

COS 123 PC HARDWARE AND TROUBLESHOOTING 3Hrs/2Cr

Objective This course will enable student to gain confidence with the internal and external components of computer such as input devices, external devices, memory devices, types of memory. It can also help the student to be able to know various types of graphic adapter, types of printers, modem, sound boards and MIDI.

UNIT I

CPU: Layout of a typical desktop PC – Layout of typical tower PC. Power supply: Connecting the power supply – AT style power connections – Drive power connections – voltage tolerances.

UNIT II

Motherboards: Socket 7, Socket 8 – Layout and connector pin outs of intel motherboard. **Input Devices:** keyboard – construction – interfaces. **Mouse:** construction – mechanical and optical - mechanical sensors – trackball.

UNIT III

Printers: Dot matrix printers – ink jet printers – laser/LED printers- monitors – types of monitor- CRT – Laser – LED - Graphics adapter – VGA -SGA- Digital Visual Interface (DVI)-Video In Video Out (VIVO)

UNIT IV

Essential memory concepts – memory signals – memory package styles and structures. **Parallel port:** Addresses and interrupts – **Serial port:** serial port signals – Accelerated graphics port

UNIT V

Basic modem construction and operation: The internal modem – the external modem – advanced modem features. **Sound boards:** Recording and playback process – MIDI.

Book for Reference:

1. Stephen J. Bieglow, "Troubleshooting, Maintaining and repairing PCs", Tata Mc - Graw 5th edition 2013
2. Craig Zacker & John Rourke, "PC Hardware: The complete reference", Tata Mc - Graw hill, 1st edition 2012.
3. Govindarajulu. B, "IBM PC and clones: Troubleshooting and maintenance", Tata Mc - Graw hill, 2nd edition 2012.

COS 1282 INTRODUCTION TO DATABASE CONCEPTS 3Hrs/2Cr**Objective:**

This course enables the student to expose the fundamentals of Database Management Systems. It helps the student to understand the relational model and to familiarize the student with ER diagrams. In completion of this course the student can able to create and maintain the databases.

UNIT I

Introduction – Purpose of Database System – Views of data – Data Models – Database Languages – Database System Architecture – Database users and Administrator– Entity–Relationship model (E-R model) – E-R Diagrams – Introduction to relational databases

UNIT II

The relational Model – The catalog- Types– Keys - Fundamental operations -Relational Algebra — Additional Operations- - Integrity .

UNIT III

SQL Standards - Data types - Database Objects- DDL-DML-DCL-TCL-Embedded SQL-Static Vs Dynamic SQL - QUERY OPTIMIZATION: Query Processing and Optimization.

UNIT IV

Database Design – Functional Dependencies – Non-loss Decomposition – Functional Dependencies – First, Second, Third Normal Forms, Dependency Preservation – Boyce/Codd Normal Form-Multi-valued Dependencies and Fourth Normal Form – Join Dependencies and Fifth Normal Form.

UNIT V

Transaction Concepts - Transaction Recovery – ACID Properties – System Recovery –Media Recovery – Two Phase Commit - Save Points – SQL Facilities for recovery –Concurrency – Need for Concurrency.

Books for References

1. Abraham Silberschatz, Henry F. Korth, S. Sudharshan, "Database System Concepts", Fifth Edition, Tata McGraw Hill, 2006 (Unit I and Unit-V) .
2. C.J.Date, A.Kannan, S.Swamynathan, "An Introduction to Database Systems",8th Edition, Pearson Education, 2006.(Unit II, III and IV)
3. Ramez Elmasri, Shamkant B. Navathe, "Fundamentals of databaseSystems", Fourth Edition , Pearson / Addison wesley, 2007.

Objective This course will enable student to design 2D images . The student will learn the basics of Adobe Illustrator, CorelDRAW and InDesign. In completion of this course the student will be able to create ,draw and design their own images and publish it.

Unit – I

Illustrator Workspace: Customizing the Workspace, Tools, Using multiple artboards, Rulers, grids, guides and Crop marks – **Drawing:** Drawing Basics, Drawing with Pencil tool, Drawing with Pen tool, Perspective Drawing, Symbols – **Painting:** Painting with fills and Strokes, Brushes, Transparency and blending modes, Gradients, Meshes, Patterns.

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Unit – II

Selecting and arranging Objects: Selecting objects, Grouping and expanding objects, Locking hiding and Deleting objects – **Reshaping Objects:** Transforming objects, Scaling, Shearing and Distorting objects, Blending Objects, Creating 3D objects – **Importing, Exporting and Saving:** Importing files, saving artwork, Exporting artwork

Unit – III

CorelDRAW workspace: Workspace, Working with Dockers, Using the Toolbox - Importing, Exporting, and Saving Design Work: Opening Documents, Saving and closing documents, working with Templates, Importing and Exporting Files –

Unit – IV

Creating Basic Shapes: Rectangle Tool, Ellipse Tool, Polygons, Spiral Tool, Graph paper Tool, Perfect Shape tool .

Unit – IV

Setting Up the Document – Toolbox – Organizing the document: Column Specifications, Rulers, Guides – **Inserting/Formatting Text - Type Menu – Working with Objects:** Links, Placing Images, Enabling Text Warps, Grouping, Locking – **Saving – Exporting to PDF**

Reference Books:

1. Gary David Button, “CorelDraw X5 The Official Guide”, The McGraw-Hill Companies, 2011
2. “Adobe Illustrator CS5 Classroom in a book”, Adobe Systems Incorporated and its Licensors, 2010
3. “Adobe InDesign CS6 Classroom in a book”, Adobe Systems Incorporated and its Licensors, 2010
4. http://help.adobe.com/archive/en_US/illustrator/cs5/illustrator_cs5_help.pdf
5. <http://www.itc.edu.kh/bib/ebook/storage/AdobeInDesignCS6.pdf>

Objective The aim of the course is to give an exposure to the student to create animations and cartooning using Flash. The action scripts are introduced to control and include interactivity in the movie created. In completion of this course the student can able to develop flash animation and write action script.

UNIT I Introduction to Animation - How flash works - Flash tool box - Creating Objects - Drawing characters for cartooning Editing objects - colors and texts - symbols and Instances - Bitmaps.

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UNIT II Frames and layers - Animations in Flash - Key frame animations, Tweened Animations - Motion tween, Shape tween - Guide Layers - Masking - Publishing Flash movies.

UNIT III Action Script Basics - Constructing Action Script - Using Variables, Expressions and Operators, Bitwise Color, Flag variables.

UNIT IV Working with functions - Passing parameters, Scope, Predefined functions.

UNIT V Predefined Objects - Movie Clip and Button Objects, Math Objects, Stage Objects, Mouse and Key Objects, Sound Object - UI components

References:

1. "Adobe flash Professional CS6 Classroom in a book", Adobe Systems Incorporated and its Licensors, 2010
2. http://help.adobe.com/en_US/flash/cs/using/flash_cs5_help.pdf

Lab Component

1. Creating Objects, colors and text
2. Frame-by Frame animation
3. Usage of layers
4. Symbols
 - a. Insertion
 - b. Editing
5. Tweened animation
 - a. Motion tween
 - b. Shape tween

Objective

The objective of the course is to learn basic principles of programming concepts in C. To develop skills for writing programs using 'C'. The student can do many application using C concepts and to improve problem solving abilities.

1. C operators
2. If structure
3. Loops and GOTO
4. Arrays
5. Functions

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6. Recursion
7. String Handling
8. String handling library function
9. Call by value and Call by reference
10. Pointers
11. Memory allocation
12. Structures
13. unions, Bitfield , Typedef and enumerated data type
14. File operations and file functions
15. Random file and command line argument

Lab Component**Objective:**

This course give the concepts of Object Oriented Programming skills. By performing this lab components, the student can solve the real life problems.

1. C++ environment
2. Functions
3. Classes and objects
4. Friend functions
5. Constructor and Destructor
6. Operator Overloading
7. Type conversion
8. Inheritance
9. Pointers
10. Files
11. Templates
12. Exception Handling

Objective

This subject deals with the concepts of C programming language and to learn about algorithms, flowcharts and logical thinking. On successful completion of this course the student have the programming ability in C Language, and the student can do many application using C features

UNIT I

History of C – The C Character Set – Tokens – Identifiers – Keywords – Data Types – Constants – Variables – Operators – Structure of a C program – Formatted input/output functions – Unformatted input/output functions – Data Type Conversions – Control statements – Looping statements.

UNIT II

Arrays – Declaring Arrays – Accessing array elements – Initializing Arrays – Types of Arrays – Strings – String Library Functions.

UNIT III

Functions – Function Prototyping – Return statement – Nested functions – Types of functions – Recursion – Storage classes – Command line arguments – Pointer – Initialization of Pointers – Pointer Arithmetic – Pointers and Arrays – Pointers to Functions – Pointers to Pointers – Passing values to functions – Passing arrays to functions – Memory allocation.

UNIT IV

Structures – Declaration – Definition – Initialization – Nested Structures – Array of Structures – Structures and functions – Structures and pointers – Bits field – Unions.

UNIT V

Files – fscanf() and fprintf() – Character I/O from files – String I/O from files – Error Handling during I/O – Random Access – The Preprocessor.

Books for Reference:

1. Balagurusamy.E, " Programming in ANSI C", Sixth Edition, Tata McGraw Hill-2012.
2. Kanetkar Y, "Let us 'C' ", BPB publications, 2014,
3. Ashok N.Kamthane , "Programming in C" , Pearson Education, 2012.

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. This course helps to inculcate knowledge on Object-oriented programming concepts using C++. The Student can create many kind of application software using this OOPs features.

UNIT I

Introduction to OOP – Object oriented paradigm – OOPs Features – Applications of OOP – Classes and Objects – Accessing class members – Defining member function – Passing objects as arguments – Returning objects from functions – Friend Function – Static data member - Static member functions - Inline Function - Function Overloading.

UNIT II

Constructor and Destructor functions – Types of Constructors – Characteristics of Constructor and Destructor - Operator overloading – Overloading unary and binary operators – Overloading with friend function – Rules for overloading operator.

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UNIT III

Inheritance - Types of Inheritance - Advantages and Disadvantages of Inheritance – Polymorphism - Virtual Function - Pure Virtual Functions – Virtual Base Class – The this pointer – New and Delete Operator

UNIT IV

C++ Streams – Unformatted I/O Operations – Formatted Console I/O Operations - I/O Manipulators – File Handling – Error Handling Function - EOF – File Modes – Command line argument.

UNIT V

Exception Handling – List of Exceptions – Handling Uncaught Exceptions – Templates – Class Templates - Function Templates - Member function Templates - Class Templates and Inheritance.

Book for Reference:

1. Balagurusamy.E, "Object Oriented Programming with C++ ", Sixth Edition -Tata McGraw Hill – 2012.
2. Venugopal.K.R, Rajkumar, Ravishankar.T, "Mastering C++" , Tata McGraw Hill - 2003
3. Ashok N.Kamthane, "Object Oriented Programming with ANSI & Turbo C++", Pearson Education, 2012.
4. Bjarne Stroustrup, "The C++ Programmers Reference", 3rd Edition - Addison Wesley- 2000

**COS 2482 INTRODUCTION TO OBJECT ORIENTED PROGRAMMING USING C++
(TL) 5 Hrs/ 4 Cr**

Objective:

8This course aims at enabling students to understand the basic knowledge of object oriented programming concepts and to understand the idea of C++ streams, templates and error handling concepts. On completion of this course the student will be able to create application software with minimum complexity and more reusability.

Course Outcomes:

At the end of the course the student will be able to:

- i. Compare the procedural and object oriented paradigm.
- ii. Identify the solution for the problems by using OOP.
- iii. Apply the inheritance and polymorphism concept for developing application software.
- iv. Develop programs using file concepts for real world software projects.
- v. Create robust applications using exception handling and templates.

UNIT I

Introduction to OOP: Object oriented paradigm – OOPs Features – Applications of OOP – Classes and Objects: Accessing class members – Defining member function – Passing objects as arguments – Returning objects from functions – Friend Function – Static data member - Static member functions - Inline Function - Function Overloading.

UNIT II

Constructor and Destructor functions: Types of Constructors – Characteristics of Constructor and Destructor - Operator overloading: Overloading unary and binary operators – Overloading with friend function – Rules for overloading operator.

UNIT III

Inheritance: Types of Inheritance - Advantages and Disadvantages of Inheritance – Run time Polymorphism - Virtual Function - Pure Virtual Functions – Virtual Base Class – The this pointer – New and Delete Operator.

UNIT IV

C++ Streams: – Unformatted I/O Operations – Formatted Console I/O Operations - I/O Manipulators – File Handling – Error Handling Function - EOF – File Modes – Command line argument.

UNIT V

Exception Handling: List of Exceptions – Handling Uncaught Exceptions – Templates: Class Templates - Function Templates - Member function Templates - Class Templates and Inheritance.

Text Book:

1. Balagurusamy.E, “Object Oriented Programming with C++ “, Seventh Edition -Tata McGraw Hill – 2017.

References:

1. Kanetkar Y, “Let us ‘C’ “, 16th edition BPB publications, 2017,
2. Ashok N.Kamthane, “Object Oriented Programming with ANSI & Turbo C++”, Pearson Education, 2012.

COS 2483

JAVA PROGRAMMING LAB

4Hrs/4Cr

Objective:

The Objective of the course is to train the student to develop problem solving abilities using java application. It also help the student to build the necessary skill set and analytical abilities for **developing java based software for real life problems.**

Lab Components

1. Working with Array and flow control statement
2. Demonstrate the concept of command line arguments
3. Implementation of Single inheritance
4. Implementation of Multilevel inheritance
5. String Manipulation using Char Array.
6. Calculation of Student Total Mark using Interface
7. Implementing Thread based applications & Exception Handling.
8. File copy program
9. Checking Minimum Bank Balance using Userdefined exception
10. Database Creation for storing E-mail addresses and manipulation.
11. Creation of applet and passing parameter to applet
12. Calculation of Electricity bill using JDBC and Applet
13. Creation of Employee pay bill using JDBC and Swings
14. Login form using JDBC
15. Working with Panel and Layout control
16. Online Exam using JSP
17. Search Engine using JSP
18. Mail web page using JSP

Objective:

This course will enable the student to learn about cloud computing services, its types and architecture. It also helps them to gain knowledge on cloud computing applications, managing and working with cloud security. On completion of this course the student will be able to create an account and utilize various Cloud Services.

Course Outcomes:

At the end of the course the student will be able to:

- i. Understand the benefits of Cloud and its standards for deploying an application.
- ii. Provides the appropriate cloud computing services required to build and deploy the application.
- iii. Utilize the knowledge to manage and deploy virtual servers in an organization.
- iv. Examine the core issues such as security, privacy, and interoperability of cloud computing.
- v. Create applications by utilizing cloud platforms such as Google and Amazon Web Services.

UNIT I

Defining Cloud Computing: Definition - Cloud Types - Characteristics of Cloud Computing - Role of Open standards - Cloud Architecture.

UNIT II

Cloud Computing Stack: Composability - Infrastructure - Platforms - Virtual Appliances - Communication protocols - Applications – Connecting to the cloud - Cloud Services: Infrastructure as a Service - Platform as a Service - Software as a Service.

UNIT III

Identity as a Service - Compliance as a Service - Platforms: Load Balancing and Virtualization–Understanding Hypervisors - Cloud Security: Securing the Cloud.

UNIT IV

Securing the data - Moving applications to the cloud - Cloud Storage: Definition –Cloud storage - Cloud Backup solutions – Introducing Business Continuity and disaster Recovery – Understanding the threats

UNIT V

Moving applications to the Cloud - Case Study: Google Web Services, Amazon Web Services
-Microsoft Cloud Services.

Text Book:

1. Barrie Sosinsky, "Cloud Computing Bible", Wiley India Pvt. Ltd., 2012.

References:

1. Toby Velte,AnthonyVelte,RobertElsenpeter," Cloud Computing, A Practical Approach",McGraw Hill Education,2017.
2. Ray J Rafaels , "Cloud Computing: From Beginning to End",2015.

COS 2581 JAVA PROGRAMMING 5Hrs/5Cr

Objective : The objective of this course is to train the student in core Java concepts and giving exposure to advanced concepts of OOPs which tend to represent real world entities. In this course applet, swings, database interaction through JDBC and JSP are included. In completion of this course the student can able to create interactive web site.

UNIT I

Object oriented Programming concepts - Java features - JVM- Data types –variables - Operators – Control Strings - Arrays - Classes - Objects - Constructors – this keyword – Garbage collection

UNIT II

Method Overloading –Overloading Constructors - Recursion – Access control - Static Function – Command line arguments - Inheritance – Member access and inheritance - Multi level inheritance- – Hierarchical inheritance

UNIT III

Method Overriding – Abstract class - Creating and using packages – Access protection – importing packages-Interfaces- Implementing interfaces – Nested interfaces

UNIT IV

Exception handling – Built in Exceptions- User defined Exceptions - Multithreading - Overview of I/O Streams- Applets - Life cycle of applet- AWT - Event handling - Swings – JDBC –Network Programming

UNIT V

JSP – Basics of JSP – Scripting elements – implicit objects – Directive elements – Action elements – JSP processing model- Developing simple server page

References

1. Balagurusamy “Programming with Java 4e A Primer” Tata Mc Graw Hill 5th Edition 2015
2. Patrick Naughton and Herbert Schildt, “Java 2 The Complete Reference”, Tata Mc Graw Hill 7th edition 2014
3. <https://www3.ntu.edu.sg/home/ehchua/programming/java/JavaServerPages.html>

Objective

The course aims to introduce various components of a movie and sound. This course trains the student to enhance and edit a movie using movie editing tools. The student who have good creativity can visualize their imagination through this course.

UNIT I

Introduction to audio and video file formats – Loading clips – Creating a storyboard – Adding text to storyboard – Adding clips in the timeline – Adding video effects

UNIT II

Obtaining Music – Video editing – Video forms – storyboards and music concepts

UNIT III

Creating 3D text effects and importing into a movie – Adding effects – Mixing audio and video files

UNIT IV

Adding digital effects – Using authoring tools for Audio and video enhancements

UNIT V

Adding titles – Sound overdubs – narration – superimposing images

References:

1. "Adobe Premiere Pro CS6 Classroom in a Book", 2013 Adobe Systems Incorporated and its licensors.
2. http://help.adobe.com/archive/en/premiere-pro/cs6/premiere_pro_reference.pdf
3. Manuals of Adobe Premiere, Ulead 3D text

Objective This course is intended to provide an introduction to firewalls and other network security components that can work together to create an in-depth defensive perimeter around LAN. This course also provides knowledge on other elements like packet filtering, encryption, proxy servers and virtual private networks. In completion of this course the student will be able to secure a network.

UNIT I

Security Policy – Goals of security policy – steps to build security policy

UNIT II

Firewall – types – limitations – firewall – types – limitations – Architecture, function of firewall

UNIT III

Packet filtering – approaches – packet filter rules - proxy server – overview – goals – choosing proxy server - authenticating users

UNIT IV

Encryption – cost of encryption – preserving data integrity – maintaining confidentiality - Digital Certificates – Public and Private keys – encryption schemes

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UNIT V

Virtual private network – components – operations – advantages and disadvantages – Types of VPN – VPN setup

References Books

1. Holden, "Guide to firewalls and Network security", Vijay Nicole publications, 2005
2. Christopher M king, Curtis E. Dalton, T.Ertem Osmanoglu, "Security Architecture Design, Deployment & Operations", Osborne/McGraw-Hill, 2001
3. William stallings, "Cryptography & Network Security Principles & Practice" (Second Edition), PHI, 1998.

Objective: The objective of the course is to enable the student to understand the evolution of ERP, related technologies, benefits and types of modules. In completion of this course the student will improve necessary skills such as Improve Service Experience, Enhance Competitiveness, Automate Business Solutions and Increase Operating Efficiency

UNIT I

Introduction to ERP- Its Evolution, its Growth, Its Advantages , Its need, Integrated Management information, Business Modeling, Integrated Data Model. Chain – Supply and demand chain-Extended Supply chain.

UNIT II

ERP and Related Technologies- BPR, MIS, DSS, EIS, Data Warehousing, Data Mining, OLAP . A Manufacturing Perspective-MRP, BOM, Closed Loop MRP,MRP-II,DRP,JIT and Kanban, CAD/CAM, PDM, Data Management, Benefits of PDM,MTO and MTS,ATO,CRM.

UNIT III

Benefits of ERP, ERP Modules – Finance, Plant Maintenance, Quality Management, Materials Management. ERP Market : SAP AG, People Soft, BAAN and ORACLE, JD Edwards.

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UNIT IV

ERP Implementation Life Cycle – Pro-evaluation Screening, package Evaluation, Project planning phase, Gap – Analysis, reengineering, Configuration, implementation team-Training, Testing ,Going Live, END-User Training .Post implementation, Business Models and BAPIs. Convergence on Windows NT, Application platforms, New Business segment and Features

UNIT V

ERP Procurement Issues – Market Trends – Outsourcing ERP – Economics – Hidden Cost Issues – ROI – Analysis of cases from five companies.

REFERENCE BOOKS:

1. Alexis Leon , “Enterprise Resource Planning” – Third Edition Tata McGraw-Hill, New Delhi.
2. Alexis Leon, “ERP Demystified”, Tata McGraw Hill
3. Rahul V. Altekar “Enterprisewide Resource Planning”, Tata McGraw Hill,

Objective:

This course enables the student to learn the basics of Data mining, Data warehouse concepts and Big data. It aims at improving the timeliness and quality of information. On completion of this course the student will be able to develop business skill such as globally access information, Easy-to-use reporting, the ability to respond with speed and agility to change business condition.

Course Outcomes:

At the end of the course, students will be able to

- i. Classify steps in data mining process, functionalities and data mining techniques.
- ii. Apply association rule mining in various data mining application.
- iii. Examine multidimensional model to create data warehouse.
- iv. Appraise data warehouse implementation and map data house to multiprocessor architecture.
- v. Utilize the concept of big data to predict analysis and report.

UNIT I

Databases - Data Mining Functionalities - Steps in Data Mining Process-Architecture of a Typical Data Mining System - Classification of Data Mining Systems - Overview of Data Mining Techniques.

UNIT II

Data Mining Functionalities - Association Rule Mining - Mining Frequent Item sets with and without Candidate Generation - Mining Various Kinds of Association Rules - Constraint-Based Association Mining.

UNIT III

Data Warehousing - Operational Database Systems vs. Data Warehouses - Multidimensional Data Model - Schemas for Multidimensional Databases – Data Warehouse Architecture

UNIT IV

Data to Multiprocessor Architecture - OLAP Operations – Need - Categorization of OLAP Tools Warehousing Components - Data Warehouse Implementation - Mapping the Data Warehouse

UNIT V

Introduction to BigData Platform – Challenges of Conventional Systems - Intelligent data analysis – Nature of Data - Analytic Processes and Tools - Analysis vs Reporting - Modern Data Analytic Tools - Statistical Concepts: Sampling Distributions - Re-Sampling - Statistical Inference - Prediction Error.

Text Book:

1. Jiawei Han and MichelineKamber, “Data Mining Concepts and Techniques” Second Edition, Elsevier, Reprinted 2012

References:

2. BERSON, ALEX & SMITH, STEPHEN J, “Data Warehousing, Data Mining, and OLAP”, TMH Pub.Co. Ltd, New Delhi, 2012.
3. PRABHU “DataWarehousing, PHI Learning Private Limited” New Delhi, 2012.
4. PONNIAH, PAULRAJ, “DataWarehousing Fundamentals”, JohnWiley& Sons, New Delhi, 2011.
5. Michael Minelli, Michele Chambers ,AmbigaDhira, “Big Data, BigAnalytics Emerging Business Intelligence and Analytic Trends for Today's Businesses,”, Wiley Publications,2013.

Objective:

The objective of this course is to enable the student to develop web pages using Mark up languages, PHP and MySql. It also gives exposure to maintain the websites developed. In completion of this course the student will be able to develop Dynamic Websites.

Course Outcomes:

At the end of the course, students will be able to

- i. Identify the basics of Internet programming using HTML and CSS.
- ii. Build webpages using client side scripting language like Javascript.
- iii. Explain functional elements of PHP.
- iv. Create Dynamic web page using PHP
- v. Design interactive web page using PHP and MYSQL

UNIT - I

Introduction to HTML : Document type, sections of HTML document, creating a HTML page –Tables – Links and Images: Adding Links, Adding Images –CSS: Introduction, Connecting CSS to a page, Targeting Styles, changing fonts, Adding borders, Creating Page layouts – Web Forms: Using Web Forms, Creating a form.

UNIT - II

Introduction to Javascript: Adding the JavaScript tag, Adding JavaScript to HTML pages, Using external JavaScript - Building a JavaScript program: JavaScript Programming, Functions, Objects – Adding jQuery: Introduction, Installing jQuery, Adding jQuery to a page, Working with HTML using jQuery.

UNIT - III

Introduction to PHP: Structure of PHP script, Syntax, Variables, Constants, Data types, Arrays – Building PHP scripts: Setting up conditions, Conditional Statements, Repeating Actions with Loop, Using Functions, Organizing Scripts.

UNIT - IV

PHP and Your Operating System: Managing Files, USING FTP, Reading and Writing Files – Object-Oriented Programming: Introduction, Developing object-oriented script, class, Using a

class, Handling Errors with Exceptions, PHP security: Securing the Server, Handling Errors Safely.

Unit – V

Introduction to MySQL: Understanding Database Structure, Communicating with MySQL, Administrating MySQL: Controlling Access to your Data, Backing Up your Database, Restoring Your Data – Designing and Building a Database: Designing a Database, Building a Database – Using the Database : Data Manipulations– Communicating with the Database from PHP scripts: PHP functions that Communicate with MySQL, Communicating with MySQL.

Text Book

1. Steve Suehring, Janet Valade, “PHP, MySQL, JavaScript & HTML5 All-in-One for Dummies”, John Wiley and Sons, Inc, 1st edition, 2013.

COS 3682	NET PROGRAMMING (TL)	6Hrs/6Cr
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Objective:

The objective of the course is to understand the fundamental concepts of .net framework, Visual Basic.Net, ADO.NET and enable the student to write programs. Also this course includes a detail description on .NET framework, VB.NET, ASP.NET, Web service and ADO.NET, In completion of this course the student can able to develop window and dynamic web application.

UNIT I

Introduction to .NET Evolution - .NET platform – advantage of .NET – working of .NET, - .NET framework – common language runtime (CLR) – Basic Architecture of .NET framework – common language specification

UNIT II

Introduction to VB.NET – Data types and operators – control statement – Arrays

UNIT III

Procedures and structures – OOPs in VB.NET – Delegates – Event Handling – Exception Handling – Working with forms

UNIT IV

Concept of Database – database models – overview of ODBC – Introduction to ADO.NET - ADO.NET component model - ADO.NET Architecture – windows application using ADO.NET – Advantages of using ADO.NET – Data access with XML – Crystal Report

UNIT V

Introduction ASP.NET – Features of ASP.NET, Structure of an ASP.NET webpage – using common web controls – Creating simple web applications – creating web application using database connectivity – web services

References:

1. Shirish Chavan, "Visual Basic .Net", Dorling Kindersley(India)Private limited, 3rd Edition, 2009
2. P. Radhaganesan, "VB.NET", SCITECH Publication (India) Pvt. Ltd. 3rd Edition, 2008.
3. Vikas Gupta, ".Net Programming", Kogent Solutions Inc. 2007- edition
4. Mac Donald, Dan Mabbutt, Adam "ASP.NET ",Springer (INDIA) Private limited, 3rd Edition, 2011

Objective

The main objective of the project development lab is to introduce the student to the methodology for solving a problem and preparing a report using the steps of software engineering. The course also aims at improving the project developments skills of the student by giving required lab practices. It helps to motivate them to work in emerging/latest technologies. It can also helps the student to develop ability, to apply theoretical and practical tools/techniques to solve real life problems.

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Based on case study the following lab components need to be done by student

1. Planning a problem
2. Analyzing the problem
3. Requirement analysis
4. Designing prototype
5. Table Design
6. Data Flow Diagram
7. Coding
8. Testing
9. Implementation
10. Maintenance

Suggested Case study topics:

Student has to take any one of the topic listed below other than he/she selected in Project Development lab I

1. Client/server application
2. Network Security
3. Embedded System
4. Image Processing
5. Data Mining
6. Distributed Networks
7. Software Engineering
8. Mobile Computing
9. Parallel And Distributed Systems
10. Grid Computing

Objective:

The aim of the course is to train the student to analyze, estimate and design a new software with quality standards. In this paper, basic concepts in Software engineering, software processes, various software engineering paradigms, Requirements Engineering various analysis and design strategies are incorporated, Software testing methods and quality maintenance strategies are included. In completion of this course the student can able to develop any kind of software by using steps of SDLC

UNIT I

Software Characteristics – Introduction to Software Engineering – Factors Influencing quality and productivity – Software Process – CMM – PSP – TSP – Software Engineering Models – Cost Estimation – Feasibility Analysis – Software Project Management

UNIT II

System Engineering – Requirement Engineering – Requirements Documentation – Requirement Elicitation – Requirement Analysis and Negotiation – Requirement validation – Requirement Management

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UNIT III

System Analysis – Information Flow Analysis – DSSD – OOA – Use Case Modelling – Class Modelling – Design Engineering – Creating Architectural Design – Modelling Component level design – User Interface design – Transform and Transaction Analysis – OOD

UNIT IV

Introduction - UML - Goals - Types of UML diagrams – Object Class diagram - Object diagram - Use case diagram - Sequence diagram - Collaboration diagram - Activity diagram - State chart diagram - Deployment diagram - Component diagram.

UNIT V

Testing principles- Testing strategies – Unit testing – Integration testing – White Box Test - Black Box Testing – OOTM – Domain Testing – Implementation – Software Maintenance – Issues in Maintenance – Software Quality and Quality Assurance .

References:

1. Roger S. Pressmen, "Software Engineering A Practioners Approach", Tata McGraw Hill, 7th Edition, 2010
2. Richard Fairley, "Software Engineering", Tata McGraw – Hill Education Private limited, 2nd edition, 2008
3. William Henry, "Effective Methods Of Software Testing", International book house Pvt.Ltd, 2nd Edition, 2008
4. Richard Fairley, "Software Engineering Concepts" , Tata McGraw – Hill Education Private limited, 2012-Edition .

Objective:

The objective of this course is to enable the student to understand the program concept such as functions, modules, files I/O, Exceptions, OOP concepts and My SQL database. It helps the student to create real world IOT application using Python.

Course Outcomes:

At the end of the course, students will be able to

- i. Identify python identifiers, data types, operators and expressions.
- ii. Explain tuples, list and dictionary concept.
- iii. Build application using functions, strings and date.
- iv. Create files, modules and user defined exceptions in applications.
- v. **Generate innovative IOT application using oop concept with databases.**

UNIT I

Introduction to Python: Introduction - Python overview - comments – Identifiers – Reserved keywords – Variables – Data types – Operators – Statements and Expressions – String operations – Boolean expressions- Control statements – Iteration statements – Input from keyword.

UNIT II

Tuple: Creating tuple – Accessing tuple – Tuple assignment – Tuple as return value – Basic tuple operators and functions – Lists: value & Accessing elements – Deleting elements from list – Built in list operators and methods Dictionaries : Accessing values in dictionary - Updating dictionary – Deleting elements from dictionary – Properties of dictionary keys – Built in dictionary functions and methods

UNIT III

Function: Built in Functions – User defined Functions – Python Recursive Function – Writing Python Scripting – Strings : Introduction – String handling functions – String formatting operator and functions - Date & time: Tick – Calendar module – Time module

COS 11

UNIT V

Moving applications to the Cloud - Case Study: Google Web Services, Amazon Web Services - Microsoft Cloud Services.

Text Book:

1. Barrie Sosinsky, "Cloud Computing Bible", Wiley India Pvt. Ltd., 2012.

References:

1. Toby Velte, Anthony Velte, Robert Elsenpeter, "Cloud Computing, A Practical Approach", McGraw Hill Education, 2017.
2. Ray J Rafaels, "Cloud Computing: From Beginning to End", 2015.