SCHEME OF STUDIES & EVALUATION PLAN FOR ONE YEAR DIPLOMA IN <u>INFORMATION TECHNOLOGY COURSE (2011)</u>

<p align="center">Diploma in information Technology</p>

<p align="center">PART-1/ FIRST SEMESTER</p>

Information & Communication Technology (ICT)

1. Introduction to information technology

  a) Information Technology

  b) Data types of data

  c) information

  d) History of computing

  e) Introduction to computer hardware and trouble shooting concepts

2. Introduction to computer Hardware

  a) Introduction to the personal Computer

  b)   safe Lab procedures and Tool Use

  c) Computer Assemble Step-by-Step

  d)   Basics of preventive Maintenance and Troubleshooting.

  e) Fundamental Operating System

  f) Fundamental Laptops and portable Devices

  g) Fundamental printers and Scanners.

3. Storage Devices

  a) Main / primary memory (RAM, ROM)

  b) Secondary / Auxiliary Storage Devices

  c) (Hard Disk, CD-ROM, Magnetic tape, Magnetic drum), USB

  d) Introduction of Microprocessor

  e) Basic Architecture of microprocessor

  f) Introduction of different technologies of microprocessors

4. Software design and algorithm:

  a) Software

  b) System Software

  c) Application Software

  d) Flow Charts

  e) concepts of programming languages & their types

  f) compiler

  g) Interpreter

  h) Assembler

5. Productive Enhancement Software Packages

  a) Introduction of Word Processors, Spread Sheets, Database

  b) Introduction of Number System and their inter conversion

  c) Impact of computers and internet on society (uses and misuses)

  d) Computer Codes (BCD, EBCDIC, ASCII, and Unicode)

6. CAD/CAM

   a) Speculation on future computers and their uses

   b) Al Neural network

   c) Expert System

   d) Virus

   e) Antivirus.

7. Fundamental Networks

   a) Networks and its types

   b) Networks media

   c) Topologies

   d) network Devices

_____

OFFICE AUTOMATION

A- WORD PROCESSING

Ms-Word, Word processing, Manual and electronic Word processing

1.   **Screen Layouts**

   a) Menus

   b) Shortcut

   c) Toolbars

   d) Customization of Toolbars

   e) Title Bar, Status Bar, Scroll

   f) Bars and Rulers.

2.   **Working with files**

   a) Create, Open, Save, Rename and Close a document

   b) Working on Multiple Documents.

   c) Cut, Copy, Paste, Special Undo and Redo Operations

   d) Find Replace and go to Commands

   e) Text, Paragraph and Page Formatting

   f) Header and Footer

   g) Date and Time

   h) Bullets and Numbering

   i) Columns and Drop Caps

   j) Tabs and Margins

   k) Comments and Foot Notes

   l) Insert a picture and its Formatting

   m) Use of Spelling and Grammar Check , Auto Correct Synonyms Theasurus.

   n) Page Break Section Break and Background Printing

   o) Table of contents Glossary,

   p) Hyperlink and Bookmark

   q) Insert a Table, Add and

   r) Delete Columns Rows and

   s) Cells

   t) Merge and Split Cells

   u) Formula Implementations

3.   **Document Printing**

   a) Selection of a printer

   b) Printing Setting

   c) Print Preview

   d) Print and Page Setup

   e) Shortcut Keys

B- MS- EXCEL

   a) Basic Terminology of Ms- Excel

b) Creating Opening Renaming Saving and Closing Workbook/ Spread Sheet

c) Editing Functions: Undo, Redo. Fill, Auto Fill, Delete, Cut, Copy, Paste, Clear, Find and Replace

d) Inserting: Header & Footer Cells Rows / Columns and Worksheet

e) Working with Formulas: Entering Formula with the help of Formula Bar Entering Formula.

f) Directly into the cells, sue of Arithmetic and Logical Formulas.

g) Use of Built- in functions Time and Date Concatenation, Sum if, Nested Max, Min.

h) Average, Count, Now, Month, Day, Year Upper , Lower, Left & Right.

i) Tools and Date: Spell Check, Auto Correction, Workbook protection Data Sorting and filtering

j) Formatting Cells and Text, Borders and Shading, Positioning Cells and Text, Auto Format,

k) Categories, of numbers, Cell / Range Referencing, Alignment, Date & Time Working With Charts, Creating Editing and Formatting of various types of Charts

l) Printing: Selecting Printer, Print selected areas page selection

m) Sorter View.

C- POWER POINT
1. Define Power Point

2. **PRESENTAION.**

   a) Power point presentation environment

   b) View icon of Power Point

   c) Start Power Point, Open a Presentation

3. Creating a new presentation using

   a) MS- Power point by

   b) Creating By Design Template

   c) Creating By Blank Presentation

   d) What is slide?

4. Choose an Auto Layout, Using Auto Layout

5. Editing and Formatting a Text Box

6. Choose a Common Text Tool in the

   a) Formatting Tool Bar

7. Apply design Template

8. Set Background & Layout of Slides

9. Adding Pictures and Graphics in a slide

10. Apply Custom Animation

    Apply present animation

11. Apply Action Setting

12. Adding Sound to an Animation

13. Add Sound and Music effects to the presentation

14. Set view Options

    - Normal View

- Outline View
- Slide View
- Sorter View
- Notes Page View
- Slide Show
- Slides Show Off
- Important Short cut keys

Computer Networking.

COURSE CONTENTS

PART-1 Basic Terminologies

1. Definition and History of Computer Networks.
2. Local Area Network (LAN)
3. Metropolitan Area Network (MAN)
4. Wide Area Network (WAN)
5. Basic Network Terminologies.

    a) Data

    b) Data rate

    c) Baud rate

    d) Peak data rate.

    e) Bursty data.

6. Peer-to-peer Network Vs Server basic Network
7. Networking Topologies

    a) Mesh, Bus, Star, Ring, Hybrid

Networking Devices

    a) Node

    b) NIC

    c) Modem

    d) Access point

    e) Hub (active Hub, Passive Hub)

    f) Bridge

    g) Switch

    h) Router

Transmission media

1. Wired media

    a. Coaxial cable (10 Base2 10 Base 5 10Base T, 100Base X)

    b. Twisted pair cable

2. Unshielded twisted- pair (Cat1,Cat 2, Cat 3, Cat 4, Cat 5, Cat 6,)
3. Shielded twisted- pair

    a. Fiber optic cable

4. Wireless media

    a. Reasons for wireless network

    b. Wireless communication with LANs

Types of Connectors

    1. RJ45

    2. RJ11

    3. BNC

What is OSI Model?

    a) Application Layer

b) Presentation Layer

c) Session Layer

d) Transport Layer

e) Network Layer

f) Data Link Layer

g) Physical Layer

IP Addresses

1. IPv4

   o Class A, Class B, Class C, Class D, and Class E, IP addresses

   o Introduction to IPv6

2. Subnets

3. Routed protocols and Routing Protocols (Deification, Similarity, Differences and examples)

Practical Portion

1. Installing and Configuring Modem

2. DSL Configuration

3. Creating Straight Through cable

4. Creating Cross Cable

5. Creating Rollover Cable

6. Basic Commands for Troubleshooting

   a. Ping, ipconfig / all, ipconfig / renew, ipconfig / release, trace route,

Case Study:

1. Installing network simulator (packet Tracer)

2. Creating simple network scenarios

3. Configuring PC's with IP addresses subnet mask and gateway

4. Configuring switches by giving name to switches and management IP addresses

5. Connection PCs to switch and then ping each other` that they are working properly.

OPERATING SYSTEM

COURSE CONTENTS

<u>**General**</u>

1. What is an Operating System and its role in the Computing environment?

2. Major parts of Operating System.

3. Classification of Operating System.

4. Desktop Vs Server base Operating System.

Windows 7

1. Installing Windows 7

2. Configure disks, Partitions, volumes, and device drivers.

3. Configure file access and printers on a Windows 7 client computer.

4. Configure network connectivity on a windows 7 client computer.

5. Configure wireless network connectivity on a windows 7 client computer. (Bluetooth, Wi Fi)

6. Secure Windows 7 client desktop computers.

7. Optimize and maintain the performance and reliability of a windows 7 client. computer

8. Remote access setting for a windows 7 client computer.

<u>**Windows Server**</u>

1. Installing Windows Server 2008

2. **Introduction to Administrative Tasks in Windows Server 2008 Environment**

   a) Managing Server Roles and Features.

   b) Overview of Action Directory.

   c) Using Windows Server 2008 Administrative Tools.

3. **Creating Action Directory Domain Services User Computer Objects**

   a) Managing User Accounts.

   b) Creating Computer Accounts.

4. **Creating Groups and Organizational Units**

   a) Introduction to Groups .

   b) Managing Groups .

   c) Creating Organizational Units.

5. **Creating and Configuring Groups Policy**

   a) Overview of Groups Policy.

   b) Configuring the Scope of Groups policy Objects.

   c) Managing Groups policy Objects.

   d) Delegating Administrative Control of Group Policy.

   e) Configuring Group policy setting.

   f) Configuring Security Policies.

   g) Configuring an Audit Policy.

6. **DNS**
   a) Installing and Configuring the DNS Server Role.
   b) Managing and Troubleshooting DNS.

7. **Managing Windows Server 2008 Backup and Restore**
   a) Backups with windows Server 2008.
   b) Planning Backups Policy on Windows Server 2008.
   c) Planning a Server Restore Policy.

Linux

1. Installing Linux (Red Hat).
2. File System Management.
3. Creating user accounts
4. Installing application software's in Linux.
5. Configuring device drivers.
6. Executing basic commands in Terminal .

Computer Programming C / C + +

WHAT IS C / C + + ?

1. What is C?
2. Advantages of C language.
3. C' s Weaknesses
4. History of C.
5. Difference between C & C ++

BASIC LELMENTS OF C/C ++ PROGRAM

1. C/C ++ Character Set.
2. C/C ++ Reserved Words.
3. User- defined Words.
4. Variables

    a) Naming Variables
    b) Variable Types
5. Constants.

    a) Numeric Constants

        i.   Integer Constants

        ii. Floating Point Constants.

        iii. Exponential Real Constants.

    b) Non-Numeric Constants.

        i.   Character Constants

        ii. String Constants
6. C/C + + Operators.

7. C/C + + Expressions

8. C/C + + Statements.

STRUCTURE OF C/C + + PROGRAM

1. Structure of C/C ++ program

2. C/C ++ comments.

3. C/C++ libraries

4. C/C ++ Data types.

5. The size of operator

6. Declaring Variables & Constants.

7. Assignment & Multiple Assignment operator.

8. How to assign String data?

9. Priority of Operations

10. Types Casting Operator.

11. Increment (++) & Decrement (--) operators.

12. Compound assignment operators

OUTPUT STATEMENS.

1. The **printf** ( ) function.

2. The **clrser** ( ) function.

3. The **cout,** output stream.

4. The **putch** ( ) & **putchar** ( ) Character output Function.

5. The **puts** ( ) String output Function.

INPUT STATEMENTS.

1. The **scanf** ( ) function

2. The **gets** ( ) function.

3. The **getchar ( ), getch ( ) , and getch** ( ) functions.

4. Input using **cin**

MAKING DECISIONS.

1. Transfer of Control Process.

2. The **if, if**- else and **nested if** statements.

3. Relational operators.

4. Conditional Operators.

5. Multiple Choice statements (**switch / case / break / default**).

LOOPING

1. Counters.

    a. Standard Counter.

    b. Accumulator Counter.

    c. Multiplicative Counter.

2. Looping in C/C ++

3. The **for** & **nested**- for statement

4. The **while** loop.

5. The do **while** loop.

6. The break, continue and exit ( ) statements.

7. Preprocessor Directive.

STANDARD LIBRARY FUNCTION

1. Trigonometric Functions

    Sin ( ) **, cos** ( ) **, tan ( ) etc**.

2. Arithmetic Functions.

    **Abs ( ), sqrt ( ), log ( ), exp ( ), ceill ( ) . floor ( ) pow ( ) pow 10 ( ),
    random( ) , rand ( ), etc.**

3. String Functions.

     Strlen ( ) strlwr ( ), strupr ( ) ,strrev ( ), strncpy ( ), strecat ( ),   strncat ( ),

etc.

Introduction to Data base

1. **Introduction to Data base**

    (a)   Introduction

           (i)   Data

           (ii)   Information

           (iii)   Meta Data

           (iv)   Definition of Data Base

           (v)   Advantages of Data Base

    (b)   Data base Model

           (i)   Hierarchal Model

           (ii)   Network Model

           (iii)   Relation Model

    (c)   Introduction to DBMS

    (d)   Function of DBMS

2. **Entity Relationship Model**

    (a)   **ERD**

           (i)   Elements of ERD Model

           (ii)   E-R Diagram

           (iii)   Relationships

           (iv)   Degree of Relationship

    (b)   **Attributes**

           (i)   Introduction to Attributes

           (ii)   Types of Attributes

    (c)   **Association**

           (i)   1:1

           (ii)   1:M

           (iii)   M:M

3. **Normalization**

    (a)   Anomalies

    (b)   Function Dependency

    (c)   First Normal Form

    (d)   Second Normal Form

    (e)   Third Normal Form

4. **SQL (Using MS SQL Server / Oracle/ My SQL)**

    (a)   DDL (Data Definition Language)

           (i)   CREATE Statement

           (ii)   ALTER Statement

           (iii)   DROP Statement

           (iv)   RENAME Statement

           (v)   TRUNCATE Statement

(b) DML (Data Manipulation Language)

    (i) INSERT Statement

    (ii) UPDATE Statement

    (iii) DELETE Statement

(c) DCL (Data Control Language)

    (i) COMMIT Statement

    (ii) ROLLBACK Statement

(d) Data retrieval

    (i) SELECT Statement

    (ii) WHERE Clause

    (iii) GROUP BY

    (iv) ORDER BY

    (v) HAVIING Clause

(e) Function Constraint

    (i) Concept of Key

    (ii) Primary Key, Secondary Key, Candidate Key, Alternate Key, Composite Key,

    (iii) NOT NULL Constraint

    (iv) UNIQUE Constraint

    (v) Primary Key Constraint

    (vi) Foreign Key Constraint

    (vii) Check Constraint

(f) Function

    (a) Character Function

        (i) UPPER

        (ii) LOWER

        (iii) INITCAP

        (iv) CONCAT

        (v) SUBSTR

        (vi) INSTR

        (vii) LENGTH

        (viii) LPAID

        (ix) RPAID

        (x) LTRIM

        (xi) RTRIM

    (b) Numeric Function

        (i) ROUND

        (ii) TRUNC

        (iii) MOD

        (iv) COALESCE

    (c) Group Function

(i) Min

(ii) Max

(iii)AVG

(iv)SUM

(v) COUNT

(d)   Conversion Function

(i) TO-CHAR

(ii) TO-NUMBER

(iii)TO-DATE

(g)   Introduction Views and data dictionary

(i)   Cerate simple / complex view

(ii)   Importance of view in multi user environment.

(h)   UNDERSTANDING/ Managing User Privileges and Roles

(i)   Introduction to Multi user environment

(ii)   Definition of Role and privileges

a)   CREATE USER

b)   CREATE ROLE

c)   DROP USER

d)   CRANT PRIVILEGE (DBA,ALL,SELECT,
UPDATE, DELETE, INSERT)

e)   Revoking User Privileges and Roles.

MS. Access

1. DATABASE CONCEPTS

What is data and Database?

1.1   Why use Electronic Database?

1.2   Tables and Relationships

1.3   One to One

1.4   One to Many

1.5   Many to many

1.3 Database Features

1.3.1   Attributes, Character Fielded

Record, Tuples Files

1.3.2   Key, Primary Key

Foreign Key, Composite Key

1.3.3   Referential Integrity

1.3.4   Use of Wild Cards

1.4 MS- Access (Database)

a)   Ms-Access Use Access, Window

b)   Title Bar, Control Menu, Toolbar

c)   Status Bar

d)   Database Window

e)   Object button

f)   Data types

g)   Start Access

h)   Creating table, Table view

1.4.1   Create Table using in

a)   Design View

b)   Setting Primary Key, Saving table

c)   Close, exit add, delete record filed

d)   Resizing row column

e)   Freezing Hiding Column, Finding Data

f)   Repl data, Auto content, Spell checking

g)   Create Tales using in Wizard

1.4.2   Create relationship between Tables

1.4.3   Create Queries, define query, use adv

a)   Types of query

b)   Creating simple query

c)   Executing data

d)   Join, Difference between relations and join

e)   Extracting data

  f) Use of query wizard

1.4.4 Create Forms, What is form

  a) Types of form

  b) Create form by wizard

  c) Create form of Design View

  d) Add new record through form

  e) Edit record through form

  f) Editing option

  g) List Box, Combo Box

  h) Adding list Box and Combo Box

  i) Cheek Box and option button

  j) Command Button

1.4.5 Create Reports

  a) What is report?

  b) Use of Report, Standard types report

  c) Auto report

  d) Saving and closing auto report

  e) Create single table report

  f) Create two table report

  g) Create Report in design view

  h) Print a report

1.4.6 Database Security

<div align="center">

E-Commerce & Web Technology

</div>

E-Commerce

1. *Introduction to E-Commerce.*

   a) The difference between e-commerce and e-business

   b) Unique features of e-commerce technology

   c) Types of e- commerce.

   d) Element of a business model

   e) Business- to consumer (B2C) business models

   f) Business-to- business (B2B) business models

2. *Introduction to web Technologies*

   a) Fundamental of internet and www concepts.

   b) Protocols (HTTP,FTP, IP,TCP,)

   c) Domain Names (com, edu, org, net, mil, sip)

HTML

1. **Introduction to HTML**

   a) Introduction

   b) A Text Editor

   c) A Web Browser

2. **Creating First HTML Document**

   a) Html Tag, Head Tag, Title tag, Body Tag, Heading,

   b) Paragraph Tag, Line Break Tag, Horizontal Rule Tag, Font Size

3. **Marking Stylish Pages**

   a) Bold Tag, italic Tag, Underline Tag, Typewriter Tag,

   b) Big Tag, Small Tag, Emphasis Tag,

   c) Citation Tag, Strong Tag,

   d) Lists Unordered List, Order List

Graphics in web page

1. Image source Tag, Linking to local Files, to section of a page, Blink Tag, Marquee Tag,

2. **Address Fasters and Email Link**

   a. Address Tag, Email Tag, Address and Email Link

3. **Sniffing up text**

   a. Font Color Font Face Superscripts Subscripts Center Tag, Tables

4. **Mata Tags and Frames**

   a. Mata Tag, Mate Refresh Tag, Meta Descriptor Tag,

   b. Frames Target Attribute No Frames Tag

5. **Forms**

   a. Adding Forms to Web Pages Form Tag Menu Select, Text Input Element Password input.

b. Element text Area Input Element Radio Buttons Checks, Boxes Submit & Reset Button.

Introduction to DHTML

1. Introduction to java script, form Validation, Basic, Languages Structure.
2. Introduction to CSS 1 & CSS2.
3. Introduction to XHTML.

Dream Weaver

1. Introduction.
2. Creating Web Project.
3. Applying Html on Dream Waver.
4. CSS and its Implementation on Dream waver.
5. Creating Menus.
6. Layouts.
7. Slicing.
8. Forms.
9. Tables.
10. Website Project.

Graphic Design

Photoshop CS version

1. **Exploring the Photoshop Environment**
   a) Explore the Photoshop interface
   b) Customize the Workspace
   c) Explore the Navigation Tools

2. **Working with Image Areas**
   a) Select Image Areas
   b) Save a Selection
   c) Modify a Selection

3. **Setting Color Space**
   a) Calibrate and Profile your Monitor
   b) Set a Working Color Space in Photoshop
   c) Convert Image from one Color Space to Another
   d) Manage Printing and Color

4. **Enhancing Image**
   a) Print Strokes on an Image
   b) Apply Filter Effects
   c) Convert an Image to Black and White
   d) Blend Layers
   e) Merge Layers and Flatten Image
   f) Convert Color Images to Grayscale

5. **Working with Layers**
   a) Create Layers

b) Create Type Layers

c) Transform Layers

d) Alter Ttype Properties

e) Apply Layer Styles

f) Undo Previous Steps

g) Arrange and Group Layers

6. **Saving Images for Web and Print**

a) Save Images for Use in Print Application

b) Save Images for the Web

c) Save Images as PDF

7. **Managing Assets with Adobe@ Bridge**

a) Explore Adobe Bridge

b) Work with Adobe Bridge

c) Work with Stacks and Filters in Adobe Bridge

d) Apply Metadata and Keywords to Files

e) Preparing Web Images

f) Change Measurement Units

g) Reduce File Size

8. **Creating Web Page Layouts**

a) Simulate a Web Page

b) Create Web Page Background

c) Draw Editable Vector Shapes

d) Create Effects

e) Export a Web Page

9. **Enhancing Photographs**

a) Retouch Photographs Using Photoshop Tools

b) Create Patterns

c) Create Swatches and Gradients

d) Create a Custom Brush

e) Create Custom Patterns

10. **Creating Special Effects**

a) Preview Text Effects Using Layer Comps

b) Warp an Image

11. **Automating Tasks**

a) Create an Action

b) Manage Action

12. **Adjusting RGB Color**

a) Meet Color Correction Objective

b) Locate Highlights Shadows and Neutral Areas

c) Make Automatic Color and Contrast Adjustment

d) Make Basic Curve Adjustment

13. Sharpening Images

   a) Apply Un-sharp Images

   b) Sharpen an Image

<div align="center">(**COREL DRAW Version 9 and onward)**</div>

BASICS:

1. Exploring the Corel DRAW Interface
2. Setup Drawing Page
3. Corel DRAW Basic
4. Manage Workspaces
5. Customizing the Command Bar
6. Saving and Printing Drawing

Shapes and Lines:

1. Basic Shapes
2. Working With Paths
3. Modify Paths
4. Adding Text to Objects

Colors

1. Fills and Outline
2. Custom File
3. Custom Strokes
4. Drop Shadows
5. Modify Outline
6. Transform Objects

Working with Text

1. Format Artistic Text
2. Fit Text to a Path
3. Create Paragraph Text
4. Wrap Paragraph Text
5. Modify OCT Text
6. Importing Image Text
7. Insert Special Characters
8. Text Effects

Working with Objects

1. Modify Objects
2. Add Graphics
3. Add Clipart
4. Spray Objects

Styles, Templates Symbols

1. Working with text Styles
2. Working with Templates
3. Create Symbols

Layers

1. New Layers
2. Manipulate Layer

Bitmaps

1. Import and Adjust Bitmaps
2. Trace Bitmaps

Advanced Printing Options

    Edit a Print Style

1. Merge Text with Drawing

In Page Course Outline

1. Toggle English / Urdu
2. Tools
3. Ribbon
4. Status Bar
5. Rulers
6. Document Area
7. Scroll Bars
8. Cursors
9. Text Box
10. Title Text Box
11. Picture Box
12. Graphic Box
13. Line
14. Guides
15. Text Chain
16. Master Page
17. Entering Text
18. Character Attributes
19. Paragraph Attributes
20. Hyphenation
21. Borders
22. Style sheets
23. Text Wrap and Repel
24. Inserting Page Number
25. Inserting Inline Pictures
26. Inserting Tables
27. Importing unformatted and preformatted Text
28. Exporting Text
29. Find / Replace