., Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT626	Title:	Batch:	2017 - 20
		PROGRAMMING LAB - IX (J2EE TECHNOLOGIES)	Semester:	VI
Hrs/Week:	05		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 (CO)

K3	CO1	To recollect the concept of Swing Components and cookies
K4	CO2	To understand and integrate Servlets, JDBC and JSP to develop web applications
K5	CO3	To validate the idea of Java Beans to build enterprise applications

Sample Programs

1. Create JTextField and JButton Component for displaying pizza order.
2. Create a program to illustrate the concept of JCheckBox class.
3. Create a program to illustrate the concept of JRadioButton class.
4. Create a JComboBox component for displaying images.
5. Create a JTabbedPane component for displaying login form details.
6. Create a JScrollPane component for displaying provisionary items.
7. Create a JTree component for displaying the list of files and folders in C drive.
8. Create a JTable component for displaying student details.
9. Create a Game login form using various components.
10. Create a JugglerBean.

(17UCT626)

11. Create a MoleculeBean.
12. Create a program to illustrate the concept of Introspection.
13. Create a bean program to design a simple property of the bean.
14. Create a java program to illustrate the concept of Generic Servlet.
15. Create a java program to illustrate the concept of Http Servlet.
16. Create a java program to illustrate the concept of Servlet chaining.
17. Create a java program to illustrate the concept of Server-side Includes.
18. Create a java program to illustrate the concept of Request Object Method.
19. Create a java program to illustrate the concept of JDBC Connectivity.
20. Create a jsp program to illustrate the concept of Implicit Objects.
21. Create a program to find the factorial of a given number using JSP Conditions.
22. Create a program to illustrate the concept of JSP Directives.
23. Create a program to illustrate the concept of JSP Expressions.
24. Create a program to illustrate the concept of Sessions in JSP.
25. Create a program to illustrate the concept of Cookies in JSP.

Power point Presentations

Mapping

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

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

(17UCT626)

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Ms. J. Priya Signature:	Name: Dr. J. Thilagavathi Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Programme Code:	B. Sc	Programme Title:	Bachelor of Science (Computer Technology)	
Course Code:	17UCT627	Title:	Batch:	2017 - 20
		INDUSTRY ORIENTED PRACTICALS	Semester:	VI
Hrs/Week:	05		Credits:	04

Course Objective

The objective of the industry oriented practical is aimed at enhancing the technical, soft skills and practical knowledge of the students by developing real time applications.

Course Outcomes (CO).

K3	CO1	To recollect the programming language concepts to think objectively, analytically, critically in developing industry oriented applications
K4	CO2	To comprehend about the data base connectivity using front end and back end tools
K5	CO3	To validate the application software by various types of testing and its implementation in real environment

Guidelines for Industry Oriented Practical

- Both the Internal (Respective Guides) and External Examiners should Conduct the Viva-Voce Examination at the last day of the practical session.
- No candidate will be allowed to change the title of the Project work after the completion of End- semester Viva.
- For those absent on genuine grounds a common supplement End-Semester Viva-voce may be conducted at our College by obtaining prior permission from the COE on the recommendations from the HOD before the commencement of the next semester Final Viva.
- Out of 100 marks, 40 (4 Reviews, each carries 10 marks) for Project Evaluation and 60 for Viva.

17UCT627

- For awarding a pass, a candidate should have obtained 40% of the Total 100 marks.

Power point Presentations

Mapping

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

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

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: Dr. J. Thilagavathi J.R.ma Signature:	Name: Dr. J. Thilagavathi J.R.ma Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Dr. J. THILAGAVATHI M.C.A., M.Phil., Ph.D.,
Associate Professor & Head
Department of Computer Technology
N.G.M. College, Pollachi - 642 001

Dr. R. MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.