BHARATHIDASAN UNIVERSITY, TIRUCHIRAPPALLI – 620 024.

B.Sc. Computer Science – 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.	Ext.	
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)	Programming in C	6	4	3	25	75	100
		Core Course – II (CC)	Programming in C Lab	4	3	3	40	60	100
		First Allied Course –I (AC)	**Algebra and Calculus**	5	**3**	3	25	75	100
		First Allied Course – II (AC)	Numerical Analysis and Statistics	3	-	-	-	-	-
	Total			**30**	**16**	**-**	**-**	**-**	**500**
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)	Digital Electronics	5	4	3	25	75	100
		Core Course – IV (CC)	Computer Graphics and Animation Lab	3	3	3	40	60	100
		First Allied Course – II (AC)	Numerical Analysis and Statistics	2	3	3	25	75	100
		First Allied Course – III (AC)	**Operations Research**	4	**4**	3	25	75	100
	IV	Environmental Studies		2	2	3	25	75	100
	V	Value Education		2	2	3	25	75	100
	Total			**30**	**24**	**-**	**-**	**-**	**800**
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)	Java Programming	5	5	3	25	75	100
		Core Course – VI (CC)	Java Programming Lab	3	3	3	40	60	100
		Second Allied Course – I (AC)	Applied Physics - I	5	3	3	25	75	100
		Second Allied Course– II (AC)	Applied Physics – II	3	-	-	-	-	-
		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	Working Principles of Internet	2	2	3	25	75	100
	Total			**30**	**19**	**-**	**-**	**-**	**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)	Programming in ASP	4	4	3	25	75	100

		Core Course – VIII (CC)	Programming in ASP Lab	2	1	3	40	60	100
		Second Allied Course– II (AC)	Applied Physics – II	3	3	3	25	75	100
		Second Allied Course–III (AC)	Applied Physics - III	5	4	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	Recent Trends in Enterprise Information Technology	2	2	3	25	75	100
		Skill Based Elective I		2	4	3	25	75	100
	Total			**30**	**24**	**-**	**-**	**-**	**800**
V	III	Core Course IX [CC]	Data Structures and Algorithms	6	5	3	25	75	100
		Core Course X [CC]	Database Systems	5	4	3	25	75	100
		Core Course XI [CC]	Operating System	5	4	3	25	75	100
		Core Course XII [CC]	MySQL Lab	3	3	3	40	60	100
		Core Course XIII [CC]	Operating System LAB	3	2	3	40	60	100
		Major Based Elective - I	Software Engineering / System Analysis and Design / Software Project Management	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]	Microprocessor and its Applications	5	5	3	25	75	100
		Core Course XV [CC]	Computer Networks	5	5	3	25	75	100
		Core Course XVI [CC]	Microprocessor Lab	3	3	3	40	60	100
		Core Course XVII [CC]	HTML Lab	2	2	3	40	60	100
		Major Based Elective – II	Computer Graphics and Multimedia / Dot Net / Linux Administration	5	4	3	25	75	100
		Major Based Elective – III	**E-Commerce / Software Testing / PHP Scripting Language**	4	**3**	3	25	75	100
		Major Based Elective – IV	Mini Project (Students to do it in their respective Colleges) / Dot Net Lab / Linux Lab	5	4	3	40	60	100
	IV	Extension activities		-	1	-	-	-	-
		Gender Studies		1	1	3	25	75	100
	Total			**30**	**28**	**-**	**-**	**-**	**800**
	Grand Total			**180**	**140**				**4300**

[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 – 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 II – 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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ALLIED COURSE I (AC) - ALGEBRA AND CALCULUS

UNIT I

Theory of Equations: Relation between roots & coefficients – Transformations of Equations – Diminishing ,Increasing & multiplying the roots by a constant- Forming equations with the given roots –Rolle's Theorem, Descarte's rule of Signs(statement only) –simple problems.

UNIT II

Matrices : Singular matrices – Inverse of a non-singular matrix using adjoint method - Rank of a Matrix –Consistency - Characteristic equation , Eigen values, Eigen vectors – Cayley Hamilton's Theorem (proof not needed) –Simple applications only

UNIT III

Differentiation: Maxima & Minima – Concavity , Convexity – Points of inflexion - Partial differentiation – Euler's Theorem - Total differential coefficients (proof not needed) –Simple problems only.

UNIT IV

Integration : Evaluation of integrals of types

1] $\int \frac{px+q}{ax^2+bx+c}dx$ 2] $\int \frac{px+q}{\sqrt{ax^2+bx+c}}dx$ 3] $\int \frac{dx}{a+b\sin x}$

4] $\int \frac{dx}{a+b\cos x}$

Evaluation using Integration by parts – Properties of definite integrals – Fourier Series in the range (0 , 2 π) – Odd & Even Functions – Fourier Half range Sine & Cosine Series

UNIT V

Differential Equations: Variables Separables – Linear equations – Second order of types (a D^2 + b D + 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 (iv) e^{Kx} f (x)

TEXT BOOK(S)

[1] T.K.Manickavasagam Pillai & others, Algebra, Volume I, S.V Publications , 1985 Revised Edition (Units I, II)

[2] S. Narayanan, T.K. Manicavachagam Pillai, Calculus, Vol.II, S. Viswanathan Pvt Limited, 2003. (Units III, IV and V)

REFERENCE(S)

[1] M.L. Khanna, Differential Calculus, Jaiprakashnath and Co., Meerut-2004.

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ALLIED COURSE – II (AC)

NUMERICAL ANALYSIS AND STATISTICS

UNIT I

Algebraic & Transcendental equations : Bisection Method , Newton Raphson Method, Iteration method - Finite differences –Forward , Backward differences – Newton's forward & backward difference interpolation formulae. Lagrange's interpolating polynomial.

UNIT II

Numerical differentiation - Numerical Integration using Trapezoidal rule and Simpson's first & second rules (proof not needed) - Solutions to Linear Systems – Gaussian Elimination Method – Jacobi & Gauss Siedal iterative methods – Theory and problems

UNIT III

Numerical solution of ODE : Solution by Taylor Series Method , Euler's Method, Runge - Kutta 2^{nd} order method- Adam's Predictor Corrector Method and Milne's Predictor Corrector Methods

UNIT IV

Mean , Median , Mode , Standard Deviation -Expectation –Variance and covariance – Correlation and Regression –Properties of Simple Correlation and regression coefficients – Simple Numerical Problems only .

UNIT V

Distributions : Discrete & Continuous distributions : Binomial, Poisson , Normal distributions- Properties of normal distributions –Relation between Binomial, Poisson, Normal distributions

TEXT BOOK(S)

[1] S.S.Sastry, Numerical Analysis (Unit 1 , 2 , 3)

[2] Gupta.S.C & Kapoor,V.K, Fundamentals of Mathematical Statistics, Sultan Chand & sons, New Delhi -1994. (Units 4 & 5)

REFERENCE(S)

[1] M.K. Jain, S.R.K. Iyengar and R.K. Jain, Numerical Methods for Scientific and Engineering Computation, New Age International Private Limited, 1999.

[2] C.E. Froberg, Introduction to Numerical Analysis, II Edn., Addison Wesley, 1979.

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CORE COURSE III – 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 IV
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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ALLIED COURSE – III (AC)

OPERATIONS RESEARCH

UNIT I

Operations Research : Introduction - Basics of OR – OR & decision making – Role of Computers in OR - Linear programming formulations & graphical solution of two variables – Canonical & standard forms of LPP

UNIT II

Simplex Method : Simplex Method for < , = , > constraints – Charne's method of penalties– Two phase Simplex method.

UNIT III

Transportation problem : Transportation algorithm –Degeneracy algorithm – Degeneracy in Transportation Problem , Unbalanced transportation problem- Assignment algorithm –Unbalanced Assignment problem .

UNIT IV

Sequencing problem : Processing of n jobs through two machines – Processing of n jobs through 3 machines – processing of two jobs through m machines.

UNIT V

Networks: Network – Fulkerson's rule- measure of activity –PERT computation – CPM computation .- Resource scheduling.

TEXT BOOK(S)

[1] Manmohan & Gupta , Operations Research, Sultan Chand Publishers, New Delhi

REFERENCE(S)

[1] Prem Kumar Gupta and D.S. Hira, Operations Research : An Introduction, S. Chand and Co., Ltd. New Delhi,

[2] Hamdy A. Taha, Operations Research (7^{th} Edn.), McMillan Publishing Company, New Delhi, 1982.

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CORE COURSE V - 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 Operators Boolean 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 Control Interfaces - 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
3. "Complete Reference", 'Patrick Naughton and Herbert Schildt, 3rd Edition,Tata McGraw Hill Publishing Company Ltd., 1999.

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CORE COURSE VI - 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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APPLIED PHYSICS – ALLIED COURSE I

Unit I – Electrostatics

Fundamentals of electrostatics – Gauss theorem and its application – Intensity due to a charged sphere – intensive at a point between two charged parallel plane conductors – Intensity at a point due to uniformly charged cylinder – Action of points – Electrostatic potential – Equipotential surface – capacity – Principles of a capacitor – Spherical and cylindrical capacitors – Capacitors in serried and a parallel – energy of a charged capacitor – Energy loss due to sharing of charges – Types of capacitors

Unit II - Magnetostatics

Magnetic field – Magnetic flux density – Magnetization – Intensity of magnetization – Permeability – Susceptibility – Relation between them – Magnetic potential – Potential due to a dipole – Relation between potential and intensity – Magnetic shell and its potential at any point – Properties of dia para and ferro magnetic materials – Hysteresis – Magneto mater method – Finding coerivity, retentivity and energy loss from hysteresis loop (PH Curve)

Unit III – Current Electricity

Laplace' law – Intensity at appoint due to a straight conductor carrying current – circular coil – Solennoid – Field due to them at pint on their axis when a current flows, Force between two parallel conductors – standard unit of current – Definition of Ampere – Units of voltage and resistance – Ohm's law – Kirchoff's law – Application to Wheatstone's bridge – Carey Foster's bridge – Potentiometer – Measurement of current and resistance – Calibration of low and high range voltmeters – Fleming's left hand rule – Theory of moving coil galvanometer – conversion of galvanometer into and ammeter and voltmeter – Ballistic galvanometer – Fleming's right hand rule

Unit IV – Electromagnetic Induction

Laes of electromagnetic induction – Relation between induced emf and mutual inductance – Eddy current – Determination of self inductance – Anderson's method coefficient of mutual induction – Determination – Absolute method – Coefficient of coupling – Transformer theory

Unit V – Alternating Current

A/C Circuits with single components – Double components – Measurement of current and voltage – Power in A/C Circuit – Power factor derivation – Wattless current – Choke-series and parallel resonance circuits – Impedance – Q factor – Selectivity and Sharpness of resonance – Oscillatory discharge of a condenser.

Books for Reference:

1. Electricity and Magnetism – Brijlal and Subramanian – Ratan Prakashan Mandir – Delhi 1995
2. Electricity and Magnetism – Narayanamurthy & Nagarathinam
3. Electricity and Magnetism – D.L. Seghal and Chopra.

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APPLIED PHYSICS – ALLIED COURSE II – PRACTICAL

1. Semiconductor diode – Characteristics
2. Zener Diode – Characteristics
3. FET – Characteristics
4. Transistor Characteristics – CE configuration
5. Transistor Characteristics – CB configuration
6. Bridge Rectifier and Zener controlled regulated power supply
7. Field along the axis of a coil – M and H
8. Potentiometer Measurement of current
9. Potentiometer Measurement of resistance
10. Carey Foster's bridge – specific resistance
11. Calibration of a thermistor and determination of its Energy gap
12. Series resonance circuit
13. Single stage Amplifier
14. FET amplifier
15. Astable Multivibrator
16. Mathematical operators – Addition, substraction using op-amp
17. Printed circuit board design

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NON – MAJOR ELECTIVE I

WORKING PRINCIPLES OF INTERNET

Unit I

What is Internet ? The Internet's underlying Architecture

Unit II

Connecting to the Internet – Communicating on the Internet

Unit III

How the World Wide Web works. Common Internet tools

Unit IV

Multimedia on the Internet – Intranet and shopping on the Internet

Unit V

Safeguarding the Internet

Text Book:

How the Internet works – Techmedia – Preston Gralla Millennium Edition, fourth Edition

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CORE COURSE VII - PROGRAMMING IN ASP

Unit I

Introduction to ASP – Active Server Pages Model – ASP File – the process of serving an Active Server Page – Using Scripting Languages – Setting the Primary Scripting Language – Including other files – Understanding objects.

Unit II

Understanding components – Working with users – working with HTML forms – retrieving form data – using text boxes and text areas.

Unit III

Cookies – working with cookies – applications of cookies – addressing the drawbacks of using cookies – using cookies in ASP applications. Working with connections and data sources – creating connections with OLEdb and ODBC – connecting to Microsoft SQL server – connecting to a Microsoft access database.

Unit IV

About the connection object – executing a SQL statement with the connection object – understanding session and connection pooling – working with record sets – retrieving a record set – record set cursor and locking types – understanding ADO cursors – paging through a record set.

Unit V

Working with the command object – creating stored procedures – executing stored procedures with the connection object – executing stored procedures with the command object – retrieving parameter information.

Text Books :

1. Practical ASP – Ivan Bayross, BPB Publications, 2000
2. Special Edition Using Active Server Pages – Scot Johnson, Prentice Hall of India Private Limited 2001.

Reference Book:

1.Mastering Active Server Pages 3, Russell Jones, Sybex Publishers

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CORE COURSE VIII - PROGRAMMING IN ASP LAB

1. Create an ASP file to display the message “Have a Good Weekend” if it is a Saturday otherwise “Hang in there, the week will get better”.

2. Write an program to get the name and favorite ice cream flavor. Respond with the price of the corresponding ice cream.

3. Create a login form, to expire, if the user does not type the password within 100 seconds.

4. Create an advertisement for a bookshop using Ad Rotator component.

5. Create a course registration form with name, address and list of available course. Reply with the corresponding course fees on selection of a single course or a collection of courses.

6. Write a program to manipulate cookies with the information between HTTP sessions such as

i. Last Date visited
ii. Last Time visited
iii. Number of visits

7. Create a student database and manipulate the records using the connection object in ASP.

8. Create an employee database and manipulate the records using command object in ASP.

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APPLIED PHYSICS – ALLIED COURSE III

Unit I – Semiconductor Physics

Theory of Energy bands in crystals – distinction between conductors, insulators and semiconductors – Intrinsic and Extrinsic semiconductors – Hall effect in semiconductors – Zener diode Tunnel diode Backward diode Breakdown voltage – avalanche Breakdown

Unit II - Transistors

PNP and NPN transistors DC Characteristics of CE and CB configuration – Hybrid parameters – Functions of Transistors as an amplifier and oscillator – FET – N – channel and P-Channel FET performance Characteristics FET amplifier

Unit III – Lasers and Masers

Basic concepts of stimulated emission – Population inversion and Meta stable state – Ammonia maser – Ruby laser and He Ne laser production – Advantages

Unit IV – Opto Electronic Devices

LED: Radiation transition Emission spectra Luminent efficiency – Method of Excitation – Visible LED – Materials for LED – LED configuration and performance – Photo conduction – photo diode – Photo transistor – electronic watches – Seven segment displays – LCD

Unit V – Operational Amplifiers

The basic operational amplifier – Inverting and Non inverting operational amplifier – Differential Operational amplifier – CMRR – Basic uses of Operational amplifier as sign and scale changer phase shifter integrator. Differtiator and adder D/C – Binary weighted method – R-2R ladder method – A/C Successive approximation and counter methods – OpAmp as a comparator

Books for Study:

1. Microelectronics – Jacob Millman – MCGraw Hill
2. The fundamentals of solid state physics – Theraja Sultan Chand & Co., Delhi
3. Pulse and Digital electronics – G.K Mithal and Vanvasi – Khanna Publication – Delhi
4. Functional Electronics – Ramanan – TMH, 1994
5. Electronic devices and Circuits – Millman & Halkias – TMH1991

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NON - MAJOR ELECTIVE II
RECENT TRENDS IN ENTERPRISE INFORMATION TECHNOLOGY

Unit I

BUSINESS PROCESS RE-ENGINEERING : Innovative or Perish – Waves of Innovation – What a Difference a Century Can Make? – Value Innovation & BPR – Change Management – "BPR" Philosophy – Models of "BPR".

Unit II

SUPPLY CHAIN MANAGEMENT : Introduction to SCM – Evolution of Supply Chain Management – E-Business & Drivers of E-Business – Concept of Supply Chain Management – Understanding the SCM.

Unit III

SUPPLY CHAIN MANAGEMENT : SCM Frame Work – EDI, IOS, ECSS – E-Sourcing and Out-sourcing.

ENTERPRISE RESOURCE PLANNING: Introduction to ERP – Evolution of ERP – Materials Requirement Planning (MRP) – Manufacturing Resource Planning System (MRP II) and Money Resource Planning (MRP III).

Unit IV

ENTERPRISE RESOURCE PLANNING: ERP Packages – SAP – Relationship of ERP with other components of EIS – ERP implementation ERP Packages – SAP – Relationship of ERP with other components of EIS – ERP implementation – Personnel involved in ERP implementation.

Unit V

CUSTOMER RELATIONSHIP MANAGEMENT : Introduction to customer Relationship Management (CRM) – Evolution of CRM – Understanding CRM – Framework of CRM – Models of CRM – CRM Technology – Integration with other Enterprise Wide System – CRM in Practice.

Books for Study :

1. "ENTERPRISE WIDE INFORMATION SYSTEMS", K. Balasubramaniyan, S.Usha Priya, K.Hema, IInd Edition – 2002.

Reference Book:

Using Information Technology – William, Sawyer, Hetisn, TMH – III Edition.

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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 - 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 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 – 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.

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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, ii. File readable, iii. File Writable, 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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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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MAJOR BASED ELECTIVE – I

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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CORE COURSE XIV

MICROPROCESSOR AND ITS APPLICATIONS

Unit I

Evaluation of Microprocessors – Single Chip Microcomputer Microprocessor Applications – Programming Digital Computers – Memory – Buses – Memory addressing capacity and CPU – Microcomputers – Processor Architecture – Intel 8085 – Instruction Cycle – Timing diagram.

Unit II

Instruction set of Intel 8085 – Instruction and Data Formats – Addressing Modes – Status flags – Intel 8085 Instructions – Programming of Microprocessors – Assembly language – Assemblers – Stacks and Subroutines – MACRO – Microprogramming.

Unit III

Assembly language Programming – Simple examples – Addition and Subtraction of Binary and Decimal Numbers – Complements – Shift – Masking – Finding the largest and smallest numbers in an Array – Arranging a series of numbers – Sum of a series of Numbers – Multiplication – Division – Multibyte Addition and Subtraction.

Unit IV

Peripheral Devices and Interfacing – Address Space Partitioning – Memory and I/O Interfacing – Data transfer schemes – Interrupts of Intel 8085 – Interfacing memory and I/O devices – I/O ports – Programmable peripheral Interface – Programmable Counter / Interval Timer – A/D Converter and D/A Converter.

Unit V

Microprocessor Applications – Delay Subroutines – Interfacing of 7 Segment Displays – Frequency measurement – Temperature measurement and Control – Water Level Indicator – Microprocessor based Traffic Control.

Text Book:

1.Fundamentals of Microprocessors and Microcomputers – Badri Ram – Fourth Revised and Enlarged Edition – Dhanpat Rai and Sons – 1993.

Reference Book:

1.Microprocessor Architecture, Programming and Applications with the 8085 / 8080A – Romesh S.Gaonkar – Wiley Eastern – 1990

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CORE COURSE XV – 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 XVI – MICROPROCESSOR LAB

1.To write and execute simple programs in assembly language using Intel 8085 microprocessor kit :

i) 8-bit addition,
ii) Separating out a hexadecimal digit,
iii) Disassembly of a word,
iv) Sum of series of data,
v) Data transfer

2.To develop and execute programs for display and for solving problems using subroutines on 8085 processor:

i) Display of names,
ii) Table of squares,
iii) Length of a string,
iv) Converting ASCII to decimal,
v) ASCII to decimal using subroutines,

3.Applications of Microprocessor:

i) Matrix display using 8255.
ii) D/A & A/D converters using discrete component modules.
iii) Traffic signal.

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CORE COURSE XVII – HTML LAB

1. Develop a HTML document, which displays your name as <h1> heading and displays any four of your friends. Each of your friend's names must appear as hot text. When you click your friend's name, it must open another HTML document, which tells about your friend.

2. Write names of several countries in a paragraph and store it as an HTML document, world.html. Each country name must be a hot text. When you click India (for example), it must open india.html and it should provide a brief introduction about India.

3. Design a HTML document describing you. Assign a suitable background design and background color and a text color.

4. Develop a Complete Web Page using Frames and Framesets which gives the Information about a Hospital using HTML.

5. Develop complete set of web pages to describe you skills in various areas using HTML.

6. Develop a web site to publish your family and the details of each member-using HTML.

7. Develop a HTML document to display a Registration Form for an intercollegiate function.

8. Develop a HTML document to design Alumni Registration form of your college.

9.Create a HTML table with rows and columns and split them using Rowspan and Colspan.

10.Create a web page in the format of front page of a news paper using Text links. Align the text with colors.

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MAJOR BASED ELECTIVE II

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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MAJOR BASED ELECTIVE II

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 II – LINUX ADMINISTRATION

Unit I

Linux Introduction and Installation: Linux-Advantages-Red Hat Linux-New Features-Installation procedures and Methods. Using Desktop-GNOME-KDE-Linux Commands Accessing and Running Applications

Unit II

Installing Red Hat Linux Applications, Running Window Application, Running Window,DOS and Macintosh Applications –Tools for using Internet and Web.

Unit III

Administration: Understanding System Administration: Root login-super user-GUI tools,commands and Log files-Configuring Hardware-File System and Disk Management-Monitoring performances.

Unit IV

Setting Up and Supporting users: Creating user accounts – Setting user defaults –Creating Desktops-Modifying and Deleting Accounts.

Unit V

Security Issues: Hacker versus Cracker-Password Protection- Protection from break-in-Filtering Network Access-Firewalls-Detecting Instructions – Encryption techniques

Text Book

1. Christopher Negus “Red Hat Linux 9 Bible”, WILEY- Dreamtech India Pvt.Ltd, New Delhi, First Edition, 2003

Reference Book

1. Thomas Schenk, “Red Hat Linux System Administration”, Techmedia, New Delhi,2003.

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MAJOR BASED ELECTIVE III – 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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MAJOR BASED ELECTIVE III – 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

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 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 – LINUX LAB

Write Shell Programs for the following using the Linux Operating System

1 Check whether the given number is prime or not.

2 Find the biggest of given two numbers

3 Write a program to check the given number is odd or even

4 Write a program to generate Fibonacci Series

5. Write a program to prepare electric bill for domestic consumers.

For first 100 units - Rs.0.75/ unit
For next 100 units - Rs.1.50/unit
Above 200 units - Rs.3.00/unit.

Prepare the bill for the following format:
Customer No. ----------
Customer Name ----------
Pre.Reading ----------
Cur.Reading ----------
Units Consumed ----------
Charge ----------

Signature

6. Write a program to display the result PASS or FAIL using the information given below:

Student Name, Student Reg.No., Mark1, Mark2, Mark3, Mark4 . The minimum pass for each subject is 50.

7 Write a program to prepare a Payroll with Basic Pay,DA,Allowances,PF and Gross Pay.

8 Using Case Statement, write a program to check the files ending with vowels.

9 Write a single program to sort the names and numbers in alphabetical, ascending and descending order.

10 Write a menu driven program to print Biodata for five persons.

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