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 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 extension through an enlightened management and committed faculty who ensure knowledge transfer, instil research aptitude and infuse ethical and cultural values to transform students into disciplined citizens in order to improve quality of life.

Department of Information Technology

Vision

The Vision of our Department is to assist the student in becoming proficient in using latest Technologies, and critical thinking being prepared for the next level of education and successfully attaining the skills and proficiencies required of today's work force.

Mission

The Information Technology department is committed to providing the highest quality technology services and support, thereby enhancing the operation, and educational capabilities among the students.

SCHEME OF EXAMINATION

UNDER CBCS PATTERN GUIDED BY UNIVERSITY AND TANSCHE

(FOR THE STUDENTS ADMITTED FROM THE ACADEMIC YEAR 2018-2021 BATCH)

OUTCOME BASED EDUCATION (OBE)

PART	SUBJECT CODE	SUBJECT TITLE	HOURS PER WEEK	HRS	INT	EXT	TOTAL	CREDITS
					EXAMINATION			
SEMESTER I								
I	18UTL101	Tamil - I	6	3	25	75	100	3
	18UHN101	Hindi - I						
	18UFR101	French - I						
II	18UEN101	English – I	5	3	25	75	100	3
		CORE PAPERS:						
III	18UIT101	Programming in 'C'	4	3	25	75	100	4
	18UIT102	Computer System Architecture	5	3	25	75	100	4
	18UIT103	Lab. I - Programming in 'C'	4	3	20	30	50	2
		ALLIED PAPERS:						
	18UIT1A1	Statistical Methods	4	3	25	75	100	4
IV	18UHR101	Human Rights	1	2		50	50	2
	18HEC101	Value Education : Human Excellence Course - Personal Values	1	2	25	25	50	1
	TOTAL		**30**				**650**	**23**
SEMESTER II								
I	18UTL202	Tamil – II	6	3	25	75	100	3
	18UHN202	Hindi – II						
	18UFR202	French – II						
II	18UEN202	English – II	5	3	25	75	100	3
		CORE PAPERS:						
III	18UIT204	Object Oriented Programming with Java	4	3	25	75	100	4
	18UIT205	Data Structures	4	3	25	75	100	4
	18UIT206	Lab. II - Programming in Java	4	3	20	30	50	2
		ALLIED PAPERS:						
	18UIT2A2	Mathematical Foundations for Computer Science	4	3	25	75	100	4
IV	18EVS201	Environmental Studies	2	2		50	50	2
	18HEC202	Value Education : Human Excellence Course - Family Values	1	2	25	25	50	1
	TOTAL		**30**				**650**	**23**

		SEMESTER III						
		CORE PAPERS:						
III	18UIT307	Operating Systems	5	3	25	75	100	4
	18UIT308	Relational Database Management System	5	3	25	75	100	4
	18UIT309	Client/Server Computing	5	3	25	75	100	4
	18UIT310	Lab. III - RDBMS	5	3	40	60	100	3
	18UIT311	Lab. IV - HTML & CSS	2	3	20	30	50	1
		ALLIED PAPERS:						
	18UIT3A3	Microprocessor And Assembly Language Programming	6	3	25	75	100	4
IV	18UIT3N1/ 18UIT3N2	Skill Based Non-Major- I [Computer Fundamentals / Internet Basics]	1	2		50	50	2
	18HEC303	Value Education: Human Excellence Course - Professional Values	1	2	25	25	50	1
	TOTAL		**30**				**650**	**23**
		SEMESTER IV						
		CORE PAPERS:						
III	18UIT412	Computer Networks	5	3	25	75	100	4
	18UIT413	Advanced Java Programming	5	3	25	75	100	4
	18UIT414	Visual Programming	5	3	25	75	100	4
	18UIT415	Lab. V - Advanced Java Programming	4	3	40	60	100	2
	18UIT416	Lab. VI – Visual Programming	4	3	20	30	50	2
		ALLIED PAPERS:						
	18UIT4A4	Software Engineering	5	3	25	75	100	4
IV	18UIT4N3/ 18UIT4N4	Skill Based Non-Major- II [Computer Security/Hardware &Networking]	1	2		50	50	2
	18HEC404	Value Education: Human Excellence Course - Social Values	1	2	25	25	50	1
V	18UNC401/ 18UNS402/ 18USG403	Extension Activities (NCC, NSS, and Sports & Games)			50		50	1
	TOTAL		**30**				**700**	**24**

		SEMESTER V						
III	18UIT517	Open Source Methodologies	5	3	25	75	100	4
	18UIT518	Information Security	6	3	25	75	100	4
	18UIT519	Major Elective - I	6	3	25	75	100	5
	18UIT520	Lab. VII - Open Source Methodologies	5	3	40	60	100	3
	18UIT521	Lab. VIII - Software Testing Tools	5	3	40	60	100	3
IV	18GKL501	General Knowledge & General Awareness	SS	2	--	50	50	2
	18UIT5S1/ 18UIT5S2	Skill Based Major Elective - Lab. I Web Programming Lab. (PHP / JSP)	2	2	--	50	50	2
	18HEC505	Value Education: Human Excellence Course - National Values	1	2	25	25	50	1
	TOTAL		30				650	24
		SEMESTER VI						
III	18UIT622	Computer Graphics	6	3	25	75	100	4
	18UIT623	Major Elective - II	5	3	25	75	100	4
	18UIT624	Major Elective - III	6	3	25	75	100	5
	18UIT625	Lab. IX - Graphics & Multimedia	5	3	40	60	100	3
	18UIT626	Project	5		20	80	100	4
IV	18UIT6S3/ 18UIT6S4	Skill Based Major Elective - Lab. II Web Programming Lab. (Java Script / ASP)	2	2	--	50	50	2
	18HEC606	Value Education: Human Excellence Course - Global Values	1	2	25	25	50	1
	TOTAL		30				600	23
			180				3900	140

List of Major Elective Papers V & VI Semesters only (can choose any one of the paper)

Elective I	A. Data Mining and Analytics B. Cloud Computing C. Embedded Systems
Elective II	A. Digital Image Processing B. Software Project Management C. Artificial Intelligence
Elective III	A. Mobile Computing B. E-Commerce C. Multimedia Techniques

Bloom's Taxonomy Based Assessment Pattern

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

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

(i) Test- I & II and ESE:

Knowledge Level	Section	Marks	Description	Total
K1 (Q 1 -10)	A (Q 1 – 5 MCQ) (Q 6–10 Define/Short Answer)	10 x 1 = 10	MCQ Define	
K2 (Q 11-15)	B (Either or pattern)	5 x 5 = 25	Short Answers	75
K3 & K4 (Q 16 – 21)	C (Q -16 is Compulsory and Q 17 – 21 answer any 3)	4 x 10 = 40	Descriptive/ Detailed	

2. Theory Examinations: 50 Marks (Part IV)

Knowledge Level	Section	Marks	Description	Total
K1 (Q 1 -10)	A (Q 1 – 5 MCQ) (Q 6–10 Define/Short Answer)	10 x 1 = 10	MCQ Define	50
K2 (Q 11-18)	B (Answer 5 out of 8)	5 x 8 = 40	Short Answers	

3. Practical Examinations: 100/50 Marks

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

4. Components of Continuous Assessment

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

Programme Outcomes

PO1 To make students as computer professionals, who can be directly employed or start his/her own work as Programmer, Web Designer, Database User, Testing professional, Designer of a System and Network administrator or implementer.

PO2 To train students to a level where they can readily compete for the higher educational degree courses like MCA, M.Sc. (CS), M.Sc. (IT), MBA etc.

Programme Specific Outcomes

PSO1 Have good mathematical ability to develop algorithms and solve the logical problems.

PSO2 Have adequate knowledge about hardware and software.

PSO3 Have sufficient skills in programming languages, web-based languages, designing and managing databases.

PSO4 To fulfill the current industry needs through advanced courses.

PSO5 To develop software and industrial applications by project work.

Programme Code:	B.Sc.	Programme Title:	Bachelor of Information Technology		
Course Code:	18UIT101	Title	Batch:	2018 - 2021	
		Programming in 'C'	Semester:	I	
Hrs/Week:	4		Credits:	4	

Course Objective

To cultivate programming ability on logic development, clear view on control structures, pointers (memory management), file handling, etc.

Course Outcomes

K1	CO1	To keep in mind the fundamentals of C programming.
K2	CO2	To understand the concepts of problem solving techniques.
K3	CO3	To apply concepts and techniques for implementation.
K4	CO4	To evaluate the logical thinking in program development.

Units	Content	Hrs
Unit I	Programming development methodologies - Programming style – **Problem solving techniques:** Algorithm, Flowchart, Pseudo code. Structure of a C program – C character set - Delimiters – Keywords – Identifiers – Constants – Variables – Rules for defining variables – Data types – Declaring and initializing variables – Type conversion. *Operators and Expressions.*	12
Unit II	**Formatted and Unformatted I/O functions. Decision statements:** If, If...Else, Nested If. Else, Break, Continue, Go to, Switch, Nested switch...case, switch...case and nested ifs statements. **Loop control statements:** For, Nested for, While, Do...while and with while loops.	10
Unit III	**Arrays**: Initialization, definition, characteristics, *One dimensional*, predefined streams, two dimensional, three or multi dimensional arrays – sscanf (), sprintf (). **String**s: Declaration and initialization, displaying, standard functions and applications. **Pointers:** Futures, Declarations, arithmetic operations, pointers and arrays, two dimensional arrays, array of pointers, pointers to pointers, pointers and strings, void pointers.	10
Unit IV	**Functions**: Definition, declaration, return statements, types, call by value and reference, returning more multiple values, function as an argument, function with arrays and pointers. **Structure and Union:** Features of structure, Declaration and initialization of structure, Structure within structure, Array of structure, Pointer to structure, structure and functions, typedef, Bit fields, Enumerated data types, Union, union of structures.	10
Unit V	**Files:** Streams and file types, *Steps for file operation*, File I/O, Structures read and write, Other file functions, searching errors in reading or writing files, low level disk I/O, Command line arguments, I/O redirection. **Preprocessor directives:** #define, #include, #ifndef, #error, #line, #pragma, and Predefined macros.	10
	Total Contact Hrs *** self study**	52

Power Point Presentation, Seminar, Quiz, Assignments.

Books for study

❖ Ashok .N. Kamthane. (2004). *Programming and Data Structures*. First Indian Print. Pearson Education: ISBN 81-297-0327-0.
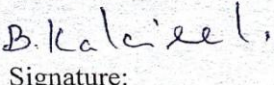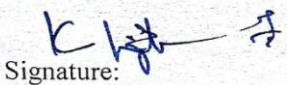
Books for Reference

❖ Balagurusamy. E. (1998). *Programming in ANSI C*. Tata McGraw-Hill.
❖ Pradip Dey, Manas Ghosh. (2008). *Computer Fundamentals and Programming in c*. Oxford.

Mapping

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

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

Course Designed by Name and Signature	Verified by HOD Name and Signature	Checked by CDC	Approved by COE
Name: B. Kalaiselvi	Name: K. Vijayakumar	Name: Dr. M. Durairaju	Name: Dr. R. Muthukumaran
Signature:	Signature:	Signature:	Signature:

K.VIJAYAKUMAR, MCA.,M.Phil.,
Head,Dept. of Information Technology,
NGM College (Autonomous),
POLLACHI - 642 001.

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.O.,
Associate Professor / Co-ordinator,
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NGM College (Autonomous)
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Dr. R. MUTHUKUMAR
Controller of Examination
NGM College (Autonomo
POLLACHI - 642 001.

Programme Code:	B. Sc.	Programme Title:		Bachelor of Information Technology
Course Code:	18UIT102	Title	Batch:	2018 - 2021
		Computer System Architecture	Semester:	I
Hrs/Week:		5	Credits:	4

Course Objective

To obtain the basic knowledge of computer organization, input output organization, pipeline, vector processing, and memory organization.

Course Outcomes

K1	CO1	To remember basic building block of digital computer system
K2	CO2	To understand the execution sequence of instruction through the processor
K3	CO3	To apply interfacing of various peripheral devices used with the system
K4	CO4	To analyze functioning of various parts of the computer from hardware point of view

Units	Content	Hrs
Unit I	**Basic Computer Organization and Design:** Instruction Codes - Control Registers – Control Instructions – Instruction Cycle – Memory Reference Instructions – * *Input Output* and Interrupt.	13
Unit II	**Central Processing Unit (CPU):** General Register Organization – Stack Organization - Instruction Formats – Addressing Modes – Data Transfer and Manipulation – * *Program Control*.	13
Unit III	**Input – Output Organization:** *Peripheral Devices*- Input – Output Interface – Asynchronous Data Transfer - Direct Memory Access (DMA) - CPU-IOP Communication.	12
Unit IV	**Pipeline and Vector processing:** Parallel Processing – Pipelining – Arithmetic Pipeline – Instruction Pipeline – RISC Pipeline – Vector processing – Array Processing.	13
Unit V	**Memory Organization:** Memory Hierarchy – Main Memory - Auxiliary Memory - Cache Memory – Associative Memory - Virtual Memory.	14
	Total Contact Hrs *self study*	65

Presentations, Seminar , Quiz, Assignment

Books for study

❖ M. Morris Mano. (2008). *Computer System Architecture.* 3rd Edition .PHI

Books for Reference

❖ M. Carter. (2001). *Computer Architecture*. Schaum's outline series, TMH Pub.
❖ William Stallings. (2006), *Computer System and Architecture*, 8th Edition, Pearson Publication.

Mapping

CO＼PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	S	L	H	M
CO2	L	S	H	L	L
CO3	L	S	L	M	L
CO4	M	S	L	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: C. R. Durgadevi	Name: K. Vijayakumar	Name:Dr. M. Durairaju	Name:Dr. R. Muthukumaran
C.R.D-y-devi	K.		
Signature:	Signature:	Signature:	Signature:

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Programme Code:	B. Sc.	Programme Title:	Bachelor of Information Technology	
Course Code:	18UIT103	Title	Batch:	2018 - 2021
		LAB. I – Programming in 'C'	Semester:	I
Hrs/Week:	4		Credits:	2

Course Objective

To understand, learn and apply the various programming concepts of 'C' and improving the programming skills in 'C'.

Course Outcomes
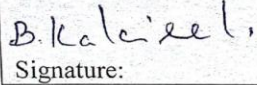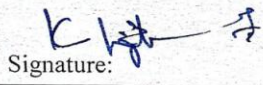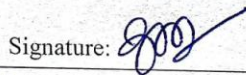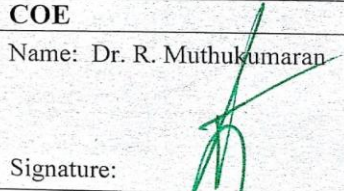
K3	CO1	To apply appropriate data structure, mathematical and scientific logic
K4	CO2	To analyze a problem in different logic
K5	CO3	To verify the solutions of various problems with input and output data

Content	Hrs
SAMPLE PROGRAM LIST **Test - I** 1. Create a C program to implement basic operators. 2. Create a C program to implement if, if-else, nested if. 3. Create a C program to implement switch case. 4. Create a C program to implement while loop. 5. Create a C program to implement do-while loop. 6. Create a C program to implement for loop. 7. Create a C program to implement one dimensional array. 8. Create a C program to implement multi-dimensional array. 9. Create a C program to implement strings. 10. Create a C program to implement basic pointer operations. **Test - II** 11. Create a C program to implement array of pointers. 12. Create a C program to implement functions using call by value. 13. Create a C program to implement functions using call by reference. 14. Create a C program to implement structure and array of structure. 15. Create a C program to implement union. 16. Create a file to perform read and write operations using file accessing modes. 17. Create a C program to implement preprocessor directives.	**52**

Mapping

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

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

Course Designed by Name and Signature	Verified by HOD Name and Signature	Checked by CDC	Approved by COE
Name: B. Kalaiselvi	Name: K. Vijayakumar	Name: Dr. M. Durairaju	Name: Dr. R. Muthukumaran
Signature: B.Kalaiseli,	Signature:	Signature:	Signature:

K.VIJAYAKUMAR, MCA.,M.Phil.,
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Programme Code:	B.Sc.	Programme Title :	Bachelor of Information Technology	
Course Code:	18UIT1A1	Title:		
		Statistical Methods	Batch :	2018 - 2021
			Semester :	I
Hrs/Week:	4		Credits :	4

Course Objective

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

Course Outcomes (CO)

K1	CO1	To remember the formula of different Means, Median, Mode, Deviations, Correlation, Regression, Probability, Chi square test, Degree of Freedom, etc.
K2	CO2	To understand the concepts Central tendency, Dispersion, Correlation and regression, Probability and Sampling theory.
K3	CO3	To solve the problems by using formula to apply the programs
K4	CO4	To evaluate the results through the program outputs

Units	Content	Hrs
Unit I	**Measures of central tendency:** Mean: *Arithmetic Mean*, Weighted Arithmetic Mean, Combined Arithmetic Mean, Geometric Mean, Harmonic Mean, Median and mode – Relation between mean, median and mode.	12
Unit II	**Dispersion:** *Range* - Mean deviation - Standard deviation - Coefficient of Variation – Quartile Deviation.	9
Unit III	**Correlation:** Karl Pearson`s Coefficient of Correlation – Rank correlation. **Regression:** Regression Equations - *Difference between correlation & Regression.*	9
Unit IV	**Probability:** Permutation and Combination- Important terms in probability- Measurement of Probability: Classical Approach- Relative Frequency theory of probability – Personalistic view of probability – Axiomatic Approach of probability. Theorems of probability: Addition – Multiplication – Odds.	12
Unit V	**Sampling Theory and Test of Significance**: Introduction – Estimation theory – Testing of hypothesis – Testing if significance for large samples and small samples. **Chi Square Test:** Introduction – x^2 test, Degrees of freedom, Test of goodness of fit, Test of Independence.	10
	Total Contact Hrs * Self-Study	**52**

Seminar, Assignment, Discussion.

Books for study:

 ❖ Pillai R. S. N. Bagavathi V. (2005). *Statistical Methods*. Sultan Chand and Sons & Company Ltd. New Delhi.
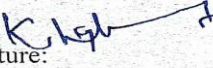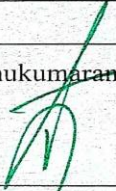
Books for Reference:

 ❖ Gupta. S.C.   Kapoor. V.K. (Reprint 2014). *Fundamentals of Mathematical Statistics*.11th edition. S. Chand and Sons.

Mapping

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	L	M	M	L
CO2	M	M	M	M	L
CO3	H	M	S	H	M
CO4	H	M	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 with Signature**	**CDC**	**COE**
Name: K.Vijayakumar	Name: K.Vijayakumar	Name: Dr. M. Durairaju	Name: Dr.R.Muthukumaran
Signature:	Signature:	Signature:	Signature:

Programme Code:	B. Sc.	Programme Title:	Bachelor of Information Technology	
Course Code:	18UIT204	Title	Batch:	2018 - 2021
		Object Oriented Programming with Java	Semester:	II
Hrs/Week:	4		Credits:	4

Course Objective

To provide knowledge about the basic concepts of OOPs, methods, interfaces, multithreads, packages and applets.

Course Outcomes

K1	CO1	To keep in mind the basic concepts of OOPs
K2	CO2	To apprehend a knowledge about how to use java for internet applications
K3	CO3	To implement file, applet, thread concepts
K4	CO4	To review the usage of packages, exceptions and string concepts.

Units	Content	Hrs
Unit I	**Fundamentals of Object Oriented Programming**: Introduction – Paradigm - Basics – Benefits – Applications. **Java Evolution**: History – Features – Difference from C/C++ - * *Internet – World wide web* – Web browsers – Hardware and software requirements – Support systems –Environment. **Overview of Java language**. **Constants, Variables and Data types**.	11
Unit II	**Classes, Objects and Methods:** Introduction – Defining – Field, Method Declaration – Creating Objects – Accessing class members – Constructors – Method Overloading - Static Members – Nesting of Methods – Inheritance – Overriding – Final Variables, Methods and Classes. Finalizer Methods – Abstract methods and classes – Methods with Varargs – Visibility control. **Arrays, Strings and Vectors:** Introduction – * *One dimensional* – *Creation – Two-dimensional* – Strings - Vectors – Wrapper classes – Enumerated types – Annotations. **Interfaces: Multiple Inheritance.**	10
Unit III	**Packages: Putting classes together**: Introduction – API packages – System packages – Naming Conventions – Creation – Accessing – Using – Adding a Class to a package – Hiding classes – Static import. **Multithreaded Programming** : Introduction – Creation – Extending – Stopping and blocking – Life cycle – Using thread methods – Exceptions – Priorities – Synchronization – Implementing the Runnable interface – Inter-thread communication. **Managing Errors and Exceptions.**	11
Unit IV	**Applet Programming:** Introduction – Difference between Applet and other Applications - Writing and Building Applet - Life Cycle – Creating Executable applets – Designing a Web page – Applet Tag – Applet to HTML – Running Applets – Passing Parameters – Aligning the display – * *HTML tags* – Numerical Values – User input – Event Handling. **Graphics Programming**.	10

Unit V	**Managing Input / Output Files:** Introduction – Streams – Stream Classes – Byte Stream – Character Stream – Using Stream – Useful I/O Classes – File Classes – I/O Exceptions – File Creation – Reading Writing Characters and Bytes – Primitive Data Types – Concatenating and Buffering - Random Access File – Interactive I/O – Other Stream Classes.	10
	Total Contact Hrs *self study*	**52**

Presentations, Seminar, Quiz, Assignment, Case study

Books for study

- ❖ E. Balagurusamy. (2015). "*Programming with JAVA – A Primer*", Tata McGraw-Hill Publishing Company Limited, Fifth Edition.
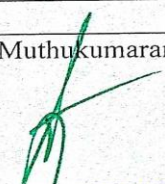
Books for Reference

- ❖ Instructional Software Research and Development (ISRD) Group. 2001. "*Introduction to Object Oriented Programming through Java*", Tata McGraw-Hill Publishing Company Limited, New Delhi.
- ❖ Herbert Schild**,** (2002). *Java Complete Reference*, Fifth Edition, Tata McGraw Hill Pub

Mapping

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	L	S	M	M
CO2	L	L	S	S	H
CO3	L	M	S	M	M
CO4	L	L	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: C. R. Durgadevi	Name: K. Vijayakumar	Name:Dr. M. Durairaju	Name:Dr. R. Muthukumaran
Signature:	Signature:	Signature:	Signature:

Programme Code:	B. Sc.	Programme Title:	Bachelor of Information Technology	
Course Code:	18UIT205	Title	Batch:	2018 - 2021
		Data Structures	Semester:	II
Hrs/Week:	4		Credits:	4

Course Objective

To have adequate knowledge about linear data structures, queues, linked list, trees, searching, sorting and hashing.

Course Outcomes

K1	CO1	To recollect basic concepts of data handle.
K2	CO2	To comprehend data structures like stack, queue, linked list and trees.
K3	CO3	To implement data structure techniques in problem solving
K4	CO4	To analyze space and time complexity of algorithms and to evaluate various data structures.

Units	Content	Hrs
Unit I	**Arrays:** Introduction to Linear and Non Linear Data Structures - Arrays in C – *Single Dimensional Arrays* - Array Operations. **Linked List:** Introduction to List and Linked Lists - Dynamic Memory Allocation - Basic Linked List Operations-Doubly Linked List - Circular Linked List - Atomic Node Linked List - Linked List in Arrays - Linked List versus Arrays.	13
Unit II	**Stacks:** Introduction to Stacks - Stack as an Abstract Data Type - Representation of Stacks Through Arrays - Representation of Stacks Through Linked List - *Applications of Stacks* - Stacks and Recursion.	8
Unit III	**Queues:** Introduction - Queue as an Abstract Data Type - Representation of Queues - Circular Queues - Double Ended Queues - Dequeue - Priority Queues - *Application of Queues*.	9
Unit IV	**Binary Trees:** Introduction to nonlinear Data Structure - Introduction to Binary Trees - *Types of Trees* - Definitions - Properties - Representation - Operations – Traversal - Reconstruction - Counting Number - Applications.	11
Unit V	**Searching and Sorting**: Sorting - An Introduction - Efficiency of sorting Algorithms - Bubble sort - Selection sort - Quick sort - Insertion sort - Merge sort - Binary Tree Sort - Radix sort - Shell sort – Heap sort. **Searching**: An Introduction - Binary Search-Indexed Sequential search. **Hashing:** An Introduction - Hash functions - collision in Hashing - Collision or Conflict Resolution Techniques - Open Addressing - Analysis of Open Addressing –Chaining - Analysis of Chaining.	11
	Total Contact Hrs. * self study*	52

Presentations, Seminar , Quiz, Assignment, Activity, Case study

Books for study

- ❖ ISRD group. (2010). *Data structure using C*. Seventh Reprint. Tata McGraw-Hill.
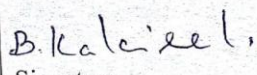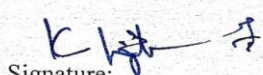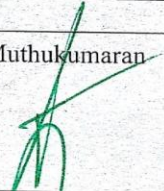
Books for Reference

- ❖ Aaron .M. Tanenbaum, Yedidyeh Langsam, Moshe .J. Augenstein. (2007). *Data Structure using C*. Third edition.PHI Pub.
- ❖ Ashok. N. Kamthane. (2004). *Programming And Data Structures*. First Indian Print. Pearson Education. ISBN 81-297-0327-0.

Mapping

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

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

Course Designed by Name and Signature	Verified by HOD Name and Signature	Checked by CDC	Approved by COE
Name: B. Kalaiselvi	Name: K. Vijayakumar	Name: Dr. M. Durairaju	Name: Dr. R. Muthukumaran
B.Kalai'eel, Signature:	Signature:	Signature:	Signature:

K.VIJAYAKUMAR, MCA.,M.Phil.,
Head,Dept. of Information Technology,
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)
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Dr. R. MUTHUKUMAR
Controller of Examination
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POLLACHI - 642 001.

Programme Code:	B. Sc.	Programme Title:	Bachelor of Information Technology		
Course Code:	18UIT206	Title	Batch:	2018 - 2021	
		LAB. II – Programming in JAVA	Semester:	II	
Hrs/Week:	4		Credits:	2	

Course Objective

To apply various concepts of java like inheritance, multithreading, exception handling, applet, package for improving the programming skills in java.

Course Outcomes

K3	CO1	To apply basic object oriented concepts
K4	CO2	To analyze the usage of packages, exceptions, thread, OOPs
K5	CO3	To verify the working of applications using frames and applet

Content	Hrs
SAMPLE PROGRAM LIST **Test - I** 1. Program to create a class using constructor. 2. Program to implement method overloading. 3. Program to implement method overriding. 4. Program to implement one and multi dimensional array. 5. Program to implement multiple inheritance using interfaces. 6. Program to create packages and sub packages. **Test - II** 7. Program for implementing threads. 8. Program to implement inter-thread communication. 9. Program for Exception Handling 10. Program to create shapes using applets. 11. Program to handle events. 12. Program to create files.	**52**

Mapping

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	M	M
CO2	S	M	S	M	M
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: C. R. Durgadevi	Name: K. Vijayakumar	Name:Dr. M. Durairaju	Name:Dr. R. Muthukumaran
Signature:	Signature:	Signature:	Signature:

Programme Code:	B.Sc.	Programme Title :	Bachelor of Information Technology	
Course Code:	18UIT2A2	Title:		
		Mathematical Foundations for Computer Science.	Batch :	2018 - 2021
			Semester :	II
Hrs/Week:	4		Credits :	4

Course Objective

On successful completion of this subject the students should known Matrices, Set theory, Mathematical logic, Relations and Graph theory.

Course Outcomes (CO)

K1	CO1	To remember the concepts of matrices, set theory, mathematical logic, relations and graph theory.
K2	CO2	To understand the basic terminology of discrete mathematics
K3	CO3	To execute discrete notations in the programs
K4	CO4	To evaluate the discrete concepts through programs

Unit	Content	Hrs
Unit I	**Matrices**: Introduction – Definition - Determination – Types of Matrices-Multiplication, *Transpose of a matrix* - Inverse of a matrix –Definition, Examples – Rank of a Matrix.	10
Unit II	**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 - min sets - Algebra of sets and Duality – Inclusion and Exclusion principle	10
Unit III	**Mathematical Logic**: Introduction - Propositional Logic –Introduction, Proofs –* Basic logical operations* – Tautologies – Contradiction - Predicate calculus.	10
Unit IV	**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.	10
Unit V	**Graph Theory**: Basic terminology – paths, cycle & Connectivity – Sub graphs – Types of graphs – Representation of graphs in computer memory - Trees - Properties of trees – Binary trees – traversing Binary trees – Computer Representation of general trees.	12
	Total Contact Hrs * Self-Study	52

Books for study:

- ❖ Dr. Venkataraman. M. K. (1998). *Engineering Mathematics*. Third edition. Volume II: NPC. (Unit I)
- ❖ Sharma. J.K. (2005). *Discrete Mathematics*. Second Edition. Macmillan India Ltd (Rest of Units).
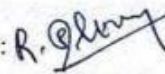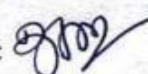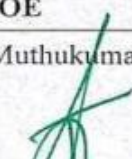
Books for Reference:

- ❖ Kenneth H. Rosen. (2003). Discrete Mathematics and Its Applications, 5th edition, McGraw Hill Pub.
- ❖ Dr. Venkataraman. M. K. Dr. Sridharan. N, Chandarasekaran. N. (2000). *Discrete Mathematics*. The National publishing Company Chennai.

Mapping

PSO / CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	L	M	M	L
CO2	H	M	M	M	L
CO3	H	M	S	H	M
CO4	H	M	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 with Signature	CDC	COE
Name: R. Sekar	Name: K.Vijayakumar	Name: Dr.M.Durairaju	Name: Dr.R.Muthukumaran
Signature:	Signature:	Signature:	Signature:

K.VIJAYAKUMAR, MCA.,M.Phil.,
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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
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Programme Code:	B.Sc.	Programme Title :	Bachelor of Information Technology		
Course Code:	18UIT307	Title:	Operating Systems	Batch :	2018 - 2021
				Semester :	III
Hrs/Week:	5			Credits :	4

Course Objective

On successful completion of this subject the students should known the basic concepts of operating system, memory management, process management, information management, deadlocks, parallel processing, distributed processing and Windows vista.

Course Outcomes (CO)

K1	CO1	To recollect fundamentals of operating system.
K2	CO2	To understand basic principles and advanced concepts of the operating system.
K3	CO3	To apply the different mathematical foundations, algorithmic principles with approaches in computer based systems.
K4	CO4	To analysis the various architectural components involved in OS and its applications.

Units	Content	Hrs
Unit I	**Operating System-Functions and Structure:** Operating System Definition- Different services of Operating System- Uses of System Calls- Issue of Portability-Operating System Structure- Virtual machine- Booting. **Information Management:** Introduction - The File System- Introduction - Block and Block numbering scheme - *Relationship between OS and DMS* - File Directory entry - Open/Close Operations - Device Driver (DD): The Basics, I/O Procedure, I/O Scheduler.	13
Unit II	**Process Management:** Introduction – States – Transitions – Operations on a Process – Process Scheduling – Multithreading. **Inter Process Communication** - The Producer Consumer Problem - Solutions to Producer Consumer problems: Interrupt Disabling/Enabling, Lock-flag, and Alternating Policy - *Classical IPC Problems*.	13
Unit III	**Deadlocks:** Introduction - Graphical Representation of Deadlock - Deadlock Prerequisites - Deadlock Strategies. **Memory Management**: Introduction - *Single Contiguous Memory Management* - Fixed Partition Memory Management - Variable Partitions - Non Contiguous Allocation General Concepts: Paging, Segmentation - Virtual Memory Management System: Jargon – Page Replacement Policies.	13
Unit IV	**Parallel Processing:** Introduction - Difference between Distributed and Parallel Processing - *Advantages of Parallel Processing* - Machine Architectures supporting Parallel Processing - Operating System for Parallel Processing. **Distributed Processing**: Introduction - Distributed Processing - Process Migration – RPC - Distributed Processes - Distributed File Management - Cache Management.	14
Unit V	**Windows NT/2000 :** History – Programming: Native NT API – Win32 API – Registry. Structure – Booting – *Processes and Threads* – Memory Management – NTFS – Security.	12
	Total Contact Hrs * *Self Study*	**65**

Seminar, Assignment, Quiz, Discussion.

Books for study:

- ❖ Achyut S Godbole. (2002). *Operating Systems*, TMH Publications.

Books for Reference:

- ❖ H. M Deitel. (2003). *Operating Systems*, 2nd Edition, Pearson Education Publication.
- ❖ John J. Donovan. (1991). *Systems Programming*, TMH Publications.

- ❖ Mark G. Sobell, (2004 Edition), *A Practical Guide to Red Hat Linux 8*, Pearson Education.
- ❖ W. Frank Ableson, Robisen, Chris king. (2011), *Android in Action,* 2nd Edition, Dream Tech Press.

Mapping

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	H	H	H	M
CO2	H	S	S	M	M
CO3	H	H	H	H	M
CO4	H	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: A. Kalaivani	Name: K. Vijayakumar	Name: Dr. M. Durairaju	Name: Dr. R. Muthukumaran
Signature:	Signature:	Signature:	Signature:

Programme Code:	B. Sc.	Programme Title:	Bachelor of Information Technology	
Course Code:	18UIT308	**Title**	**Batch:**	2018 - 2021
		Relational Database Management Systems	**Semester:**	III
Hrs/Week:	5		**Credits:**	4

Course Objective

To provide better understanding of various concepts of DBMS, Oracle, normalization, data management and retrieval, PL/SQL commands and operations.

Course Outcomes

K1	CO1	To keep in mind the basic concepts of database
K2	CO2	To get the idea of a database from SQL statements
K3	CO3	To execute different forms of queries using SQL statements
K4	CO4	To analyze various data models which describe the structure of database

Units	Content	Hrs
Unit I	**Database Concepts: A Relational approach:** Database – Relationships – DBMS– Relational Data Model – Integrity Rules – *Theoretical Relational Languages*. **Database Design: Data Modeling and Normalization**: Data Modeling – Dependency – Database Design – Normal forms – Dependency Diagrams - Demoralization – Another Example of Normalization. **DFD:** Definition – example – Rules- Decomposition.	12
Unit II	**Oracle9*i*: Overview:** Introduction. **SQL *Plus:** Environment – SQL – Commands – Errors & Help – *Alternate Text Editors* - Worksheet - *i*SQL *Plus. **Oracle Tables:** DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.	13
Unit III	**Working with Table:** DML – adding a new Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – *retrieving Data from Table* – Arithmetic Operations – restricting Data with WHERE clause – Sorting – Revisiting Substitution Variables – DEFINE command – CASE structure. **Functions and Grouping**: Built-in functions – Grouping Data.	12
Unit IV	**Multiple Tables: Joins and Set operations**: Join – Set operators. **Sub queries:** Sub query - Correlated Sub query. **PL/SQL:** Introduction – Block Structure – Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables – Printing – Arithmetic Operators. **Control Structures and Embedded SQL**: *Control Structures* – Nested Blocks – SQ L in PL/SQL – Data Manipulation – Transaction Control statements.	13

Unit V	**PL/SQL Cursors and Exceptions:** Cursors – Implicit & Explicit Cursors and Attributes – Cursor FOR loops – SELECT…FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions. **PL/SQL: Composite Data Types:** Records – Tables – V arrays. **Named Blocks**: Procedures – Functions – Packages –Triggers –Data Dictionary Views.	15
	Total Contact Hrs * *self study*	**65**

> Presentations, Seminar , Quiz, Brain storming, Case study

Books for study

- ❖ Nilesh Shah. (2009), *Database Systems Using Oracle*, 2nd edition, PHI.
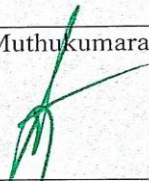
Books for Reference

- ❖ Arun Majumdar & Pritimoy Bhattacharya. (2001). *Database Management Systems,*TMH.
- ❖ Jeffrey A.Hoffer, Joey F.George, Joseph S.Valacich, (2009). *Modern Systems Analysis and Design*. IInd Edition. Vth Edition. Pearson Education Pub's.
- ❖ Gerald V. Post.(2005). *Database Management Systems*, 3rd edition, TMH.

Mapping

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

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

Course Designed by Name and Signature	Verified by HOD Name and Signature	Checked by CDC	Approved by COE
Name: C. R. Durgadevi C-R-D-gadevi Signature:	Name: K. Vijayakumar K. ... Signature:	Name:Dr. M. Durairaju Signature:	Name:Dr. R. Muthukumaran Signature:

Programme Code:	B.Sc.	**Programme Title :**	Bachelor of Information Technology	
Course Code:	18UIT309	**Title:** Client/ Server Computing	**Batch :**	2018 - 2021
			Semester :	III
Hrs/Week:	5		**Credits :**	4

Course Objective

Understand the various concepts of Client/Server computing such as middleware, architecture, security etc.

Course Outcomes (CO)

K1	CO1	To keep in mind the various models, factors, communication types, performance and security.
K2	CO2	To Understand the basic concepts of C/S technology, middleware, upgrade, support, and improvements.
K3	CO3	To apply the middleware in the ODBC and mobile technology.
K4	CO4	To analyze the various C/S and middleware technology.

Unit	Content	Hrs
Unit I	**Introducing Client/Server:** Information-Move to Client/Server - Client/Server technology- Benefits- *Ignore of Myths*- Client/Server Models. **Planning for Client/Server.**	14
Unit II	**Building the Blueprint:** Considerations for migrating to Client/Server- Business impact of Client/Server - Hardware Impact of Client/Server- Client/Server technology - Software Impact of Client/Server. **Steps for Migrating to Client/Server:** Client/Server factors for success – *Sample plan.*	15
Unit III	**Understanding Middleware:** Basic View - High level Middleware communication types – Main types of Middleware. **Application Development**: Client/Server Architecture. **Upgrading to Client/Server:** Upgrading hardware to Client/Server - *Upgrading software to Client/Server -* Upgrading Networks to Client/Server.	13
Unit IV	**Supporting Client/Server** - **Performance Tuning and Optimization:** Client Performance - Server Performance - Database Performance - Network Performance.	11
Unit V	**Securing a Client/Server:** Changing IT Environment-Building Security Requirements - Building Security Solutions - Security for Client/Server. **Future of Client/Server**: Improvements at the client - Improvements at the Server - Improvements at the Network	12
	Total Contact Hrs *Self Study*	**65**

Presentation, Seminar, Assignment, and Discussion

Books for study:

- ❖ Neil Jenkins, et al, (1996), "*Client/Server Unleashed*" Tec Media Publications, First Edition.
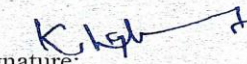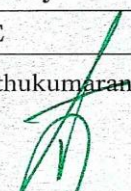
Books for Reference:

- ❖ Robert Orfali, Dan Harkey & Jeri Edwards, (2002), "*The Essential Client / Server Survival Guide*", Galgotia Publication Private Limited, Second Edition.
- ❖ Joe Salemi, (1994), "*Guide to Client Server Databases*", BPB Publications, Edition.

Mapping

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

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

Programme Code:	B. Sc.	Programme Title:	Bachelor of Information Technology		
Course Code:	18UIT310	Title	Batch:	2018 - 2021	
		Lab. III - RDBMS	Semester:	III	
Hrs/Week:	5		Credits:	3	

Course Objective

To understand, learn and apply the various programming concepts in ORACLE (Basic commands, Trigger, Functions, etc.).

Course Outcomes

K3	CO1	To apply appropriate queries in Oracle
K4	CO2	To analyze various commands in SQL and PL/SQL
K5	CO3	To verify access permission commands

Content	Hrs
SAMPLE PROGRAM LIST **Test - I** 1. DDL commands. 2. Constraints 3. DML commands. 4. Arithmetic operations on tables. 5. Where clause 6. Case structures 7. Built-in functions 8. Group functions 9. Joins and set operations 10. Sub queries **Test - II** PL/SQL Block structure 11. Control Structures in PL/SQL. 12. Embedded SQL 13. Cursors 14. Exceptions 15. PL/SQL Records and Tables. 16. Procedures and Functions 17. Packages and Triggers.	**65**

Mapping

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

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

Course Designed by Name and Signature	Verified by HOD Name and Signature	Checked by CDC	Approved by COE
Name: C. R. Durgadevi Signature:	Name: K. Vijayakumar Signature:	Name:Dr. M. Durairaju Signature:	Name:Dr. R. Muthukumaran Signature:

Programme Code:	B.Sc.	Programme Title :	Bachelor of Information Technology		
Course Code:	18UIT311	**Title:** Lab. IV – HTML & CSS	**Batch :**	2018 - 2021	
			Semester :	III	
Hrs/Week:	2		**Credits :**	1	

Course Objective
To obtain the practical knowledge apply the basic tags of HTML and Cascading Styles.

Course Outcomes (CO)
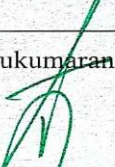
K3	CO3	To execute the basics of HTML and CSS
K4	CO4	To analyze the various tags.
K5	CO5	To verify the webpages in the website.

Content	Hrs
SAMPLE PROGRAM LIST	
Test – I (HTML)	
1. Webpage creation.	
2. Ordered List and Un-Ordered List.	
3. Table Tags.	
4. Frame creation.	26
5. Font Attributes.	
Test – II (CSS)	
6. Change the background and borders.	
7. Margins and padding.	
8. Forms.	
9. Tables	
Total Contact Hrs	**26**

Mapping

PSO / CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO3	L	M	H	M	M
CO4	L	H	H	S	S
CO5	L	H	M	S	S

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

Course Designed By	Verified by HOD	Checked By	Approved By
Name and Signature	Name with Signature	CDC	COE
Name: K.Vijayakumar	Name: K.Vijayakumar	Name: Dr. M. Durairaju	Name: Dr.R.Muthukumaran
Signature:	Signature:	Signature:	Signature:

Programme Code:	B.Sc.	Programme Title :		Bachelor of Information Technology	
Course Code:	18UIT3A3	**Title:** Microprocessor and Assembly Language Programming		**Batch :**	2018-2021
				Semester :	III
Hrs/Week:	6			**Credits :**	4

Course Objective

Understand the evolution of microprocessor, Addressing modes, pin diagrams of various processors, Assembly Language Programs, Other Microprocessors, Advanced Microprocessor, Interfacing A/D converter and Applications.

Course Outcomes (CO)

K1	CO1	To keep in mind the various microprocessor and microcontrollers manufacturer name, year, versions, bit-size, etc.
K2	CO2	To Understand the basic concepts of 16 bit and 32 bit microprocessors.
K3	CO3	To apply the instructions in the Assembly Language Programs.
K4	CO4	To analyze the various products of processors and controllers.

Unit	Content	Hrs
Unit I	**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 – Symbolic Processors – Digital Signal Processors Intel 8086 – Pin Description of Intel 8086 – Operating modes of 8086 – Register organization of 8086 – BIU and EU – Interrupts – 8086 based computer system – Addressing Modes of 8086.	15
Unit II	**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 – Block Move using REP instruction – Sum of a series – Multi byte Addition.	15
Unit III	**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*.	16
Unit IV	**Other Microprocessors :** Pentium – Pentium Pro – Pentium II, III, IV - Alpha – Cyrix – MIPS – AMD Processors. **MOTOROLA:** 68000 – 68020 – 68030 – 68040 Processors.	16
Unit V	**Advanced Core Processors:** Dual - Core2 Duo - i3 - i5 - i7 - Quad – Octa - Penta – Comparision. **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.	16

Total Contact Hrs	*Self Study*	**78**

Seminar, Assignment, Quiz and Discussion

Books for study:

- ❖ Badri Ram. (2007). *Advanced Microprocessors and Interfacing.* Tata McGraw-Hill Publishing Company Limited, Fourteenth reprint.
- ❖ Course Materials from INTERNET (Pentium II, III, IV and Advanced Core Processors).
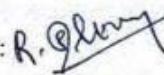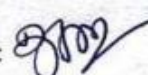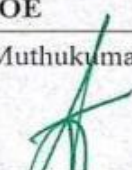
Books for Reference:
- ❖ A.K. Ray, K.M. Bhurchandi. (2007). *Advanced Microprocessors and Peripherals.* Tata McGraw-Hill Publishing Company Limited, Second Edition.
- ❖ Ramesh S. Gaonkar. (1997). *Microprocessor Architecture, Programming, and Applications with the 8085.* Third Edition. PRI India.

Mapping

PSO CO	PS01	PS02	PS03	PS04	PS05
C01	M	H	M	S	M
C02	M	H	M	S	M
C03	M	H	H	H	M
C04	M	H	M	H	M

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

Course Designed By	Verified by HOD	Checked By	Approved By
Name and Signature	Name with Signature	CDC	COE
Name: R. Sekar	Name: K.Vijayakumar	Name: Dr.M.Durairaju	Name: Dr.R.Muthukumaran
Signature: R. Sekar	Signature: K	Signature:	Signature:

Programme Code:	B.Sc.	Programme Title:	Bachelor of Information Technology	
Course Code:	18UIT3N1	Title :	Batch:	2018 - 2021
		Skill Based Non-Major- I Computer Fundamentals	Semester:	III
Hrs/Week:	1		Credits:	2

Course Objective

To provide the overall view of various concepts of computer such as history, classification, model, input output devices and memory.

Course Outcomes

K1	CO1	To keep in mind basics of computer
K2	CO2	To understand the classification of computer
K3	CO3	To deploy various I/O devices
K4	CO4	To evaluate the types of memories

Units	Content	Hrs
Unit I	Generation of Computers.	2
Unit II	Classification of Computers.	2
Unit III	Computer Basics: Simple Model of a computer – Characteristics of a computer.	3
Unit IV	I/O devices: - Keyboard, Monitor, Flat Panel Display, Mouse, Printers, Plotters.	3
Unit V	Computer Memory: ROM, Flash Memory	3
	Total Contact Hrs	13

Presentations, Group discussions, Quiz, Assignments

Books for study

❖ V. Rajaraman. (2013). *Fundamentals of computers,* 5th Edition, PHI Learning Private Ltd
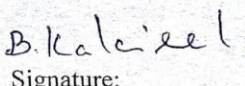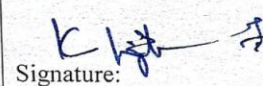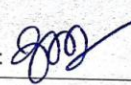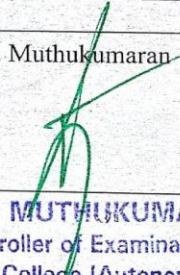
Books for Reference

❖ Pradip Dey, Manas Ghosh. (2008). *Computer fundamentals and programming in C,* Oxford University Press.

Mapping

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

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

Course Designed by Name and Signature	Verified by HOD Name and Signature	Checked by CDC	Approved by COE
Name: B. Kalaiselvi	Name: K. Vijayakumar	Name: Dr. M. Durairaju	Name: Dr. R. Muthukumaran
B.Kalcieel, Signature:	K. Signature:	Signature:	Signature:

K.VIJAYAKUMAR, MCA.,M.Phil.,
Head,Dept. of Information Technology,
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.

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

Programme Code:	B.Sc.	Programme Title:		Bachelor of Information Technology	
Course Code:	18UIT3N2	**Title**		**Batch:**	2018 - 2021
		Skill Based Non-Major- I Internet Basics.		**Semester:**	III
Hrs/Week:	1			**Credits**:	2

Course Objective

To endow with various concepts of internet like WWW, E-Mail and its applications.

Course Outcomes

K1	CO1	To remember basics of internet
K2	CO2	To understand working principles of internet
K3	CO3	To implement collaborative computing in internet
K4	CO4	To analyze the pros and cons of the internet

Units	Content	Hrs
Unit I	**Internet:** Introduction – Definition – History.	3
Unit II	Working principle – Congestion.	3
Unit III	Internet Culture – Business Culture and the Internet.	3
Unit IV	Collaborating Computing and the Internet. **WWW:** Introduction - Miscellaneous Web Browser.	2
Unit V	**Email:** Advantages and Disadvantages – User ID, Password and Email address.	2
	Total Contact Hrs	**13**

Presentations, Group discussions, Quiz, Assignments

Books for study

❖ Green Law, Ellen Hepp. (2005). *Fundamentals of the Internet and WWW*, 2nd Edition. Tata McGraw Hill.
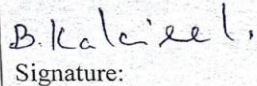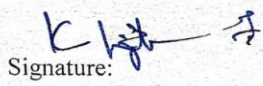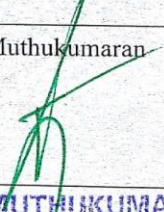
Books for Reference

❖ S. Padma Priya. (2011). *Web Technology*, Scitech Pub.

Mapping

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

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

Course Designed by Name and Signature	Verified by HOD Name and Signature	Checked by CDC	Approved by COE
Name: B. Kalaiselvi	Name: K. Vijayakumar	Name: Dr. M. Durairaju	Name: Dr. R. Muthukumaran
Signature:	Signature:	Signature:	Signature:

Programme Code:	B.Sc.	Programme Title:	Bachelor of Information Technology	
Course Code:	18UIT412	Title	Batch:	2018 - 2021
		Computer Networks	Semester:	IV
Hrs/Week:	5		Credits:	4

Course Objective

To provide basic concepts of networking like data transmission, topology, OSI model, transmission media, X.25 protocol, frame relay, ATM and accessing the internet.

Course Outcomes

K1	CO1	To remember basics of data communication and networking
K2	CO2	To comprehend various types of networks and topologies
K3	CO3	To implement routing algorithms
K4	CO4	To review different ways of accessing the internet

Units	Content	Hrs
Unit I	Introduction to Data Communications and Networking – *Information Encoding* - Analog and Digital Transmission Methods – Modes of Data Transmission and Multiplexing.	12
Unit II	**Transmission Errors**: Detection and Correction - **Transmission Media**: Guided Media, Unguided Media. **Network Topologies**: Mesh, Star, Tree, Ring, Bus topology. Switching- Circuit, Message, Packet switching. Routers and Routing – Factors affecting Routing Algorithms – Routing Algorithms – *Approaches to Routing*.	13
Unit III	Network Protocols and OSI Model - Local Area Networks (LAN), Metropolitan Area Networks (MAN) and Wide Area Networks (WAN) – Integrated Services Digital Network (ISDN).	13
Unit IV	**X.25 Protocol**: Working principle-Characteristics – Packet format – operations. **Frame Relay:** Need – Working principle – Frame format-congestion & traffic control – FRAD & Features. **Asynchronous Transfer Mode:** Introduction- Packet size- Virtual circuits – Cells- *Switching, Layers*.	14
Unit V	Internetworking Concepts, Devices, Internet Basics, History and Architecture. **Ways of Accessing the Internet:** Introduction- Dial- up access- Leased lines- DSL- Cable modems.	13
	Total Contact Hrs * *self study*	**65**

Presentations, Group discussions, Seminar , Quiz, Assignment

Books for study

- Achyut S.Godbole. (2007). *Data Communications and Networks.* Tata McGraw-Hill Publishing Company Limited, Ninth reprint

Books for Reference

- Behrouz A. Forouzan. (2007). *Data Communications and Networking Second Edition Update*. Tata McGraw-Hill Publishing Company Limited, Nineteenth reprint.
- Andrew S. Tanenbaum. (2000). *Computer Networks.* III Edition, Prentice Hall of India.

Mapping

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

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

Course Designed by Name and Signature	Verified by HOD Name and Signature	Checked by CDC	Approved by COE
Name: C. R. Durgadevi Signature:	Name: K. Vijayakumar Signature:	Name:Dr. M. Durairaju Signature:	Name:Dr. R. Muthukumaran Signature:

Programme Code:	B.Sc.	Programme Title:		Bachelor of Information Technology
Course Code:	18UIT413	**Title**	**Batch:**	2018 - 2021
		Advanced Java Programming	**Semester:**	IV
Hrs/Week:	**5**		**Credits:**	4

Course Objective

On successful completion of this subject the students can understand various concepts of Swings, Beans, JDBC, Servlet, JSP, JSTL, AJAX etc.

Course Outcomes

K1	CO1	To recollect the knowledge of GUI based applications, Web based applications and Database applications.
K2	CO2	To understand development of the Internet programming through java programming.
K3	CO3	To apply different powerful GUI components from existing applications to create new web pages.
K4	CO4	To analysis different applications for solving the real time problems in Industry.

Units	Content	Hrs
Unit I	**Swing Basic Concepts:** JFC- The Swing and the AWT - Swing Packages - Structure of A Swing Application – Top - Level Swing Containers - Lightweight Swing Container - JComponent Class - Basic Swing Components - Swing Text Components. **Exploring Swing:** Menu Components -Space Saving Lightweight Containers - Advanced Components – Virtual Desktop Components -Advanced Text Component - *New Layout Managers*.	13
Unit II	**Java Beans**: Definition - Advantages - Application Builder Tools - Using The Bean Development Kit (BDK) - JAR Files - Developing a Simple Bean Using the BDK - Using Bound Properties - Using the Bean info Interface - *Constrained Properties - Persistence - Customizers* - The Java Bean API - Using Bean Builder.	13
Unit III	**JDBC:** Architecture - *JDBC-ODBC Relationship* – Types of Drivers – Components - Interfaces and classes - Steps for Querying the Database with JDBC - Creating an ODBC Data source - Querying and updating Database Tables - passing parameters to a statement. **Servlets**: Introduction-Architecture - Designing - Servlet generating Plain Text, HTML - Handling GET Request.	13
Unit IV	**Cookies**: Overview of cookies – Servlet cookie API – Read, Use, Send cookies in a Servlet, Get client's address in a Servlet – Hit counter example. **JSP:** Introduction – Scripting elements - life cycle - Implicit objects – EL – *Working with HTML forms* – Directives – working with Session & Cookies.	12

Unit V	**JSTL Tags**: Overview – EL Support – i18n support - Database Support (SQL Tags) – XML support. **AJAX:** Introduction – working concepts - Benefits - Role of Ajax in enhancing the user experience on the web - Rich internet application - What can Ajax do? - Impact of Ajax on user experience - on mobile - Traditional means of web application development - Web application development - Data exchange - Advantages and disadvantages - Web framework XML HTTP request object - Examples.	14
	Total Contact Hrs *Self Study*	**65**

Seminar, Assignment, Quiz and Discussion

Books for Study:
- ISRD Group, (2007), *Introduction to Object Oriented Programming through Java*, Tata McGraw-Hill Publishing Company Limited, New Delhi.
- S. Padma Priya, (2011), *Web Technology*, Scitech Pub.
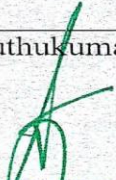
Books for Reference:
- Herbert Schild**,** (2002). *Java Complete Reference*, Fifth Edition, Tata McGraw Hill Pub.
- Rashim Mogha, V.V. Preetham, (2010), *Java Web Services Programming*, Willy India Pub.

Mapping

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	H	H	H	M
CO2	H	S	S	S	M
CO3	S	S	S	S	H
CO4	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: A. Kalaivani Signature:	Name: K. Vijayakumar Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Programme Code:	B.Sc.	Programme Title :	Bachelor of Information Technology	
Course Code:	18UIT414	**Title:** Visual Programming	**Batch :**	2017-2020
			Semester :	IV
Hrs/Week:	5		**Credits :**	4

Course Objective

Understand the various concepts of C#.Net (Data types, Statements, Properties, Inheritance, Polymorphism, Multithreading, Database Connectivity and Web Services).

Course Outcomes (CO)

K1	CO1	To keep in mind the various statements, data types, properties, Indexes, Interfaces, Events and Attributes, etc.
K2	CO2	To Understand the basic concepts of Methods, Arrays, Overloading, Threading, File Streams, and Web Services.
K3	CO3	To apply the concepts into the Lab. programs.
K4	CO4	To analyze the various controls of OOPs, Windows Applications and Web Services.

Units	Content	Hrs
Unit I	**Visual C#.Net:** Introduction **-** Features – Data types and console I/O. *Control Statements (if, switch, while, do…while, for, for...Each, go to).* **Arrays:** One Dimensional, Two Dimensional, Jagged. **Methods:** (value, ref, out, params) – Overloading.	12
Unit II	**Classes and Objects:** Introduction – Definition - Data members (constant, Read-only). *Constructors: Overloading – Copy – Static.* **Properties, Indexes and Operator Overloading:** Introduction – Properties – Indexes – Operator overloading – Conversion operators**. Inheritance and Polymorphism:** Introduction – Example – Method Overriding – Accessing Base class Members and Constructors – Virtual methods – Abstract Classes and Abstract Methods – Sealed classes.	13
Unit III	**Interfaces**: Introduction – Definition and usage – Multiple implementations – Inheritance. **Namespaces and Components** – Namespaces – Components – Components and Namespaces – Access modifiers. **Delegates, Events and Attributes**. **Exception handling:** Introduction – Mechanism (Default, User – defined). Backtracking – throw statement – Custom Exception. **Multithreading:** Introduction – Usage – Thread Class and Priority – Synchronization.	14
Unit IV	**I/O Streams:** Introduction – Streams – Binary Data files – Text files – Data files – File and Directory Operations. **Windows applications** - I. **Windows applications-II**. **Database connectivity.**	13
Unit V	**Basic Web controls. Validation and list web controls:** Introduction – validation – list. **User and Custom web controls:** Introduction – *User controls* – controls and custom properties, controls. **Web services**: Introduction – concepts – creation – Creating a web service that use data source.	13
	Total Contact Hrs *Self Study*	**65**

Presentation, Seminar, Assignment, and Discussion

Books for study:

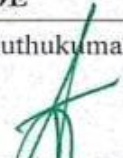❖ Muthu C. (2008). *Visual C#.Net.* First Reprint. Tata Mc-Graw Hill Pub.

Books for Reference:
❖ Kogent learning solutions (2011) *ASP.NET 4.0 in Simple Steps-* -Dream Tech Press Publication.
❖ Padmapriya .S (2011) *Web Technology* - Scitech Publications.

Mapping

PSO / CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	H	H	H
CO2	M	L	H	H	H
CO3	H	M	H	H	H
CO4	M	M	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 with Signature	CDC	COE
Name: R. Sekar	Name: K.Vijayakumar	Name: Dr.M.Durairaju	Name: Dr.R.Muthukumaran
Signature:	Signature:	Signature:	Signature:

Programme Code:	B.Sc.	Programme Title :	Bachelor of Information Technology	
Course Code:	18UIT415	**Title:** Lab. V – Advanced Java Programming	**Batch :**	2018-2021
			Semester :	IV
Hrs/Week:	4		**Credits :**	2

Course Objective

Understand the practical experience in various concepts of Swings, Beans, JDBC, Servlet, JSP, JSTL, AJAX, etc...
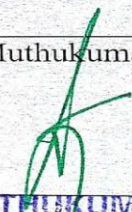
Course Outcomes

K3	CO3	To apply the different components of java programming.
K4	CO4	To analysis the concepts to enhance in the application level.
K5	CO5	To validate the user friendliness and desire performance implied for given input.

Contents	Hrs

Test - I
    1. Create JCheckBox
    2. Creating a menu
    3. Program for swing
    4. JTabbedPane
    5. Function of JTree
    6. Create JScrollPane using swing
Test - II
    7. Develop a Generic Servlet.
    8. Implement JDBC using Servlet.
    9. Develop J2EE program in JSP.
    10. Create a Java bean to create Juggler Bean.
    11. Generate simple property Java bean
	52

Total Contact Hrs	**52**

Mapping

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO3	M	M	H	M	M
CO4	L	M	H	H	H
CO5	M	M	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: A. Kalaivani	Name: K. Vijayakumar	Name: Dr. M. Durairaju	Name: Dr. R. Muthukumaran
Signature:	Signature:	Signature:	Signature:

Programme Code:	B.Sc.	Programme Title :	Bachelor of Information Technology		
Course Code:	18UIT416	**Title:** Lab. VI: Visual Programming	Batch :	2018 - 2021	
			Semester :	IV	
Hrs/Week:	4		Credits :	2	

Course Objective

Understand the practical experience in various concepts of C#.Net (Data types, Statements, Properties, Inheritance, Polymorphism, Multithreading, and Database Connectivity and Web Services).

Course Outcomes (CO)
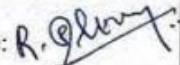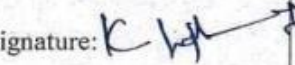
K3	CO3	To apply the concepts of web oriented programs.
K4	CO4	To analyze the various commands and concepts.
K5	CO5	To verify the results for the different input data.

Content	Hrs
Sample Program List **Test I:** 1.Switch Statement 2.Method overloading. 3.Constructor overloading 4. Implement Inheritance 5. Create User-Defined exception**.** 6. Create an application using button controls (check box, radio). 7. Generate Monthly calendar. **Test II:** 8. Create applications using controls (trackbar, panel, tree view) 9. Create applications using controls (splitter, menu dialog boxes). 10. Implement ADO.Net. 11. Generate basic manipulation using web controls. 12. Check All validation controls using web controls. 13. Creating a simple web service using controls.	52
Total Contact Hrs	**52**

Mapping

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO3	M	M	H	S	H
CO4	L	M	H	H	S
CO5	L	M	H	H	S

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

Course Designed By	Verified by HOD	Checked By	Approved By
Name and Signature	Name with Signature	CDC	COE
Name: R. Sekar	Name: K.Vijayakumar	Name: Dr.M.Durairaju	Name: Dr.R.Muthukumaran
Signature:	Signature:	Signature:	Signature:

K.VIJAYAKUMAR, MCA.,M.Phil.,
Head,Dept. of Information Technology,
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.

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

Programme Code:	B.Sc.	**Programme Title :**	Bachelor of Information Technology	
Course Code:	18UIT4A4	**Title:**	**Batch :**	2018-2021
		Software Engineering	**Semester :**	IV
Hrs/Week:	5		**Credits :**	4

Course Objective

Understand the software development life cycle, process models, requirements analysis, design concepts, software quality and testing techniques.

Course Outcomes (CO)

K1	CO1	To recollect the various process models, requirements, Designs, Quality, Testing.
K2	CO2	To Understand the software development phases.
K3	CO3	To apply concepts into the testing lab.
K4	CO4	To evaluate the expected result with testing output.

Unit	Content	Hrs
Unit I	**Software and Software Engineering:** The Nature of software-The Unique Nature of WebApps-Software Engineering-The software process-Software Engineering practice-*Software Myths*. **Process Models:** A Generic process model-Process Assessment and Improvement-Perspective process model-Specialized process models-The Unified process- Personal and team process models-process Technology-Product and Process. **AGILE Development**: Agility – Cost of change - Process - **Extreme programming**: Values – Process – Industry – Debate.	14
Unit II	Requirement analysis-Scenario based modeling-UML Models-Data modeling concepts-Class based modeling. **Requirements Modeling:** Flow, Behavior, Patterns-and WebApps.	12
Unit III	**Design concepts:** The design process-Design concepts-Design model. **User Interface Design:** The golden rule-User Interface Analysis and Design-Interface Analysis-Interface Design Steps-WebApp Interface Design-*Design evaluation*.	12
Unit IV	**Quality Concepts:** Software Quality-Dilemma-*Achieving Software Quality.* **Software Testing strategies:** Strategic Approach to Software Testing-Strategic Issues-Unit Testing-Integration Testing-Validation Testing-System Testing.	13
Unit V	**Testing conventional Applications:** Software Testing Fundamentals-Internal and External view of Testing-White Box Testing-Basis Path Testing - *Control Structure Testing*-Black Box Testing. **Case study:** Develop an application in your own using the above concepts.	14
	Total Contact Hrs *Self Study*	**65**

Presentation, Seminar, Assignment, and Discussion

Books for study:

❖ Roger S. Pressman (2010) *Software Engineering-A Practitioner's Approach*, Seventh Edition, McGraw-Hill International Pub.
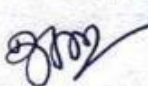
Books for Reference:

❖ Richard Fairley (2010), *Software Engineering Concepts*, 33rd Reprint, Tata McGraw-Hill Publishing Company Limited.

❖ Pankaj Jalote (2001), *An Integrated Approach to Software Engineering,* Third Edition Narosa Publication.

Mapping

PSO / CO	PS01	PS02	PS03	PS04	PS05
C01	S	H	M	H	S
C02	H	M	H	H	S
C03	H	H	H	H	S
C04	H	M	H	H	S

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

Course Designed By	Verified by HOD	Checked By	Approved By
Name and Signature	Name with Signature	CDC	COE
Name: R. Sekar	Name: K.Vijayakumar	Name: Dr.M.Durairaju	Name: Dr.R.Muthukumaran
Signature:	Signature:	Signature:	Signature:

K.VIJAYAKUMAR, MCA.,M.Phil.,
Head,Dept. of Information Technology,
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.

Dr. R. MUTHUKUMAR
Controller of Examinatio
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Programme Code:	B.Sc.	Programme Title:	Bachelor of Information Technology	
Course Code:	18UIT4N3	**Title** Skill Based Non-Major – II. Computer Security.	**Batch:**	2018 - 2021
			Semester:	IV
Hrs/Week:	1		**Credits:**	2

Course Objective

To bestow an understanding of various concepts of data security, cryptography, substitution techniques, encryption, decryption etc.

Course Outcomes

K1	CO1	To keep in mind the basic understanding of fundamentals of data security
K2	CO2	To understand the concepts of ciphers and cryptography methods
K3	CO3	To apply the idea of encryption and decryption methods
K4	CO4	To analyze basic issues in data security

Units	Content	Hrs
Unit I	Introduction-The need for security- Security Approaches: Trusted system.	2
Unit II	Security models-Security management practices- Principles of security.	3
Unit III	Cryptography : Concepts and Techniques - Introduction-Plain text and Cipher text	2
Unit IV	Substitution Techniques : Caesar cipher-Mono Alphabetic cipher-Homophonic substitution cipher-Polygram substitution cipher	3
Unit V	Transposition Techniques: Rail fence-Simple Columnar. Encryption and Decryption	3
	Total Contact Hrs	**13**

Presentations, Group discussions, Quiz, Assignments

Books for study

- Atul Kahate. (2009). *Cryptography and Network Security*, Second Edition.

Books for Reference

- www.tutorialspoint.com

Mapping

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

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

Course Designed by Name and Signature	Verified by HOD Name and Signature	Checked by CDC	Approved by COE
Name: C. R. Durgadevi	Name: K. Vijayakumar	Name:Dr. M. Durairaju	Name:Dr. R. Muthukumaran
Signature:	Signature:	Signature:	Signature:

K.VIJAYAKUMAR, MCA.,M.Phil.,
Head,Dept. of Information Technology,
NGM College (Autonomous),
POLLACHI - 642 001.

Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC,Ph.D
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Curriculum Development Cell (CDC)
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Dr. R. MUTHUKUMARAN
Controller of Examinations
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POLLACHI - 642 001.

Programme Code:	B.Sc.	Programme Title:		Bachelor of Information Technology	
Course Code:	18UIT4N4	**Title**		**Batch:**	2018 - 2021
		Skill Based Non-Major II - Hardware & Networking		**Semester:**	IV
Hrs/Week:	1			**Credits**:	2

Course Objective

To make understand various concepts of processors, input / output hardware, communication channels, networks with their types etc.

Course Outcomes

K1	CO1	To recollect the basics of I/O hardware
K2	CO2	To understand about working of processors
K3	CO3	To implement a network operating system
K4	CO4	To analyze different types of networks and topologies

Units	Content	Hrs
Unit I	**Processors:** Microchips, Miniaturization and Mobility - CPU and Main Memory - Microcomputer System Unit.	2
Unit II	**Input and Output Hardware:** Input Hardware - Keyboard Input- Pointing Devices - Output Hardware - Display Screens.	3
Unit III	**Communication Channels:** Electromagnetic Spectrum - Twisted Pair - Coaxial Cable - Fiber Optic Cable – Microwave and Satellite Systems - Wireless Communications - Next Generation Wireless Communications.	4
Unit IV	**Communication Networks:** Types of Networks - Network Operating System - Host and Node - Servers and Clients – Advantages of Networks.	2
Unit V	**Local Networks:** N/W Types - Types of LAN's – Components – Topology - Impact of LAN.	2
	Total Contact Hrs	**13**

Presentations, Group discussions, Quiz, Assignments

Books for study

- Williams, Sawyer and Hutchinson. (2001). *Using Information Technology -   A Practical Introduction to Computers & Communications.* 3rd Edition. Tata McGraw Hill.
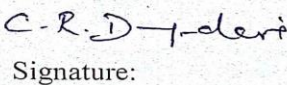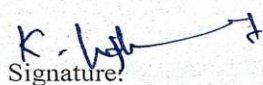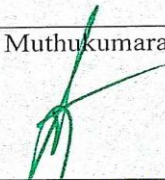
Books for Reference

- Course Material from Internet.

Mapping

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

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

Course Designed by Name and Signature	Verified by HOD Name and Signature	Checked by CDC	Approved by COE
Name: C. R. Durgadevi C-R-D-deri Signature:	Name: K. Vijayakumar K. high Signature:	Name:Dr. M. Durairaju Signature:	Name:Dr. R. Muthukumaran Signature:

Programme Code:	B.Sc.	Programme Title :	Bachelor of Information Technology	
Course Code:	18UIT517	Title: Open Source Methodologies	Batch :	2018 - 2021
			Semester :	V
Hrs/Week:	5		Credits :	4

Course Objective

On successful completion of this subject the students should have the knowledge about Unix & Linux Operating System concepts, normal & administrative commands and Android application development.

Course Outcomes (CO)

K1	CO1	To remember the various Unix commands for directory, editor, shell programming. Android layers, components, and user interfaces.
K2	CO2	To get the idea of the Unix, Linux, and Android program commands.
K3	CO3	To execute the programs by using the various Unix, Linux commands.
K4	CO4	To review by using the commands and operations get proper output.

Unit	Content	Hrs
Unit I	**Getting Started:** Introduction - Red Hat Linux- *Password changes* – Documentation - Using Pico to create/edit file - Basic utilities - Special characters. **The GNU/Linux File system:** The Hierarchical file system – Directory and ordinary files - Working with directories – Access permissions – Links.	12
Unit II	**The VIM Editor:** History – Creating and editing a file – features. Command Mode: moving the cursor – Deleting and changing text. Input Mode - Searching and substituting – *Miscellaneous commands* – yank, put and delete commands – Reading and writing files – Setting parameters – Advanced editing techniques – Units of measure.	14
Unit III	**Programming the Bourne Again Shell:** Control structures – Here document – Expanding null or unset variables – String pattern matching – File name generation – Built-ins – functions. **X Window System and GUI:** Introduction – X Window system – X Applications.	13
Unit IV	**Android:** Introducing Android – Platform – Market – Layers – The Intent of Android Development – Components – Understanding Manifest.XML file – Mapping Applications to processes – Creating an Application. **Android Development Environment:** Introducing SDK – Exploring the development Environment – Building an application in Eclipse – Using the android Emulator.	13
Unit V	**User Interfaces:** *Creating the activity* – Working with views – Using resources – Exploring Manifest.XML file. **Intents and Services:** Serving up Restaurant Finder with intent. **Storing and Retrieving Data:** Using preferences – File System – Persisting data to a database – Working with Content Provider Classes.	13
	Total Contact Hrs *Self Study*	**65**

Presentation, Seminar, Assignment, and Discussion

Books for study:

- ❖ Mark G. Sobell,(2004), *A Practical Guide to Red Hat Linux 8*, Pearson Education, Edition.
- ❖ W. Frank Ableson, Robi sen (2011), Chris King, **"**Android in Action", Second Edition, Dream Tech Press.
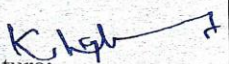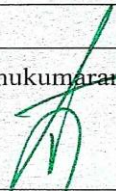
Books for Reference:

- ❖ Sumithaba Das, (2006). *Unix Concepts and Applications*, Version 4.
- ❖ Jang, (2003). *Mastering Red Hat Linux Fedora Core 5*, Wiley Pub.

Mapping

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

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

Course Designed By	Verified by HOD	Checked By	Approved By
Name and Signature	Name with Signature	CDC	COE
Name: K.Vijayakumar Signature:	Name: K.Vijayakumar Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr.R.Muthukumaran Signature:

Programme Code:	B.Sc.	Programme Title:	Bachelor of Information Technology	
Course Code:	18UIT518	Title	Batch:	2018 - 2021
		Information Security	Semester:	V
Hrs/Week:	6		Credits:	4

Course Objective

To endow with better knowledge on various concepts of Symmetric and Asymmetric algorithms, Digital certificates, E-mail, WWW, 2G, 3G, Firewalls, Operating system and Language security.

Course Outcomes

K1	CO1	To recollect basic concepts of network security
K2	CO2	To understand basic knowledge of cryptography
K3	CO3	To apply diverse security mechanisms to networks, operating systems and programming languages.
K4	CO4	To evaluate various security algorithms.

Units	Content	Hrs
Unit I	**Security:** Introduction – Need – Approaches – Principles – *Types of attacks*. **Cryptography:** Introduction – Plain text and Cipher text – Substitution & Transposition techniques – Encryption and Decryption – Symmetric and Asymmetric key Cryptography – Steganography – Key range and Key size - Possible types of attacks.	14
Unit II	**Symmetric Key Algorithms**: Introduction - *Algorithm Types and modes* – Overview – DES– IDEA– RC4 & 5 – Blowfish – AES.	15
Unit III	**Asymmetric Key Algorithms**: Introduction – History – Overview - RSA algorithm – *Symmetric and asymmetric cryptography*. **Digital Signatures**: Introduction – Message Digests - MD5 – Secure Hash Algorithm. Knapsack algorithm – Other algorithms.	15
Unit IV	**Digital Certificates:** Introduction – Concepts – *Certification Authority* – Technical details – Creation – Cross certification – Revocations. **Secure Socket Layer** (SSL) – SHTTP (https) - **Secure Electronic Transaction (SET):** Introduction – Participants – Process – Internals - SSL Versus SET. **Email security**: Introduction – Privacy Enhanced Mail – Pretty Good Privacy. WAP Security - Security in GSM – Security in 3G.	19
Unit V	**Firewalls:** Introduction – Types – Configuration – DMZ network. Operating System Based Security – Safe Programming Languages – Language-based Access Control.	15
	Total Contact Hrs ***** Se*lf Study*	**78**

Presentations, Seminar, Quiz, Assignment, Activity

Books for study

- ATUL KAHATE. (2003). *Cryptography and Network Security*. Second Edition, Tata McGraw-Hill publishing.
- https://www.cs.ru.nl/E.Poll/papers/language_based_security.pdf (Pages 6 to 33)
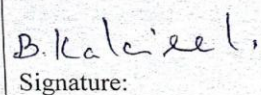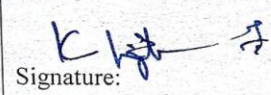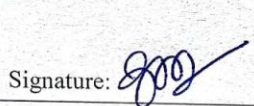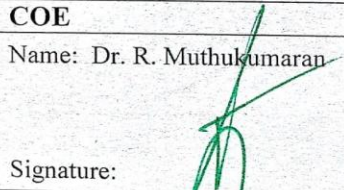
Books for Reference

- William Stallings.(2006).*Cryptography and Network Security Principles and   Practices*. Fourth edition. PHI Education Asia.
- Behrouz A. Forouzan. (2007). *Cryptography and Network Security*. Tata McGraw Hill Pub.

- Pramod Chandra P. Bhatt (2010). *An Introduction to Operating Systems Concepts and Practice*, 3rd Edition, PHI Publications.

Mapping

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

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

Course Designed by Name and Signature	Verified by HOD Name and Signature	Checked by CDC	Approved by COE
Name: B. Kalaiselvi	Name: K. Vijayakumar	Name: Dr. M. Durairaju	Name: Dr. R. Muthukumaran
Signature:	Signature:	Signature:	Signature:

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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 Examination NGM College (Autonomo POLLACHI - 642 001.

Programme Code:	B.Sc.	Programme Title:	Bachelor of Information Technology	
Course Code:	18UIT519	**Title**	**Batch:**	2018-2021
		Major Elective – I: Data Mining and Analytics	**Semester:**	V
Hrs/Week:	6		Credits:	5

Course Objective

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

Course Outcomes

K1	CO1	To keep in mind the various concepts of data mining
K2	CO2	To understand the types of data mining and analytics
K3	CO3	To execute data mining algorithms for finding hidden interesting patterns in data
K4	CO4	To evaluate various data mining algorithms and analysis of big data.

Units	Content	Hrs
Unit I	**Data mining and the data warehouse**: Introduction - Data mining -Kinds of data-functionalities- classification-Task primitives-Integration with database or warehouse-Major issues. **Mining frequent patterns, association and correlations**: Basic concepts. **Efficient and scalable frequent itemset mining methods:** Aprior Algorithm-Generating association rules.	17
Unit II	**Classification and prediction:** Definition – Issues - *classification by Decision tree Induction* – Bayesian classification-rule based classification - classification by back propagation - support vector machine.	16
Unit III	**Cluster analysis:** Definition - types of data in cluster analysis - categorization of major clustering methods - partitioning methods - hierarchical methods	12
Unit IV	Spatial data mining - multimedia data mining - text mining - mining the www - *data mining Applications.*	16
Unit V	**Big data Analytics** : Introduction - Drivers for big data-Applications-Architecture-Advanced Analytics platform-Implementation	17
	Total Contact Hrs * Self Study	**78**

Presentations, Brain storming, Activity, Case study

Books for study

- Jiawei Han and Micheline Kamber (2005) *Data Mining concepts and techniques,* Elsevier publication.

- Dr. Aravind Sathi (2012) *Big Data Analytics:Disruptive Technologies for Changing the Game*, first edition, MC Press publication.

Books for Reference

- Margaret H. Dunham (2009), *Data Mining Introductory and Advanced Topics,* Pearson Education Publications.
- Vikram Pudi, P.Radha Krishna (2009), *Data Mining***,** Oxford University Press, First Edition.
- Anand Rajaraman and Jeffry David Ullman (2012), "Mining of Massive Datasets", Cambridge University Press.
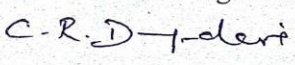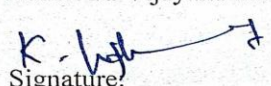
Web Reference

- www.it-ebooks.info.
- https://aws.amazon.com

Mapping

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

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

Course Designed by Name and Signature	Verified by HOD Name and Signature	Checked by CDC	Approved by COE
Name: C. R. Durgadevi Signature:	Name: K. Vijayakumar Signature:	Name:Dr. M. Durairaju Signature:	Name:Dr. R. Muthukumaran Signature:

Programme Code:	B.Sc.	Programme Title:	Bachelor of Information Technology		
Course Code:	18UIT519	**Title :**	**Batch:**	2018 - 2021	
		Major Elective – I Cloud Computing	**Semester:**	V	
Hrs/Week:	6		**Credits:**	5	

Course Objective

To understand various concepts of cloud computing and learn types of cloud services, usage of cloud etc.

Course Outcomes

K1	CO1	To recollect cloud networking concepts
K2	CO2	To understand and familiar with the basic concepts of cloud computing and python
K3	CO3	To apply cloud to large scale distributed systems
K4	CO4	To figure out security issues in cloud computing

Units	Content	Hrs
Unit I	**Introduction to Cloud Computing:** Characteristics – Models – *Services Examples* – Services and Applications. **Cloud concepts and technologies:** Virtualization – Load balancing – scalability and elasticity – Deployment – Replication – Monitoring – Software defined Networking – Network function virtualization – MapReduce – Identity and access management - Service level agreements – Billing.	16
Unit II	**Cloud services and Platforms:** Compute – *Storage* – Database – Application – Content Delivery – analytics – Deployment and Management – Identity and access Management – Open source Private Cloud Software. **Hadoop and MapReduce:** Apache Hadoop – MapReduce Job execution – Schedulers – Cluster setup.	15
Unit III	**Cloud Application Design:** Introduction **–** Design considerations – Reference Architectures – Design methodologies – Data storage approaches. **Cloud Application Benchmarking and Tuning**: Introduction – Workload Characteristics – Application Performance Metrics – Design Considerations – Benchmarking Tools – Deployment prototyping – Load Testing and Bottleneck Deduction – Hadoop Benchmarking.	15
Unit IV	**Cloud Security:** Introduction – CSA Cloud Security Architecture – Authentication – Authorization – Identity and Access Management – Data Security – Key Management – Auditing. **Cloud For Industry, Health Care and Education:** Health Care – Energy systems – Transportation systems – Manufacturing Industry – Education.	16
Unit V	**Python Basics:** Introduction – Installation – Data types and Data structures – **Control** *flow* – Functions – Modules – Packages – File handling – Date/Time – Operations – Classes. **Python for Cloud:** Amazon web services – Google Platform – Windows Azure – MapReduce – Packages – Web Application Framework – Designing a RESTful Web API.	16
	Total Contact Hrs * *self study*	**78**

Power point Presentations, Seminar ,Quiz, Assignment

Books for study

❖ Arshdeep Bahga, Vijay Madisetti. (2016). *Cloud Computing – A Hands-on Approach.* Universities Press Pvt. Ltd.

Books for Reference

❖ Anthony T.Velte, Toby J.Velte, Robert Elsenpeter. (2013). *Cloud Computing - A Practical Approach*. Mc Graw Hill Publications. Fourteenth reprint.

❖ Michael Miller. (2009). *Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online*, Que Publishing.

Mapping

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

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

Course Designed by Name and Signature	Verified by HOD Name and Signature	Checked by CDC	Approved by COE
Name: C. R. Durgadevi	Name: K. Vijayakumar	Name:Dr. M. Durairaju	Name:Dr. R. Muthukumaran
Signature:	Signature:	Signature:	Signature:

Programme Code:	B.Sc.	Programme Title:	Bachelor of Information Technology	
Course Code:	18UIT519	Title	Batch:	2018 - 2021
		Major Elective – I Embedded Systems	Semester:	V
Hrs/Week:	6		Credits:	5

Course Objective

To provide understanding of various concepts of VLSI circuit, Processor, Memory organization, device drivers, programming techniques, RTOS, etc.

Course Outcomes

K1	CO1	To keep in mind a broad understanding of technologies of embedded system
K2	CO2	To understand the structural design of embedded systems
K3	CO3	To apply embedded/real time operating systems
K4	CO4	To analyze the issues associated with embedded systems

Units	Content	Hrs
Unit I	**Introduction to Embedded System**: An Embedded System – Processor in the System – *Other Hardware units* – Software embedded into a system – Exemplary embedded system – Embedded system on chip and in VLSI circuit.	15
Unit II	**Processor and Memory organization**: Structural units in a processor – Processor selection – *Memory devices* – Memory selection - Allocation of memory – DMA – Interfacing processor, memories and I/O devices. **Devices and buses for device networks**: I/O devices – Timer and counting devices – Serial communication – Host system	15
Unit III	**Device drivers and Interrupts servicing mechanism**: Device drivers – Parallel port device drivers – Serial port device drivers – Device drivers for IPTD – Interrupt servicing mechanism – Context and the periods for context-switching, dead-line and interrupt latency.	15
Unit IV	**Programming concepts and embedded programming in C and C++**: Software programming in ALP and C – C program elements – Header and source files and processor directives – Macros and functions – Data types – Data structures – Modifiers – Statements – Loops and pointers – Embedded programming in C++ - Java – C program compiler and cross compiler – Source code for engineering tools for embedded C / C++ - *Optimization of memory needs*.	17
Unit V	**Inter - process communication and synchronization of processes, Tasks and threads**: Multiple processor – Problem of sharing data by multiple tasks and routines – Inter process communication. **Real time operating systems**: Operating system services – I/O subsystem – Network operating systems – Real time and embedded operating systems – Interrupt routine in RTOS environment – RTOS task scheduling – Performance metric in scheduling.	16
	Total Contact Hrs ** self study*	**78**

Presentations, Group discussions, Seminar , Quiz, Assignment

Books for study

- Raj Kamal, (2007) *Embedded Systems – Architecture*, *Programming and Design*, TMH.
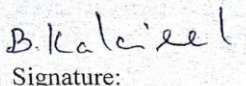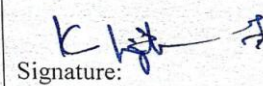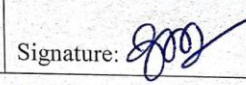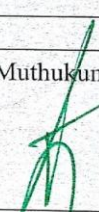
Books for Reference

- Daniel W. Lewis, (2007) *Fundamentals of Embedded Software*, PHI Education Publications, ISBN, 81-7808-604-2.
- Peter Marwedel (2006), *Embedded System Design,* New York, Springer Verlag Pub.

Mapping

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

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

Course Designed by Name and Signature	Verified by HOD Name and Signature	Checked by CDC	Approved by COE
Name: B. Kalaiselvi	Name: K. Vijayakumar	Name: Dr. M. Durairaju	Name: Dr. R. Muthukumaran
Signature: B.Kalaisel,	Signature:	Signature:	Signature:

K.VIJAYAKUMAR, MCA.,M.Phil.,
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Controller of Examination
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POLLACHI - 642 001.

Programme Code:	B.Sc.	**Programme Title :**	Bachelor of Information Technology		
Course Code:	18UIT520	**Title:** Lab. VII – Open Source Methodologies	**Batch :**	2018 - 2021	
			Semester :	V	
Hrs/Week:	5		**Credits :**	3	

Course Objective

        To obtain the practical knowledge about Unix & Linux Operating System commands, Administrative, Normal Commands and Basic Android Applications.
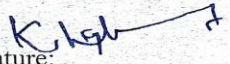
Course Outcomes (CO)
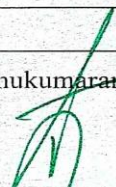
K3	CO3	To apply the concepts of GNOME, shell and SDK.
K4	CO4	To analyze the various commands.
K5	CO5	To verify the results for the different input data.

Content	Hrs

Sample Program List
Test - I
   Using GNOME, perform the following
     1. Change the Desktop Background and mouse pointer theme.
    2. Change the Root Password.
    3. Add/Remove software.
    4. List and view all the files using Icon.
    5. Create an Archive file and Extract all Individual files from it.
    6. Perform character Mapping.
  Using Shell perform the following
     7. To execute the File manipulation commands
     8. To execute the Directory manipulation commands
     9. To execute the Utility commands
     10.To execute the Pipes & Filter commands
Test - II
  Using Android SDK perform the following
     11. Display the phone dialer with the given number filled in.
     12. Doing a Google search using Intent.
     13. Sending a text message and showing a picture (using extra attributes).
     14. Launch the Music player and play a song stored in SD card.
     15. Create a simple android application.
	65

Total Contact Hrs	**65**

Mapping

PSO / CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO3	M	M	H	H	H
CO4	M	M	H	H	M
CO5	M	M	H	M	H

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

Course Designed By	Verified by HOD	Checked By	Approved By
Name and Signature	Name with Signature	CDC	COE
Name: K.Vijayakumar	Name: K.Vijayakumar	Name: Dr. M. Durairaju	Name: Dr.R.Muthukumaran
Signature:	Signature:	Signature:	Signature:

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Programme Code:	B.Sc.	Programme Title :	Bachelor of Information Technology	
Course Code:	18UIT521	**Title:** Lab.-VIII Software Testing Tools	**Batch :**	2018 - 2021
			Semester :	V
Hrs/Week:	5		**Credits :**	3

Course Objective

To gain the knowledge to apply the various programming concepts of software testing like Integration, unit, functional, non-functional testing and about product metrics.
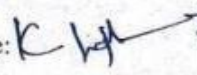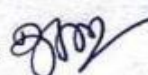
Course Outcomes (CO)
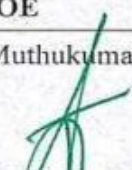
K3	CO3	To apply the testing in programming concepts.
K4	CO4	To analyze the different concepts and tools.
K5	CO5	To verify the expected result with the obtained result.

Content	Hrs

SAMPLE PROGRAM LIST
 	
Test - I
    1. Create a payroll system and test using the tool.
 	
    2. Create a ration shop management system and test using the tool.
 	
    3. Create airline reservation system and test using the tool.
 	
    4. Create Library management system and test using the tool.
 	
    5. Create Banking system and test using the tool.
 	
Test - II
    6. Create Book shop management system and test using the tool.
 	
    7. Create Electricity billing system and test using the tool.
 	
    8. Create online cinema ticket reservation system and test using the tool.
 	
    9. Create Music gallery and test using the tool.
 	
    10. Create trading system and test the tool.
	65

Total Contact Hrs	**65**

Mapping

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO3	M	M	H	H	H
CO4	H	M	H	H	H
CO5	M	M	H	H	H

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

Course Designed By Name and Signature	Verified by HOD Name with Signature	Checked By CDC	Approved By COE
Name: R. Sekar Signature:	Name: K.Vijayakumar Signature:	Name: Dr.M.Durairaju Signature:	Name: Dr.R.Muthukumaran Signature:

K.VIJAYAKUMAR, MCA.,M.Phil.,
Head,Dept. of Information Technology,
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.

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

Programme Code:	B.Sc.	Programme Title :		Bachelor of Information Technology	
Course Code:	18UIT5S1	**Title:** Skill Based Major Elective Lab. I – PHP	**Batch :**	2018 - 2021	
			Semester :	V	
Hrs/Week:	2		**Credits :**	2	

Course Objective

To known the various programming concepts of database, string functions, date & time functions, content navigation and creating web page.
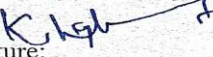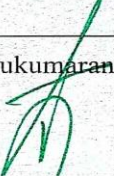
Course Outcomes (CO)

K3	CO3	To deploy the tags and database to the C/S applications.
K4	CO4	To analyze the various tags in the application.
K5	CO5	To verify the output from the different input data.

Content	Hrs
SAMPLE PROGRAM LIST **Test - I** 1. Program to print an array. 2. Program to sort elements in an array in ascending and descending order. 3. Program to split a string as array elements based on delimiter. 4. Program to combine the array elements into a string with given delimiter. 5. Program to Program to create a Simple Calculator. 6. Programs to create simple Login and Logout using sessions. 7. Program to upload a file to the Server. 8. Program to create a New Database. **Test - II** 9. Program to connect to the server and selecting database. 10. Program to insert records to the table in Database. 11. Program to fetch records from the table in Database. 12. Program to Store an image in Database. 13. Program to Read image from Database. 14. Program to create a simple Registration form. 15. Contact form using PHP.	26
Total Contact Hrs	**26**

Mapping

PSO CO	PS01	PS02	PS03	PS04	PS05
C03	M	M	H	H	H
C04	M	M	H	S	S
C05	M	M	H	S	S

Course Designed By	Verified by HOD	Checked By	Approved By
Name and Signature	Name with Signature	CDC	COE
Name: K.Vijayakumar Signature:	Name: K.Vijayakumar Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr.R.Muthukumaran Signature:

Programme Code:	B.Sc.	Programme Title :		Bachelor of Information Technology	
Course Code:	18UIT5S2	**Title:** Skill Based Major Elective Lab. I – JSP	**Batch :**	2018 - 2021	
			Semester :	V	
Hrs/Week:	2		**Credits :**	2	

Course Objective

Understand the various scripting concepts in JSP Programming.

Course Outcomes (CO)
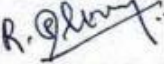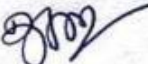
K3	CO3	To execute the different scripting tags.
K4	CO4	To evaluate the various tags in the web.
K5	CO5	To verify the data in the web and database.

Content	Hrs
SAMPLE PROGRAM LIST **Test - I** 1. Implement implicit object. 2. Implement script let. 3. Create a Login form. 4. Create Action tags. **Test - I** 5. Implement Exception Handling. 6. Create Custom tags. 7. Work with session object. 8. Create, read and remove a cookie.	**26**
Total Contact Hrs	**26**

Mapping

PSO / CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO3	M	M	H	H	H
CO4	M	M	H	S	S
CO5	M	M	H	S	S

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

Course Designed By	Verified by HOD	Checked By	Approved By
Name and Signature	Name with Signature	CDC	COE
Name: R. Sekar	Name: K.Vijayakumar	Name: Dr.M.Durairaju	Name: Dr.R.Muthukumaran
Signature:	Signature:	Signature:	Signature:

K.VIJAYAKUMAR, MCA.,M.Phil.,
Head,Dept. of Information Technology,
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Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.
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Dr. R. MUTHUKUMAR
Controller of Examinatio
NGM College (Autonomo
POLLACHI - 642 001.

Programme Code:	B. Sc.	Programme Title:	Bachelor of Information Technology		
Course Code:	18UIT622	Title	Batch:	2018 - 2021	
		Computer Graphics	Semester:	VI	
Hrs/Week:	6		Credits:	4	

Course Objective

To offer programming ability on graphics, clear view on graphics functions, output devices, 3D and 2D transformations etc.

Course Outcomes

K1	CO1	To keep in mind basic graphics systems
K2	CO2	To understand various graphical algorithms
K3	CO3	To implement two, three dimensional and clipping algorithms
K4	CO4	To sort of visible surface detection methods

Unit	Content	Hrs
Unit I	**Overview of Graphics Systems:** Video Display Devices, Refresh Cathode ray tubes, Raster Scan displays, Random Scan Displays, Color CRT monitors, Direct view storage tubes, Flat panel Displays, 3-Dimentional viewing devices, Stereoscopic and Virtual Reality systems, Raster Scan Systems, Random Scan Systems, *Input Devices*, Graphics software.	15
Unit II	**Output Primitives:** Points and Lines – Line-Drawing algorithms – Loading frame Buffer – Line function – Circle-Generating algorithms. **Attributes of Output Primitives:** Line Attributes – Curve attributes – Color and Grayscale Levels – *Area-fill attributes* – Character Attributes.	15
Unit III	**2D Geometric Transformations:** Basic Transformations – Matrix Representations – *Composite Transformations* – Other Transformations. **2D Viewing:** The Viewing Pipeline – Viewing Co-ordinate Reference Frame – Window-to-Viewport Co-ordinate Transformation - 2D Viewing Functions – Clipping Operations – Point, Line: Cohen-Sutherland Line Clipping, Liang- Barsky Line Clipping, Polygon, Curve, Text and Exterior clippings.	16
Unit IV	**3D Concepts**: 3D Display Methods – 3D Graphics Packages. **3D Object Representations**: Polygon Surfaces – *Curved lines and Surfaces – Blobby Objects* – **3D Geometric Modeling and Transformations**: Translation – Rotation – Scaling – Other Transformations.	16
Unit V	**Visible-Surface Detection Methods:** Classification of Visible-Surface algorithms – Depth-Buffer Method – Scan- Line Method – Depth-Sorting Method – BSP-Tree Method – Area-Subdivision Method – Octree Methods – Ray-casting Methods – Curved surfaces – Wire frame Methods – Visibility-Detection functions. **Illumination Models:** Standard Primaries and the Chromaticity Diagram – Intuitive color Concepts – RGB Color Model – YIQ Color Model – CMY Color Model – HLS Color Model- *Color selection ad Applications.*	16
	Total Contact Hrs * self study*	78

Presentations, Seminar, Quiz, Assignment

Books for study

❖ Donald Hearn, Pauline Baker, (2008). *Computer Graphics*. 2nd edition. PHI, Indian reprint.

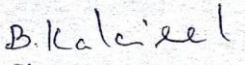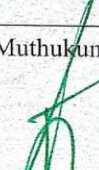## Books for Reference

❖ William M. Newman & Robert F. Sproull. (2007). *Principles Of Interactive Computer Graphics.* TMH.
❖ Malay K.Pakhira (2008), *Computer Graphics*, *Multimedia and Animation*, New Delhi, Prentice Hall of India Pvt. Ltd.

Mapping

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

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

Course Designed by Name and Signature	Verified by HOD Name and Signature	Checked by CDC	Approved by COE
Name: B. Kalaiselvi	Name: K. Vijayakumar	Name: Dr. M. Durairaju	Name: Dr. R. Muthukumaran
B.Kalaiselvi Signature:	Signature:	Signature:	Signature:

Programme Code:	B.Sc.	Programme Title :	Bachelor of Information Technology	
Course Code:	18UIT623	**Title:** Major Elective – II Digital Image Processing	**Batch :**	2018 - 2021
			Semester :	VI
Hrs/Week:	5		**Credits :**	4

Course Objective

To understand the concepts of algorithmic designs of digital image processing techniques, inculcate knowledge in features of MATLAB tool and implement concepts in MATLAB.

Course Outcomes (CO)

K1	CO1	To remember the various image processing tools, transformations, filtering, and conversions.
K2	CO2	To get the idea of creation and modifications of digital images.
K3	CO3	To execute the filtering and transferring images using MATLAB.
K4	CO4	To review the processed image from the existing one.

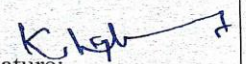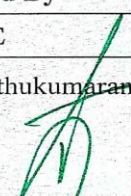| Units	Content	Hrs
Unit I	**Introduction:** Digital Image Processing - Background on MATLAB and the Image - Processing Toolbox - The MATLAB Desktop. **Fundamentals :** Digital Image Representation - *Reading Images*- Displaying Images - Writing Images- Classes - Image Types - Converting between Classes - Array Indexing - Introduction to M-Function Programming	12
Unit II	**Intensity Transformations and Spatial Filtering:** Intensity Transformation Functions - Histogram Processing and Function Plotting - Spatial Filtering - Image Processing Toolbox Standard Spatial Filters. **Image Restoration and Reconstruction:** A Model of the Image Degradation/Restoration Process - Noise Models - Restoration in the Presence of Noise Only—Spatial Filtering - Direct Inverse Filtering - *Wiener Filtering*	14
Unit III	**Color Image Processing:** Color Image Representation in MATLAB - Converting Between Color Spaces - The Basics of Color Image Processing - Color Transformations - Spatial Filtering of Color Images.	13
Unit IV	**Image Compression:** Background - Coding Redundancy - Spatial Redundancy - Irrelevant Information - JPEG Compression - Video Compression.	12
Unit V	**Morphological Image Processing:** Preliminaries - Dilation and Erosion - Combining Dilation and Erosion - Labeling Connected Components - Morphological Reconstruction - *Gray-Scale Morphology*. **Image Segmentation:** Point, Line, and Edge Detection - Thresholding - Region-Based Segmentation - Segmentation Using the Watershed Transform	14
	Total Contact Hrs *Self Study*	65

Books for study:

❖ Rafael C. Gonzalez, Richard E. Woods, Steven L. Eddins, (2009), *Digital Image Processing using MATLAB*, Second Edition, Gatesmark Pub.

Books for Reference:

❖ Nick Efford, (2004), *Digital Image Processing A Practical Introducing Using Java*, 5th Edition, Pearson Education Publications.

❖ B. Chanda, D. Dutta Majumder, (2003), *Digital Image Processing and Analysis*, PHI Publications.

Mapping

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

Course Designed By	Verified by HOD	Checked By	Approved By
Name and Signature	Name with Signature	CDC	COE
Name: K.Vijayakumar	Name: K.Vijayakumar	Name: Dr. M. Durairaju	Name: Dr.R.Muthukumaran
Signature:	Signature:	Signature:	Signature:

Programme Code:	B.Sc.	Programme Title:	Bachelor of Information Technology	
Course Code:	18UIT623	**Title**	**Batch:**	2018 - 2021
		Major Elective – II Software Project Management	**Semester**:	VI
Hrs/Week:	5		Credits:	4

Course Objective

To offer management and project evaluation, effort estimation, resource allocation, contract management and software quality.

Course Outcomes

K1	CO1	To recollect the basic idea of software project
K2	CO2	To deduce software cost and effort estimations
K3	CO3	To implement resource allocation techniques
K4	CO4	To interpret the software quality

Units	Content	Hrs
Unit I	**Introduction to Software Project management:** Introduction –Importance – Meaning of a Project – Software project versus other types of project – Contract Management and technical project management – Activities covered – plans, methods, and methodologies – some ways of categorizing software projects. * *Stepwise: an overview of project planning.* **Programme Management and Project Evaluation:** Programme Management – Managing the Allocation of resources within programmes – strategic programme management – creating a programme – aids to programme management – Benefits Management – Evaluation of Individual projects – technical assessment – cost-benefit analysis - cash flow forecasting – cost-benefit evaluation techniques – risk evaluation.	14
Unit II	**Software Effort Estimation:** Estimation – Problem with over and Under-estimates – basis for software estimating – software effort estimation techniques – Expert judgment – estimating by analogy. **Activity Planning:** The objectives – planning – Project schedules – project and activities – sequencing and scheduling activities – **Network:** Planning models – formulating a network model – adding time dimension – forward pass – backward pass. **Risk Management:** Risk – Categories – Dealing with risk – Risk identification, assessment, planning and management – Evaluating risk to schedule.	13
Unit III	**Resource Allocation:** Introduction - Nature of resources – identifying the resource requirements – scheduling resources – creating critical path – * *counting the cost* – being specific – publishing the resource schedule – cost schedules – scheduling the sequence. **Monitoring and Control:** Creating framework – collecting the data – visualizing progress – cost monitoring – earned value analysis – prioritizing monitoring – getting the project back to target – change control.	12
Unit IV	**Managing Contracts:** ISO 12207 approach – supply process – types of contract – stages in contract placement, management – acceptance. **Managing People and Organizing Terms:** understanding behavior – organizational behavior – selecting the right person for the job – instruction in the best methods – Motivation – Working in groups – becoming a team – decision making – Leadership – organizational structures – dispersed and virtual teams - influence of culture – stress – health and safety.	13

Unit V	**Software Quality:** The place of software quality in project planning – importance of software quality – defining software quality – ISO 9126 - practical software quality measures – product vs process quality management – external standards – * *techniques to help enhance software quality*- quality plans. Small Projects: Introduction – Some problems with student projects – content of a project plan – conclusion.	13
	Total Contact Hrs * *self study*	**65**

Presentations, Group discussions, Seminar, Quiz, Assignment, Experience Discussion, Brain storming, Activity, Case study

Books for study

❖ Bob Hughes & Mike Cotterell,(2005). *Software Project Management*, 4th Edition, PHI Publications

Books for Reference

❖ Pankaj Jalote, (2002), *Software Project Management in Practice*, Pearson Education Asia.
❖ Kieron Conway, (2000). *Software Project Management Concept to Deployment*, Dream Tech Press.

Mapping

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	S	M	S
CO2	S	M	M	M	S
CO3	S	S	L	M	M
CO4	L	S	M	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: C. R. Durgadevi	Name: K. Vijayakumar	Name:Dr. M. Durairaju	Name:Dr. R. Muthukumaran
Signature:	Signature:	Signature:	Signature:

Programme Code:	B.Sc.	Programme Title:	Bachelor of Information Technology	
Course Code:	18UIT623	**Title**	**Batch:**	2018 - 2021
		Major Elective – II Artificial Intelligence	**Semester:**	VI
Hrs/Week:	5		Credits:	4

Course Objective

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

Course Outcomes

K1	CO1	To keep in mind different search strategies for a problem
K2	CO2	To understand concepts of semantic net
K3	CO3	To implement a AI problem to be solved using prolog
K4	CO4	To evaluate different knowledge representation schemes for AI problems

Units	Content	Hrs
Unit I	**Problems and search:** AI Techniques-Defining the problem as a State Space Search – Production Systems – Problem Characteristics – Production system Characteristics – Heuristic Search Techniques – Generate and test – Hill Climbing – Best-first Search – Problem Reduction – Constraint Satisfaction – *Mean-Ends Analysis*.	**13**
Unit II	**Knowledge Representation**: Representations and Mappings- Approaches to Knowledge Representation – Issues in knowledge representation – Representing simple Facts in Logic – Representing Instance and Isa Relationships- Procedural versus Declarative Knowledge – Logic Programming – *Forward versus Backward reasoning*.	**13**
Unit III	**Semantic Nets:** Frames - Conceptual Dependency - Game Playing – Overview – The minimax search procedure – Adding Alpha-Beta cutoffs.	**12**
Unit IV	**Expert System :** Definition – Characteristics of Expert System – Architecture & Description of Modules – Backward Chaining – Knowledge Acquisition facility. Knowledge Engineering – Expert System Life Cycles – *Expert System Tools*.	**13**
Unit V	**Prolog: The** Introduction-Converting English to prolog facts and rules-goals-Terminology-Variables-Control structures-Arithmetic operators-Matching in prolog-Backtracking-cuts-Recursion-Lists-Dynamic Databases-I/O Streams-Some aspects specific to LPA Prolog.	**14**
	Total Contact Hrs. ** self study*	**65**

Presentations, Group discussions, Brain storming, Activity, Case study

Books for study

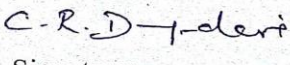- Elaine Rich, Kevin Knight, (2009), *Artificial Intelligence*, 3rd edition, Tata McGraw Hill Publications.
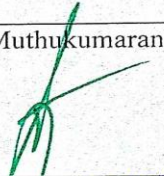
Books for Reference

- Stuart Russell, Peter Norvig, (2009), *Artificial Intelligence: A Modern Approach,* 3rd Edition, Pearson New International Edition.
- Er. Rajiv Chopra, (2005), *Artificial Intelligence: A Practical Approach*, 1st Edition, S. Chand Publications.

Mapping

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

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

Course Designed by Name and Signature	Verified by HOD Name and Signature	Checked by CDC	Approved by COE
Name: C. R. Durgadevi	Name: K. Vijayakumar	Name:Dr. M. Durairaju	Name:Dr. R. Muthukumaran
Signature:	Signature:	Signature:	Signature:

Programme Code:	B.Sc.	Programme Title :	Bachelor of Information Technology		
Course Code:	18UIT624	**Title:** Major Elective – III Mobile Computing	**Batch :**	2018 - 2021	
			Semester :	V	
Hrs/Week:	6		**Credits :**	5	

Course Objective

Understand the various concepts and techniques of WAP, GSM, CDMA, 2G, 3G, etc...

Course Outcomes (CO)

K1	CO1	To keep in mind the various networks, standards, communication medium, Spread spectrum techniques.
K2	CO2	To Understand the basic concepts of wireless networks.
K3	CO3	To deploy the mobile applications to the devices.
K4	CO4	To analyze the various wireless networks techniques.

Units	Content	Hrs
Unit I	**Introduction**: Mobility of Bits and Bytes –Wireless The Beginning – Mobile Computing – Dialogue Control – Networks – Middleware and Gateways – Application and services - Security in mobile computing – * *Standards* _ Why is it necessary – Standard bodies. **MOBILE COMPUTING ARCHITECTURE**: Architecture for mobile computing – Three-tier architecture – Mobile computing through Internet – Making existing applications mobile enabled	15
Unit II	**MOBILE COMPUTING THROUGH TELEPHONY**: Evaluation of telephony – Multiple access procedures – Mobile computing through telephone – IVR Application – Voice XML – TAPI. **EMERGING TECHNOLOGIES:** * *Blue Tooth* – RFID – WiMAX – Mobile IP – IPv6 – Java Card.	16
Unit III	**GSM:** Global System for mobile communications – GSM Architecture – GSM Entities – Call routing in GSM – PLMN Interfaces – GSM Addresses and Identifiers – Network Aspects in GSM – GSM Frequency allocations – Authentications and Security. **SMS:** Strengths – Architecture – SM MT – SM MO – VAS through SMS.	16
Unit IV	**GPRS:** GPRS and packet data network – Architecture – Network Operations – Data services – Applications - Limitations – * *Billing and Charging*. **WAP**: WAE – User agent & UAProf – WML – WSP – WTP – WDP – Gateway. **MMS**: Architecture – Transaction Flows.	15
Unit V	**CDMA and 3G**: Spread spectrum technology. **IS 95**: Speech and Channel Coding – Architecture – Channel Structure. CDMA vs. GSM – Wireless Data. **3G:** IMT & CDMA 2000 – Applications on 3G. **WIRELESS LAN:** Advantages – IEEE 802.11 standards - Types – 802.11 Architecture – Mobility – Deploying – Mobile Ad Hoc networks and sensor networks – Security – WiFi vs. 3G	16
	Total Contact Hrs *Self Study*	**78**

Presentation, Seminar, Assignment and Discussion

Books for study:

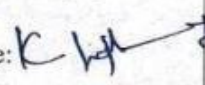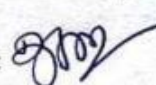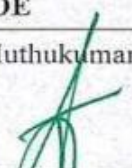❖ Asoke K Talukder, Roopa R Yavagal. (2005), *Mobile Computing*, TMH.

Books for Reference:

❖ Jochen Schiller, (2008), *Mobile Communication*, Second Edition, Pearson Education Asia.
❖ Christoffer Andersson (2001), *GPRS and 3G Wireless Applications,* John Wiley and son's pub.

Mapping

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	H	M	H	H
CO2	M	H	M	H	H
CO3	H	M	H	H	H
CO4	H	M	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 with Signature	CDC	COE
Name: R. Sekar	Name: K.Vijayakumar	Name: Dr.M.Durairaju	Name: Dr.R.Muthukumaran
Signature:	Signature:	Signature:	Signature:

K.VIJAYAKUMAR, MCA.,M.Phil.,
Head,Dept. of Information Technology,
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.

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

Programme Code:	B.Sc.	Programme Title:	Bachelor of Information Technology	
Course Code:	18UIT624	**Title**	**Batch:**	2018 - 2021
		Major Elective – III E-commerce	**Semester:**	VI
Hrs/Week:	6		**Credits:**	5

Course Objective

To learn E-Business revenue models, Law & taxation, online payment systems and sales.

Course Outcomes

K1	CO1	To remember basic concepts of e-commerce
K2	CO2	To understand the role of E-business in current scenario
K3	CO3	To apply different modes of payment
K4	CO4	To analyze various issues associated with e-commerce

Units	Content	Hrs
Unit I	**E-Business Revenue Models:** Introduction – Revenue models – Revenue models in transition – Revenue Strategy Issues – Creating an effective web presence – Website usability – *Connecting with customers*.	**15**
Unit II	**Selling to consumers online:** Introduction – Web marketing strategies – Communicating with different market segments. **Beyond market segmentation:** Customer Behavior and Relationship intensity- *Advertising on the web - E-mail Marketing*- Technology Enabled customer Relationship Management-Creating and Maintaining brands on the web-Search Engine positioning and Domain names.	**16**
Unit III	**Selling to Business Online:** Introduction-Purchasing Logistics and support Activities-Electronic Data Interchange (EDI)- Supply chain management using Internet Technologies- *Electronic market places and portals.*	**15**
Unit IV	**E-Business Law and Taxation:** Introduction-The Legal environment of electronic commerce-Use and protection of Intellectual property in Online Business- Online crime, Terrorism and warfare - Ethical Issues - *Taxation and Electronic commerce*	**16**
Unit V	**Online payment systems:** Introduction-Online payment basics-Payment cards-Electronic cash-Electronic wallets-Stored value cards-Internet Technologies and the Banking Industry. **Criminal Activity and payment system:** Phishing and Identity Theft.	**16**
	Total Contact Hrs. *self study*	**78**

Presentations, Group discussions, Seminar, Quiz, Assignment

Books for study

- Gary P Schneider, (2012), *E-Commerce Strategy, Technology And Implementation*, 9th Edition, Engage Learning Pub.
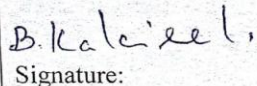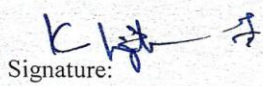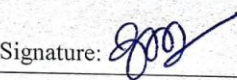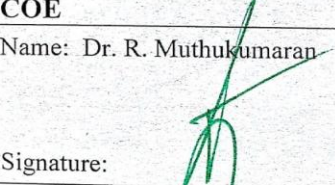
Books for Reference

- Henry Chan, Raymond Lee, Tharam Dillon, Elizabeth Chang, (2011), *E-commerce Fundamentals and Applications*, 1st Edition, Wiley India Pvt Ltd.
- P. T. Joseph S. J., (2012), *E - Commerce: An Indian Perspective,* 4th Edition, PHI.

Mapping

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

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

Course Designed by Name and Signature	Verified by HOD Name and Signature	Checked by CDC	Approved by COE
Name: B. Kalaiselvi	Name: K. Vijayakumar	Name: Dr. M. Durairaju	Name: Dr. R. Muthukumaran
Signature: B.Kalaisel,	Signature:	Signature:	Signature:

K.VIJAYAKUMAR, MCA.,M.Phil.,
Head, Dept. of Information Technology,
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Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
Associate Professor / Co-ordinator,
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Dr. R. MUTHUKUMAR
Controller of Examination
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Programme Code:	B.Sc.	Programme Title :	Bachelor of Information Technology	
Course Code:	18UIT624	Title: Major Elective - III Multimedia Techniques	Batch :	2018 - 2021
			Semester :	VI
Hrs/Week:	6		Credits :	5

Course Objective

Understand the Multimedia devices like hardware, software, types of authoring tools, and concepts of text, sound, animations and applications, etc.

Course Outcomes (CO)

K1	CO1	To remember the various multimedia techniques, tools, formats and applications.
K2	CO2	To understand the basic concepts of multimedia building blocks.
K3	CO3	To apply the various concepts in the lab.
K4	CO4	To analyze the various formats.

Units	Content	Hrs
Unit I	**Introduction:** Multimedia Definitions- Elements of Multimedia Systems-Stages of Multimedia project - Multimedia team. **Multimedia hardware and software:** Macintosh and windows production platforms-Connections-Interface-Memory and storage devices- * *Input Devices* - Output Hardware - Communication devices.	15
Unit II	**Basic software Tools:** Text Editing and word processing tools- OCR software - Painting and Drawing Tools- 3D Modeling and Animation Tools-Image editing tools- –Sound Editing Programs-Animation ,Video and Digital Movie tools. **Making Instant Multimedia:** Linking multimedia objects- **office Suites (Word, Spreadsheets, Databases and Presentation).* **Multimedia Authoring Tools:** Types of authoring tools- Card and Page Based Tools-Icon Based authoring tools -Time based authoring tools-Cross Platform authoring notes.	17
Unit III	**Multimedia Building Blocks: Text:** Using text in multimedia- Font editing and design tools- Hypermedia and Hypertext. **Sound:** MIDI Vs Digital audio- Digital audio –Making MIDI Audio- Audio file Formats- -adding sound to your Multimedia Project. **Images:** Making still images: Bitmaps-Vector drawing-3d drawing and rendering- Color-image file formats-Macintosh formats-windows formats and cross Platform formats.	16
Unit IV	**Animation:** Principles of Animation: Animation techniques- animation File formats. **Video:** Using video –How video works- Broadcast video standards- shooting and editing video - recording formats- Digital video: Video compression. **Assembling and Delivering a project:** Planning and costing-Designing and producing-content and talent-Delivering	16
Unit V	**Multimedia Applications:** Multimedia in the real world-multimedia in training and education-multimedia for information and sales (Kiosks) - Multimedia and image processing –multimedia in the office- * *Multimedia in the Home.*	14
	Total Contact Hrs *Self Study*	78

Presentation, Seminar, Assignment and Discussion

Books for study:

❖ Tay Vaughan. (2001). *Multimedia Making it works*. Fifth Edition. Tata McGraw Hill. (Unit I, II, III, IV).
❖ Judith Jeffcoate.(2009)*Multimedia in practice(Technology and Applications)*.Pearson Education, 4th Impression, (Unit V).
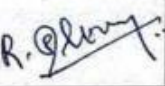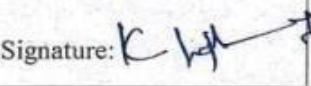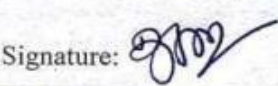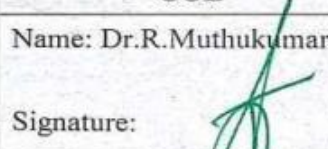
Books for Reference:

❖ Ralf Steinmetz & Klara Nahrstedt. (2009). *Multimedia Computing, Communication & Applications.* Pearson Education-Sixth Impression.
❖ John E.Koegel Buford (2002), *Multimedia System*, New Delhi, Pearson Education.

Mapping

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	H	H	S	S
CO2	M	M	H	H	H
CO3	M	H	H	H	H
CO4	M	M	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 with Signature	CDC	COE
Name: R. Sekar	Name: K.Vijayakumar	Name: Dr.M.Durairaju	Name: Dr.R.Muthukumaran
Signature: R.	Signature:	Signature:	Signature:

Programme Code:	B.Sc.	Programme Title:	Bachelor of Information Technology		
Course Code:	18UIT625	**Title**	**Batch:**	2018 - 2021	
		Lab. - IX Graphics & Multimedia.	**Semester:**	VI	
Hrs/Week:	5		**Credits**:	3	

Course Objective

To understand about various algorithms of computer graphics using C, new innovations in multimedia by using Flash.
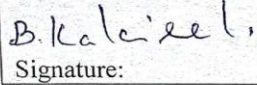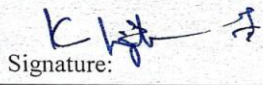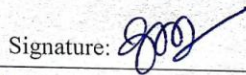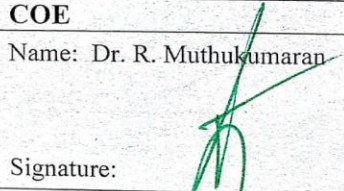
Course Outcomes

K3	CO1	To apply various algorithms using 'C' and animation techniques using Flash
K4	CO2	To analyze 2D and 3D transformations
K5	CO3	To verify the results for graphics algorithms

Content	Hrs
SAMPLE PROGRAM LIST **Test - I** 1. Implementation of DDA algorithm. 2. Implementation of Bresenham's algorithm. 3. Implementation of Mid Point circle algorithm. 4. Implement DDA algorithm to draw a polylines. 5. Implementation of Translation, Scaling, and Rotation transformations. 6. Any three Animations using flash. **Test - II** 7. Implementation of Cohen-Sutherland line clipping algorithm. 8. Implement Bresenham's algorithm to draw parallel lines. 9. Drawing a globe using circle and ellipse algorithm. 10. Creating a Bar Chart. 11. Simulate the bouncing of a ball within four walls. 12. Any three Animations using flash.	**52**

Mapping

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

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

Course Designed by Name and Signature	Verified by HOD Name and Signature	Checked by CDC	Approved by COE
Name: B. Kalaiselvi	Name: K. Vijayakumar	Name: Dr. M. Durairaju	Name: Dr. R. Muthukumaran
Signature:	Signature:	Signature:	Signature:

K.VIJAYAKUMAR, MCA.,M.Phil.,
Head,Dept. of Information Technology,
NGM College (Autonomous),
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Dr. M. DURAIRAJU, M.Sc.,M.Phil.,B.Ed.,PGDGC.,Ph.D.,
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Dr. R. MUTHUKUMAR
Controller of Examination
NGM College (Autonomo
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Programme Code:	B.Sc.	Programme Title:	Bachelor of Information Technology		
Course Code:	18UIT626	**Title**	**Batch:**	2018 - 2021	
		Project	**Semester:**	VI	
Hrs/Week:	5		**Credits**:	4	

Course Objective

To learn depth knowledge about tools used in software development, web designing & web technologies and understand the usage of front end and back end tools.
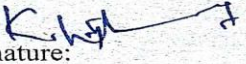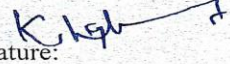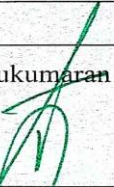
Course Outcomes

K3	CO1	To analyze the system requirements of the application/software
K4	CO2	To apply various tools in real time applications/software
K5	CO3	To verify the developed application with the customer

Content	Hrs
Using only the following Elective Tools **Front end, Multimedia & Web based tools:** 1. VB 2. Java / Advanced Java 3. ASP / Javascript 4. PHP / JSP 5. C#.NET 6. HTML/DHTML 7. Flash **Back end tools:** 1. MySQL 2. Oracle 8i & above 3. MS Access 2007 4. SQL Server 2000 and Above	**65**
Total Contact Hrs	**65**

Mapping

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

Programme Code:	B.Sc.	Programme Title:	Bachelor of Information Technology	
Course Code:	18UIT6S3	Title	Batch:	2018 - 2021
		Skill Based Major Elective-II (Web Programming Lab. JavaScript)	Semester:	VI
Hrs/Week:	2		Credits:	2

Course Objective

To understand, learn and apply the various programming concepts of Java script.

Course Outcomes

K3	CO1	To apply scripting language for designing web pages
K4	CO2	To analyze various event handlings
K5	CO3	To access internet server in an efficient manner

Content	Hrs
SAMPLE PROGRAM LIST **Test - I** 1. Arrays to generate the current data in words. 2. Create two Image files, which switch between one another as the mouse pointer moves over the images. 3. Using Java Script's Window and document objects and their properties and various methods like alert (), evaI(), Parselnt() etc. methods to give the dynamic functionality to HTML web pages. 4. Writing Java Script snippet which make use of Java Script's inbuilt as well as user defined objects like navigator, Date Array, Event, Number etc. 5. Implement string functions in JavaScript. **Test - II** 6. Program to Display Digital clock. 7. onClick and onChange Event. 8. onFocus Event and onSubmit Event. 9. onMouserOver and onMouseOut example 10. Displaying Date and Time. 11. createElement and createTextNode example. 12. Redirection using location object.	26

Mapping

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

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

Course Designed by Name and Signature	Verified by HOD Name and Signature	Checked by CDC	Approved by COE
Name: B. Kalaiselvi Signature:	Name: K. Vijayakumar Signature:	Name: Dr. M. Durairaju Signature:	Name: Dr. R. Muthukumaran Signature:

Programme Code:	B.Sc.	Programme Title :	Bachelor of Information Technology	
Course Code:	18UIT6S4	**Title:** Skill Based Major Elective Lab. II – ASP	**Batch :**	2018 - 2021
			Semester :	VI
Hrs/Week:	2		**Credits :**	2

Course Objective

Understand the various scripting concepts and tags in ASP Programming.
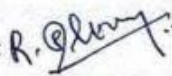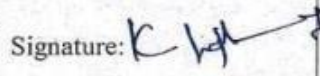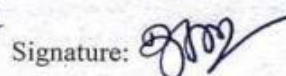
Course Outcomes (CO)

K3	CO3	To execute the different scripting tags.
K4	CO4	To evaluate the various tags in the web.
K5	CO5	To verify the data in the web and database.

Content	Hrs
SAMPLE PROGRAM LIST **Test - I** 1. Implement a sub function call. 2. String Handling 3. Content navigation. 4. Display date and time. 5. Create a web page. 6. Interact with a user in a form that uses the "get" method. 7. Interact with a user in a form that uses the "post" method. **Test - II** 8. Interact with a user in a form with radio buttons 9. Return session id number for a user 10. Get a session's timeout 11. Call a procedure using VBScript in ASP 12. Call a procedure using JavaScript in ASP 13. Call a JavaScript procedure and a VBScript procedure using VBScript in ASP 14. Time-based greeting using VBScript 15. Time-based greeting using JavaScript 16. Create a simple application using database. 17. Create a website using ASP.	**26**
Total Contact Hrs	**26**

Mapping

PSO / CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO3	M	L	H	H	H
CO4	L	M	H	H	H
CO5	H	M	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 with Signature	CDC	COE
Name: R. Sekar	Name: K.Vijayakumar	Name: Dr.M.Durairaju	Name: Dr.R.Muthukumaran
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