LOYOLA COLLEGE (AUTONOMOUS)
DEPARTMENT OF COMPUTER SCIENCE,
BACHELOR OF COMPUTER SCIENCE
(Effective from the Academic Year 2008-2009)

SEM	TYPE	COURSE CODE	COURSE TITLE	HRS	CR
I	MC	CS1503	Programming in C	5	5
	MC	CS1504	Programming in C – Lab	4	4
	MC	CS2502	Data Structures through C – Lab	6	6
II	AR	MT2100	Mathematics for computer science –Refer the Department of Mathematics for Syllabus	6	4
	AR	PH3106	Applied electronics - Refer the Department of Physics for Syllabus	6	4
	AO	CS3204	Statistical methods - Refer the Department of Mathematics for Syllabus	6	4
III	MC	CS3502	Object Oriented Programming with C++	6	6
	MC	CS3503	Object Oriented Programming with C++-Lab	6	6
	MC	CS4503	Relational Database Management System - Lab	6	6
IV	CL	CS4021	Computer Organization and Architecture	3	2
	AO	CO4203	Acc & Bus. Application - Refer the Department of Commerce for Syllabus	6	4
	MC	CS5504	Operating System	6	6
	MC	CS5505	Software Engineering	6	6
	MC	CS5506	Introduction to Data Communication	6	6
V	SE	CS5402	Operations Research	3	2
	SE	CS5403	Web Design	3	2
	MC	CS5507	Web Design - Lab	6	6
	SK	CS6655	Dot net Technologies (or)	13	10
		CS6654	Advanced JAVA Programming		
VI	MS	CS6609	Web Programming with PHP and MySQL	5	10
	MS	CS6610	Web Programming with PHP and MySQL - Lab	8	10
		CS 6656	Project	4	5

MC – Major Core   SE–Subject Elective   SK-Skill Based   MS-Major Special

AR-Allied Required   AO-Allied Optional   GE-General Elective   CL-Computer Literacy

MC   5 Hrs./Week
I Year/ I Semester   5 Credits

CS1503 - PROGRAMMING IN C

Objective:
      To obtain knowledge about the structure of the programming language C and to develop the program writing and logical thinking skill.

Unit - I
Steps involved in computer programming-problem definition phase-Algorithm development- Flow charting- Efficiency of algorithm.C Fundamentals: character set-identifiers and keywords-data types-constants-variables-declaration-expression-statements. Operators and Expression : arithmetic operators-unary operators-relational and logical operators-assignment operators-conditional operators-library function.

Unit – II
Data Input and Output statements: getchar and putchar functions-scanf and printf function-more about scanf and printf function-gets and puts functions. Control Statements: if-else, while, do-while, for- Nested control structure-switch-break-continue-comma operator-goto statement.

Unit III
Functions: definition of function-accessing a function-function prototypes-passing arguments to a function-recursion. Program structure: storage classes-automatic variables-external variables-static variable. Arrays: definition of Array-processing an array-passing arrays to a function-multi dimensional arrays-arrays and string.

Unit IV
Pointers: Fundamentals – Pointer declaration – Passing pointer to function – array of pointers - Structure and Unions: definition of structure-processing a structure-user defined data type-structure and pointers-passing structure to functions-self referential structure-unions.

Unit V
Data files: Opening and closing a data file-creating a data file-processing a data file-unformatted data file.

Recommended books:

Unit- I

 G. Micheael Schneider, Steven W. Weingart and David M, "An Introduction to Programming and Problem solving with Pascal", Perlman Wiley Eastern Ltd, New Delhi, 1991.

Unit II, III, IV, V

Byron S. Gottfried, "Theory and Problems of Programming with C", Tata Mcgraw-Hill Ltd, Second Edition, New Delhi.

Reference books:

1. "Programming in ANSI C" by E. Bala Gurusamy, Tata McGraw-Hill, Second Edition, New Delhi.

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MC   4 Hrs./Week
I Year/ I Semester   4 Credits

CS1504 - PROGRAMMING IN C - LAB

Objective:
    To develop skills in implementing algorithms through the programming Language C and to explore the features of C by applying sample problems.

1. MS-DOS EDITOR COMMANDS
   Creating file(COPYCON, EDIT commands etc.) – Directory related commands(MD,CD,RD) – Disk related commands(FDISK, FORMAT, DISKCOPY, XCOPY etc.) – Other commands.

2. I/O Statements
   Entering input data, writing output data, gets and puts functions – operators – expressions.

3. Control Statements
   Implementation of programs using control statements.

4. Functions and Arrays
   Accessing a function – passing arguments to a function – recursive function. Processing an array – passing arrays to a function. – processing of strings.

5. Structure, Union and Pointers
   Accessing a structure – processing using structure – Declaration and processing pointers – passing pointer to a function – Dynamic memory allocation.

6. File Handling
   Opening and closing a data file – creating a data file – processing a data file – unformatted data files.

   At least 4 programs must be given as lab exercise from topic 2 to topic 6.

MC   6 Hrs./Week
I Year/ II Semester   6 Credits

CS2502 - DATA STRUCTURES THROUGH C – LAB

Objective:
      To gain knowledge about the different data structures and sorting and searching methodology available in processing the information.

Unit I
Pointers: Fundamentals – Pointer declaration – Passing Pointer to function – Pointer and one Dimensional array – operations on pointers – pointer and multi-dimensional array – array of pointers passing functions to other functions – more about pointer declaration

Unit II
Array – Stack and Queue – Basic concept of arrays – List Sparse Matrices – Representation of Arrays – Fundamentals of stack and Queues – Evaluation of Expressions – Multiple stack and Queue – Mazing Problems.

Unit III
Linked List: Single Linked List – Linked Stacks and Queues – Polynomial Addition – Doubly Linked List and Storage Management – Generalised List – Garbage Collection and Compaction

Unit IV
Tree Graphs: Binary Tree Representation and Traversal. Threaded binary Tree – Counting Binary Tree – Graphs – Graphs representation –Graph Traversal - Hash Table Hashing Functions Overflow handling

Unit V
Searching Binary Searching – Insertion Sort – Quick Sort – 2 way Merge Sort – Heap Sort – Opening Closing Data file – process data file – unformatted data file – low level programming – Additional features of C.

Recommended books:
1. Byron. S. Gotfried Schaum's Outline Series – Unit 1 & Unit II Theory and Problems of Programming with C
2. Ellitz Horowitz & Satranj Sahni, Fundamentals of Data Structures.

Reference books:
1 "Data Structures" by Seymour Lipschutz, Schaums Outline Series
2. "Data Structures and Algorithms" by Aho J.D. Ullman & J.E. Hopcraft, Addison Wesley Publishers

DATA STRUCTURES- LIST OF PRACTICALS

1. Stack and Queue using Array
2. Stack and Queue using Pointers
3. Polynomial Operations
4. Single Linked List (Creation, Insertion, Deletion, Find)
5. Double Linked List (Creation, Insertion, Deletion, Find)
6. Tree Creation, In order, Pre order, Post order Traversal
7. Breadth First Search and Depth First Search
8. Insertion Sort
9. Quick Sort
10. Merge Sort
11. Linear Search
12. Binary Search
13. Records using Structure
14. Student Mark List Processing using files.

MC   6 Hrs./Week
II Year/ III Semester   6 Credits

CS3502 - OBJECT ORIENTED PROGRAMMING WITH C ++

Objective:
To gain the basic knowledge of object oriented programming concepts and to understand the detail idea of C++ streams ,templates and error handling concepts of C++ programming.

Unit I
Principles of Object Oriented Programming: Procedure Oriented Programming – OOP Paradigm-Basic concepts of OOP-Benefits of OOP-Object Oriented Language Applications of OOP. Beginning with C++, Tokens, Expressions and Control Structure. Functions in C++: Introduction-Main function prototyping-call by, return by reference-inline functions-default, constant arguments-Function overloading-friend and virtual functions.

Unit II
Classes and Objects. Constructors and Destructors. Constructors-Parameterized, Multiple Constructors-constructors with default arguments-Dynamic initialization of objects-copy, dynamic constructors- destructors.

Unit III
Operator Overloading and Type Conversions, Inheritance: Extending classes. Pointers, virtual functions and polymorphism, Managing console I/O Operations:

Unit IV
C++ streams-C++ stream classes-Unformatted I/O Operations-Formatted console I/O Operations, Working with files: classes for file stream operations-opening and closing a file-EOF-File modes-File pointers-sequential I/O Operations-

Unit V
Templates, Exception Handling.

Recommended Text Book
     1. E. Balagurusamy, Object-Oriented Programming with C++, TATA Mc Graw-Hill publishing.

Reference book:
     1. R. Rajaram, Object-Oriented Programming and C++, A New Age Publication.

MC   6 Hrs./Week
II Year/ III Semester   6 Credits

CS3503 - OBJECT ORIENTED PROGRAMMING WITH C ++

Objective:
To gain knowledge about the object oriented programming concepts and C++ streams, templates and error handling concepts of C++ programming by implementing sample programs.

1. Classes and Objects
   To create a class 'staff ', to create different objects and to test the functioning of member functions, constructors and Destructors.

2. Arrays of Objects
   To create Class 'student'
   To create an array of students
   To find out the student who get the first rank

3. Static Polymorphism: operator overloading
   To perform complex number arithmetic or Matrix arithmetic

4. Inheritance
   To create a class 'College'
   To create another class 'department' by using 'college' as a base class
   To verify the functions in the derived and base classes.
   Also to verify by keeping the two functions with same name (one in the base class and another in derived class)

5. Dynamic Polymorphism: virtual function
   To draw various shapes viz Square, Circle, Triangle and Rectangle.

6. Formatted I/O and File operation
   To Test the functions and the manipulators using files
   Mark sheet Processing or Payroll processing of Inventory Management

7. Templates and Exception Handling.

At least three programs should be given as lab exercise in each topic.

CS4503 - RELATIONAL DATABASE MANAGEMENT SYSTEM

Objective:

     To gain knowledge about the DML, DDL operations and to develop a Database with enhanced models and Techniques and to understand about RDBMS, Object oriented Databases and issues.
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Unit I

Database management system: data basics and definitions – schemas and sub schemas tree and plex structures – file addressing – searching – type of database languages. Entity relationship model: entities and entity sets relationships – mapping constraints – E-R. Diagram

Unit II

Relational database management system: relational model – normalization and denormalization – relational structures – relational operators – relational database server architectures – online transaction procession (OLTP) – twelve rules (Codd's rules) – SQL – indexing – optimization – transaction management – locking – access control – data integrity – auditing – backup and recovery – data dictionaries.

Unit III

Oracle SQL: DDL, DML & TCL operations – integrity constraints – string functions – number functions – data arithmetic – conservation and transformation functions – pseudo columns – grouping and ordering data – sub queries – joins – union, intersect & minus – indexes – clusters – views – sequences – synonym – users, roles and privileges – grant and revoke permission – locks.

Unit IV

Pl/Sql: Pl/Sql structure – conditional and unconditional controls – loops – cursors – exceptions – stored procedures and functions – database triggers, Packages, SQL Loader.

Unit V

Front-end tools: SQL *plus – building a report in Sql, why front-end tools? Introduction to front-end – introduction to ODBC.

Recommended Books:

Unit I. 1. James Martin , "Principles of database management"
       2. Henry F. Korth & Abraham Silberschatz "Database system concepts"
Unit II 3. A.J. Page "Relational database concepts selection and implementation"
Unit III, IV & V 1. George Koch & Kevin loney, "Oracle the complete reference"
           2. "Oracle Developer 2000" by Ivan Bayross

Reference books:
1. C.J.Date, "An introduction to database system"
2. Jeffrey D. Ullman, "Principles of database system"
3. "Introduction to Oracle", Oracle Corporation Press.
4. "Introduction to PL/SQL", Oracle Corporation Press.

VISUAL PROGRAMMING AND RDBMS-LAB

1. Building simple application using form object.
2. Working with intrinsic controls.
3. Application with menus.
4. Application with MDI.
5. Queries Using DDL, DML, TCL.
6. Queries using
   a. AND, OR, NOT operation
   b. Union, Intersection, Projection and Join Operation
   c. Sorting and Grouping
7. Nested queries using SQL
8. Built-in functions of SQL
9. Update operations using SQL
10. Use of SQL forms
11. Use of indexes, creating view and querying in views
12. Income Tax calculation
13. Pay -roll system
14. Inventory Processing System
15. Railway / Airway Reservation System.
16. Library Management System.

CL   3 Hrs./Week
II Year/ IV Semester   2 Credits

CS4021 - COMPUTER ORGANISATION AND ARCHITECTURE

Objective:
      To gain knowledge about the architecture of computer and to understand the concepts of CPU, ALU Design, I/O Instruction format and different processors.

Unit I
Digital Logic Circuits (8 hrs.) - Digital Computers - Logic Gates - Boolean Algebra - Map Simplification - Product - of - Sums Simplification - Don't - Care Conditions - Combination Circuits - Flip-Flops - SR, D, JK, T, Edge-Triggered Flip-Flops - Excitation Tables.

Unit II
Digital Components (6 hrs.) - Integrated circuits - Decoders - NAND Gate Decoder - Decoder Expansion - Encoders - Multiplexers - Registers with Parallel Load - Shift Registers - Bidirectional Shift Registers with Parallel Load - Binary Counters with Parallel Load - Memory Unit - RAM - ROM - Types of ROMs.

Unit III
Basic Computer Organization: (10 hrs.) - Data types - Number Systems - Octal & Hexadecimal - Instruction codes - Operation codes - Stored Program Organization - Indirect Address - Effective Address - Computer Registers - Common Bus System - Computer Instructions - Instruction Formats - Instruction Set Completeness - Timing and Control - Clock Pluses - Hardwired Control - Microprogrammed Control - Control Unit - Timing Signals - Instruction Cycle - Fetch and decode - Determine the Type of Instruction - Register - Reference Instructions - Memory - Reference Instructions - AND, ADD, LDA, STA, BUN, BSA, ISZ - Control Flowchart - Input-Output and Interrupt - I/O Configuration - I/O Instructions - Program Interrupt - Interrupt Cycle.

Unit IV
Complete Computer Description (5 hrs.) - Flowchart for Computer Operation - Design of a Basic Computer - Control Logic Gates - Control of Registers and Memory - Control of Single Flip - Flops - Control of Common Bus - Design of Accumulator Logic - Control of AC Register - Adder and Logic Circuit.

Unit V
Central Processor Organization: (13 hrs.) - Introduction - General Register Organization - Control Word - ALU - Example of Micro operations - Stack Organization - LIFO - Stack Pointer - Register Stack - PUSH & POP - Memory Stack - Stack Limits - Instruction Formats - Three Types of CPU Organization - Three, Two, One, Zero - Address, RISC Instructions - Addressing Modes - Mode Field - Implied, Immediate, Register, Register Address, Autoincrement, Autodecrement, Direct Address, Indirect Address, Relative Address, Indexed Address and Base Register Addressing Modes - Numerical Example -

Data Transfer and Manipulation - Set of Basic Operations - Data Transfer Instructions - Data Manipulation Instructions - Arithmetic Instructions - Logical and Bit Manipulation Instructions - Shift Instructions - Program Control - Status Bit Conditions - Conditional Branch Instructions - Numerical Example - Subroutine Call and Return - Program Interrupt - Program Status - Word - Supervisor Mode - Three Types of Interrupts.

Recommended Text Books
1. M. Morris Mano, Computer System Architecture, Prentice Hall of India, III Edition
2.Andrew S. Tanenbaum, Structured Computer Organization, Prentice Hall of India, IV Edition

Reference books
1. William Stallings, Computer Organization and Architecture, Pearson Education, V edition
2. Carl Hamacher, Computer Organization, Mc Graw Hill International, V Edition

MC   6 Hrs./Week
III Year/ V Semester   6 Credits

CS5504 - OPERATING SYSTEM

Objective:

 To gain knowledge about operating system, memory management and scheduling concepts and to study about the basics of OS, process management, Synchronization, memory management and File management.

Unit I
Introduction: What is an operating system – operating system concepts – system calls – operating system structure.

Unit II
Processes and Threads: Process – Inter process communication – Scheduling; Deadlocks: Resources – Introduction to deadlocks – Deadlock detection and recovery – deadlock avoidance – Deadlock Prevention.

Unit III
Memory management: Basic memory management – Swapping – Virtual Memory – Page replacement algorithms – Implementation Issues – Segmentation.

Unit IV
Input / Output: Principles of I/O hardware – Principles of I/O software – I/O software layers – Disks – Character oriented terminals – Graphical user interfaces – Network terminals.

Unit V
File Systems: Files – Directories – File System Implementation – Example file systems – Case study 1: Unix and Linux; Case Study 2 : Windows 2000.

 Recommended Text Book
1. Andrew S.Tanenbaum, Modern Operating Systems, Pearson Education, II Edition.

Reference Books
1. A.Silberschatz et al, Operating System Concepts, John Wiley, VI Edition.
2. H.M.Deitel, An introduction to Operating System, Addison Wesley, II Edition.
3. Godbole, Operating Systems.

CS5505- SOFTWARE ENGINEERING

Objective:
  To gain knowledge about the methodologies behind the software engineering and testing and to better understand the software development life cycle.

Unit I
Introduction: Definition of software and software engineering – Software myths – Software Engineering paradigms: Linear Sequential Model & Prototyping Model Software Project Management – Software Metrics – Software Cost Estimation – Software Project Planning.

Unit II
Software Requirement Analysis: Software Risks – Software Configuration Management System Analysis – Modeling the System Architecture – System Specification – Fundamentals of Requirement Analysis – Software Prototyping – Prototyping method sand tools specification – Software requirements Specifications

Unit III
Structured Analysis: Introduction – the elements of the analysis model – data objects, attributes and relationships – Cardinality and Modality – ERD – DFD – Classical Analysis Methods : DSSD, JSD, SADT.

Unit IV
Software Design: Software Design and Software Engineering – Design and Software Quality – Evolution of Software Design – Design Principles. Design Concepts, Abstraction, Refinement, Modularity – Effective Modular Design, Functional Independence, Cohesion, Coupling.

Unit V
Software Testing Methods: Software Testing Fundamentals – White Box Testing – Black Box Testing – Debugging – Software Quality: McCall's Quality Factors

Recommended Books:
1. Roger S. Pressman "Software Engineering – A Practioner's Approach" McGraw Hill , 4th Edition

Reference books:
1. "Software Engineering – Design Reliability and Management" by Richard Fairley
2. "Software Engineering " by Sommerville, Pearson Education, 7th Edition

MC   6 Hrs./Week
III Year/ V Semester   6 Credits

CS5506 - INTRODUCTION TO DATA COMMUNICATION

Objective:

       To introduce the basic concepts of networks and to give a clear understanding of encoding and data transmission techniques and also exposure to errors in data transmission and rectification is dealt with.

Unit I

Introduction to Data Communication- Networks – Protocols and Standards-Standards Organizations. Basic Concepts: Line configuration – Topology- Transmission Mode-Categories of Networks – Internet-works.

Unit II

The OSI model: The model – Functions of the layers, Signals: Analog and Digital – Aperiodic – periodic Signals – Simples analog signals – Digital Signals.

Unit III

Encoding – Digital -to- Digital – Analog-to-Analog-Transmission of Digital Data: Digital Data Transmission – DTE – DCE Interface - EIA232 Standard.

Unit IV

Modems: Transmission Rate- Modem Standards – Transmission Media: Guided Media – Unguided Media

Unit V

Multiplexing: Many-to-One, One-to-Many – Types – Multiplexing Application - The Telephone System, Error Detection and Correction: types of Errors – Detection – Error Correction.

Recommended Text Book:
1. Behrouz Forouzan, Introduction to Data Communications and Networking, Tata McGraw Hill Edition 1999.

Reference book:
1. William Stallings, "Data & Computer Communications", Sixth Edition, Pearson Education, 2001.
2. Fred Halsall, "Data Communications, Computer Networks and Open Systems", Addison Wessley, 1995.

CS5402- OPERATIONS RESEARCH

Objective:

   To gain knowledge about the Linear Programming problem and travelling salesman problem and inventory problem.

Unit I

Linear Programming: Formulation – Methods of solution – Graphical and simplex method of solution.

Unit II

Duality of LPP - Transportation problems: Initial solution – Methods of improving the initial solution.

Unit III

Assignment Problems – Traveling Salesman Problem - Sequencing and scheduling problems: Job sequencing-n-jobs through two machines, N- jobs through three machines, two jobs through m machines.

Unit IV

PERT and CPM techniques – Constructing the network - Critical path analysis – Float of an activity Three time estimated for PERT – Project Cost by CPM – Normal and crash time.

Unit V

Inventory problems: Deterministic model – costs – decision variables – Economic order quality – Instantaneous receipt of goods with and without shortage – Quantity discount – Inventory systems – Safety stock – Reorder – Level (ROL), Reorder point (ROP)

Recommended Text Book.
   1. P.K. Gupta & Manmohan, "Operation research and quantitative analysis", S. Chand & Company Ltd., 1990

Reference Books
   1. Taha. H.A, "Operations research – an introduction"., Macmillan, International students editions, 1980
   2. Billy B. Gillet, "Introduction to operation Research", TMH Publishing Company Ltd., 1982
   3. S. Hamblin and Steven Jr. "Operation research", McGraw Hill Company 1974.

SE   3 Hrs./Week
III Year/ V Semester   2 Credits

CS5403 - WEB DESIGN

Objective:
  To impart knowledge about the technologies and their applications and to understand the basics of web designing and to use open source tools.

Unit I
HTML: Basic structure – Traditional Text Format- using forms –tables- frames and framesets-image with HTML-creation lists and quotations-URL and Linking-Style Sheets: HTML cascading style sheets-Inline styles-Creating style sheets with the style elements- Building a web page.

Unit II
JavaScript: Introduction to scripting –operators: logical-Increment and decrement operators –Control structures- Functions: Definition-scope rules-recursion-Arrays: Declaring arrays-passing arrays to functions-sorting arrays-object: Math object-string Object-Date object-Boolean object and Number object.

Unit III
VBScript: Adding VBScript to web pages-Handling non supporting browsers-working with variables-arrays-constants-objects and VBScript-Linking VBScript with objects-validity using forms

Unit IV
XML-XML overview- features-HTML XML –processing   instructions-Applications of XML- COMMENTS-XML names spaces-Schema- style sheets: Cascading style sheets (css) Extensible Style Language (XSL)-Document object model (DOM)-DOM methods-SAX

Unit V
Multi media authoring tools: Photoshop: Image Fundamentals- Defining Colors- Painting and Editing –Retouching- Corrective Filtering- Full –court filtering- Layers-The wonders of lend modes- Printing Images.
Flash MX: Interface fundamentals Drawing in Flash –Working with Text-Time line Animation fundamentals -Applying layer types- Adding sound.

Recommended Text Book:

1. H.M Deitel, T.R. Nieto," Internet & World Wide Web How to program", second Edition, prentice Hall of India pvt. Ltd, New Delhi.2003
2. Deke Mc Clelland, " Photoshop 6 for windows Bible", IDG Books India (p) LTD.2001.
3. Robert Reinhardt & Snow Dowd, "Macromedia Flash MX Bible", Wiley publishing inc. 2002

Reference Book:

1. Deitel, Nieto, Lin, Sadhu, "XML HOW TO PROGRAM" Pearson Education,2001

CS5507 - WEB DESIGN-LAB

Objective:

This course highlights the basic concepts of HTML and helps the students to equip with the programming skills in implementing and developing web based applications.

1. Create Application form using various text formats.

2. Create LOYOLA COLLEGE website using HTML tags.

3. Create Mark sheet preparation using HTML.

4. Create style sheets with the style elements.

5. Create calculator format using java script.

6. Create Login format using arrays

7. String manipulation-using functions.

8. Add a simple script using Click event

9. Calculate total amount for the departmental store products.

10. Create Employee details using schemas.

11. Create our department details using CSS.

12. Create Payroll system using XSL.

13. Paint an image.

14. Change the color of the old image to new image.

15. Filter effects.

16. Working with different layers.

17. Creating a banner – Typography.

18. Draw an image in flash.

19. Animation – text and image.

20. Animation with different layers.

21. Adding sounds

22. Working with layers and frames.

CS6655 - DOT NET TECHNOLOGIES

Objective:

To gain knowledge about the methodologies behind VB.Net and ASP.Net and helps the students to develop Dot Net based application using ADO.NET and SQL Managed Provider-OLEDB Managed Provider.

Unit I

Introduction to . NET Framework, Introducing VB.NET: New Object Oriented Capabilities- Inheritance- Parameterized Constructors- Overriding- Overloading- Shared Members- Events- Exception Handling-.NET Framework Class Hierarchy-The System Namespace. File I/O: Using the System.IO Hierarchy- *Streaming text in and out of Text Files*- Object Serialization and Deserialization.

Unit II

Introduction to ADO.NET: Comparison between ADO & ADO.NET—The difference between Connection Model & Disconnected Model – difference between the DataSet and RecordSet- The Dataset Model. Accessing Data using ADO.NET: dataset-DataAdapter-DataRelation. The two Managed Providers: SQL Managed Provider-OLEDB Managed Provider. The ADO.NET Object Model: OleDbConnection /SQLConnection-OleDbCommand/SQLCommand-OleDbDataReader/SQLDataReader-OleDbDataAdapter/SQLDataAdapter-The DataSet. Using the Binding Manager to bind controls to the data - Working with Master-Detail relationship.

Unit III

Differences between ASP and ASP.NET. ASP.NET Web Forms: The code behind Web Form-Separations of content & Business logic-Life Cycle of a Web Form Page-Stages in Web Form Processing

Unit IV

ASP.NET Server Controls. Web Forms Server Controls Recommendation: Validation Controls-Controls that incorporate logic to validate user inputs like a required field, between ranges, or pattern matching. ASP.NET Data Access: Data Binding Server Controls-Viewing Data Collections in a Grid. ASP.NET Caching Mechanism for caching Dynamic response data. Page Output Caching.

Unit V

WebServices: Introduction to webservice-Architecture of Web service: Universal Discovery Description and Integration-Web Service Description Language –Accessing webservice using different Clients.

Recommended Text Books:
1. Chris Ullman, John Kauffman, Beginning ASP.NET 1.1 with VB.NET 2003, Wrox Publication
2. ADO.NET Professional, Wrox Publication
3. Alex Homer, Dave Sussman, Professional ASP.NET 1.1, Wrox Publication
4. .NET Framework, OREILY Publication.

Reference books:
1. Crouch, ASP.NET and VB.NET Web Programming, Pearson Education
1. Richard Blair, Mathew Renolds, Beginning VB.NET 2003, 3rd edition, Wrox Publication
2. Bill Evjen, Billy, Hollis, et al, Professional VB.NET 2003, 3rd edition, Wrox Publication
3. Deitel and Deitel, Visual Basic.NET How to Program, Pearson Education, 2nd edition Greg Buczek, ASP.NET Developer's Guide, Tata McGraw-Hill, 2002.

.NET PROGRAMMING LAB

1. Dynamic Polymorphism
2. Exception Handling
3. File Handling
4. Serialization
5. Array list
6. Fetch data from database using disconnected architecture
7. Fetch data from database using data binding and navigation
8. Fetch data from database using active connection
9. Login page
10. Display number of bits
11. Register page
12. Combo box
13. Output caching
14. Fetch data from XML
15. Web service to perform calculations
16. Client application connected to web services to perform calculation
17. Web service to display data structure
18. Web application using web service data

CS6654 - ADVANCED JAVA PROGRAMMING

Objective:

To obtain the basic knowledge of object oriented programming, concepts of basic JAVA ,advanced JAVA .Server side scripting(JSP) and to understand the detail idea of JAVA programming.

Unit I

Fundamentals of java: Introduction to java- Features of java- basic fundamentals- Access controls-Static and fixed methods-Inner classes-String class-Inheritance-Overriding methods- Using Super- Abstract classes-Packages-Interfaces-Exception Handling-Threads.

Unit II

Applet and AWT: Applets-Events-AWT components-Layouts-Graphics using Swings (JFC)-I/O Streams and File Streams- Introduction about Util package.

Unit III

Servlet and JSP programming: Servlet API-Servlet Life cycle-Html to Servlet Communication-Introduction to JSP-JSP tags-Sessions.

Unit IV

JDBC and Java networking: Database Drivers-SQL package-Networking in java-Sockets-Creating RMI server-Client-Interface-Networking using RMI-JDBC.

Unit V

Enterprise java Beans (EJB): Introduction to EJB-Deployment Descriptors-Session java Bean-Entity java bean-Message-Driven Beans.

Recommended Text Book::
1. Cay.S.Horstmann, Gary Cornell Addison Wesely, ”Core java 2 vol.1-Fundamentals” by, 1999.
2. Kathy Sierra & Bert Bates, ”Head First Java”, O'REILLY publications.
3. P.Naughton and H.Schildt, ”Java 2(Complete Reference)” by fourth Edition.
4. Kathy Sierra & Bert Bates, "Head First Servlets & Jsp" by O'REILLY publications.

Reference book:
1. Jim Keogh, J2EE (Complete Reference)–TMH.
2. Kathy Sierra & Bert Bates, ”Head First Ejb”, O'REILLY publications.

ADVANCED JAVA PROGRAMMING

1) Inheritance and Polymorphism
2) Packages and interfaces
3) Exception Handling
4) Threading and Multithreading
5) Streams and String Classes
6) Applet, layouts and AWT Components
7) Swing components.
8) Util packages
9) Servlets and JSP
10) Session Tracking
11) Cookies.
12) Java Bean components
13) Applications in RMI
14) Connecting Servlet, RMI database using JDBC
15) Simple EJB components

Software needed for this:

JSDK
Tomcat server
BEA Web logic server

CS/CA6609 – WEB PROGRAMMING WITH PHP AND MYSQL

Objective: To earns skill set to develop online information system using the open sources PHP and MySQL.

Unit-I Introduction:

Introduction- open source-PHP – history- features-variables- statements-operators-conditional statements-if-switch-nesting conditions-merging forms with conditional statements-loops-while-do-for – loop iteration with break and continue.

Unit - II Arrays and Functions:

Arrays: Creating an array- modifying array-processing array-grouping form with arrays- using array functions- creating user defined functions- using files- sessions- cookies- executing external programs- Creating sample applications using PHP.

Unit –III Database Management System:

Components of Database system-Definition and benefits of database-Data Independence-Three level of database architecture-Database Management system-Client server architecture-Distributed processing-Domains-Relations-Integrity constraints-Candidate keys-Primary keys-Foreign keys-Functional dependency(Basic definition)-Normal Forms (INF, 2NF, 3NF, BCNF)-ER model – OOAD model.

UNIT-IV MySQL:

Effectiveness of MySQL -MySQL Tools-Prerequisites for MySQL connection-Databases and tables- MySQL data types-Creating and manipulating tables-Insertion, updation and deletion of rows in tables -Retrieving data- Sorting and filtering retrieved data -Advanced data filtering-Data manipulation functions-Aggregate functions -Grouping data- Sub queries- Joining Tables- Set operators-Full text searching.

UNIT-V   PHP with MySQL:

Working MySQL with PHP-database connectivity- usage of MYSQL commands in PHP, processing result sets of queries- handling errors-debugging and diagnostic functions- validating user input through Database layer and Application layer- formatting query output with Character, Numeric, Date and time –sample database applications.

Text Books:

1. VIKRAM VASWANI, "PHP and MySQL", Tata McGraw-Hill, 2005
2. BEN FORTA , "MySQL Crash course " SAMS, 2006.
3. C.J. DATE, "An Introduction to Database Systems", Addison Wesley, Sixth Edition.
4.Ramesh Elmasri and Shamkant B Navathe," Fundamentals of DataBase Systems",Pearson Education,Third Edition.

Reference Books:

1. Tim Converse, Joyce Park and Clark Morgan, "PHP 5 and MySQL",
   Wiley India reprint, 2008.
2. Robert Sheldon, Geoff Moes, "Beginning MySQL", Wrox, 2005.
3. Alexis Leon and Mathews Leon, "Database Management Systems", Vikas, 2008.

CS/CA6610 – WEB PROGRAMMING WITH PHP AND MYSQL - LAB

Objective:

To develop applications in PHP using various concepts like arrays, udf's, Sessions and make the students to understand and to establish the connectivity between PHP and MySQL and develop programs to add records, retrieve records and delete records from a table.

1. Creating simple webpage using PHP
2. Use of conditional statements in PHP
3. Use of looping statements in PHP
4. Creating different types of arrays
5. Usage of array functions
6. Creating user defined functions
7. Creation of files
8. File manipulation using PHP
9. Creation of sessions
10. Creation of cookies
11. Creating simple applications using PHP
12. Creating simple table with constraints
13. Insertion, Updation and Deletion of rows in MYSQL tables
14. Searching of data by different criteria
15. Sorting of data
16. Demonstration of joining tables
17. Usage of subqueries
18. Usage of aggregate functions
19. Working with set operators
20. Working with string, numeric and date functions
21. Database connectivity in PHP with MySQL
22. Validating Input
23. Formatting the Output.

SAMPLE APPLICATIONS USING PHP AND MYSQL