B.Sc. – COMPUTER SCIENCE (AIDED & SELF-FINANCING) DEGREE COURSE

(FOR THE CANDIDATES ADMITTED FROM THE ACADEMIC YEAR 2014 ONWARDS)

I - VI SEMESTERS : SCHEME OF EXAMINATIONS

S. No	Subject Code	Part	Subject Title	Hrs	Credits	Max Marks		
						Int	Ext	Total
SEMESTER I								
1	14UTA01	I	Tamil I	6	3	25	75	100
2	14UEH01	II	English I	6	3	25	75	100
3	14UCE01	III	Core I- Programming in C	4	4	25	75	100
4	14UCE02		Core II- Digital Computer fundamentals and organization	4	4	25	75	100
5	14UCE03		Allied I- Mathematics I	4	5	25	75	100
6	14UCE04		Core Lab I- Programming in C	4	2	20	30	50
7	14ECL01	IV	Human Excellence:-1	2	1	25	25	50
8		V	Extension activities NCC, NSS, Sports & Games	Grading only				
SEMESTER II								
9	14UTA02		Tamil II	6	3	25	75	100
10	14UEH02		English II	5	3	25	75	100
11	14UCE05		Allied II-Mathematics-II	4	4	25	75	100
12	14UCE06		Core III- Data and File Structure	4	4	25	75	100
13	14UCE07		Core IV- COBOL Programming	4	4	25	75	100
14	14UCE08		Core Lab II Programming in COBOL	4	2	20	30	50
15	14ECL02		Human Excellence:-2	2	1	25	25	50
16	14EVS01		Environment Studies	2	2	-	50	50
17	14UHR01		Human Rights	1	2	-	50	50
18			Extension activities NCC, NSS, Sports & Games	Grading only				

Sl. No	Course Code	Part	Title of the Paper	Hrs	Credits	Max Marks		
						Int	Ext	Total
III SEMESTER								
19	14UCE09	III	Object Oriented Programming Using C++	5	4	25	75	100
20	14UCE10		Relational Database Management System and Oracle	4	3	25	75	100
21	14UCE11		Software Engineering	4	3	25	75	100
22	14UCE12		Allied -3 : Computer Based Optimization Techniques	5	4	25	75	100
23	14UCE13		Core Lab III: Programming Lab in C++	5	3	20	30	50
24	14UCE14		Core Lab IV: Programming Lab in Oracle	5	3	20	30	50
25	15HEC03	IV	Human Excellence Paper-3: Professional Values	2	1	25	25	50
26	14UCENA1/ 14UCENB1		Non-Major Elective Paper-I Photoshop/DTP Software	1	2	-	50	50
IV SEMESTER								
27	14UCE15	III	Java Programming	4	4	25	75	100
28	14UCE16		Data Communication and Computer Networks	4	3	25	75	100
29	14UCE17		Operating System	4	3	25	75	100
30	14UCE18		Allied -4 : Accountancy for Decision Making	6	4	25	75	100
31	14UCE19		Core Lab V: Programming Lab in Java	5	3	20	30	50
32	14UCE20		Core Lab VI Programming Lab in Visual Basic	5	3	20	30	50
33	14HEC04	IV	Human Excellence Paper – 4: Social Values	2	1	25	25	50
34			NSS/NCC/Sports and Games	-	1	-	50	50
35	14UCENA2/ 14UCENB2		Non-Major Elective Paper-II Flash/HTML	1	2	-	50	50

Sl. No	Course Code	Part	Title of the Paper	Hrs	Credit	MAX.MARKS		
						INT	EXT	TOTAL
V SEMESTER								
36	14UCE21	III	Dot Net Programming	4	3	25	75	100
37	14UCE22		Web Technology	4	2	25	75	100
38	14UCE23		Software Testing	4	2	25	75	100
39	14UCEE1A 14UCEE1B 14UCEE1C		Elective-I: (A) Cyber Security (B) Distributed Computing (C)Client Server Technology	5	5	25	75	100
40	14UCE24		Core Lab VII: Dot Net Programming Lab	5	3	40	60	100
41	14UCE25		Core Lab VIII: Web Technology Lab	5	2	20	30	50
42	14UCES1/ 14UCES2	IV	Skill Based Elective I- Word Press/ Dream Weaver	1	2	20	30	50
43	14HEC05		Human Excellence Paper-5: National Values	2	1	25	25	50
44	14GKL01		General Knowledge	SS	2	-	50	50
VI SEMESTER								
45	14UCE26	III	Linux	4	3	25	75	100
46	14UCEE2A 14UCEE2B 14UCEE2C		Elective – II – (A)Data Mining and Warehousing (B) Enterprise Resource Planning (C) Software Project Management	6	5	25	75	100
47	14UCEE3A 14UCEE3B 14UCEE3C		Elective – III – (A) Multimedia Packages (B) Network Security and Cryptography (C) Mobile Computing	6	5	25	75	100
48	14UCE27		Core Lab IX: Linux Lab	5	3	40	60	100
49	14UCE28		Core Lab X: Multimedia & Software Testing Lab	4	2	20	30	50
50	14UCE29		PROJECT	4	3	20	80	100
51	14UCES3/ 14UCES4	IV	Skill based Elective II: JOOMLA/Macromedia Director	1	2	20	30	50
52	14HEC06		Human Excellence Paper – 6: Global Values	2	2	25	25	50

Department	Computer Science		
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**	
Subject Code : 14UCE01 CORE I	**Title : PROGRAMMING IN 'C'**	**Semester :** I	
Hrs / Week:	**4**	**Credit : 4**	
Objectives	To enable the students to learn all the features available in 'C' and make the Students to apply the same for solving problems by writing algorithms and Program.		
Units	**Contents**		**Hrs**
Unit I	***Introduction to C*** – Constants – C character set – Delimiters – Keywords – Identifiers – Constants – Variables – Rules for defining variables- Data types, – Declaring and initializing variables – Type conversion– Operators – precedence of arithmetic – operators precedence & associativity – expressions – Mathematical functions -Input/Output statements – IF, IF..ELSE Statements, ELSE...IF ladder – Switch Statement – GOTO Statement – WHILE Statement – Do Statement – FOR Statement – Jumps in Loops.		10
Unit II	***Arrays:*** One dimensional Arrays – Two Dimensional Arrays – Multi Dimensional Arrays – Structures – Arrays within Structures – Structures within structures – Structures and Functions-Union – Size of structures. ***Characteristics of Arrays & String manipulation*****:** Introduction - Declaring & Initializing variables – Reading string from terminal, writing string to screen – Arithmetic operations and characters–string handling Functions.		10
Unit III	***Functions*****:**User-defined functions- A-Multi-function programme- Elements of user define function, definition of function-return value &their types, function calls & declarations- category of functions: No arguments & No return values-arguments that No return values – arguments with return values-No arguments that return a value-Nesting of functions-recursion and passing arrays & strings to functions. The scope, Visibility and lifetime of Variables in functions.		11
Unit IV	***Pointers:*** Introduction-Accessing, Declaring & Initializing pointer variables-Chain of pointers-Pointer expression, increments-Pointer Arrays-Pointers and Character strings-Array of pointers-Pointers as function arguments-function returning pointers-pointers to functions-Pointers and Structures-Troubles with pointers.		10
Unit V	***Files:***Defining and opening a file – Closing a file –I/O operations of file – Error handling during I/O operations – Random access files – Command line argument-preprocessor – Macro Substitution – File Inclusion – Compiler control directives.		9
	Total Contact Hrs		**50**
TEXT BOOKS	1. E.Balagurusamy, "Programming in Ansi C", Tata McGraw-Hill Publishing Company Ltd., sixth Edition, 2012.		
REFERENCES	1. YaswanthKanishkar, "LET US C", BPB Publications, Seventh Edition, 2007. 2.SchaumSeries,"Programming in C", Tata McGraw Publication, thirteenth edition.		

Compiled by	Verified by HOD	CDC	COE
M.Sakthi M.Malathi/R.Anandhi K.Gayathri	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**	
Subject Code: 14UCE02 CORE II	**Title: DIGITAL COMPUTER FUNDAMENTALS AND ORGANIZATION**	**Semester :**I	
Hrs / Week:	**4**	**Credit : 4**	
Objectives	To enable the students to understand number systems, logic circuits and gates, arithmetic building blocks, flip-flops, registers and stacks organization, DMA, memory organization.		
Units	**Contents**		**Hrs**
Unit I	Number System and Binary Codes- Binary, Decimal, octal, Hexadecimal, binaryaddition, 1's complement, 2's complement, subtraction,, BCD, Excess 3-code, Gray code, logic circuits: AND, OR, NOT, NOR, NAND gates- Boolean Laws and Theorem- Karnaugh map simplification- Combination of circuit of design with Gates, Arithmetic Building blocks: Half Adder, Full Adder, Subtractors.		10
Unit II	Decoders, Encoders, Multiplexer, Flip-Flops: SR, D, JK. Shift Registers, Counters: Binary ripple, Up-down, Ring, Block Diagram of Computer: CPU- Memory-Input Output Units-Machine Instructions -Operation Code, Operand location –Fetch and Execute cycle-Semi conductor memories.		11
Unit III	Stack Organization: PUSH and POP Operations-Instruction formats-Addressing Modes- Instruction formats Zero, Single, Double. Data Transfer and Manipulation Instructions. Computer Arithmetic: Addition and Subtraction Algorithms for signed magnitude.		10
Unit IV	Peripheral Devices-Input-Output interface- Asynchronous data transfer -Modes of transfer- Priority interrupt- Direct Memory Access-Input- Output Processor.		9
Unit V	Memory Hierarchy- Main Memory - Auxiliary Memory – Associative Memory – Cache memory – Virtual memory. Peripheral devices : USB 3.1,Working principle of web camera, Graphics tablet.		10
	Total Contact Hrs		**50**
TEXT BOOKS	1. V .K Puri " Digital Electronics", Tata McGraw Hill, Reprint 2011. 2. M.Morris Mano," Computer System Architecture", Prentice Hall of India, Third Edition,2003		
REFERENCES	1. T.C.Bartee," Digital computer Fundamentals", Tata McGraw Hill, Sixth edition,1986. 2. William Gear," Computer organization and Programming", Tata McGraw Hill Publication, Fourth Edition, 1985. 3. Chatterjee," Digital Computer Technology ", KhannaPublishing ,SecondEditon, 1986		

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R.Deepa N.Karthikeyan M.Meenakrithika	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**	
Subject Code : 14UCE03 ALLIED I	**Title : MATHEMATICS-I**	**Semester :**I	
Hrs / Week:	**4**	**Credit : 4**	
Objectives	To make the students to understand and apply the central tendencies deviation, correlation, probability, Statistical Inference tests..- To enable the students to solve liner algebra existences, numerical integration and differential equation using numerical methods.		
Units	**Contents**		**Hrs**
Unit I	***Statistics***: Mean, Median, Mode, Range, Quartile Deviation, Standard Deviation, Rank Correlation, Co-efficient of Correlation, Regression.		10
Unit II	Large Sample test: Standard error- Test of Significance of Large Samples – Tests for (i) single proportion (ii) Difference of two proportions (iii) difference of two means (iv) difference of two standard deviations.Small sample test based on t, – t-test for (i) single mean (ii) Difference of two means (iii) Observed sample correlation co-efficient. F- Variance Ratio Test		10
Unit III	Test of Hypothesis – Test of significance – 2 X 2 contigency tables – Chi-Square test –Analysis of Variance – One way classification – Two way classifications, Distributions: Binomial Distribution and Poission Distribution - Properties-Fitting of Distributions -Problems.		10
Unit IV	Probability: Permutation, combination, trail, event, sample space, mutually exclusive cases, exhaustive events, Independent events, dependent events, simple and compound events.Measurement: Classical, relative frequency, theory of probability, Limitations, personalistic view of probability and Axiomatic Approach of probability,addition and multiplication theorem, odds, miscellaneous illustrations question		11
Unit V	***Numerical Methods:*** Gauss-Seidal method for linear algebric system-Newton's Rapshon method for polynomial system-Newton forward and backward interpolation-Trapezoidal rule-Simpson 1/3 rule and 3/8 rule for Numerical Integration.		*9*
	Total Contact Hrs		**50**
TEXT BOOKS	1. RSN Pillai&Bagavathi ,"Statistics Theory and Practice", S.Chand& Company Ltd. July 2011 2. P.Kandasamy, K.Thilagavathy, K.Gunavathy, "Numerical Methods", Sultan Chand & Co. Ltd., Third Edition,2002.		
REFERENCES	1. S.P. Gupta, "Statistical Methods", Sultan Chand & Sons Publishers, Thirty-third Edition, 2002. 2. M.Venkatraman, "Numerical Methods in Science and Engineering", The National Publications, Fifth Edition,1999. 3. "Computer Oriented Statistics and Numerical Method"s, S.Chand and Co Delhi. 2009		

Compiled by	Verified by HOD	CDC	COE
K.Srinivasan T.Menaka K.Kannika parameswari	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	B.Sc., (Computer Science)	Effective from the year : 2014 onwards
Subject Code : 14UCE04 CORE LAB I	Title : PROGRAMMING IN 'C'	Semester :I
Hrs / Week:	4	Credit : 3
Objectives	To enable the students to write programming in 'C' for solving specified Problems.	

Units	Contents	Hrs
	• Program to find the greatest number among n numbers. • Program to Generate a Fibonacci series. • Program to check whether the given number is Armstrong number or not. • Program to find Prime numbers between a given range. • Program for finding Sum of individual digits. • Program to find the values of the following Series Sin(X), Cos(X), E^x, • Log(1+X). • Program to perform the Sequential search. • Program for Binary search. • Program to display the Numbers in Ascending order. • Program to display the Numbers in Descending order. • Program to display the Names in Alphabetic order. • Program to find whether a given string is a palindrome or no.t • Program to generate the Piglatin. • Program to find a Mean, median & mode for given values. • Program to find Standard deviation & variance for given values. • Program to calculate the Matrix addition. • Program to calculate the Matrix multiplication. • Program to find the Transpose of a Matrix. • Program to count vowels, consonants, white spaces in a given sentence. • Program to illustrate the concept of structures. • Program to illustrate the concept of Pointers. • Program to illustrate the concept of subroutine functions. • Program to create a file. • Program for processing a file.	

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M.Sakthi M.Malathi/R.Anandhi K.Gayathri	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	B.Sc., (Computer Science)	Effective from the year : 2014 onwards	
Subject Code : 14UCE05 CORE III	Title : COBOL PROGRAMMING	Semester : II	
Hrs / Week:	4	Credit : 4	
Objectives	To enable the students to understand the important of MIS to enable the students to learn all the futures of COBOL and make the students to apply the same for writing COBOL programming for solving problems.		
Units	Contents		Hrs
Unit I	Data Processing - Batch Processing - Online Processing -Realtime Processing - Data Files - Organization Of Data.Introduction to COBOL – History – Coding Format – Structure of a COBOL Program – Character Set – COBOL Words – Data names and Identifiers – Literals – Figurative Constant.		11
Unit II	Four Divisions of COBOL–IDENTIFICATION DIVISION–ENVIRONMENT DIVISION – DATA DIVISION – Level Structure – PICTURE Clause -VALUE Clause – FILE SECTION – WORKING STOARAGE SECTION –Editing .		9
Unit III	PROCEDURE DIVISION – Data Movement verb: MOVE – Arithmetic Verbs: ADD, SUBTRACT, MULTIPLY and DIVIDE –Sequence Verb: GOTO, STOP – Conditional Verb: IF, Nested IF.DATA DIVISION – USAGE clause – DISPLAY clause - SYNCHRONIZED clause – JUSTIFIED clause – REDEFINED clause – RENAMES clause – SIGN clause – Simple Programs.		10
Unit IV	Table Handling – OCCURS clause – PERFORM Verb – PERFORM with TIMES, UNTIL, VARYING, VARYING-AFTER Options – SET Verb – SEARCH Verb – EXAMINE Verb – INSPECT Verb – STRING and UNSTRIGN Verbs – Simple Programs.		10
Unit V	Sequential File Processing – Indexed File Processing – Relative File Processing – SORT Verbs – MERGE Verbs – Simple Programs		10
	Total Contact Hrs		**50**
TEXT BOOKS	1. M.K. Roy, D.GhoshDastidar,"COBOL Programming", Tata McGraw Hill –Second Edition, 1998. 2. Philippakkis, "Information system through COBOL", Tata McGraw Hill-Second Edition 1989		
REFERENCES	1. Sadagopan," Management Information Systems", Prentice hall of India, Second Edition, 2002. 2002. 2. Gardon, B.Davis and Margeth, H.Olsen," Management Information System", Tata McGraw Hill, Second Edition, 1985. 3. Philippakkis," Structured COBOL Programming", Tata McGraw Hill, Third Edition, 1990.		

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Dr.Antony Selvadoss Thanamani M.Sakthi K.Gayathri	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**	
Subject Code : 14UCE06 CORE IV	**Title : Data and File Structure**	**Semester :** II	
Hrs / Week:	**4**	**Credit : 4**	
Objectives	To enable the students to understand the concepts of array, stack, queue, list, linked list, tree, graph theory, searching and sorting.		
Units	**Contents**		**Hrs**
Unit I	Introduction – Creation of Programs – Analysis of programs – Arrays – representation of Arrays – Ordered Lists – Polynomials – Stacks and Queues – fundamentals – Evaluation of Expressions – Multiple stacks and queues.		9
Unit II	Linked List – Singly Linked lists – Linked Stacks and Queues – Polynomial addition using stack – Functions of Linked list – Doubly Linked List – Dynamic Storage Management – Garbage collection and Compaction.		10
Unit III	Trees – Basics – Binary Trees – Binary Trees Representation – Binary Trees Traversal – Binary tree representation of Trees .Symbol Tables –Hash table.		11
Unit IV	Searching and Sorting – Linear search, Binary search & Fibonacci search – Sorting – Insertion, Quick, Merge (2-way), Heap, and Radix.		12
Unit V	Files: Files, Queries and Sequential Organizations: Storage device types-Query types, Mode of Retrieval, Mode of update– Indexing techniques: Cylinder-Surface Indexing-Hashed Indexes – File Organizations :Sequential Organizations-Random Organizations-Linked Organization-Storage Management.		8
	Total Contact Hrs		**50**
TEXT BOOKS	1. Ellis Horowitz & Sartaz Sahani, "Fundamentals of Data Structures" Galgotia Book Source, 1983. 2. ISRD GROUP, "Data Structures using C" , Tata McGraw Hill ,Seventh Reprint,2010		
REFERENCES	1. Jean Paul Tremblay and Paul G. Sorenson, "An Introduction to Data Structures with Applications" Tata McGraw Hill Publication, Second Edition, 2008. 2. Ellis Horowitz, Sartaj Sahni, Susan Anderson-Freed, "Fundamentals of Data Structures in C", Universities Press (India) Private Limited, 2008. 3. R.Krishnamurthy and G. IndiraniKumaravel, "Data Structures using C", Tata McGraw – Hill Publishing Company Limited, New Delhi, 2008.		

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R.Deepa N.Yasodha M.Meenakrithika	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**	
Subject Code : 14UCE07 ALLIED II	**Title : MATHEMATICS-II**	**Semester :** II	
Hrs / Week:	**4**	**Credit :4**	
Objectives	To enable the students to understand the concepts and principles of relations, functions, fuzzy sets, partial ordering, algebric structures, mathematical logic, formal languages and graph theory.		
Units	**Contents**		**Hrs**
Unit I	***Mathematical logic:*** Connectives – Tautology and contradiction-Equivalence of Propositions-Duality law- Normal forms – Disjunctive and conjunctive normal Forms-PDNF-PCNF– Worked examples-Predicate calculus – Quantifiers – Free and bound variables(Definitions only).		10
Unit II	***Relations:*** Types of relations-some operation of relation- Composition of Relations – Properties of relation-Equivalence Classes-matrix representation of a relation-Worked Examples. ***Fuzzy Sets:*** Fuzzy sets – Crisp Sets –Overview of operations on fuzzy sets – Fuzzy complement – Fuzzy union – Fuzzy intersection – Aggregation operations.		9
Unit III	***Functions:*** Representation of function-Types of function- Composition of functions – Inverse of functions-Worked Examples. ***Partial ordering:*** Hasse diagrams for partial ordering-terminology related to posets-Lattice-Properties of Lattices Worked Examples.		10
Unit IV	***Algebric structure:*** semigroups & monoids- Homomorphism of semigroups and monoids- sub semigroups and submonoids-groups ***Formal languages:*** Basic definitions-phase structure grammar- types of phase structure grammar-Worked examples		10
Unit V	***Graph theory:*** Graph –Degree of the vertex – some special simple graphs-Matrix representation of graphs-Paths, Cycles and connectivity- Eulerian Graphs - Hamiltonian graphs- Connectedness in directed graphs- Shortest path algorithm-Dijkstra's Algorithm-Worked Examples.		11
	Total Contact Hrs		**50**
TEXT BOOKS	1. T.Veerarajan, "Discrete mathematics", Tata McGraw Hill, 2007. 2. GeorgeKlir& Tina A Folger,"Fuzzy Sets, Uncertainity& Information", Prentice hall of India, Eighth Edition, 2003.		
REFERENCES	1. V. Sundaresan, K.S. Ganapathi Subramanian, K. Ganesan, "Discrete Mathematics", A.P.Publications, Sirkali, 2006. 2. RaniSironmani," Formal Languages ",The Christian Literature Societry, First Edition,1984. 3.J.P.Tremplay & R. Manohar"Discrete Mathematical structures with Applications to computer Science ", McGraw Hill Publication 19751.NarsingDeo, "Graph Theory ", Prentice hall of India, New Delhi, 2008.		

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M.Malathi/R.Anandhi T.Menaka K.Kannika Parameswari	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**
Subject Code : 14UCE08 CORE LAB II	**Title : PROGRAMMING IN COBOL**	**Semester :** II
Hrs / Week:	**4**	**Credit : 3**
Objectives	To enable the students to write programming in COBOL for solving specified problems	
Units	**Contents**	
	• Solve problems using control statements • Solve problems using string handling • Solve problems using level numbers • problems using table handling • Sequence file creation • Sequential file processing • Indexed sequential file creation • Indexed sequential file processing • Indexed sequential file updation • Relative file creation and processing • Program using subroutines • Program using screen section • Program to sort two files • Program to merge two files	

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Dr.Antony Selvadoss Thanamani M.Sakthi K.Gayathri	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**	
Subject Code : 14UCE09 CORE V	**Title : OBJECT ORIENTED PROGRAMMING USING C++**	**Semester :** III	
Hrs / Week:	**5**	**Credit : 4**	
Objectives	To enable the students to learn all the features of C++ and make the students to apply the same for writing programming for solving problem.		
Units	**Contents**		**Hrs**
Unit I	***Introduction:*** Evolutions of C++- Object oriented Technology- Programming Paradigms- Disadvantages of Conventional Programs- Key concepts of object oriented programming- Advantages of OOPs- Applications of oops***Input and Output in C++:***Streams in C++- Predefined Streams – Stream Classes- Formatted and Unformatted data - Formatted Console I/O Operations – Unformatted Console I/O operations- Bit Fields – Manipulators.		11
Unit II	***C++ Declarations:*** Parts of C++ programs – Types of Tokens, Keywords, Identifiers. Data Types: Basic, Derived, User defined, Void – Operators in C++ - Constants- Memory Management Operators- Precedence of Operators in C++. ***Control Structures:*** Decision making statements: if- else, nested if – else, goto, break, continue, Switch Case- For loop- While Loop- do while loop. ***Functions in C++:*** Parts of a function- passing arguments- Inline Function- Function overloading.		13
Unit III	***Classes and Objects:*** Classes in C++ - Declaring Objects: Public, Private, Protected-Defining Member functions – Characteristics of Member Functions – Rules for Inline Functions- Array of Objects- Friend functions- Constant Member function- Data Hiding- overloading member function. ***Arrays:*** Characteristics of arrays- Initialization of Array using functions- Array of **Classes.*Constructors and Destructors:*** Characteristics of Constructors and Destructors- Application with constructors- Overloading and Copy Constructors.		13
Unit IV	***Operator Overloading and Type Conversion:***Keyword Operator – Overloading Unary Operators- Operator Return Type- Constraint on Increment and Decrement Operators- Overloading with friend functions- Type Conversion- Rules for Overloading Operators. ***Inheritance:*** Introduction –types of Inheritance: Single, Multi-level, Multiple, Hierarchical, Multi-PathAdvantages and its Disadvantages. ***Polymorphism:*** Introduction- Pointer to derived Class Objects- Virtual Functions- Rules- Pure Virtual functions.		14
Unit V	***Files:*** File Stream Classes- Steps of File Operation – Finding End of File- File Opening Modes- Manipulators with Arguments – Sequential Read and Write Operations – Binary and ASCII Files- Command Line Arguments. Exception Handling- Principles of Exception Handling- Try, Throw, Catch- Exception Handling Mechanism- Commonly used header Files. ***Templates:*** Class Templates-Function Templates		14
	Total Contact Hrs		**65**
TEXT BOOKS	1. E. Balagurusamy,"Object Oriented Programming with C++",Tata McGraw Hill publication, Fifth edition, 2012. 2. Ashok N. Kamthane,"Object Oriented Programming with ANSI and Turbo C++", Pearson Education 5th Impression 2008.		
REFERENCES	1. D.Ravichandran.J, "Programming with C++", Tata McGraw Hill publication, fourteenth edition, 2001. 2. RabortLafore, "Object Oriented Programming with C++", Galgotia Publication Pvt. Ltd, second edition,2001. 3. Ashok Kamathane-"Programming in C++" Prentice Hall 2003		

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K.Srinivasan S.S.Shanthi K.Kannika Parameswari	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**	
Subject Code : 14UCE10 CORE VI	**Title : RELATIONAL DATABASE MANAGEMENT SYSTEM AND ORACLE**	**Semester :** III	
Hrs / Week:	**4**	**Credit : 3**	
Objectives	To make the students to learn all the database management systems, relational model, integrity constraints, object oriented databases, normalization and concurrency control and also to learn all the features of Oracle and make the students to apply the same for writing programming for solving problem		
Units	**Contents**		**Hrs**
Unit I	Introduction Purpose of a Database System – Views of data – Data abstraction – Data Models – Database Languages – Database Users – DBA – Transaction Management – Database System Structure. Entity Relationship Model – Basic Concepts – Constraints – Keys – Entity Relationship Diagram.		9
Unit II	Relational Model – Structure of Relational Databases – Relational Algebra – Operations – Additional Operations – Extended Relational Operations – Modification of the Database. Domain Constraints – Relational Integrity – Assertions – Triggers- DFD Concepts- Data flow diagrams.		9
Unit III	Relational Database design – First Normal Form – Functional Dependencies – Second Normal Form – Third Normal Form – Fourth Normal Form – Boyce – code Normal Form. Introduction to Oracle – Codd's rules – Oracle data types – Create, View, delete, update, modify, truncate, rename, destroy & alter commands.		11
Unit IV	Data Constraints: types of constrains: I/O constraints – foreign key constraints – Unique key constraints – default value concepts – Comparisons done on table data – Oracle Functions. Arithmetic, Data, Number, Miscellaneous, conversion and group functions – Set Operators – joins – Sub queries – Views – Pattern matching –Range – Searching – Grouping and Having Cause.		10
Unit V	***Introduction to PL/SQL:*** Advantages of PL/SQL – The generic PL/SQL block – The PL/SQL execution environment – PL/SQL data types – Control structures – What is Curser – Types of Cursers- Implicit curser processing in client server environment-implicit curser attributes- explicit curser. Database trigger: types of triggers, Creating and deleting triggers.		11
	Total Contact Hrs		**50**
TEXT BOOKS	1. Henry F.Korth, Abraham Silberschatz Sudarshan," *Database System Concepts*", Third edition, Tata McGraw Hill publication, 1997. 2. Ivan Bayross, "SQL, PL/SQL-The programming language of Oracle", BPB Publication, 3rd edition 2010		
REFERENCES	1. Ivan Bayross, "Commercial Application Development Using Oracle", BPB Publication. 2000. 2.George Koch, "The Complete Reference - Oracle 8i ", Tata McGraw Hill publication, 2000.		

Compiled by	Verified by HOD	CDC	COE
Dr.R.Manickachezian R.Deepa M.Dhavapriya	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**	
Subject Code : 14UCE11 CORE VII	**Title : SOFTWARE ENGINEERING**	**Semester :** III	
Hrs / Week:	**4**	**Credit :3**	
Objectives	To make the students to learn all the software development approaches & design methodologies and usage of tools in software development process.		
Units	**Contents**		**Hrs**
Unit I	Introduction- Software – Software Process – Software Process Model – Software Engineering methods – CASE studies – Attributes ,Computer Based System Engineering – System Modeling - System Engineering Process – System Requirements Definition – System Design – System Interpretation – System Installation – System Operation – System Evolution.		11
Unit II	Software Processes – Software Process Models: Waterfall model – Evolutionary Development – Reuse Oriented Development – Incremental Development – Spiral Development.		9
Unit III	Project Management: Management activities – Project Planning – Project Scheduling – Risk Management: Risk Identification – Risk Analysis – Risk Planning – Risk Monitoring.		11
Unit IV	Software Requirements – User Requirements – System Requirements – Requirement Engineering processes – Feasibility Study – Requirement Validation System Models – Behavioral Model – Object Models.		9
Unit V	Real Time Software Design – System Design – Real Time Executives – Monitoring and Control Systems – Data acquisition Systems .Quality Management – Quality assurance and standards – Quality Planning – Quality Control – Software measurement and metrics.		10
	Total Contact Hrs		**50**
TEXT BOOKS	1. IAN Sommerville, "Software Engineering", Pearson Education 9th Edition, 2009. 2. Elias M.Awad, "Systems Analysis and Design", Galgotia Publications Ltd, Second Edition 2006.		
REFERENCES	1. Roger Pressman, "Software Engineering", Tata McGraw Hill Publication, Sixth Edition, 2001.		

Compiled by	Verified by HOD	CDC	COE
M.Malathi/R.Anandhi S.Sharmila K.Gayathri	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**
Subject Code : 14UCE12 ALLIED III	**Title: COMPUTER BASED OPTIMIZATION TECHNIQUES**	**Semester :** III
Hrs / Week:	**5**	**Credit : 4**
Objectives	To enable the students to understand and to apply the resource management techniques available in OR including linear programming transportation assignment problem, inventory control, queuing theory and network problems.	

Units	Contents	Hrs
Unit I	Origin and development of OR – Applications of OR – Linear programming – Mathematical formulation of the problem – Graphical Method – Simplex Method-Two-Phase Method (**Big M method not included**) –Primal and Dual problem-Dual Simplex Method.(with 2 and 3 constraints alone) (**Duality Simplex Method not included**).	12
Unit II	***Transportation Problem*:** Balanced Transportation problem and Un-Balanced Transportation problem-Row Minimum-Column Minimum-North West Corner-Matrix Minima Method-Vogel's Approximation Methods. ***Assignment Problem:*** Balanced and Un-Balanced Assignment problem– Hungarian method – Routing problem.	12
Unit III	***Sequencing problem*:** Problems with n jobs and 2 machines – Problems with 'n' jobs and 'k' machines. Inventory control – Types of inventory ***Economic Order Quantity:*** Model 1: EOQ problem with no shortages Model 2: EOQ problem with no shortages and several production runs of unequal length Model 3: EOQ problem with shortages. ***EOQ Problem with Price Breaks:*** Model 1: EOQ Problem with one price breaks.	14
Unit IV	Queueing Theory: Queueing System – Characteristics of Queueing system – Symbols and Notations- ***Queueing models*** Model 1: (M/M/1) : (∞/ FIFO) Mode l 2: (M/M/1) : (N/ FIFO) Model 3: (M/M/C) : (∞/ FIFO) ***Replacement Problem and System Reliability:*** Model 1: Value of Money does not change with time. Model 2:Value of Money change with time.	14
Unit V	***Network Scheduling:*** Network and Basic components – Logical sequencing: Formation of a loop,Dangling,Redundancy-Network Construction- Rules of Network construction –Time calculation in Network-Numbering the events–Critical Path Method (CPM)– PERT: PERT Calculations (Normal table is not included).	13
	Total Contact Hrs	**65**

TEXT BOOKS	1. KantiSwarup, PK Gupta, Man Mohan, "Operations Research ", Sulthan Chand & Sons, Seventeenth edition, 2013.
REFERENCES	1. S. DharaniVenkatakrishnan,"Operations Research". KeerthiPublishing(p) ltd. 2002. 2. PK Gupta , Man Mohan, "Problems in Operations Research". 3rd Edition,2001. 3. J K Sharma," Operations Research: Problems and Solutions", 3rd Edition 2013 4. G. Srinivasan "Operations Research: principles and Applications", 2nd Edition, 2012. 5. Hamdy A.Taha,"Operations Research an Introduction", Eight edition, Dorling Kindersley (India) Pvt.Ltd Publications,2007.

Compiled by	Verified by HOD	CDC	COE
Dr.R.Manickachezian R.Nandhakumar S.Sharmila	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**
Subject Code : 14UCE13 CORE LAB III	**Title : PROGRAMMING LAB IN C++**	**Semester :** III
Hrs / Week:	**5**	**Credit : 3**
Objectives	To enable the students to write programming in C++ for solving specified problems.	
Units	**Contents**	
	• Program to print Floyd's triangle. • Program to illustrate the concept of class and object. • Program to illustrate the concept of function without return statement. • Program to illustrate the concept of function with return statement. • Program to illustrate the concept of Inline function. • Program to illustrate the concept of Default argument. • Program to illustrate the concept of Friend function. • Program to illustrate the concept of function overloading. • Program to illustrate the concept Array of Object. • Program to illustrate the concept of objects as Function argument. • Program to illustrate the concept of returning by objects. • Program to illustrate the concept of constructors. • Program to illustrate the concept of destructors. • Program to illustrate the concept copy constructor. • Program to illustrate the concept overloading unary operators. • Program to illustrate the concept overloading binary operators. • Program to illustrate the concept of single inheritance. • Program to illustrate the concept of multiple inheritances. • Program to illustrate the concept pointers to objects • Program to illustrate the concept pointers to derived objects. • Program to illustrate the concept virtual function. • Program to illustrate formatted console I/O operations. • Program to illustrate formatting with manipulators. • Program to illustrate working with single file. • Program to illustrate working with multiple files.	

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K..Srinivasan S.S.Shanthi K.Kannika Parameswari	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**
Subject Code : 14UCE14 CORE LAB IV	**Title : PROGRAMMING LAB IN ORACLE**	**Semester :** III
Hrs / Week:	**5**	**Credit : 3**
Objectives	To enable the students to write programming in Oracle for solving specified problems.	
Units	**Contents**	

- DDL Commands
- DML Commands
- TCL Commands
- SQL Operations
- Views
- Joins
- Set Operators
- Sub Queries
- Apply Normalizations (1st, 2nd & 3rd) to the following table:

Table Name: Users

Name	Company	Company_Address	Url1	Url2
Joe	ABC	Work Lane	abc.com	xyz.com
Jill	XYZ	1 Job Street	abc.com	xyz.com

1. Reverse A Number
2. Odd Or Even Numbers
3. Fibonacci Series
4. Prime Or Not
5. Index
6. Area Of Circle
7. Salary Calculation Using Cursor
8. Write a Pl/Sql program to generate all prime numbers below 100
9. Write a program to demonstrate %type and %rowtype attributes
10. Create a trigger before/after update on employee table for each row/statement
11. Create a trigger before/after delete on employee table for each row/statement
12. Create a trigger before/after insert on employee table for each row/statement
13. Create a cursor, which displays all employee numbers and names from the EMP table
14. Create a cursor, which update the salaries of all employees as per the given data
15. Create a cursor, which displays names of employees having salary > 50000
16. Cursor For Loop

Database Schema for a Employee-pay scenario

Tables: Employee , department, paydetails, payroll

For the above schema, perform the following—

I. Create the tables with the appropriate integrity constraints
II. Insert around 10 records in each of the tables
III. List the employee details department wise
IV. List all the employee names who joined after particular date
V. List the details of employees whose basic salary is between 10,000 and 20,000
VI. Give a count of how many employees are working in each department
VII. Give a names of the employees whose netsalary>10,000
VIII. List the details for an employee_id=5
IX. Create a view which lists out the emp_name, department, basic, deductions, netsalary
X. Create a view which lists the emp_name and his netsalary

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Dr.R.Manickachezian M.Dhavapriya M.Meenakrithika	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**
Subject Code : 14UCEN1	**Title : NON-MAJOR ELECTIVE PAPER-I : PHOTOSHOP**	**Semester :**III
Hrs / Week:	**1**	**Credit:2**
Objectives	To enable the students to know how to work with Photoshop	
Units	**Contents**	
	• Create India Map • Image Menu • Reduce Picture Size • Replace color in an image • Transfer an object from one image to another and erase background • Special Effects-Color in black and white image • Special Effects-Feathered Portraits (Soft fade) • Add a pattern as background • Make a layer transparent • Make a simple book cover by using basic functionalities • Retouching photos • Take a logo and modify it • Alter an image using filters	

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R.Deepa N.Arul Kumar	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**
Subject Code : 14UCEN2	**Title : NON-MAJOR ELECTIVE PAPER-I : DTP Software**	**Semester :**III
Hrs / Week:	**1**	**Credit:2**
Objectives	To enable the students to know about MS Office	
Units	**Contents**	
	• Opening the document, correcting the spelling mistakes, align the paragraph, center • Alignment of the headings, underlining the sub-headings, drawing rectangle box for the titles etc. • To print the Bio-data in the standard format. • To mail merge the project requisition letter to various organization. • To print a document with clipart. • To prepare a balance sheet using Excel. • Prepare student mark list using MS-Excel. • To prepare Worksheet and the graphical presentations. • To prepare database, process, update and print reports in access. • Database creation, from creation, SQL creation, Report Using Standard Screen, Using Custom Screen • Animation Screen in Power Point.	

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Dr.Antony Selvadoss Thanamani R.Nandhakumar	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**	
Subject Code : 14UCE15 CORE VIII	**Title : JAVA PROGRAMMING**	**Semester :** IV	
Hrs / Week:	**4**	**Credit : 4**	
Objectives	To enable the students to learn all the features of JAVA and make the students to apply the same for writing JAVA programming for solving problems.		
Units	**Contents**		**Hrs**
Unit I	Java Evolution-Overview of Java Lanaguage-Constants, Variables &Datatypes-Operators & Expressions-Decision making & branching-Decision making & looping.		9
Unit II	Classes, Objects & methods- Arrays, Strings & Vectors-Interfaces: Multiple Inheritance-Packages: Putting classes together - Multithreaded Programming.		9
Unit III	***Managing Errors & Exceptions- Applet Programming:***Introduction,How Applets differ from application-Writing Applets-Building applet code- lifecycle-Executable Applet-Designing Web page-Applet tag-Adding & Running Applet using HTML File-Passing Parameters to Applets-Graphics Programming.		11
Unit IV	***AWT***: Text Fields, Buttons, Checkboxes, Radio Buttons and Layouts. AWT – Lists, Choices, Text Areas, Scrollbars and Scroll Panes – AWT – Windows, Menus and Dialog Boxes.		10
Unit V	***Managing Input/Output in files in Java:*** Introduction-Concept of Streams-Stream Classes-Byte Stream classes-Character String Classes-Using Streams-Using I/O Classes,File Classes-I/O Exceptions-Creation of Files-Reading/Writng Characters & Bytes-Handling primitive Datatypes-Random Access Files-Interactive I/O-Other System Classes-Event Handling.		11
	Total Contact Hrs		**50**
TEXT BOOKS	1. E.Balagurusamy,"Programming with Java – A Primer", Tata McGraw Hill Publishing Company Limited, New Delhi, 3rd Edition, 2007. 2. Herbert Schildt,"The complete reference-Java2", Fourth Edition, TataMcGraw Hill Publishing Company Limited, New Delhi, 2001		
REFERENCES	1. Kogent Solutions Inc., "JAVA 6 Programming Black Book", Dream TechPress , New Delhi, 2009 2. K.Somasundram, "Programming in Java2", Jaico Publishing House, Chennai, 2005. 3. ISRD Group," Introduction to Object Oriented Programming through Java", Tata McGraw Hill Publishing Company, New Delhi, 2007.		

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Dr.R.Manickachezian N.Arul Kumar K.Gayathri	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**	
Subject Code : 14UCE16 CORE IX	**Title : DATA COMMUNICATION AND COMPUTER NETWORKS**	**Semester :** IV	
Hrs / Week:	**4**	**Credit : 3**	
Objectives	To enable the students to understand the concepts and principles of data communication and networking including topology, protocols, LAN features and aim.		
Units	**Contents**		**Hrs**
Unit I	***Introduction*:** Communications and Networking-fundamental concepts-Data communications-Protocols-Standards-Signal Propagation-Analog and Digital Signals-Parallel and Serial Communications-Simplex, Half-duplex and full duplex communications-Multiplexing-Transmission errors-Detection and Correction-Error classification-Delay Distortion-Attenuation-noise. Types of Error-Error Detection.		9
Unit II	***Transmission Media:***Guided Media-Twisted Pair-Coaxial Cable-Optical fiber-Unguided Media – Microwave Communication-Satellite Communication–FDMA,CDMA,SDMA. ***Network Topology:***Mesh Topology-Star Topology-Tree Topology-Ring Topology-Bus Topology-Hybrid Topology. ***Switching and Routing:*** Switching basics-Circuit switching-Packet switching-Message switching-Router and Routing .		11
Unit III	***Networking protocols and OSI model***-Protocols in Computer Communication-OSI Reference Models-Physical layer-Data link layer-Network layer-Transport Layer-Session Layer-Presentation Layer-Application Layer-Internet Layer.		9
Unit IV	***Local Area Network*** (LAN)-Ethernet-Ethernet properties-CSMA/CD-Metropolitan Area Network (MAN)-Distributed Queue Dual Bus(DQDB)-Switched Multimegabit Data Services(SMDS)-Wide Area Network(WAN)-WAN Architecture		10
Unit V	***Integrated Services Digital Network(ISDN)***-ISDN Architecture-ISDN Interfaces-X.25 Protocol-Understanding and Working of X.25 protocol.***TCP/IP:*** An Introduction to TCP/IP- Basics- Why IP Addresses?-Logical Addresses-TCP/IP Example. ARP-RARP.		11
	Total Contact Hrs		**50**
TEXT BOOKS	1. Achyit S Godbole,"Data Communications And Computer Networks", - TataMcGrawHill, Fourteenth Edition, 2007. 2. William Stallings," Data and Computer Communications", PearsonEducation, Sixth Edition, 2000.		
REFERENCES	1. Andrew S. Tannenbaum,"Computer Networks", Prentice hall of India, FourthEdition, 2003. 2. W.Stallings,"Data and Computer Communications", Prentice hall of India, SeventhEdition, 2004.		

Compiled by	Verified by HOD	CDC	COE
R.Nandhakumar M.Malathi/R.Anandhi S.Sharmila	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**	
Subject Code : 14UCE17 CORE X	**Title : OPERATING SYSTEM**	**Semester :** IV	
Hrs / Week:	**4**	**Credit : 3**	
Objectives	To enable the students to understand the concepts of operating system including process management, storage management, scheduling and windows.		
Units	**Contents**		**Hrs**
Unit I	***Introduction:*** Definition of operating system – History of operating system.***Hardware:*** Interrupts and polling – Buffering – Storage protection – online and offline operation – Cycle stealing – Problem state – Virtual storage – Multi processing – Storage Hierarchy – RISC.***Software:***Machine Language programming – Spooling – Optimizing Compiler – Object oriented programming – Emulation.***Process Management:*** Definition – process states – The Process Control Block – Operations on process – Interrupt Processing – Nucleus of OS.		9
Unit II	***Storage Mangement:*** Real Storage: Storage organization – Management – Hierarchy – Storage management Strategies – Contiguous Vs Non-contiguous storage allocation – Fixed partition multiple programming – Variable partition multiple programming - Multiprogramming with storage swapping – Virtual storage organization – Concepts – Paging – Segmentation – Paging /segmentation systems.		10
Unit III	***Job and Processor Scheduling:***Introduction –Scheduling levels – Scheduling objectives – Scheduling criteria – Preemptive Vs Non-preemptive scheduling – Priorities – FIFO – Round Robin –Quantum size – Shortest job – Shortest remaining time – Highest response ratio next. ***Deadlock:***Definition – Examples – Deadlock prevention, avoidance, detection and recovery – Banker's Algorithm only.		10
Unit IV	***Auxillary Storage Management:*** Disk performance optimization: Why Disk scheduling is necessary – Desirable characteristics of disk scheduling polices – Seek optimization – Disk Caching – RAM Disks.File and Database Systems :Introduction – File system- File system function – Blocking and buffering – File Organization – Allocating and freeing space – File Descriptor – Access Control matrix – access control by user classes – Backup and recovery.		11
Unit V	***Case study Windows:*** Introduction - History– design goals - system architecture. Process & thread management: Process & thread organization-scheduling-synchronization. Memory management: memory organization-allocation-page replacement. File system management: file system drivers-NTFS. Input output management: device drivers- I/O processing-interrupt handling-file cache management.		10
	Total Contact Hrs		**50**
TEXT BOOKS	1.Deital,Deital,Choffnes "Operating systems", Pearson education and dorliing kindersly publishing,Inc., Third edition,2009.		
REFERENCES	1.Andrew S. Tanenbaum, Albert S. Woodhull, "Operating Systems Design and Implementation", Prentice Hall, Third Edition,2006, .		

Compiled by	Verified by HOD	CDC	COE
K.Srinivasan N.Karthikeyan K.Kannika Parameswari	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	B.Sc., (Computer Science)	Effective from the year : 2014 onwards	
Subject Code : 14UCE18 ALLIED IV	Title : ACCOUNTANCY FOR DECISION MAKING	Semester : IV	
Hrs / Week:	6	Credit : 4	
Objectives	To enable the students to understand the concepts and principles for Accounting including company accounting, cost accounting, Management Accounting and Forecasting.		
Units	Contents		Hrs
Unit I	Basic principles – Concepts – Conventions – Methods in Book Keeping – Accounting Cycle- Accounting process leading to preparation of final accounts – Adjusting and closing entries in final accounts.		16
Unit II	Company Accounts – Issue of shares – Shares premium a Discount – Forfeiture of shares -The issue of forfeited shares.		15
Unit III	Cost accounting – Elements of cost - Cost sheet preparation – Stock valuation – LIFO, FIFO, Simple average method, Weighted Average methods of costing.		16
Unit IV	Management Accounting for Business decisions – Nature and Scope – Functional FlowStatement and Cash Flow Statement.		16
Unit V	Forecasting-decision making- Budgetary Control - Cash budget flexible, budget, sales budget and production budget. Standard costing - material, labour and Sales variance only.		17
	Total Contact Hrs		80
REFERENCES	1. R.L.Gupta,"Advanced Accounting" , Sulthanchand and sons, Ninth Edition ,1999. 2. S.N.Maheswari,"Advanced Accounting ",Vikas publications, Sixth Edition,1995. 3. S.M.Sukhla ,"Advanced Accounting",Sulthanchand and sons, Fourteenth Edition,1999.		

Compiled by	Verified by HOD	CDC	COE
M.Aarthi	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**
Subject Code : 14UCE19 CORE LAB V	**Title : PROGRAMMING LAB IN JAVA**	**Semester :** IV
Hrs / Week:	**5**	**Credit : 3**
Objectives	To enable the students to write programming in Java for solving specified problems.	
Units	**Contents**	
	• Program to illustrate Quadratic Equation. • Program to illustrate Pascal's Triangle • Program to display the mark list of the students by using inheritance. • Program for method overloading. • Program to arrange the given names in alphabetical order. • Program to display the sum of individual digits. • Program to display the multiplication table. • Program for salary details using packages. • Program for Bank processing using Interface. • Program for extending the Thread class. • Program to creating Thread by implementing Runnable Interface. • Program to create a Thread using a synchronized block within the run () method. • Program to add the two numbers by using applet. • Program to display the concatenation of two strings by using Applet class. • Program to display the file manipulation. • Program to copy one file to another file. • Program to perform Key Events. • Program to perform Mouse Events. • Program for data base connectivity • Program for the processing of random access file. • Program to display the image using applet. • Program using AWT Components	

Compiled by	Verified by HOD	CDC	COE
Dr.R.Manickachezian N.Arul Kumar K.Gayathri	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**
Subject Code : 14UCE20 CORE LAB VI	**Title : PROGRARAMMING LAB IN VISUAL BASIC**	**Semester :** IV
Hrs / Week:	**5**	**Credit : 3**
Objectives	To enable the students to know how to work with Visual Basic programming	
Units	**Contents**	
	• Program to create electricity Bill • Program to create calculator • Program to illustrate directory list box • Program to display popup menu • Program to create quiz application • Program to create timer control • Program to create animation using timer control • Program to create application using all controls • Program to create Inventory control using function • Program to create Scrollbars • Program to create Notepad • Program to create Student database • Program to illustrate library management • Program to illustrate hospital management • Program to illustrate railway reservation • Program to display Employee pay slip	

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Dr.Antony Selvadoss Thanamani T.Menaka S.Sharmila	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**
Subject Code : 14UCEN1	**Title :NON MAJOR ELECTIVE PAPER II: FLASH**	**Semester :**IV
Hrs / Week:	**1**	**Credit:2**
Objectives	To enable the students to know how to work with Flash	
Units	**Contents**	
	• Volcano Eruption • Drawing and creating text with effects • Rotating globe • Fog Effect • Lightning Effect • Animated Effect • Raining Effect • Logo • Bouncing ball • Robot arm.	

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M.Malathi/R.Anandhi M.Dhavapriya	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**
Subject Code : 14UCEN2	**Title : NON-MAJOR ELECTIVE PAPER-II : HTML**	**Semester :**IV
Hrs / Week:	**1**	**Credit:2**
Objectives	To enable the students to know how to work with HTML and to create static webpage	
Units	**Contents**	
	• Create title, heading, and body tag using HTML • Changing foreground and background using HTML • Formatting webpage using HTML • Design college logo using HTML • Create student mark list and list the class toppers using ordered list. • Create a web page for employee salary calculation. • Create a web page for calculating Electricity Bill. • Create web site for various department in our college using Frame. • Create an application form using HTML • Create bio-data using HTML tags. • List the details of product stored using HTML table.	

Compiled by	Verified by HOD	CDC	COE
K.Srinivasan N.Karthikeyan	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**	
Subject Code : 14UCE21 CORE XI	**Title : DOT NET PROGRAMMING**	**Semester :** V	
Hrs / Week:	**4**	**Credit :3**	
Objectives	To train the students to understand the principles and concepts of VB.NET, ASP.NET, ADO.NET and PHP.		
Units	**Contents**		**Hrs**
Unit I	Introduction to .Net: .net framework- Introducing C#-Overview of C#-Literals, variables and data types-operators and expressions-Decision making and branching-decision making and looping-methods in C#-Arrays		10
Unit II	Difference between VB6 and VB.Net-Object-Oriented programming and VB.Net-Data types-Variables-Operators-Arrays-Conditional logic.		9
Unit III	Procedures- Dialog boxes- File IO and System objects- Error handling- Namespaces-Classes and Objects- Multithreading-Message Queue.		11
Unit IV	VB.Net IDE-Compiling and Debugging-Customizing- Data access: ADO.Net- Visual studio .Net and ADO.Net. Windows Forms: Controls-Specific controls- Irregular forms.		11
Unit V	Vb.Net and web: Introduction to ASP.Net page framework- HTML server controls- Web controls-Validation controls- Events-CSS- State management- Tracing- Security.		9
	Total Contact Hrs		**50**
TEXT BOOKS	1. Bill Evjen, Jason Beres, et.al, Visual Basic .Net programming, Wiley Dreamtech India (p) Ltd. ISBN 81-265-0254-1. 2. E.Balaguruswamy "Programming in C#" McGraw-Hill publication,2012 Edition.		
REFERENCES	1. K- Steven Holzner "Visual Basic .NET Programming Black Book" 2005 Edition. 2. E.Balaguruswamy "Programming in C#" McGraw-Hill publication,2012 Edition. 3. Jeffrey R. Shapiro"VB.NET Complete Reference" McGraw-Hill Companies, 2002. 4. Mc Downell "ASP.NET complete reference", 2007.		

Compiled by	Verified by HOD	CDC	COE
R.Deepa N.Karthikeyan T.Menaka	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	B.Sc., (Computer Science)	Effective from the year : 2014 onwards	
Subject Code : 14UCE22 CORE XII	Title : WEB TECHNOLOGY	Semester : V	
Hrs / Week:	4	Credit : 2	
Objectives	To enable the students to identify the various aspects of web technology. To make the students to learn features and applications of HTML, DHTML, Apache, MySQL & PHP		
Units	**Contents**		**Hrs**
Unit I	***HTML*:** Introduction-SGML-DTD-DTD Elements-Attributes-Outlines of and HTMLdocument-HEADSECTION-Prologue-Link-Basis-Meta-Script-Style-BODYSECTION-Headers-paragraphs-Text Formatting-Linking-Embedding Images-Lists-Tables-Frames-Other Special Tags and Characters-HTML Forms. ***Dynamic HTML (DHTML):*** Introduction-Cascading Style Sheet (CSS)-Coding CSS. Properties of Tags-Property Values-Other Style Properties-Inline Style Sheets-Embedded Style Sheets-External Style Sheets-Grouping-Inheritance.		9
Unit II	***MySQL:*** Introduction to MY SQL - The Show Databases and Table - The USE command - Create Database and Tables - Describe Table - Select, Insert, Update, and Delete statement - Some Administrative detail - Table Joins - Loading and Dumping a Database.		11
Unit III	***PHP:*** Introduction-PHP Syntax-Variables-Data Types- String Functions-Constants- PHP Operators-Arithmetic Operators, Assignment Operators, String Operators, Increment/Decrement Operator- Comparison Operator- Logical Operator – Array Operators- if-else-elseif- Switch- While loop-for loop.		10
Unit IV	PHP Arrays-Sorting Arrays-PHP Global Variables-PHP Forms-Form handling-Form Validation-Form required field- PHP Functions-PHP Files: Opening and Closing files-Reading and Writing a file..		9
Unit V	***APACHE:*** Introduction - Apache Explained - Starting, Stopping, and Restarting Apache - Modifying the Default Configuration - Securing Apache - Set User and Group - Consider Allowing Access to Local Documentation - Don't Allow public_html Web sites - Apache control with .htaccess		11
	Total Contact Hrs		**50**
TEXT BOOKS	1. J.Akilandeswari & N.P.Gopalan,"Web-Technology–A Developer's Perspective", Prentice-Hall of India pvt ltd-2012. 2. James Lee and Brent Ware, "Open Source Web Development with LAMP using Linux, Apache, MySQL, Perl and PHP", Dorling Kindersley(India) Pvt. Ltd, 2011.		
REFERENCES	1. Thomas A. Powell," The Complete Reference-HTML & XHTML", Tata McGraw-Hill Publications, fourth edition, 2011. 2.E.BalaGurusamy, "Introduction to C#",Tata McGraw-Hill Publications, Third edition,2010 3.Young, "The Complete Reference-INTERNET", Tata McGraw-Hill Publications, second edition, 2011. 4.EricRosebrock, Eric Filson,"Setting up LAMP: Getting Linux, Apache, MySQL, and PHP and working Together", Published by John Wiley and Sons, 2010.		

Department	Computer Science	
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**
Subject Code : 14UCE22 CORE XII	**Title : WEB TECHNOLOGY**	**Semester :** V
Hrs / Week:	**4**	**Credit : 2**

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K.Srinivasan N.Yasodha M.Meenakrithika	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**	
Subject Code : 14UCE23 CORE XIII	**Title : SOFTWARE TESTING**	**Semester :** V	
Hrs / Week:	**4**	**Credit : 2**	
Objectives	This syllabus focuses on principles of Software Testing, Test Automation. It covers some of recognized Methodologies for Testing, Software Test Automation and Test Metrics. It also covers Software Test Tool WinRunner.		
Units	**Contents**		**Hrs**
Unit I	***Software development life cycle:*** Phases of Software Project-Quality, Quality Assurance, and Quality Control-Testing, Verification, and Validation. White Box Testing: Static Testing-Structural Testing-Challenges. Black Box Testing: What is Black Box Testing, Why Black Box Testing-When to do Black Box Testing-How to do Black Box Testing		10
Unit II	***Integration Testing***: Integration Testing as a type of Testing- Integration Testing as a phase of Testing- Scenario Testing-Defect Bash. System and Acceptance Testing: Functional System Testing- Non Functional Testing- Acceptance Testing.		10
Unit III	***Performance Testing:*** Methodology-Tools-Process-Challenges. Regression Testing: Types-When to do Regression Testing- How to do Regression Testing. Internationalization Testing.		11
Unit IV	***Software Test Automation:*** Skills needed for Automation-What to Automate-Scope of Automation-Design and Architecture for Automation-Generic requirements for Test Tools Framework-Selecting a Test Tool-Challenges. Test Metrics and Measurements: Metrics and Measurements-Metrics in Testing-Types of Metrics		9
Unit V	***WinRunner:***Overview of WinRunner-Testing an Application Using WinRunner-Test Script Language-Synchronization of Test Cases-Data Driven Testing-Rapid Test Script Wizard-Mapping Custom Object to Standard Class-Checking GUI Objects		10
			50
TEXT BOOKS	1. SrinivasanDesikan, Gopalaswamy Ramesh, "Software Testing Principles and Practices", pearson Education-7th impression 2009 2. Dr K.V.K.K Prasad, "Software Testing Tools", Dreamtech press, New Delhi, 2007 (for V unit)		
REFERENCES	1. Roger S.Pressman,"Software Engineering", Tata McGraw Hill Publication, Sixth Edition, 2009.		

Compiled by	Verified by HOD	CDC	COE
Dr.R.Manickachezian R.Nandhakumar S.Sharmila	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**	
Subject Code : 14UCEE1A	**Title : CORE ELECTIVE I: CYBER SECURITY**	**Semester :** V	
Hrs / Week:	**5**	**Credit : 5**	
Objectives	To make the students to learn the concepts of framework, security and its management.		
Units	**Contents**		**Hrs**
Unit I	***Introduction***– What is cyber security?– What is cyber security policy? - Domain of Cyber Security Policy – Laws and Regulations – Enterprise Policy – Technology Operations – Technology Configuration - Strategy VersusPolicy – Cyber Security Evolution – Productivity – Internet – E commerce – Counter MeasuresChallenges		12
Unit II	***Cyber Security Objectives And Guidance*** Cyber Security Metrics – Security Management Goals – Counting Vulnerabilities – Security Frameworks – E Commerce Systems – Industrial Control Systems – Personal Mobile Devices – Security Policy Objectives Guidance for Decision Makers – Tone at the Top – Policy as a Project – Cyber Security Management – Arriving at Goals – Cyber Security Documentation – The CatalogApproach – Catalog Format – Cyber Security Policy Taxonomy.		14
Unit III	***Cyber Security Policy Catalog*** Cyber Governance Issues – Net Neutrality – Internet Names and Numbers – Copyright andT rademarks – Email and Messaging Cyber User Issues - Malvertising - Impersonation – Appropriate Use – Cyber Crime – Geo location – Privacy - Cyber Conflict Issues – Intellectualproperty Theft – Cyber Espionage – Cyber Sabotage – Cyber Welfare.		13
Unit IV	***Cyber Management Issues*** Fiduciary Responsibility – Risk Management – Professional Certification – Supply Chain – SecurityPrinciples – Research and Development – Cyber Infrastructure Issue – Banking and finance – Health care – Industrial Control systems.		13
Unit V	***Case Study*** A Government's Approach to Cyber Security Policy.		13
	Total Contact Hrs		**65**
TEXT BOOKS	1. Jennifer L. Bayuk, J. Healey, P. Rohmeyer, Marcus Sachs , Jeffrey Schmidt, Joseph Weiss "Cyber Security Policy Guidebook" John Wiley & Sons 2012.		
REFERENCES	1. Rick Howard, "Cyber Security Essentials" Auerbach Publications 2011.		

Compiled by	Verified by HOD	CDC	COE
M.Malathi/R.Anandhi M.Dhavapriya N.Yasodha	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	B.Sc., (Computer Science)	Effective from the year : 2014 onwards	
Subject Code : 14UCEE1B	Title : CORE ELECTIVE I: DISTRIBUTED COMPUTING	Semester : V	
Hrs / Week:	5	Credit : 5	
Objectives	To understood the need of data distribution and how it can be done.		
Units	Contents		Hrs
Unit I	Introduction: Distributed system: Goals, Advantages and disadvantages-architecture of Distributed Computing - Client-server, 3-tier architecture, N-tier architecture, Distributed objects, Loose coupling, tight coupling. Concurrency in Distributed Computing - Multiprocessor systems, Multicore systems, Multicomputer systems, Computing taxonomies, Computer clusters, Grid computing.		12
Unit II	Characteristics of Distributed Computing, Network and Interconnection Structures. Message Switching and Circuit Switching, Designing of distributed system, Top down approach and Bottom up approach . Distributed computing system model - Minicomputer Model, Workstation Model, Workstation – Server Model, Processor – Pool Model, Hybrid Model. Challenges in distributed data		13
Unit III	Data flow system: Issues in load balancing- Classification of Load Distributing Algorithms, Load Balancing Vs. Load Sharing, Selecting a suitable load-sharing algorithm, Requirements for Load Distributing. data flow- Software architecture, hardware architecture. Design consideration: peer to peer network-client and server network-application server network.		14
Unit IV	Client and server network model: client /server model-characteristics-architecture- Implementation of Client/ server Model, tiered architecture- 2 tier architecture, 3-tier architecture, n-tier architecture. Client queue - Client architecture. Configuring a Client/ Server Network Model. types of server – file server, print server, mail server.		13
Unit V	Distributed database: Need for distributed database Principles of distributed databases, types of distributed database-advantages and limitations. Distributed DBMS: levels of transparency-distributed DBMS products- features of distributed file system.		13
	Total Contact Hrs		65
TEXT BOOKS	1.Elmasri & Navathe, "Fundamentals of Database Systems", Pearson Education Asia,3rd Edition 2. Stefans Ceri, Ginseppe Pelgatti "Distributed database Principles and systems" McGraw Hill, First Edition, 2008		

Compiled by	Verified by HOD	CDC	COE
Dr.Antony Selvadoss Thanamani S.Sharmila N.Arulkumar	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	B.Sc., (Computer Science)	Effective from the year : 2014 onwards	
Subject Code : 14UCEE1C	Title : CORE ELECTIVE I: CLIENT SERVER TECHNOLOGY	Semester : V	
Hrs / Week:	5	Credit : 5	
Objectives	To inculcate Knowledge on Client / Server Concepts and various components of client / server Applications.		
Units	Contents		Hrs
Unit I	Client / Server Computing – Advantages of Client / Server Computing – Technology Revolution – Connectivity – Ways to improve Performance – How to reduce network Traffic.		12
Unit II	Components of Client / Server Applications – The Client: Role of a Client – Client Services – Request for Service. Components of Client / Server Applications – The Server: The Role of a Server – Server Functionality in Detail – The Network Operating System – What are the Available Platforms – The Server Operating system.		13
Unit III	Components of Client / Server Applications – Connectivity: Open System Interconnect – communications Interface Technology – Inter-process communication – WAN Technologies.		14
Unit IV	Components of Client / Server Applications – Software. Components of Client / Server Applications – Hardware.		13
Unit V	Components of Client / Server applications – Service and Support: System Administration. The Future of Client / Server Computing: Enabling Technologies – Transformational Systems.		13
	Total Contact Hrs		65
TEXT BOOKS	1. Steve guenferich, "Client / Server Computing – Patrick Smith", PHI, Second edition,1994 (Chapters 1-8 & 10)		
REFERENCES	1.Robert Orfali, Dan Harkey, Jeri Edwards," the essential client/server survival guide", galgotia publication private limited, Second edition. 2.Dewire and Dawana Travis "Client/ Server Computing", TMH.		

Compiled by	Verified by HOD	CDC	COE
Dr.R.Manickachezian N.Yasodha K.Kannika Parameswari	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**
Subject Code : 14UCE24 CORE LAB VII	**Title : DOT NET PROGRAMMING LAB**	**Semester :** V
Hrs / Week:	**5**	**Credit : 3**
Objectives	To develop the student's knowledge in window applications and web applications using visual studio.NET.	
Units	**Contents**	

Console Applications

- Create a Program to implement the concepts of Object oriented programming techniques.
- Create a program to implement multiple inheritance using interface.
- Create a program to validate the data members in the class using property
- Create a program to catch the exceptions.
- Create a program to implement multithreading.
- Write a program to implement stack operations using array
- Write a program to implement Queue using array
- Write a program to perform file operations.

Windows Applications

- Create a directory list using tree view control
- Create a calculator using basic controls
- Create a notepad editor using Context menu strip and menu controls
- Create an application to illustrate the use of dialog boxes.
- Create an application for students proctorial report
- Create an application for library management system
- Create an application for Pay roll processing system
- Create a program To generate electricity Bill
- Create a web page to generate a photo gallery

Web Applications

- Create an application for encryption and decryption
- Create an Alumni registration form
- Create a website for online Quiz
- Create your own portal which describes yourself and your skills.
- Create a portal for online purchasing system.
- Create a portal and validate the web page using validation controls
- Create a web page and validate that page using client side scripting
- Create a crystal report for Alumni registration portal.

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R.Deepa T.Menaka N.Karthikeyan	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**
Subject Code : 14UCE25 CORE LAB VIII	**Title :CORE LAB VIII WEB TECHNOLOGY LAB**	**Semester :** V
Hrs / Week:	**5**	**Credit : 2**
Objectives	To enable the students to write programming in Web Technology for solving specified problems.	
Units	**Contents**	
	• HTML Tags • Tables • Forms • Frames • Web Creation • CSS Rules • CSS Grouping Style • XML using CSS • Address Book • DTD for Book Information • Resume Creation using DTD • XSL Transformation • XSL Sorting • Event Handling • Filters	

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M.Malathi/R.Anandhi N.Yasodha M.Meenakrithika	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**
Subject Code : 14UCES1	**Title : Skill Based Elective I: WORDPRESS**	**Semester :** V
Hrs / Week:	**1**	**Credit:2**
Objectives	To enable the students to know how to work with Word press and to create blogs	
Units	**Contents**	
	• To create a Blogs Web site • To create a Web site for online books shopping • To create a E-commerce Web site • To create a Web site for Mobile device • To create a Web site for photo sharing • To create a Web site for online business brochure • To create a informational Web site • To create a Authors Web site • To create a community building Web site • To create a personal Web site	

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Dr.Antony Selvadoss Thanamani M.Sakthi M.Meenakrithika	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**
Subject Code : 14UCES2	**Title : SKILL BASED ELECTIVE I: DREAM WEAVER**	**Semester :**V
Hrs / Week:	**1**	**Credit:2**
Objectives	To enable the students to know how to work with Dream weaver	
Units	**Contents**	
	• Creating a picture gallery. • Creating a template. • Creating CSS text rollovers. • Creating Mailto Links. • Creating small pop-up windows for ads or news. • Creating a website. • Creating a link to different pages from the same image. • Exercises on customizing input boxes, list menus, submit buttons. • Creating links without an underline using CSS Styles.	

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M.Malathi/R.Anandhi K.Kannikaparameswari	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**	
Subject Code : 14UCE26 CORE XIV	**Title : LINUX**	**Semester :** VI	
Hrs / Week:	**4**	**Credit : 3**	
Objectives	To enable the students to learn all the features of LINUX and make the students to apply the same for writing LINUX programming for solving problems.		
Units	**Contents**		**Hrs**
Unit I	***Introduction***:Linux philosophy-file system: file-structure of file system-directory hierarchy current directory(pwd)-changing directories(cd)-listing(ls)-display(cat)-making irectory(mkdir)-removing directory(rmdir)-chmod-copy(cp)-deleting(rm)-rename(mv)-environmental variables-PS-PATH-TERM-HOME-MAIL-profile-file access permissions.		9
Unit II	X-windows-objectives-GUI-features- fvwm - rc.file- Caldera desktop-directory windows-managing the desktop ***Utility Commands:*** Halted outputs-file types-line word-Comparing files-Files differences-Printing-login details-terminal-setting terminal characters (file-wc-cmp-diff-lp-who-tty-stty commands)VI-editors: Three Modes-input mode-saving text-command mode-multiple file handling-splitting file.		11
Unit III	***Pipes and Filters:*** pipes(I)paginating files(pr)-beginning of a file(head)-end of file(tail)-cut-paste-sort-unique commands-searching(grep)(fgrep)-translating process(time)		9
Unit IV	***Programming with Shell:*** Introduction to shell script-creation and execution-system variables-profile-read statement-command line arguments-logical operators && and ||-exit-if conditional-case-while statement-for set-shift-trap statement-shell variables-cd command-merging stream-expr command-eval command-shell programs.		11
Unit V	***System Administration:*** System Administrator-Booting and shutting down-super user status (su)-security-user services-disk management (fsck)-operation-file system administration-back ups utilities -cpio-afio-shutdown-mount-unmount-df-find commands-creating device files-installing and managing printers.		10
	Total Contact Hrs		**50**
TEXT BOOKS	1. Sumitabha das, "UNIX System Concepts and Applications", Tata McGraw - Hill, Fourth edition 2010.		
REFERENCES	1. Mark.G.Gobell,"Red Hat LINUX-Reference Manual", Pearson education, first Edition, 2003		

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K.Srinivasan S.Sharmila N.Arul Kumar	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	B.Sc., (Computer Science)	Effective from the year : 2014 onwards	
Subject Code : 14UCEE2A	Title: CORE ELECTIVE II: DATA MINING AND WAREHOUSING	Semester : VI	
Hrs / Week:	6	Credit : 5	
Objectives	To enable the students to understand the concepts, principle and applications of Data Mining and Data Warehousing. To enable the students to identify various tools in Data Mining.		
Units	Contents		Hrs
Unit I	Data Mining – Definition – Information as a production factor – Data mining vs Query tools – Data mining in marketing – practical applications.Learning – Self learning computer systems – Machine Learning and methodology of science – Concept Learning – Issues of Learning algorithm.		15
Unit II	Date Warehouse – Need – Designing Decision Support Systems – Integration with DataMining – Client/Server and DataWarehousing – Mutiprocessing Machine – Cost Justification.		15
Unit III	Knowledge Discovery Process – Data Selection – Cleaning –Enrichment – Coding – DataMining Preliminary Analysis of the dataset using Relational Query Tools – Visualization Technique – Likelihood and Distance – OLAP Tools – K-Nearest Neighbour – Decision Trees – Association Rules - Neural Networks – Genetic Algorithms – Reporting.		17
Unit IV	Different forms of Knowledge – Ten Golden Rules – Learning as compression of datasets – Noise and Redundancy – Fuzzy Databases – The traditional theory of the relational database – From relations to tables		16
Unit V	Web Mining – Web Content Mining – Web Structure Mining – Web Usage Mining - Text Mining – What is Temporal Data Mining? - Temporal Association Rules – Sequence Mining - Spatial Mining – Spatial Mining Tasks – Spatial Clustering – Spatial Trends		17
	Total Contact Hrs		80
TEXT BOOKS	1.PieterAdriaans, DolfZantinge, "Data Mining", Addison Wesley,First Edition,1999. 2. Arun K. Pujari, " Data Mining Techniques", Universities Press (India) Private Limited, Hyderabad, 2008 (for Unit V)		
REFERENCES	1.JiaweiHai and MichelineKamber, "Data Mining Concepts and Techniques", Morgan Kaufmann Publishers, Second Edition, 2006. 2. K.P. Soman, ShyamDiwaker and V.Ajay, " Insight into Data Mining – Theory and Practice" Prentice-Hall of India Private Limited, New Delhi, 2006. 3. David Hand "Data Mining" ,2001. Bradford Book.		

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Dr.Antony Selvadoss Thanamani DR.R.Manickachezian M.Meenakrithika	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**	
Subject Code : 14UCEE2B	**Title : CORE ELECTIVE II: ENTERPRISE RESOURCE PLANNING**	**Semester :** VI	
Hrs / Week:	**6**	**Credit : 5**	
Objectives	On successful completion of the course the students have knowledge about Supply Chain Management, Customer Relationship Management and Manufacturing		
Units	**Contents**		**Hrs**
Unit I	***Introduction to ERP:*** Integrated Management Information Seamless Integration – Supply Chain Management – Integrated Data Model – Benefits of ERP – Business Engineering and ERP – Definition of Business Engineering – Principle of Business Engineering – Business Engineering with information Technology.		15
Unit II	***Business Modelling For ERP:***- Building the Business Model – ERP Implementation – An Overview – Role of Consultant, Vendors and Users, Customization – Precautions – ERP Post Implementation Options-ERP Implementation Technology –Guidelines for ERP Implementation.		16
Unit III	***ERP and the Competitive Advantage ERP:*** domain MPGPRO – IFS/Avalon – Industrial and Financial Systems – Baan IV SAP-Market Dynamics and Dynamic Strategy.		16
Unit IV	***Commercial Erp Package:*** Description – Multi-Client Server Solution – Open Technology – User Interface- Application Integration		16
Unit V	***Architecture*:** Basic Architectural Concepts – The System Control Interfaces – Services – Presentation Interface – Database Interface - Cases.		17
	Total Contact Hrs		**80**
TEXT BOOKS	1. Vinod Kumar Garg and N.K.Venkita Krishnan, "Enterprise Resource Planning – Concepts and Practice", PHI, Second Edition,2003.		
REFERENCES	1. Jose Antonio Fernandz, "The SAP R/3 Handbook", TMH, 1998. 2. Lau, "Enterprise Resource Management", McGraw Hill,2005 3. Daniel E O'Leary, "Enterprise Resource System",2000 4. Mary Sumner, "Enterprise Resource Planning",First Edition,2007		

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M.Malathi/R.Anandhi N.Yasodha R.Nandhakumar	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	B.Sc., (Computer Science)	Effective from the year : 2014 onwards	
Subject Code : 14UCEE2C	Title : CORE ELECTIVE I SOFTWARE PROJECT MANAGEMENT	Semester : VI	
Hrs / Week:	6	Credit : 5	
Objectives	To inculcate knowledge on how to manage a Software Project.		
Units	Contents		Hrs
Unit I	***Introduction to Software Project Management:*** Introduction – Why is Software project management is important? – What is a project? – Software project versus other types of project – Contract Management and technical project management – Activities covered by software project management – plans, methods, methodologies – some ways of categorizing software projects. Stepwise: an overview of project planning.		16
Unit II	***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. ***Software Effort Estimation:*** Where are estimation done? – Problem with over and under-estimates – basis for software estimating – software effort estimation techniques – expert judgment – estimating by analogy.		17
Unit III	***Activity Planning:*** The objectives – When to plan? – 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.		16
Unit IV	***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.		16
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 ***Small Projects***: Introduction – Some problems with student projects – content of a project plan – conclusion.		15
	Total Contact Hrs		**80**
TEXT BOOKS	1.Bob Hughes & Mike Cotterell, "Software Project Management",PHI publication, Fifth edition, 2011		

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R.Deepa S.Sharmila M.Meenakrithika	Dr.Antony Selvadoss Thanamani		

	Computer Science		
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**	
Subject Code : 14UCEE3A	**Title :CORE ELECTIVE III: MULTIMEDIA PACKAGES**	**Semester :** VI	
Hrs / Week:	**6**	**Credit :5**	
Objectives	1.To understand Web / InternetConcepts and Techniques 2.To discuss Animation, Graphics ,TV, Print & Publishing ,Film Making Etc. 3.Toexamine the various TVAdvertisement Programs.		
Units	**Contents**		**Hrs**
Unit I	**Design Techniques** : Design Elements & Principle – Illustration & Sketching – Color Theory – Print & Publish Media – Composition & Typography – Understanding User Requirements – Business Goal – Process Blue Print / Prototype Theory – Creating a Project From Start To Finish- Wireframe Design – Different Types Of Animation – Animation Software.		15
Unit II	**Concepts Of Graphics:** Creating Graphics, Applying Special Effects, Effects and Color Correction, Editing & Optimizing Graphics For Web/Print/Broadcasting/Bitmap & Vector Graphics - Graphical Tools**,Design Techniques**: Page Layout, Print Media – Brochure/E-Mail/News Letter Design.		16
Unit III	**Digital Audio & Tools**: Sound Forge – Gold Wave, Editing, Mixing, Import – Audio Capturing – Audio Mixing – Audio Effect Generation. **Digital Video & Tools:** Video Formats Adobe Premiere, Camtasia Studio, Pinnacle Studio – Video Capturing – Video Mixing –Preparing and Video For Delivery- Composing & Special Functions – Photo Graphic Techniques.		16
Unit IV	**Overview of Premiere Elements workspace:** The Organizer workspace,Premiere Elements Edit workspace, Tasks panel workspaces- **Import Video in Premiere:**Video file types,Capturing video, Add videos using the Video Importer- **Edit Clips:**Editing tools,Trimming clips.		17
Unit V	**Adding Video Effects:** About effects, Find, apply, and preview effects, Changing effect properties, Adjust effect properties- **Add Titles:** create a new title,edit a title- **Work With Audio:** Adding an audio soundtrack, Using Smart Sound- **Share Video:** Create DVD files for web, Sharing to a DVD, the web, computer, mobile phone or player.		16
	Total Contact Hrs		**80**
TEXT BOOKS	1) Ze-NianLi,Drew Marks,Jiangchuan Liu, "Fundamentals of multimedia" Publisher: Springer,Second Edition, April 2014 2) Adobe Creative Team,"Adobe Premiere Pro CC class room in a book", Adobe Publisher,I Edition, July 2013		
REFERENCES	Paul Ekert, "Mastering Adobe Premiere Pro CS6 HOTSHOT", Packt Publishing Limited, Feb 2013.		

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Dr.Antony Selvadoss Thanamani N.Arul Kumar M.Meenakrithika	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**	
Subject Code : 14UCEE3B	**Title : CORE ELECTIVE III: NETWORK SECURITY AND CRYPTOGRAPHY**	**Semester :** VI	
Hrs / Week:	**6**	**Credit : 5**	
Objectives	1. To understand Network Security and Cryptography Concepts and Techniques 2. To discuss various Symmetric and Asymmetric Key Algorithms for Network Security 3. To examine the various Security Protocols associated with the Internet. 4. To know about Firewalls to protect their internal networks from outside attacks		
Units	**Contents**		**Hrs**
Unit I	**Attacks on Computers and Computer Security:** Introduction – Need for security – Security approaches – Principles of Security – Types of Attacks. **Cryptography Concepts and Techniques:** Introduction to Cryptography – Plain Text and Cipher Text – Encryption and Decryption – Possible types of Attacks.		15
Unit II	**Symmetric Key Algorithm :** Introduction – Algorithm Types and Modes – An overview of Symmetric Key Cryptography – Data Encryption Standard (DES) – International Data Encryption Algorithm (IDEA) – RC4 – RC5 – Blowfish.		15
Unit III	**Asymmetric Key Algorithms, Digital signatures and RSA :** Introduction – Brief History of Asymmetric Key Cryptography – An overview of Asymmetric Key Cryptography – The RSA algorithm – Symmetric and Asymmetric Key Cryptography together – Digital Signatures – Knapsack Algorithm.		16
Unit IV	**Internet Security Protocols:** Introduction – Basic Concepts – Social Security Layer (SSL) - Transport Layer Security (TLS) - Secure Hypertext Transfer Protocol (SHTTP) – Time Stamping Protocol (TSP) – Secure Electronic Transaction (SET) – SSL versus SET – 3D Secure Protocol – Electronic Money.		17
Unit V	Email Security – Wireless Application Protocol (WAP) Security – Security in GSM – Security in 3G - **Firewalls:** Introduction – Types of Firewalls – Firewall Configurations – DMZ Networks – Limitations of Firewalls.		17
	Total Contact Hrs		**80**
TEXT BOOKS	Atul Kahate, "Cryptography And Network Security" Second Edition, Tata McGraw Hill Education Private Limited, New Delhi, Thirteenth Reprint 2011.		
REFERENCES	1.Behrouz A.Forouzan, "Cryptography and Network Security", Second Edition, McGraw Hill Education(India) Private Limited, 2011. 2. William Stallings, "Cryptography and Network Security: Principles and Practices", Fifth Edition, Pearson Education, 2011. .		

Compiled by	Verified by HOD	CDC	COE
Dr. R.Manickachezian M.Dhavapriya T.Menaka	Dr.Antony Selvadoss Thanamani		

Department	Computer Science		
Course	B.Sc., (Computer Science)	Effective from the year : 2014 onwards	
Subject Code : 14UCEE3C	Title: CORE ELECTIVE III: MOBILE COMPUTING	Semester : VI	
Hrs / Week:	6	Credit : 5	
Objectives	1. To understand Mobile Computing Architecture and Emerging Technologies. 2. To understand about fundamentals of GSM and CDMA Technologies.		
Units	Contents		Hrs
Unit I	***Introduction*:** Mobility of Bits and Bytes – Wireless-the beginning – Mobile computing – Dialog control – Networks – Middle ware and gateways – Application and Services– Developing Mobile computing applications – Security in Mobile computing – Standards –Why is it necessary? – Standard bodies – Players in the wireless space. **Mobile Computing Architecture:** History of computers – History of internet– Internet-the Ubiquitous Network – Architecture for mobile computing – Three-Tire architecture – Design considerations for mobile computing – Mobile computing through Internet– Making Existing applications Mobile-enabled.		17
Unit II	***Mobile Computing Through Telephony**:* Evolution of telephony – Multiple access procedures – Mobile computing through telephone – Developing an IVR application –Voice XML – Telephony applications programming interface(TAPI). ***Emerging Technologies***: Introduction – Bluetooth – Radio Frequency Identifications (RFID) – Wireless Broadband (WiMAX) – Mobile IP – Internet Protocol Version 6 (IPv6) – Java card.		16
Unit III	***Global System For Mobile Communication (GSM):*** GSM Architecture –GSM Entities – Call routing in GSM – PLMN Interfaces – GSM Address and Identifiers –Network aspects in GSM – GSM frequency allocation – Authentications and Security. **Short Message Services (Sms):** Mobile computing over SMS – Short Message Services (SMS) – Value added services through SMS – Accessing SMS bearer.		16
Unit IV	***General Packet Radio Service (GPRS):*** GPRS and Packet data network –GPRS Network architecture – GPRS Network operations – Data services in GPRS –Applications for GPRS – Limitations of GPRS – Billing and charging in GPRS. ***Wireless Application Protocol (WAP):*** WAP – MMS – GPRS applications.		15
Unit V	***CDMA and 3G:*** Spread Spectrum technology – Is-95 – CDMA Vs GSM – Wireless data– 3rd Generation networks – Applications on 3G. ***Wireless LAN:***Advantages – IEEE 802.11 Standards – Wireless LAN architecture –Mobility in Wireless LAN – Deploying Wireless LAN – Mobile ADHOC networks and Sensor networks – Wireless LAN Security – Wi-Fi Vs 3G.		16
	Total Contact Hrs		**80**
TEXT BOOKS	1. Ashoke K Talukder, Roopa R Yavagal, "Mobile Computing", Tata McGraw –Hill, 2005, Fourth Reprint 2007.		

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K.Srinivasan K.Gayathri K.Kannika Parameswari	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**
Subject Code : 14UCE27 CORE LAB IX	**Title : LINUX LAB**	**Semester :**VI
Hrs / Week:	**5**	**Credit : 3**
Objectives	To enable the students to write program in LINUX for solving specified problems.	
Units	**Contents**	
	• To manipulate File commands • To manipulate Directory commands • To manipulate Environmental variable commands • To manipulate File access permissions • To manipulate Utility commands • To manipulate Pipes & Filter commands • To manipulate Translating character commands • To print the multiplication table for a given table number • Print the employee wages details (using Case scenario). • Check a given number is an Armstrong or not • Swapping two numbers without third variable • To find sum of logarithm series. • To find sum of Sin series. • To find sum of Cos series. • To display the Fibonacci series of a given numbers • To calculate different arithmetic Operations using Case scenario. • Sorting of a given n numbers • Prime numbers between given range • Find sum of individual digits from a given number • To print odd & even of given n numbers • Find sum of given n numbers • To print the multiplication table for a given table number • To find nCr of a given numbers • Find greatest among three numbers	

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K.Srinivasan S.Sharmila N.Arul Kumar	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**
Subject Code : 14UCE28 CORE LAB X	**Title :Multimedia And Software Testing Lab**	**Semester :**VI
Hrs / Week:	**4**	**Credit:2**
Objectives	To enable the students to develop program in multimedia and software testing for solving specified problems.	
Units	**Contents**	
	Multimedia • Panning Shot • Gray Scale Effect • Halloween Effect • Sharpening The Image • Lens Flare Effect • Text Effect • Shadow Effect For Text • Water Paper Effect • Liquify Effect • Background Changing Effect • Night Illusion Effect • Manipulating Eye Effect • Adding Pattern To The Image • Silhouette Effect • Color Manipulating Effect **Testing** • Calculator • Mouse Tracker • Bitmap Checkpoint To Match The Object Window Properties • Flight reservation system • Alumini registration • Hospital Management	

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R.Deepa N.Yasodha M.Meenakrithika	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**
Subject Code : 14UCES3	**Title : Skill Based Elective II JOOMLA**	**Semester :**VI
Hrs / Week:	**1**	**Credit:2**
Objectives	To enable the students to know how to work with JOOMLA and to create web portals.	
Units	**Contents**	
	• To create a Corporate Web sites or portals • To create a web site for online newspaper • To create a web site for Online magazines • To create a Web site for online bus ticket reservation • To create a Government applications • To create a Small business Web sites • To create a organizational Web sites • To create a web site for Community-based portals • To create a School Web sites • To create a Web site for family homepages	

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Dr.Antony Selvadoss Thanamani K.Kannika Parameswari	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	B.Sc., (Computer Science)	Effective from the year : 2014 onwards
Subject Code : 14UCES4	Title :Skill Based Elective II MACROMEDIA DIRECTOR	Semester :VI
Hrs / Week:	1	Credit:2
Objectives	To enable the students to develop program using macromedia director.	
Units	Contents	
	• To position the picture preferably on a plain background of a colour of your choice - positioning includes rotation and scaling. • To remove the arrows and text from the given photographic image • To type a word and apply the effects shadow emboss • To create an animated cursor using startdrag("ss",true); mouse. Hide(); • To design a visiting card containing atleast one graphic and text information • To use appropriate tool(s) from the toolbox, cut the objects from 3 files (f1.jpg, f2.jpg & f3.jpg) organize them in a single file and apply feather effects • To display the background given (filename: garden.jpg) through your name using mask • To make anyone of one of the parrots black & white in a given picture. • To change a circle into a square using director • Design an interactive director content box using actions scripts for a website. • Design a picture and animations using director.	

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R.Deepa K.Gayathri	Dr.Antony Selvadoss Thanamani		

Department	Computer Science	
Course	**B.Sc., (Computer Science)**	**Effective from the year : 2014 onwards**
Subject Code : 14UCE29	**Title : Project**	**Semester :** VI
Hrs / Week:	**4**	**Credit :3**
Objectives	Provide experience to the students in analyzing, designing, implementation and evaluation of software.	
	Instructional Notes: Students are required to develop entire new software system or to enhance/modify functionalities of existing software or to provide customization based on existing technology/framework to fulfill specific requirements. **MAXIMUM MARKS : 100** PROJECT EVALUATION : 80 VIVA-VOCE : 20	