BHARATHIDASAN UNIVERSITY, TIRUCHIRAPPALLI – 620 024.

B.Sc. Information Technology - Course Structure under CBCS

(For the candidates admitted from the academic year 2011-2012 onwards)

Semester	Part	Course	Title	Instru Hours/ Week	Credit	Exam Hours	Marks		Total
							Int.	Extn.	
I	I	Language Course – I (LC) – Tamil*/Other Languages ** #		6	3	3	25	75	100
	II	English Language Course - I (ELC)		6	3	3	25	75	100
	III	Core Course – I (CC)	Introduction to Information Technology	5	4	3	25	75	100
		Core Course – II (CC)	Basic Computer Usage LAB	4	3	3	40	60	100
		First Allied Course –I (AC)	**Essentials of Mathematics**	4	**4**	3	25	75	100
		First Allied Course – II (AC)	**Digital Electronics**	5	**3**	3	25	75	100
	Total			**30**	**20**	**-**	**-**	**-**	**600**
II	I	Language Course – II (LC) - Tamil*/Other Languages ** #		6	3	3	25	75	100
	II	English Language Course – II (ELC)		6	3	3	25	75	100
	III	Core Course – III (CC)	Programming in C	6	4	3	25	75	100
		Core Course – IV (CC)	Programming in C LAB	4	3	3	40	60	100
		First Allied Course – III (AC)	Numerical and Statistical Methods	4	3	3	25	75	100
	IV	Environmental Studies		2	2	3	25	75	100
	IV	Value Education		2	2	3	25	75	100
	Total			**30**	**20**	**-**	**-**	**-**	**700**
III	I	Language Course – III (LC) – Tamil*/Other Languages ** #		6	3	3	25	75	100
	II	English Language Course - III (ELC)		6	3	3	25	75	100
	III	Core Course – V (CC)	Object Oriented Programming in C++	6	5	3	25	75	100
		Core Course – VI (CC)	Object Oriented Programming in C++ LAB	5	4	3	40	60	100
		Second Allied Course – I	Management and Accountancy	5	4	3	25	75	100
		Non Major Elective I - for those who studied Tamil under Part I a) Basic Tamil for other language students b) Special Tamil for those who studied Tamil upto +2 but opt for other languages in degree programme	Introduction to Information Technology	2	2	3	25	75	100
	Total			**30**	**21**	**-**	**-**	**-**	**600**
IV	I	Language Course –IV (LC) - Tamil*/Other Languages ** #		6	3	3	25	75	100

	II	English Language Course – IV (ELC)		6	3	3	25	75	100
	III	Core Course – VII (CC)	Java Programming	4	4	3	25	75	100
		Core Course – VIII (CC)	**Java Programming LAB**	3	**3**	3	40	60	100
		Second Allied Course - II	Operations Research	4	3	3	25	75	100
		Second Allied Course - III	**Computer Organisation and Architecture**	3	**3**	3	25	75	100
	IV	Non Major Elective II - for those who studied Tamil under Part I a) Basic Tamil for other language students b) Special Tamil for those who studied Tamil upto +2 but opt for other languages in degree programme	Information Security: Principles and Practices	2	2	3	25	75	100
	IV	Skill Based Elective I		2	4	3	25	75	100
	Total			**30**	**25**	**-**	**-**	**-**	**800**
V	III	Core Course – IX (CC)	Data Structure and Algorithms	6	5	3	25	75	100
		Core Course – X (CC)	Computer Graphics and Animation Lab	3	3	3	40	60	100
		Core Course – XI (CC)	Operating System	5	4	3	25	75	100
		Core Course – XII (CC)	Computer Networks	5	4	3	25	75	100
		Core Course – XIII (CC)	Operating System LAB	3	2	3	40	60	100
		Major Based Elective I	Software Engineering / System Analysis and Design / E-Commerce	4	3	3	25	75	100
	IV	Skill Based Elective II		2	4	3	25	75	100
		Skill Based Elective III		2	4	3	25	75	100
	Total			**30**	**29**	**-**	**-**	**-**	**800**
VI	III	Core Course- XIV (CC)	Computer Graphics and Multimedia	6	4	3	25	75	100
		Core Course- XV (CC)	Data Base Systems	5	4	3	25	75	100
		Core Course- XVI (CC)	**My SQL LAB**	4	4	3	**40**	**60**	100
		Major Based Elective - II	PHP Scripting Language / Software Project Management / Software Testing	5	4	3	25	75	100
		Major Based Elective - III	**Dot Net / Web Design / Open Source Technology**	4	**3**	3	25	75	100
		Major Based Elective - IV	Mini Project (Students to do it in their respective Colleges) / Dot Net LAB / PHP LAB	5	4	3	40	60	100
	IV	Extension Activities		-	1	-	-	-	-
		Gender Studies		1	1	3	25	75	100
	Total			**30**	**25**	**-**	**-**	**-**	**700**
	Grand Total			**180**	**140**				**4200**

[Note: For Core Course III
(3 hr lecture + 3 hour lab practice
Internal to be awarded based on lab performance
University theory examination to be conducted based on prescribed lecture syllabus]

Note:

	Internal Marks	External Marks
1. Theory	25	75
2. Practical / Mini Project	40	60

3. Separate passing minimum is prescribed for Internal and External marks

The passing minimum for CIA shall be 40% out of 25 marks [i.e. 10 marks]
The passing minimum for University Examinations shall be 40% out of 75 marks [i.e. 30 marks]

* for those who studied Tamil upto +2 (Regular Stream)

** Syllabus for other Languages should be on par with Tamil at Degree level

those who studied Tamil upto 10^{th} or +2, but opt for other languages in degree level under Part I should study special Tamil in Part IV

*** Examination at the end of the next semester.
Extension activities shall be out side the instruction hours.

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CORE COURSE I
INTRODUCTION TO INFORMATION TECHNOLOGY

Unit I

Information technology- An Introduction-Information Systems-Types of computers- Anatomy of a computer-Binary numbers 0's and 1's-Bits and Bytes –The binary code-Memory-RAM And ROM,Other forms of memory-Buses for input and output- Communication with peripherals.

Unit II

Input and output devices-Inputting text-Keyboards, Direct input devices-inputting graphics-picture essay-pointing devices-Display screens-types of screens-LASER printers-other printers-color printers-Foundations of modern data storage-How data is stored-Floppy disks-Hard disk drives-Optical disk-Software –What is it?-User interfaces- Operating systems-Introduction-types.

Unit III

Word processing and desktop publishing-Entering and editing documents-Other Word processing features-Formatting documents-Desktop publishing for print, screen. Spreadsheet Applications-Introduction-Entering data-Charts and Graphs. Database applications- Introduction-Principles of data storage-working with a database.

Unit IV

Communications-Local Area Networks-Introduction-Architecture-Wide Area Networks-Introduction-Dial Up Access-Multimedia-Introduction-Tools of Multimedia-Multimedia and Authoring tools-Network applications-Person to person Communications-Group communications-Information tools for management control.

Unit V

Programming and System development-Programs –Introduction-Programming languages-Procedural languages-Programming methods-How programs are developed- Programming techniques-Introduction-Branching and looping-Functions and decomposition-Corporate development-Systems Analysis and Design.

Text Book:

1. Dennis P. Curtin ,Kim foley, Kunal Sen and Cathleen Morin - "Information Technology - the breaking wave", Tata-McGraw Hill Publications, 2005

Reference Book:

1. Alexis Leon And Mathews Leon. "Fundamentals of Information Systems" co-published by Vijay Nicole Imprints Pvt Ltd, 2004.

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CORE COURSE II – BASIC COMPUTER USAGE LAB

Use MS-Office or Open Office for the following

1. Text Manipulation
   Change the font size and type
   Aligning and justification of text
   Underlining the text
   Indenting the text
   i. Prepare a Bio-data
   ii. Prepare a Letter

2. Usage of Numbering, Bullets, Footer and Headers
   Usage of Spell checks and Find and Replace
   i. Prepare a document in newspaper formats
   ii. Prepare a document with bullets and footers and headers

3. Tables and Manipulations
   Creation, Insertion, Deletion (Columns & Rows) and usage of Auto Format
   i. Create mark sheet using table and find out the total marks
   ii. Create a calendar and Auto Format it.

4. Picture Insertion and Alignment
   i. Prepare a greeting card
   ii. Prepare a handout

5. Mail merge concepts
   i. Prepare a business letter for more than one company using mail merge
   ii. Prepare an invitation to be sent to specific addresses in the data source

6 A Presentation that shows five different Greeting Cards with Pictures.
7 Prepare Slides that helps you to teach about “Computer Networks”.
8 A Presentation with different Animation Effects.
9 Prepare Slides that gives a Presentation about “Computers” using Macros.
10 Usage of Formula and Built – in – functions
11 Inventory report preparation
12 Invoice report preparation
13 Drawing graphs

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FIRST ALLIED COURSE I - ESSENTIALS OF MATHEMATICS

Unit I :

Sets & Relations: Sets and elements , Universal set, Empty Set, Subsets, Venn Diagrams, Union and Intersection, Complements, algebra of sets, duality ,finite sets, counting principle, classes of sets , power sets, partitions, ordered pairs, product sets , Relations, Equivalence Relations, functions

Unit II

Theory of Equations: Elements of Algebra, Quadratic functions and equations, Relations between roots and coefficients: A.P., G.P., and H.P.

Unit III

Differential Equation : Variable separable-Linear equations – second order of types : $(aD^2+bD+c)y=F(x)$ where a,b,c are constants and f(x) is one of the following types (i) e^{kx} (ii) Sin(kx) or Cos(kx) (iii) x^n , n being an integer.

Unit IV

Vectors , Matrices : Addition, Subtraction and Multiplication, Subscribed variables – Linear Equations-Combinatorial Analysis

Unit V

Graph Theory – Basic Concepts- Finite and Infinite Graphs – Incidence and Degree ideas on vertices – Isomorphism – Sub graphs, Walks-paths and circuits

Text Books:

1. Essential Computer Mathematics by Seymour Lipschutz, Unit I, IV,V
2. Algebra by Manickavasam pillai & others (Volume I), Unit II-
3. Differential Calculus by M.L.Khanna, Unit III

Reference Books :

1. Narsingh Deo, Graph Theory, Prentice Hall of India – (P) Ltd. New Delhi 1997.(Unit 5)
2. Teach Yourself Basic Mathematics, Alan Graham, ISBN: 0340959002 Hodder Education Publications.

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FIRST ALLIED II – DIGITAL ELECTRONICS

Unit I

Number Systems and Codes: Binary Number System – Binary to Decimal Conversion – Decimal to Binary Conversion – Binary Addition – Binary Subtraction – Binary Multiplication and Division – Octal Numbers – Hexadecimal Numbers – Binary Codes – Error Detecting Codes – Error Correcting Codes.

Unit II:

Logic Gates and Circuits: Boolean Algebra and Logic Gates – AND,OR,NOT,NAND,NOR,Exclusive OR and Exclusive OR Gates – Applications of XOR Gate – The Exclusive NOR Gate – Positive and Negative Logic – Logic Chararcteristics – Bipolar Logic Families – Integrated Circuits – Boolean Algebra: Definitions – Fundamentals of Boolean Algebra – Boolean Functions – Minterms and Maxterms – Laws and Theorems of Boolean Algebra – DeMorgan's Theorem – Universal Building Blocks (UBB) – NAND Gate as UBB – NOR Gate as UBB.

Unit III:

Boolean Algebra: Simplifying Logic Circuits – Sum of Products – AND-OR Networks – Sum of Products and Product of Sums Forms – Karnaugh Maps – Product of Sums Simplification – NAND and NOR Implementation – AND-OR-INVERT Implementation – OR-AND-INVERT Implementation – Don't Care Conditions – Overlapping Groups – Rolling the Map – Eliminating Redundant Groups.

Unit IV:

Combinational Logic Circuits: Introduction – Adders – The Half Adder – The Full Adder – Subtractors – BCD Adder – Multiplexers – Demultiplexers – Decoders – Encoders – Floating Point Number System – Range of Stored Numbers.

Unit V:

Sequential Logic Circuits: Flip Flops – RS Flip Flop – Clocked RS Flip Flop – D Flip Flop – JK Flip Flop – T Flip Flop – Triggering of Flip Flops – Master Slave Flip Flop – Conversion of D Flip Flop – Conversion of T Flip Flop – Transfer Circuit – Clock – Counters and Shift Registers: Counters – Asynchronous or Ripple Counter – Ring Counter – Twisted Ring Counter – State Diagrams and State Tables – Magnitude Comparator – Programmable Arrays of Logic Cells – Shift Registers.

Text Book:

1. Principles of Digital Electronics, Dr. K. Meena, PHI Learning Private Limited, New Delhi 2009.

Reference Book:

1. Digital Design: M.Morris Mano , Prentice Hall of India.

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CORE COURSE – III – PROGRAMMING IN C

Unit I

Introduction to C – Constants, Variables, Data types – Operator and Expressions.

Unit II

Managing Input and Output operations – Decision Making and Branching – Decision making and Looping.

Unit III

Arrays – Character Arrays and Strings – User defined Functions.

Unit IV

Structures and unions – Pointers – File management in C.

Unit V

Dynamic memory allocation – Linked lists- Preprocessors – Programming Guide lines.

Text Book:

1. Balagurusamy E .,Programming in ANSI C , Third edition, Tata McGraw-Hill, 2006 (ISBN – 0-07-053477-2)

[Unit-1 (Chapters - 1, 2, 3) ; Unit-2 (Chapters – 4, 5, 6) ; Unit-3 (Chapters – 7,8,9) ;
Unit-4 (Chapters – 10, 11,12); Unit-5 (Chapters – 13,14,15)]

Reference Book:

1. Byron S Gottfried,"Programming with C", Schaum's Outline Series – Tata McGraw Hill Publications, New Delhi.

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CORE COURSE IV – PROGRAMMING IN C: LAB

1. Solution of a Quadratic Equation (all cases).

2. Sum of Series (sine, cosine, exponential).

3. Ascending and descending order of numbers using Arrays (Use it to find Largest and Smallest Numbers).

4. Sorting of names in Alphabetical order.

5. Matrix operations (Addition, Subtraction, Multiplication – using functions.

6. Finding factorials, generating Fibonacci Numbers using recursive functions.

7. String manipulations without using string functions (string length, string comparison, string copy, palindrome checking, counting words and lines in strings (Use function pointers).

8. Creation and processing of Sequential files for payroll and Mark list preparation (use structures for Record Description).

9. Basic exercise in dynamic memory allocation & Pointer usage.

10. Solution of Algebraic and transcendental Equations: Newton-Ralphson method.

11. Numerical Integration – Trapezoidal Rule.

12. Numerical Integration –Simpson's (1/3, 3/8) Rules.

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FIRST ALLIED COURSE III
NUMERICAL METHODS AND STATISTICS

Unit I

Solution of Algebraic and transcendental Equations: Introduction – Bisection Method, false Position Method, Iteration Method, Newton-Ralphson method. Solution of simultaneous Linear Equations: Gauss –Elimination method, , Gauss-Seidal, Gauss- Jacobi Method.

Unit II

Interpolation: Introduction – Finite Differences – Newton's Forward, Backward and Interpolation Formulae – Lagrange's Interpolation formulae. Numerical Differentiation and Integration: Numerical Differentiation – Numerical Integration – Trapezoidal Rule – Simpson's(1/3, 3/8) Rules.

Unit III

Numerical solution of ordinary differential Equations: Taylor's series, Picard's Method, Euler method, modified Euler method, Improved Euler method, Range – Kutta methods.

Unit IV

Probability: Definition – Addition, Multiplication and Bayes's Theorem – Simple Applications – Random variables – Expectation and random variable – Probability distributions : Binomial – Poisson – Normal distributions.

Unit V

Statistics: Definition – Classification and Tabulation of data –measures of central values: Mean - Median – Mode – Their relationship – measures of dispersion: Range – Quartile deviation – Mean deviation – standard deviation – correlation.

Text Books

1. S.S. Sastry , Introductory methods of numerical Analysis, Prentice Hall India, 1994.
2. R.S.N. Pillai and Bagavathi S, Statistics, Chand and Company Ltd. New Delhi
3. S.P. Gupta, Statistical Methods, S.Chand and Company Ltd. New Delhi.

Reference Book

1. P. Kandasamy, " Numerical Methods", S. Chand & Co. New Delhi.

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CORE COURSE – V – OBJECT ORIENTED PROGRAMMING IN C++

Unit I

Principles of Object- Oriented Programming – Beginning with C++ - Tokens,Expressions and Control Structures – Functions in C++

Unit II

Classes and Objects – Constructors and Destructors – New Operator – Operator Overloading and Type Conversions

Unit III

Inheritance: Extending Classes – Pointers- Virtual Functions and Polymorphism

Unit IV

Managing Console I/O Operations – Working with Files – Templates – Exception Handling

Unit V

Standard Template Library – Manipulating Strings – Object Oriented Systems Development

Text Book

1. Balagursamy E - "Object Oriented Programming with C++", Tata McGraw Hill Publications, 2006 Third edition.,

[Unit-1 (Chapters - 1, 2, 3, 4) ; Unit-2 (Chapters – 5, 6,7 ,16) ; Unit-3 (Chapters – 8.9)
Unit-4 (Chapters – 10, 11, 12, 13); Unit-5 (Chapters – 14, 15, 16, 17)]

Reference Books

1. Barbara Johnston, C++ Programming today, Pearson education/Prentice-Hall of India,ISBN 81-317-1079-3, 2007.
2. Steve Oualline, Practical C++ programming, O'Reilly/Shroff publishers & distributors,ISBN 81-7366-682-2.

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CORE COURSE – VI
OBJECT ORIENTED PROGRAMMING IN C++ LAB

1.Classes

Write a Program using a class to represent a Bank Account with Data Members – Name of depositor, Account Number, Type of Account and Balance and Member Functions – Deposit Amount – Withdrawal Amount. Show name and balance. Check the program with own data.

2.Constructor & Destructor

Write a program to read an integer and find the sum of all the digits until it reduces to a single digit using constructor, destructor and default constructor.

3.Default & Reference Argument

Write a program using function overloading to read two matrices of different data types such as integers and floating point numbers. Find out the sum of the above matrices separately and display the total sum of these arrays individually.

4.Operator Overloading

a. Addition of Two Complex Numbers.
b. Matrix Multiplication

5. Inheritance

Prepare Pay Roll of an employee using Inheritance.

6.Pointers

a. Write a Program to find the number of vowels in a given text
b. Write a Program to check for Palindrome

7.Files

Prepare Students Mark List in a file with Student Number, Mark in four subjects and Mark Total. Write a program to arrange these records in the ascending order of Mark Total and write them in the same file overwriting the earlier records.

8.Exception Handling

Prepare Electricity Bill for customers generating and handling any two Exceptions.

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SECOND ALLIED COURSE I
MANAGEMENT AND ACCOUNTANCY

Unit I:

Accounting – Definition and functions – Accounting Conventions Concepts – System of Accounting – Rules for Double Entry System of Book Keeping – Preparation of Journal and Ledger Accounting.

Unit II :

Subsidiary Books – Purchase Book – Sales Book – Purchase Returns Book – Sales Return Book – Cash Book – Bank Reconciliation Statement (BRS).

Unit III:

Preparation of Trial Balance – Final Accounts – Manufacturing, Trading, Profit and Loss Accounts and Balance Sheet with Simple Adjustments.

Unit IV:

Depreciation – Methods of Depreciation – Straight Line Method and Diminishing Balance Method. Cost Accounting – Elements of Costing – Type of Costing – Preparation of Simple Cost Sheets – Labor Cost Accounting.

Unit V:

Nature and Objectives of Business – Internal organizational structure of Business – Unit Marketing Management and its Functions – Production Management – Objectives and Functions – Quality control, inventory control – Personnel Management, Objectives and Functions.

Text Book:

1. T.S.Grewal, Introduction To Accountancy, S.Chand & company. New Delhi.
2. Jain & Narang, Cost Accountancy, Kalyani publishers, Ludhiana.
3. Y.K.Bhusan, Business Organization And Management,

Reference Book:

1. Khan and Jain " Financial Management" Tata McGraw Hill

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NON MAJOR ELECTIVE – I
INTRODUCTION TO INFORMATION TECHNOLOGY

Unit I : Introduction to computer systems :

Introduction to computers-Classification of computers- Anatomy of a digital computer-Computer architecture-Number systems-Memory Units-Auxiliary storage devices-Input devices-Output Devices.

Unit II : Computer Software and Development :

Introduction to computer software-Operating systems-Programming languages. Database management systems: Data Processing-Introduction to Data base management systems.

Unit III : Communications:

Introduction to Telecommunications-Computer networks-Communication system - Distributed Systems-Internet & World wide web- Intranets.

Unit IV : Recent Trends:

Introduction to Multimedia-Multimedia tools-Introduction to virtual reality – E-Commerce - Data Warehouses and data Marts-Data Mining-OLAP-GIS.

Unit V : Applications of IT:

Computers in Business & Industry - Computers at home - Computers in Education and training-Computers in Entertainment, Science, Medicine& Engineering.

Text Book:

1. Alexis Leon And Mathews Leon. "Fundamentals of Information Systems" co-published by Vijay Nicole Imprints Pvt Ltd, 2004.

Reference Book:

1. Dennis P. Curtin ,Kim foley, Kunal Sen and Cathleen Morin - "Information Technology - the breaking wave", Tata-McGraw Hill Publications, 2005 Seventeenth Reprint., (ISBN 0-07-463558-1).

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CORE COURSE – VII – JAVA PROGRAMMING

Unit I

Data Types and Variables: The Simple Types - Literals - Variables - Type Conversion and Casting - Automatic Type Promotion in Expressions - Arrays Strings - Classes and Methods: Class Fundamentals - Declaring Class Objects Constructors - Garbage Collection - The finalize ( ) Method - Overloading Methods - Argument Passing - Recursion - Understanding Static - Access Control--: The main ( ) method.

Unit II

Operators: Arithmetic Operators - Bit wise Operators - Relational OperatorsBoolean Logical Operators - The Assignment Operator - The? Operator - The Dot Operator - Operator Precedence - Inheritance, Packages, and Interfaces: Inheritance - Using Super - When Constructors are called - Method Overriding - Abstract Classes - The final Keyword - Packages - Importing Packages - Access ControlInterfaces - Keyword Summary.

Unit III

The Language Classes and Interfaces - The Utility Classes and Interfaces - The Input/Output Classes and Interfaces.

Unit IV

The Networking Classes and Interfaces - The Java Applet Class and Interfaces.

Unit V

The Abstract Window Toolkit Classes and Interfaces - The Event Classes and Interfaces. .

Text Book : '

1. "Java - Programmer's Reference", Herbert Schildt with Joe O'Neil, Tata McGraw Hill, 1998.

Reference Books:

1. "Internet Programming", Kris James Ph.D., and Ken Cope, Galgotia Publication, Reprint 2000
2. "Complete Reference", 'Patrick Naughton and Herbert Schildt, 3rd Edition,Tata McGraw Hill Publishing Company Ltd., 1999.

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CORE COURSE – VIII – JAVA PROGRAMMING LAB

1. Write a program to sort the given numbers using arrays.
2. Write a program to implement the FIND and REPLACE operations in the given multiple text.
3. Write a program to implement a calculator to perform basic arithmetic Operations.
4. Write a program to find the area of a rectangle using constructor
5. Write a program to find the student's percentage and grade using command line arguments.
6. Write a program to draw circle or triangle or square using polymorphism and inheritance.
7. Implement multiple inheritance concepts in java using interface, you can choose your own example of a company or education institution or a general concept which requires the use of interface to solve a particular problems.
8. Write a program to create threads and assign priorities to them
9. Write a program to develop an applet to play multiple audio clips using multithreading.
10. Write a program to create a window with three check boxes called red, green and blue. The applet should change the colors according to the selection.

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SECOND ALLIED COURSE II - OPERATIONS RESEARCH

Unit I

Linear Programming: Introduction – Mathematical Formulation of the Problem – Graphical Solution – General LPP- Canonical & Standard Forms of LPP – Simplex Method – Big M Method – Two Phase Simplex Method.

Unit II

Duality in linear programming – Primal & Dual Problems – Duability & Simplex Method – Dual Simplex Method. The transportation PROBLEM: Mathematical Formulation of the problem - Initial Basic Feasible Solution (Method, North-West Corner Rule & VAM) - Moving towards Optimality – unbalanced Transportation Problems.

Unit III

Inventory Control: Introduction – Various Costs involved in Inventory EOQ Models with shortage – EOQ Models with Shortage – Buffer Stock & Reorder Level – EOQ Problems with Price Breaks – Inventory problem with uncertain demand.

Unit IV

Replacement Problems: Introduction – Replacement of Equipments that Deteriorates Gradually – Replacement of equipment that fails Suddenly. PERT-CPM: Introduction – Time cost optimization – Project planning – Resource allocation & scheduling.

Unit V

Queuing Theory: Introduction – Characteristics of Queuing System – Traffic intensity – Poisson Process & Exponential Distribution – Classification of Queues – Problem from Single Server Infinite & finite population Model.

Text Books

1. Natarajan.A.M, Balasubramani.P, Tamilarasi.A, Operations Research, Pearson education,2007, ISBN 81-317-0000-3

[Unit-1 (Chapters – 1,2) ; Unit-2 (Chapters – 3,4) ; Unit-3 (Chapters –10) ; Unit-4 (Chapters – 9,12); Unit-5 (Chapters –11)]

Reference Books

1. Pannerselvam, Operations research, Second edition, Prentice Hall of India, ISBN 978-81-203-2928-7.
2. Bronson Richard, Naadimuthu. G, Operations research, Schaum's outlines, Second edition, Tata McGrawHill, ISBN 0-07-058400-1, 2004
3. Hamdy A.Taha : Operation Research – An introduction, 5th edition, Prentice Hall of India/Pearson education, New Delhi – 1996.

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SECOND ALLIED COURSE III
COMPUTER ORGANIZATION & ARCHITECTURE

Unit I

Digital logic circuits: Digital computers – Logic Gates – Boolean Algebra – Combinational circuits and Flip Flops – Sequential Circuits.

Unit II

Digital components: Integegrated Circuits - Decoders – Multiplexers – Registers and Counters – Memory Unit.

Unit III

Data representation: Data Types – Complements – Fixed point & Floating point representation – Binary Codes - Error Detection Codes .

Unit IV

Register Transfer – Bus and Memory Transfer – Arithmetic , Logic & Shift Micro operations - Arithmetic Logic Shift Unit.

Unit V

Central Processing Unit: General Register Organization – Stack organization – Instruction formats – Addressing modes –Program Control - Reduced Instruction Set Computing (RISC).

Text Book:

Computer System Architecture: M.Morris Mano , Third Edition, Prentice Hall of India.

Reference Book:

Computer Organization and Programming – C.W. Gean.

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Non Major Elective-II - Information Security : Principles and Practice

Unit I

Why Information Security ?. : Introduction – Growing IT Security Importance and New Career Opportunities – Becoming and Information Security Specialist – Conceptualizing Information Security – Information Security Principles of Success : Introduction – Twelve Principles.

Unit II

Security Management : Introduction – Security Policies Set the stage for Success – Four Types of Policies – Development Management of Security Policies – Policy Support Documents – Suggested Standards Taxonomy – Security Architecture and Models : Introduction – Defining the Trust Computing Base – Protection Mechanisms in a Trusted Computing Base – System Security Assurance Concepts – Trusted Computer Security Evaluation Critieria.

Unit III

Information Technology Security Evaluation Criteria – Federal Criteria for Information Technology Security – The Common Criteria – Confidentiality and Integrity Models – Law,Investigations and Ethics : Introduction – Types of Computer Crimes – How Computer Criminals Commit Crimes – The Computer and the Law – Intellectual Property Law – Privacy and the Law – Computer Forensics – The Information Security Professionals Code of Ethics – Other Ethics Standards.

Unit IV

Physical Security Control : Introduction – Understanding the Physical Security Domain – Physical Security Threats – Providing Physical Security – Operations Security : Introduction – Operations Security Principles – Operations Security Process Controls – Operations Security Controls in Action.

Unit V

Access Control Systems and Methodology : Introduction – Terms and Concepts – Principles of Authentication – Biometrics – Single Sign-On – Remote User Access and Authentication – Cryptography : Introduction – Applying Cryptography to Information Systems – Basic Terms and Concepts – Strength of Cryptosystems – Putting the Pieces to Work – Examining Digital Cryptography.

Text Book :

1. Information Security : Principles and Practices by Mark Merkow and Jim Breithaupt, Pearson Education, 2007.

Reference Book :

1. Computer Security : Art and Science by Matt Bishop, Pearson Education, 2006.

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CORE COURSE – IX – DATA STRUCTURES AND ALGORITHMS

Unit I

Arrays and sequential representations – ordered lists – Stacks and Queues – Evaluation of Expressions – Multiple Stacks and Queues – Singly Linked List – Linked Stacks and queues – Polynomial addition.

Unit II

Trees – Binary tree representations – Tree Traversal – Threaded Binary Trees – Binary Tree Representation of Trees – Graphs and Representations – Traversals, Connected Components and Spanning Trees – Shortest Paths and Transitive closure – Activity Networks – Topological Sort and Critical Paths.

Unit III

Algorithms – Pseudo code conventions - Sorting – Heap Sort – Merge Sort – Quick Sort – Binary Search – Finding the Maximum and Minimum.

Unit IV

Greedy Method : The general method – optimal storage on tapes – Knapsack Problem – Job Sequencing with dead lines – Optimal Merge Patterns.

Unit V

Back tracking: The general method – The 8-Queens Problem – Sum of Subsets – Graph Coloring.

Text Books:

1. Fundamentals of Data Structure – Ellis Horowiz, Sartaj Sahni and Sanguthevar.
2. Fundamentals of Computer Algorithms – Ellis Horowiz, Sartaj Sahni and Sanguthevar Rajasekaran, Galgotia Publications, 2001.

Reference Book:

1. Data Structures – LIPSCHUTA, Tata Mcgraw Hill, Schaum's Outline Series.

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CORE COURSE – X
COMPUTER GRAPHICS AND ANIMATION LAB

Photoshop :

1. (i) Handling different file formats and interchanging them, changing the resolution, color, grayscales and size of the images
   (ii) Using brushes and creating multicolor real life images

2. Cropping, rotating, overlapping, superimposing, pasting photos on a page

3. Creation of a single image from selected portions of many

4. Developing a commercial brochure with background tints

5. Creating an image with multi-layers of images and texts.

6. Applying masks and filtering on images

Flash :

Develop an image(s) and do the following.

1. Basic Drawing and Painting.

2. Working with Strokes and Fills

3. Creating Custom Colors, Gradients, and Line Styles Transforming and Grouping Objects

4. Creating and Managing Multiple Layers

5. Converting Text into Shapes

6. Animate using motion, shape, Tweening , and actions

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CORE COURSE – XI – OPERATING SYSTEM

Unit I

Evolution of operating systems- Functions – Different views of OS – Batch processing, Multiprocessing, Time sharing OS – I / O programming concepts – Interrupt Structure & processing

Unit II

Memory Management – Single Contiguous Allocation- Partitioned Allocation – Relocatable Partitions allocations – Paged and Demand paged Memory Management – Segmented Memory Management – Segmented and Demand paged Memory Management – overlay Techniques – Swapping

Unit III

Processor Management – Job Scheduling – Process Scheduling – Functions and Policies – Evolution of Round Robin Multiprogramming Performance – Process Synchronisation – Wait and Signal mechanisms – Semaphores P & V Operations – Deadlock – Banker's Algorithm.

Unit IV

Device Management – Techniques for Device Management – I/O Traffic Controller, I/O Scheduler, I/O Device Handlers – Spooling.

Unit V

File Management: Simple File System, General Model of a File System, Physical and Logical File System. Case Studies: MSDOS, UNIX.

Text Book:

Operating Systems – E. Madnick & John J.Donavan, Tata McGraw Hill Publishing Co., Limited.

Reference Book:

System Programming and Operating Systems – D.M. Dhamdhere, Tata McGraw Hill Publishing Co., Limited.

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CORE COURSE – XII – COMPUTER NETWORKS

Unit I

Introduction: Uses Of Computer Networks - Network Hardware - Network Software - Reference Models - Example Networks.

Unit II

The Physical Layer: Guided Transmission Media - Wireless Transmission - Communication Satellites - The Public Switched Telephone Network

Unit III

The Data Link Layer: Data Link Layer Design Issues - Error Detection And Correction - Elementary Data Link Protocols - Sliding Window Protocols

Unit IV

The Network Layer: Network Layer Design Issues - Routing Algorithms - Congestion Control Algorithms- Quality Of Service – Internetworking

Unit V

The Transport Layer: The Transport Service (6.1.1,6.1.2,6.1.3)- The Application Layer: Dns--Domain Name System - Electronic Mail - The World Wide Web (7.3.1)

Text Book:

1. Computer Network , Fourth edition, Andrew S. Tanenbaum, Prentice Hall, 2006.

Reference Book:

1. Data Communications & Computer Networks, Prakesh C. Gupta Prentice-Hall of India, 2006.

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CORE COURSE XIII – OPERATING SYSTEM LAB

1. Write a menu driven shell program for the following:

i. List of files
ii. Processes of Users
iii. Today's Date
iv. Users of system
v. Quit.

2. Write a shell program which accepts the name of a file from the standard input and then performs the following tests on it.

i. File existence iii File Writable.
ii. File readable iv Both readable and writable.

3. Write a shell program to accept an input and check if the given input is a directory. If it is a directory, then display the contents and revoke the execute permission for group and others for all files starting with "a" in the directory.

4. Write a shell program using three arguments to take the pattern as well as input and output file names. If the pattern is found display "Pattern found", else display "Error message". Also check if right number of arguments are entered.

5. Write a menu driven shell program to copy, edit, rename, delete a file.

6. Write a menu driven shell program to perform the following tasks

i. Enter the sentences in file
ii. Search a given whole word in an existing file
iii. Quit.

7. Write a menu driven shell program for the following –
   i. passwd
   ii. ipconfig
   iii. ping

8. Write the shell program which gets executed the moment the user logs in. It should display the message "Good Morning" / "Good Afternoon" / "Good Evening" depending upon the time at which the user logs in.

9. Write a shell program to find the number of ordinary files and directory files in the current directory.

10. Write a shell program to accept the name of the directory as command line argument and display the listing in that directory. By default, the "Home" directory's contents should be displayed.

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MAJOR BASED ELECTIVE I – SOFTWARE ENGINEERING

Unit I

Introduction to Software Engineering: Definitions – Size Factors – Quality and Productivity Factors. Planning a Software Project: Planning the Development Process – Planning an Organizational Structure.

Unit II

Software Cost Estimation: Software cost Factors – Software Cost Estimation Techniques – Staffing-Level Estimation – Estimating Software Estimation Costs.

Unit III

Software Requirements Definition: The Software Requirements specification –Formal Specification Techniques. Software Design: Fundamental Design Concepts –Modules and Modularization Criteria.

Unit IV

Design Notations – Design Techniques. Implementation Issues: Structured Coding Techniques – Coding Style – Standards and Guidelines – Documentation Guidelines.

Unit V

Verification and Validation Techniques: Quality Assurance – Walkthroughs and Inspections – Unit Testing and Debugging – System Testing. Software Maintenance: Enhancing Maintainability during Development – Managerial Aspects of Software Maintenance – Configuration Management.

Textbook:

1. Software Engineering Concepts – Richard Fairley, 1997, Tata Mcgraw Hill.

Reference Books:

1. Software Engineering for Internet Applications – Eve Anderson, Philip Greenspun, Andrew Grumet, 2006, PHI.
2. Fundamentals of Software Engineering – Rajib Mall, 2nd Edition, PHI
3. Software Engineering – Stephen Schach, 7th edition, TMH.

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OR
MAJOR BASED ELECTIVE – I
SYSTEM ANALYSIS AND DESIGN

Unit I

Business Problem & Computers : Overview of Business Organization – Information needs & systems – Some typical problems – System life cycle – System study – Feasibility Study

Unit II

System Analysis – Initiation of Analysis – The Process of Analysis – System Design – Design factors – Design Constraints – Processing Techniques – The Process of design – Output Design – input Design – Process Design – File Data Base Design

Unit III

Analysis & Design Tools – Data Flow Diagram – Data Dictionary – Entity Relationship Diagram – Decision Tree – Decision Table – Structured English – Structure Charts – Grid Charts – Layout Charts – Configuration Selection & Acquisition – Detailing the configuration – Storage requirements – Internal Memory – Processors – Terminals – Printers

Unit IV

File Organization & Design : Functional Classification of Files – File Structure – File Organization – Inverted File – Security & Controls – Risk management – Physical Security – Access Control – Data Control – Other Security & control measures

Unit V

Post – Design phases – Develop Software – Installation & Changes-over-System Operation & maintenance – Systems Applications – Financial Accounting – Inventory Accounting System – Equipment Maintenance – Bank Operations – Production Planning & control – Process Control – Robotics

Text Book:

1. System Analysis & Business Applications – Rajesh Nalk & Swapna Kishore, Wheeler Publishing – 1st edition 1994

Rference Book:

1. Introducing Systems Analysis & Design – Ellas M. Awad – Galgotia Publications (P) Ltd., (Second Edition)

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OR
MAJOR BASED ELECTIVE I – E-COMMERCE

Unit I

E-commerce-Electronic Commerce – E-Commerce types – E-Commerce and world at the large-E-Commerce Case studies : Intel , Amazon.

Unit II

Electronic Mail – The X.400 Message handling system –Internet Addresses – Multipurpose Internet Mail Extension – X.500 Directory Services – E-mail user agent.

Unit III

EDI- Costs and benefits – Components of EDI Systems – EDI implementation issues – EDIFACT – EDIFACT Message Structure.

Unit IV

Cyber Security – Cyber Attacks – Hacking- SSL - Authentication and assurance of data integrity – Cryptographic based solutions – Digital Signatures – VPN.

Unit V

Electronic Payment Systems – payment gateway – internet banking – the SET Protocol – E-cash – E-Cheque –Elements of electronic payments

Textbook

1. "E-Commerce The Cutting Edge Of Business" 2-Edition by Kamalesh K Bajaj ,Debjani Nag – Tata Mc Graw Hill

Reference Book

1) "Frontiers of E-commerce " by Ravi Kalakota and Andrew B.Whinston –Pearson Education.

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CORE COURSE XIV
COMPUTER GRAPHICS AND MULTIMEDIA

Unit I

Overview of graphics systems: Video display devices – Raster-scan systems – Random-scan systems – Graphics monitors and workstation – Input devices – Hard-copy devices – Graphics software.

Unit II

Output primitives: Points and lines – Line-drawing algorithms – DDA algorithm – Bresenham's line algorithm – Attributes of output primitives: Line attributes – Area-fill attributes – Character attributes – Bundled attributes.

Unit III

Two-dimensional Geometric transformations: Basic transformations – Matrix representations – Composite transformations – Other transformations.

Unit IV

Multimedia in Use : Introducing Multimedia for Today and Tommorrow – What is Multimedia – using Multimedia:Applications,Benefits and Problems – Technology : System Components – Multimedia Platforms.

Unit V

Technology: Development Tools – Image – Audio – Video.

Text Books:

1. Computer Graphics C Version Second Edition, Donald Hearn and M.Pauline Baker, Pearson Education, 2006.
2.Multimedia in Practice : Technology and Practice. Judith Jeffcoate, Pearson Education, 2007.

Reference Books:

1. William M. Neuman, Robert R. Sprout, "Principles of interactive Computer Graphics", McGraw Hill International Edition.
2. Buford J. F Koegel, Multimedia Systems, Twelfth Indian Reprint, Pearson Education

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CORE COURSE XV – DATA BASE SYSTEMS

Unit I

Introduction: Database-System Applications- Purpose of Database Systems - View of Data -- Database Languages - Relational Databases - Database Design -Object-Based and Semi structured Databases - Data Storage and Querying Transaction Management -Data Mining and Analysis - Database Architecture - Database Users and Administrators - History of Database Systems.

Unit II

Relational Model: Structure of Relational Databases - Fundamental Relational-Algebra Operations Additional Relational-Algebra Operations- Extended Relational-Algebra Operations - Null Values - Modification of the Database.

Unit III

SQL: Data Definition - Basic Structure of SQL Queries - Set Operations- Aggregate Functions - Null Values- Nested Subqueries - Complex Queries - Views -Modification of the Database - Joined Relations - SQL Data Types and Schemas - Integrity Constraints -Authorization - Embedded SQL

Unit IV

Relational Languages: The Tuple Relational Calculus - The Domain Relational Calculus - Query-by- Example. Database Design and the E-R Model: Overview of the Design Process - The Entity-Relationship Model - 3 Constraints - Entity-Relationship Diagrams - Entity-Relationship Design Issues - Weak Entity Sets - Database Design for Banking Enterprise

Unit V

Relational Database Design: Features of Good Relational Designs - Atomic Domains and First Normal Form - Decomposition Using Functional Dependencies - Functional-Dependency Theory - Decomposition Using Functional Dependencies - Decomposition Using Multivalued Dependencies-More Normal Forms - Database-Design Process

Text Book:

1. Database System Concepts, Fifth edition, Abraham Silberschatz , Henry F. Korth, S. Sudarshan, McGraw-Hill-2005.

Reference Books:

1. “An introduction to database systems”, Bipin C. Desai, Galgotia Publications Pvt Ltd, 1991.
2. “An Introduction to Database Systems”, C.J.Date, Third Edition Addison Wesley 1983.

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CORE COURSE XVI – MySQL LAB

1. Consider the following relations:
   Student (*snum:* integer, *sname:* string, *major:* string, *level:* string, *age:* integer)
   Class (*name:* string, *meets at:* string, *room:* string, *d:* integer)
   Enrolled (*snum:* integer, *cname:* string)
   Faculty (fi*d*: integer, *fname:* string, *deptid:* integer)
   The meaning of these relations is straightforward; for example, Enrolled has one record per student-class pair such that the student is enrolled in the class. Level is a two character code with 4 different values (example: Junior: JR etc)
   Write the following queries. No duplicates should be printed in any of the answers.

   i. Find the names of all Juniors (level = JR) who are enrolled in a class taught by Prof. Anand.
   ii. Find the names of all classes that either meet in room R18 or have five or more Students enrolled.
   iii. Find the names of all students who are enrolled in two classes that meet at the same time.
   iv. Find the names of faculty members who teach in every room in which some class is taught.
   v. Find the names of faculty members for whom the combined enrollment of the courses that they teach is less than five.

2. The following relations keep track of airline flight information:
   Flights (*no:* integer, *from:* string, *to:* string, *distance:* integer, *Departs:* time, *arrives:* time, *price:* real)
   Aircraft (*aid:* integer, *aname:* string, *cruisingrange:* integer)
   Certified (*eid:* integer, *aid:* integer)
   Employees (*eid:* integer, *ename:* string, *salary:* integer)
   Note that the Employees relation describes pilots and other kinds of employees as well; Every pilot is certified for some aircraft, and only pilots are certified to fly.
   Write each of the following queries.

   i. Find the names of aircraft such that all pilots certified to operate them have salaries more than Rs.80, 000.
   ii. For each pilot who is certified for more than three aircrafts, find the *eid* and the maximum *cruisingrange* of the aircraft for which she or he is certified.
   iii. Find the names of pilots whose *salary* is less than the price of the cheapest route from Chennai to California.
   iv. For all aircraft with *cruisingrange* over 1000 Kms, .find the name of the aircraft and the average salary of all pilots certified for this aircraft.
   v. Find the names of pilots certified for some Boeing aircraft.
   vi. Find the *aid*s of all aircraft that can be used on routes from Chennai to New Delhi.

3. Consider the following database of student enrollment in courses & books adopted for each course.
   STUDENT (regno: string, name: string, major: string, bdate:date)
   COURSE (course #:int, cname:string, dept:string)
   ENROLL (regno:string, course#:int, sem:int, marks:int)
   BOOK _ ADOPTION (course# :int, sem:int, book-ISBN:int)
   TEXT (book-ISBN:int, book-title:string, publisher:string, author:string)

i. Create the above tables by properly specifying the primary keys and the foreign keys.
ii. Enter at least five tuples for each relation.
iii. Demonstrate how you add a new text book to the database and make this book be adopted by some department.
iv. Produce a list of text books (include Course #, Book-ISBN, Book-title) in the alphabetical order for courses offered by the 'CS' department that use more than two books.
v. List any department that has *all* its adopted books published by a specific publisher.
vi. Generate suitable reports.
vii. Create suitable front end for querying and displaying the results.

4. The following tables are maintained by a book dealer.
AUTHOR (author-id:int, name:string, city:string, country:string)
PUBLISHER (publisher-id:int, name:string, city:string, country:string)
CATALOG (book-id:int, title:string, author-id:int, publisher-id:int, category-id:int, year:int, price:int)
CATEGORY (category-id:int, description:string)
ORDER-DETAILS (order-no:int, book-id:int, quantity:int)

i. Create the above tables by properly specifying the primary keys and the foreign keys.
ii. Enter at least five tuples for each relation.
iii. Give the details of the authors who have 2 or more books in the catalog and the price of the books is greater than the average price of the books in the catalog and the year of publication is after 2000.
iv. Find the author of the book which has maximum sales.
v. Demonstrate how you increase the price of books published by a specific publisher by 10%.
vi. Generate suitable reports.
vii. Create suitable front end for querying and displaying the results.

5. Consider the following database for a banking enterprise
BRANCH(branch-name:string, branch-city:string, assets:real)
ACCOUNT(accno:int, branch-name:string, balance:real)
DEPOSITOR(customer-name:string, accno:int)
CUSTOMER(customer-name:string, customer-street:string, customer-city:string)
LOAN(loan-number:int, branch-name:string, amount:real)
BORROWER(customer-name:string, loan-number:int)

i. Create the above tables by properly specifying the primary keys and the foreign keys
ii. Enter at least five tuples for each relation
iii. Find all the customers who have at least two accounts at the *Main* branch.
iv. Find all the customers who have an account at *all* the branches located in a specific city.
v. Demonstrate how you delete all account tuples at every branch located in a specific city.
vi. Generate suitable reports.
vii. Create suitable front end for querying and displaying the results.

MAJOR BASED ELECTIVE – II

PHP Scripting Language

Unit I

Essentials of PHP - Operators and Flow Control - Strings and Arrays.

Unit II

Creating Functions - Reading Data in Web Pages - PHP Browser - Handling Power.

Unit III

Object-Oriented Programming –Advanced Object-Oriented Programming .

Unit IV

File Handling –Working with Databases – Sessions, Cookies, and FTP

Unit V

Ajax – Advanced Ajax – Drawing Images on the Server.

Text Book:

1. The PHP Complete Reference – Steven Holzner – Tata McGraw-Hill Edition.

Reference Books:

1. Spring into PHP5 – Steven Holzer, Tata McCraw Hill Edition.
2. Ajax Bible- Steven Holzer , Tata McCraw Hill Edition.

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Major Based Elective – II – Software Project Management

Unit I

Introduction To Software Project Management – Stepwise: An Overview Of Project Planning.

Unit II

Project evaluation – Selection of an appropriate project approach – Risk management.

Unit III

Software effort estimation - Activity planning.

Unit IV

Resource allocation – Monitoring and Control – Managing Contracts.

Unit V

Managing people and Organizing teams – Software quality.

Text Book:

1. Bob Hughes, and Mile Cotterell, "Software Project Management", Third Edition, Tata McGraw Hill, 2004

Reference Book:

1. Royce, "Software Project Management", Pearson Education, 1999

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Major Based Elective – II – Software Testing

Unit I

Software Development Life Cycle models: Phases of Software project – Quality,Quality Assurance, Quality control – Testing, Verification and Validation – Process Model to represent Different Phases - Life Cycle models. White-Box Testing: Static Testing – Structural Testing – Challenges in White-Box Testing.

Unit II

Black-Box Testing: What is Black-Box Testing? - Why Black-Box Testing? – When to do Black-Box Testing? – How to do Black-Box Testing? – Challenges in White Box Testing - Integration Testing: Integration Testing as Type of Testing – Integration Testing as a Phase Testing – Scenario Testing – Defect Bash.

Unit III

System and Acceptance Testing: system Testing Overview – Why System testing is done? – Functional versus Non-functional Testing – Functional testing - Non-functional Testing – Acceptance Testing – Summary of Testing Phases.

Unit IV

Performance Testing: Factors governing Performance Testing – Methodology of Performance Testing – tools for Performance Testing – Process for Performance Testing – Challenges. Regression Testing: What is Regression Testing? – Types of Regression Testing – When to do Regression Testing – How to do Regression Testing – Best Practices in Regression Testing.

Unit V

Test Planning, Management, Execution and Reporting: Test Planning – Test Management – Test Process – Test Reporting –Best Practices. Test Metrics and Measurements: Project Metrics – Progress Metrics – Productivity Metrics – Release Metrics.

Text Book

1. Software Testing Principles and Practices – Srinivasan Desikan & Gopalswamy Ramesh, 2006, Pearson Education.

Reference Book

1. Renu Rajani , Pradeep Oak –“ Software Testing - Effective Methods , Tools & Techniques “ – Tata McGraw Hill

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MAJOR BASED ELECTIVE – III

Dot Net

Unit I

Introduction – Dot Net Objects.

Unit II

Dot NetWeb Service –Windows Forms

Unit III

Data Access in Dot Net – Handling XML.

Unit IV

Events and Delegates – Threads.

Unit V

Dot Net Remoting – Dot Net Reflection.

Text Book

1. David S Platt, “Introducing Microsoft .Net”, Prentice Hall of India, New Delhi,2003.

Reference Book

1. David Chappell, Understatnding .Net, Addison-Wesley Professional; 2 Edition,2006.

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MAJOR BASED ELECTIVE – III

WEB DESIGN

Unit I

Fundamentals : A Brief Introduction to the Internet – The World Wide Web – Web Browser – Web Servers – Uniform Resource Locators – Multiple Internet Mail Extensions - The Hypertext Transfer Protocol – The Web Programmers Tool Box.

Unit II

Introduction to HTML : Designing a Home Page – HTML Document – Anchor Tag – Hyperlinks – Head and Body Sections – Header Section – Title – Prologue – Links – Colorful Pages – Comments – Body Section – Heading – Horizontal Ruler – Paragraph – Tabs – Images and Pictures – Lists and their Types – Nested Lists – Table Handling.

Unit III

Frames : Frameset Definition – Frame Definition – Nested Framesets – Forms : Forms and their Elements.

Unit IV

DHTML and Style Sheets – Defining Styles – Elements of Styles – Linking a Style Sheet to a HTML Document – Inline Styles – External Style Sheets – Internal Style Sheets – Multiple Styles – Web Page Designing.

Unit V

Introduction to XML : Introduction – The Syntax of XML – XML Document Structure – Document Type Definitions – Namespaces – XML Schemas – Displaying Raw XML Documents – Displaying XML Documents with CSS – XML Processors.

Text Books:

1. Programming the World Wide Web, Robert .W.Sebesta, Pearson Education, Third Edition, 2007. For Units I and Unit V.
2. World Wide Web Designing, C.Xavier, Tata McGraw Hill, 2000. For Units II,III and IV

Reference Book

1. Web Design – A Beginners Guide, Wendy Willard, Tata McGraw Hill.

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MAJOR BASED ELECTIVE – III – OPEN SOURCE TECHNOLOGY

Unit I

Open Source Software:Definitions and History – Where Open Source is Successful – Open Source: The Good,the Bad and the Ugly.

Unit II

Five Immediate Open Source Opportunities – Five More Open Source Opportunities.

Unit III

Open Source Server Applications – Open Source Desktop Applications.

Unit IV

How Open Source Software is Developed – Managing System Implementation.

Unit V

Application Architecture – The Cost of Open Source Systems.

Text Book :

1. "Open Source Software: Implementation and Management", Paul Kavanagh, Elsevier Digital Press, 2004.

Reference Book

1. Open Source 2.0:The Continuing Evolution, O'Reilly,DiBona, Cooper and Stone, 2005.

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MAJOR BASED ELECTIVE IV – MINI PROJECT

Students to do Mini Project in their respective Colleges. The objective of the Mini Project is to enable the students to work in convenient groups of not more than Four members on a project with a Latest Software.

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MAJOR BASED ELECTIVE IV – DOT NET LAB

1.Design ASP.Net web form using Html Server Controls to enter job seeker's details.

2.Create an ASP.Net web form using Web control to enter E-Mail registration form.

3.Apply appropriate validation techniques in E-Mail registration form using validation controls.

4. Write an ASP.Net application to retrieve form data and display it the client browser in a table format.

5.Create a web application using ADO.Net that uses which performs basic data manipulations:

(i). Insertion (ii) Updating (iii) Deletion (iv) Selection
Hint: Do operations using Ms-Access and SQL-Server

6. Create an application using Data grid control to access information's from table in SQL server.

7. Create an application using Data list control to access information's from table in SQL server and display the result in neat format.

Case Studies (Must Include basic database operations such as Insertion, Deletion, Modication, Selection and Searching)

9. Job Search Portal.

10.College Portal.

11. Company Portal.

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MAJOR BASED ELECTIVE IV – PHP LAB

1. Write a program using controls and functions

2. Develop a program and check message passing mechanism between pages.

3. Design a program using String function and Arrays.

4. Develop a program using parsing functions (use Tokenizing)

5. Write a program and check Regular Expression, HTML functions, Hashing functions.

6. Develop a program and check File System functions, Network functions, Date and time functions.

7. Design a program using session

8. Develop a program using cookie and session

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