

ARUL ANANDAR COLLEGE (AUTONOMOUS)- KARUMATHUR
DEPARTMENT OF COMPUTER APPLICATIONS

POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS
(PGDCA)

SYLLABUS

SEMESTER	SUB. CODE	TITLE OF THE PAPER
1	18PPDC11	Basics of Information Technology
	18PPDC21	Operating System
	18PPDC31	Exploring Office Automation & 2D Animation
	18PPDP11	Office Automation Lab
	18PPDP21	2D Animation Lab
II	18PPDC42	Visual Programming
	18PPDC52	Web Technology
	18PPDC62	Software Engineering
	18PPDP32	Web Technology Lab
	18PPDC72	Project

Class : PGDCA
Hours : 60 Hours

Semester : I
Subject Code : 18PPDC11

Objectives

- Make the student to understand the components of Information Technology
- Helps to understand the Computer Network & Internet Concepts

Unit I (12 Hours)

Introduction to IT – Data Vs Information – Components of Information Technology – Applications of Information Technology in various domains – Introduction to various information systems.

Unit II (12 Hours)

Hardware: Various types of computers – Input devices – storage devices – output devices. Software : Languages – packages – operating systems – Introduction to open source.

Unit III (12 Hours)

Computer Networks : Benefits – Types of networks – Networking Components – Network Topology – Introduction to network protocols.

Unit IV (12 Hours)

Evolution of internet - Internet Vs WWW – IP addresses – Domain Name Systems - Web browsers – static and dynamic web pages - e-mails – web search engines.

Unit V (12 Hours)

Security : Needs for security – Types of threats – detection and prevention - methods – components – back up and recovery – recent trends in information security.

Text Books:

1. Brain, K. Williams, et. al., Using Information Technology, Third edition, TMH.
2. Turban, Rainer, Potter, Introduction to Information Technology, Second Edition, Wiley Publications.
3. Dennis P. Curtin, et.al., Information Technology - The Breaking View, TMH.

OPERATING SYSTEM

Class : PGDCA
Hours : 60 Hours

Semester : I
Subject Code : 18PPDC21

Objectives:

- To help the students to get detailed knowledge of the various functions in OS
- To learn various techniques and algorithms used by operating systems

UNIT I: (12 Hours)

Introduction: Views- Goals - Types of System- OS Structure - Components - Services - System Structure - Layered Approach - Virtual Machines - System Design and Implementation. Process Management: Process - Process Scheduling - Cooperating Process - Treads - Inter-process Communication. CPU Scheduling: CPU Schedulers - Scheduling Criteria - Scheduling Algorithms.

UNIT II: (12 Hours)

Process Synchronization: Critical-Section Problem - Synchronization Hardware - Semaphores Classical Problems of Synchronization - Critical Region - Monitors. Deadlocks: Characterization- Methods for Handling Deadlocks - Deadlock Prevention - Avoidance - Detection - Recovery.

UNIT III: (12 Hours)

Memory Management: Address Binding - Dynamic Loading and Linking - Overlays - Logical and Physical Address Space - Contiguous Allocation - Internal & External Fragmentation. Non-Contiguous Allocation: Paging and Segmentation Schemes - Implementation - Hardware-Protection - Sharing - Fragmentation.

UNIT IV: (12 Hours)

Virtual Memory: Demand Paging - Page Replacement - Page Replacement Algorithms - Thrashing. File System: File Concepts - Access Methods - Directory Structures - Protection Consistency Semantics - File System Structures - Allocation Methods - Free Space Management.

UNIT V (12 Hours)

I/O System: Overview - I/O Hardware - Application I/O Interface - Kernel I/O Subsystem - Transforming I/O Requests to Hardware Operations - Performance. Secondary Storage Structures: Protection - Goals - Domain - Access matrix - The Security Problem - Authentication - Threats - Threat Monitoring - Encryption.

Text Book:

1. A. Silberschatz P.B.Galvin, Gange., 'Operating System Concepts', 6th Edn., Addison-Wesley Publishing Co., 2002.

Reference Books:

1. H.M. Deitel, An Introduction to Operating System, Second Edition, Addison Wesley, 1990.
2. Tenenbaum, Andrew S., Modern Operating Systems, 2nd Edition 1996, Prentice Hall of India, New Delhi.

EXPLORING OFFICE AUTOMATION & 2D ANIMATION

Class : PGDCA

Semester : I

Hours : 60 Hours

Subject Code : 18PPDC31

Objectives:

- To provide an in-depth training in use of Office Automation packages and 2D Animation Packages.

UNIT I MS WORD (12 Hours)

MS Word: Features, Creating, Saving and Opening Documents in Word, Interface, Toolbars, Ruler, Menus, Keyboard 100 Shortcut, Editing, Previewing, Printing, & Formatting a Document, Advanced Features of MS Word, Find & Replace, Using Thesaurus, Using Auto- Multiple Functions, Mail Merge, Handling Graphics, Tables & Charts, Converting a word document into various formats like- Text, Rich Text format, Word perfect, HTML, PDF etc.

UNIT II MS EXCEL (12 Hours)

Worksheet basics, creating worksheet, entering into worksheet, heading information, data, text, dates, alphanumeric values, saving & quitting worksheet, Opening and moving around in an existing worksheet, Toolbars and Menus, Keyboard shortcuts, Working with single and multiple workbook, working with formulae & cell referencing, Auto sum, Coping formulae, Absolute & relative addressing, Worksheet with ranges, formatting of worksheet, Previewing & Printing worksheet, Graphs and charts, Database, Creating and Using macros, Multiple worksheets- concepts, creating and using

UNIT III MS POWER POINT (12 Hours)

MS Power point: Introduction to presentation—Opening new presentation—templates – Setting backgrounds – layouts. **Formatting a Presentation:** Adding style – Color - gradient fills - Arranging objects - Adding Header & Footer - Slide Background - Slide layout. Adding Graphics to the Presentation- Inserting pictures – movies – tables - Drawing Pictures. **Adding Effects to the Presentation-** Setting Animation & transition effect. **Printing Handouts:** Generating Standalone Presentation viewer.

UNIT IV (PHOTOSHOP) (12 Hours)

Introduction to Adobe Photoshop - Navigating Photoshop - Menus and panels - Opening new files - Opening existing files - Exploring the Toolbox , Applications Bar & the Options Bar- Working with Multiple Images-The Image Size Command - Resizing for Print & Web - Adjusting Canvas Size & Canvas Rotation - Getting Started with - Understanding the Background Layer - Creating, Selecting, Linking & Deleting Layers- Locking & Merging Layers Copying Layers- Masking Layers - Introduction to Blending Modes - Blending Modes, Opacity & Fill - Creating & Modifying Text - Creating Special Effects

UNIT V (FLASH) (12 Hours)

Introduction to Adobe Flash – Getting Started : Creating Shapes - Using the Primitive Tools - Drawing with Pen, Pencil and Line Tools - Editing Shapes - Using the Selection Tools -Managing Color and Gradients- Importing Files– Timeline : Timeline Basics - Create a Span of Frames & Control the Playhead - Creating Keyframes - Insert Blank Keyframes & Clear Keyframes - Frameby-Frame Animation & Onion Skin - Layer - working with layers - Flash Buttons - Creating

a Motion Tween: Adding a Motion Tween - Setting Property Key frames for Scale & Rotation -
Creating a Motion Tween from a Shape- Easing Keyframes- Text Animation

Text Books

1. Dinesh Maidasani, Fundamentals of Information Technology including MS-Office, 2010, Laxmi Publication, New Delhi.
2. James L. Mohles. 2000, Flash 5.0 Graphics, Animation & Interaction, Macromedia.
3. Richard Schrand. 2000, Photoshop 6 Visual Jumpstrat, Adobe Press.

Reference Books

1. Susan H Cooperman, Professional Office Procedure, Prentice Hall, New Delhi.
2. Meenakshi GM. 2007, Web Graphics, SCITECH Publication.

Reference Book

1. Susan H Cooperman, Professional Office Procedure, Prentice Hall, New Delhi.

Class : PGDCA
Hours : 60 Hours

Semester : I
Subject Code : 18PPDP11

MS-OFFICE

1. Create personal letter
2. Create Company Letter
3. Create company letter head
4. Create a Memo
5. Create a resume
6. Create greeting card
7. Create Cover Page of Project
8. Mail merge letter

MS-EXCEL

9. Create worksheet & Apply numeric function
10. Report of Pay bill
11. Student Result
12. Bar Charts
13. Pie Charts

MS-Powerpoint

14. Create Simple Presentation
15. Apply background and slide design
16. Apply Graphic Effects to the Presentation
17. Create Links in the Presentation

2D ANIMATION LAB

Class : PGDCA

Semester : I

Hours : 60 Hours

Subject Code : 18PPDP21

ADOBE PHOTOSHOP

1. Design a visiting card
2. Display information with background image.
3. Design the over page for the book
4. Usage of different selection tool
5. Procedure to position the picture preferably on a plain
6. Rotation and scaling.
7. Apply the effects shadow & Emboss
8. Prepare cover page for a book
9. Adjust Brightness and Contrast
10. Apply Layer Effects
11. Organize different picture in a single layer

ADOBE FLASH

12. Create an animation to represent the growing moon.
13. Create an animation to indicate a ball Bouncing on steps.
14. Simulate the movement of a cloud.
15. Draw the fan blades and to give proper animation.
16. Text Animation – 1
17. Text Animation – II (using keyframes)
18. Create animation to simulate a ball hitting another ball.
19. Animated cursor
20. Animation to change a circle into a square using flash.

Class : PGDCA
Hours : 60 Hours

Semester : II
Subject Code : 18PPDC42

Objective

Train the students to develop and design Web Programming using .Net Framework
Make them to understand the concepts of interface, exception handling and database access through objects

UNIT I

(12 Hours)

.NET FRAMEWORK AND VB.NET: Evolution of the .NET Framework – Overview of the .Net Framework – VB.NET – Simple VB.Net Program. **VARIABLES, CONSTANTS AND EXPRESSIONS:** Value Types and Reference Types – Variable Declarations and Initializations – Boxing and Unboxing – Arithmetic Operators – Textbox Control – Label Control – Button Control.

UNIT II

(12 Hours)

CONTROL STATEMENTS: If Statements – Radio Button Control – Check Box Control – Group Box Control – Listbox Control – Checked List Box Control – Combo box Control – Select Case Statement – While Statement – Do Statement – For Statement. **METHODS AND ARRAYS:** Types of Methods – One Dimensional Array – Multi Dimensional Arrays – Jagged Arrays. **CLASSES:** Definition And Usage of a Class – Constructor Overloading – Copy Constructor – Instance and Shared Class Members – Shared Constructors.

UNIT III

(12 Hours)

INHERITANCE AND POLYMORPHISM: Virtual Methods – Abstract Class and Abstract Methods – Sealed Classes. **INTERFACES, NAMESPACES AND COMPONENTS:** Definition of Interfaces – Multiple Implementations of Interfaces – Interface Inheritance – Namespaces – Components – Access Modifiers. **EVENTS AND ATTRIBUTES**

UNIT IV

(12 Hours)

EXCEPTION HANDLING: Default Exception Handling Mechanism – User Defined Exception Handling Mechanism – Throw Statement – Custom Exception. **I/O STREAMS:** Binary Data Files – Text Files - Data Files – File Info and Directory Info Classes.

UNIT V

(12 Hours)

ADDITIONAL CONTROLS: Timer – Progress Bar – Link Label – Panel – Tree View – Splitter – Menu – SDI & MDI – Dialog Boxes – Toolbar – Status Bar. **DATABASE CONNECTIVITY:** Advantages Of ADO.NET – Managed Data Providers – Developing a Simple ADO.NET Based Application – Creation of Data Table – Retrieving Data From Tables – Table Updating – Disconnected Data Access Through Dataset Objects.

TEXT BOOK

1. C. Muthu, "Visual Basic.NET", 2nd Ed., Vijay Nicole Imprints Pvt. Ltd., 2008.

REFERENCE BOOK

1. Peter Aitken's, "Visual Basic .NET Programming" 1st Ed., Dream Tech Press., 2002.

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DEPARTMENT OF COMPUTER APPLICATIONS

WEB TECHNOLOGY

Class : PGDCA
Hours : 60 Hours

Semester : I
Subject Code : 18PPDC52

Objectives:

- To develop the skill of developing and designing a complete Web Site Procedures by using HTML, CSS and JavaScript.

UNIT I (HTML – I)

(12 Hours)

HTML introduction – SGML – DTD – DTD Elements – Attributes – Out line of HTML Documents – Head Section - Prologue – Link – Base – Meta – Script – Style – Body Section - Headers – Paragraphs – Text Formatting.

UNIT II (HTML – II)

(12 Hours)

Linking – Internal Linking – Embedding Images – Lists – Tables – Frames – Other Special Tags and Characters.

UNIT III CSS

(12 Hours)

Introduction : CSS Syntax – ways Of inserting CSS - CSS Fonts – CSS Color – CSS Backgrounds – CSS Borders- CSS Margin- CSS Link. CSS Alignment: Position, Margin, height and width - Class & ID Concepts- Design the form using CSS.

Unit – IV (JAVA SCRIPT – I)

(12 Hours)

Javascript : Client side scripting, What is Javascript, How to develop Javascript, simple Javascript, variables, functions, conditions, loops and repetition

Unit – V (JAVA SCRIPT – I)

(12 Hours)

Advance script, Javascript and objects, Javascript own objects, the DOM and web browser environments, forms and validations

Text Books:

1. Steven E. Callihan. II Edition, Learn HTML, PHI.
2. Meenakshi GM. 2007, Web Graphics, SCITECH Publication.

SOFTWARE ENGINEERING

Class : PGDCA
Hours : 60 Hours

Semester : II
Subject Code : 18PPDC62

Objectives:

- To help the students to get conceptual knowledge required for various methods.
- Help the students to understand various software design methodologies & testing fundamentals

UNIT I (12 Hours)

Software: Characteristics, Components, Applications. **Software Process Models:** Waterfall, Spiral, Prototyping, Fourth Generation Techniques, Concepts of Project Management, Role of Metrics & Measurements.

UNIT II (12 Hours)

S/W Project Planning: Objectives, Decomposition techniques: S/W Sizing, Problem-based estimation, Process based estimation, Cost Estimation Models: COCOMO Model, The S/W Equation.

UNIT III (12 Hours)

System Analysis: Principles of Structured Analysis, Requirement analysis, DFD, EntityRelationship diagram, Data dictionary.

Unit IV (12 Hours)

S/W Design: Objectives, Principles, Concepts, Design methodologies: Data design, Architectural Design, procedural design, Object -oriented concepts

Unit V (12 Hours)

Testing fundamentals: Objectives, principles, testability, Test cases: White box & Black Box testing, Testing strategies: verification & validation, unit test, integration testing, validation testing, system testing.

Text Book:

1. Roger. S. Pressman, Software Engineering - A Practitioner's Approach, 7th Edition, McGraw Hill, 2010.

Reference Books

1. Rajib Mall, "Fundamental of Software Engineering ", 3rd edition, PHI, 2009.
2. Naseeb Singh Gill, "Software Engineering: Software reliability, testing and quality, Khanna Book Publishing, 2011.

Class : PGDCA

Semester : II

Hours :

Subject Code : 18PPDP32

1. Introduction to web design.
2. Text, color, background and font elements
3. Design a bio-data
4. Create a webpage with four frames (picture, table, list, and hyperlink)
5. Font Formatting Tags
6. Create a webpage to show the block level elements and text level elements
7. Ordered list and unordered list
8. To show class time table.
9. To create a web page using style sheet
10. To create a web page to show registration form
11. To show books in inventory in different tables by using rowspan and colspan.
12. Write a program to create a nested list.
13. Demonstrating use of Operators
14. Demonstrating use of Conditional Structures
15. Demonstrating use of Loops
16. Demonstrating use of Jumping Statements
17. Demonstrating Document Object
18. Demonstrating use of Forms
19. Demonstrating use of Events

DEPARTMENT OF COMPUTER APPLICATIONS

PROJECT WORK

Class : PGDCA

Semester : II

Hours :

Subject Code : 18PPDC72

Objective:

To enable the student to have a general idea of the project in the company. This would teach students in different aspects of analysis, design and implementation of the software development according to the industry requirement.

Guidelines

The student are expected to work on a chosen topics, under the guidance of a supervisor approved by the department in the lab during the project hours. Students are instructed to submit one softcopy of the thesis in CD and three hard copies in the department.

Examination

The thesis will be evaluated by the expert panel consisting of the internal examiner and an external examiner who are appointed by the Controller of Examination. The candidate will be examined by a viva-voce examination and the thesis will be graded as shown below.

Excellent	-	85% and above
Very Good	-	75% and above but below 85%
Good	-	60% and above but below 75%
Satisfactory	-	50% and above but below 60%
Rejected	-	Less than 50%

Section	Description	Marks	Answer
PART – A	(5 out of 5) Each Unit Carries one question	5 x 3 = 15 Marks	At least 25 words
PART – B	(5 out of 5) Each Unit Carries one question with either or choice form Note: There are no Subdivisions	5 x 8 = 40 Marks	At least 150 words
PART-C	(3 out of 5) Each Unit Carries one question	3 x 15=45 Marks	At least 300 words
	TOTAL	100 Marks	