KHYBER PAKHTUNKHWA
BOARD OF TECHNICAL & COMMERCE EDUCATION

CURRICULUM

FOR

DIPLOMA OF INFORMATION TECHNOLOGY (DIT)

POST MATRIC ONE YEAR PROGRAM
REVISED 2022

__INDEX__

SCHEME OF STUDIES AND EVALUATION PLANE FOR DIPLOMA IN INFORMATION TECHNOLOGY

PART-I

S.No	Subject	Theory Hours	Practical Hours	Theory Marks	Practical Marks
1	Introduction to Information & Communication Technologies (ICT)	40	80	75	25
2	Introduction to MS Office	40	80	75	25
3	Computer Networks	40	80	75	25
4	Operating Systems	40	80	75	25
5	Introduction to Programming	40	80	75	25
	Total Marks			375	125
				500	

PART-II

S.No	Subject	Theory Hours	Practical Hours	Theory Marks	Practical Marks
1	Database Systems	40	80	75	25
2	Video Editing	40	80	75	25
3	Web Development Essentials	40	80	75	25
4	Graphics Design	40	80	75	25
5	Capstone Project	120 Hours (Supervisor Guidance + Project Report)		--	100
	Total Marks			300	200
				500	

Introduction to Information & Communication Technologies (ICT)

(DIT Part – I)

Total Marks:	100	Theory Marks:	75	Practical Marks:	25

Total Weeks: 20

Contact Hours per week: 06

Total Contact Hours: 120

Theory Hours: 40

Practical Hours: 80

Course Description:

This course is designed for students with little or no computer experience. This course introduces computer concepts, hardware components, basic computer operations and use of software applications to solve problems. Students will have complete understanding of the basic concepts and use of personal computers and application software.

Aims and Objectives:

After successful completion of this course, students should be able to:

- Develop a vocabulary of key terms related to computers and software programs
- Identify the components of a personal computer system
- Demonstrate mouse and keyboard functions
- Demonstrate window and menu commands and how they are used
- Demonstrate how to organize files and documents on a USB/hard drive
- Demonstrate basic maintenance of a computer
- end email messages and navigate and search through the internet.

Module	Course Contents	Allotted Weeks	Contact Hours
01	**INTRODUCTION TO COMPUTERS** 1.1 History and Evolution of Computers 1.2 Hardware Components: Input Devices, Output Devices, System Unit, Storage Devices, Communication Devices 1.3 Computer Software: System Software, Application Software, Installing and Running 1.4 Programs, Software Development 1.5 Computer Types: Personal Computers, Desktop Computers, Mobile Computing Devices, Embedded Computers, Game Consoles, Servers, Thin Clients, Mainframes, Supercomputers 1.6 Computer Applications: Education, Finance, Government, Health Care, Science, Publishing, Travel, Manufacturing	03 Weeks	18
02	**SYSTEM UNIT COMPONENTS** 2.1 The Motherboard 2.2 Processor The Control Unit, The Arithmetic Logic Unit, Machine Cycle, The System Clock, Comparison of PC Processors 2.3 Memory Bits, Bytes, Addressing, Types (RAM, ROM, Cache, Flash, CMOS) 2.4 Expansion Slots, Adapter Cards and Drive Bays 2.5 Ports and Connectors USB, VGA, HDMI, Audio, Network, FireWire 2.6 Power Supply	03 Weeks	18
03	**INPUT & OUTPUT DEVICES** 3.1 What is input? 3.2 Keyboard and Pointing devices Mouse, Joystick, Trackball, Touchpad 3.3 Touch Screen, Pen and Stylus 3.4 Other types of input Game Controllers, Digital Cameras, Voice Input, Scanners, Biometric, Terminals 3.5 What is output? 3.6 Display Devices: CRT Monitors, LCD/LED Monitors 3.7 Printers: Non-Impact/Impact, Inkjet, Laser, Multifunction, Thermal, Plotters & Large format printers 3.8 Other Output Devices: Speakers, Headphones, Multimedia Projectors, Interactive Whiteboards	02 Weeks	12

04	**DIGITAL STORAGE** 4.1. Hard Disks Characteristics of a Hard Disk, Internal/External, RAID, NAS 4.2. Flash Storage Solid State Drives, Memory Cards, USB Flash Drives, Express Card Modules 4.3. Optical Storage CDs, DVDs, Blue-ray Disks 4.4. Magnetic Tape Storage 4.5. Cloud Storage	02 Weeks	12
05	**SYSTEM SOFTWARE** 5.1. Operating Systems 5.2. OS Functions Starting and Shutting Down a Computer, Providing a User Interface, Managing Programs, Managing Memory, Coordinating Tasks, Configuring Devices, Establishing an Internet Connection, Monitoring Performance, Providing File Management and Other Utilities, Updating Software Automatically, Controlling a Network, Administering Security 5.3. OS Types: Stand-Alone OS, Server OS, Embedded OS; Windows, Linux 5.4. OS Utility Programs: File Manager, Search Utility, Uninstaller, Image Viewer, Disk Cleanup, Disk Defragmenter, Backup and Restore Utilities, Screen Saver, Firewall, Antivirus Programs, Spyware and Adware Removers, File Compression, Media Player, Disc Burning 5.5. Personal Computer Maintenance	03 Weeks	18
06	**APPLICATION SOFTWARE** 6.1. The need and role of Application Software 6.2. Working with Application Software 6.3. Business Software Word Processing, Spreadsheets, Databases, Presentations, Project Management, Personal Information Manager Software, Business Software for Smartphones, Accounting Software Graphics & Multimedia Software: Computer-Aided Design, Desktop Publishing, Paint/Image Editing Software, Video and Audio Editing Software, Multimedia Authoring, Web Page Authoring Software 6.4. Web Applications 6.5. Typing Assistance Software (Typing Tutor/Master etc)	03 Weeks	18

07	**THE INTERNET AND THE WORLD WIDE WEB** 7.1. Network and the Internet Connecting to the Internet Access Providers How Data Travel on the Internet Internet Addresses 7.2. The World Wide Web Browsing the Web Web Addresses Navigating Web Pages Searching on the Web Types of Web Sites Web Publishing 7.3. E-Commerce 7.4. Other Services on the Internet: E-Mail, Instant Messaging, VoIP, FTP, Video Conferencing, Social Media 7.5. Computer Security Computer Malware and Attacks Safeguards against Viruses, Worms, Trojan Horses, Malware 7.6. Information Privacy 7.7. Computer Ethics 7.8. Cybercrimes 7.9. Health Concerns of Computer Use	04 Weeks	24
	Total	**20**	**120**

Lab Requirements (**Hardware / Software**)	• A modest PC, preferably with Core i3 generation 3rd or above processor, with at least 4GB RAM and 200GB hard disk, LCD, Printer and preferably a scanner • DSL internet connection with Access Point/Modem/Switch and related cables and connectors • MS Windows 10 or above • Typing Tutor/Master or any other available typing software • Other Application Software, may be downloaded from the web
List of Practical	• Opening system box and identifying hardware components (processor, RAM, HDD, slots, ports etc) • Installing/uninstalling hardware components • Identifying, connecting, disconnecting cables and external devices like printers, monitors etc • Troubleshooting hardware issues • Windows installation and configuration • Typing Tutor/Master installation • Other Application Software installation • Familiarization with Windows icons • Windows Command Prompt and familiarization with basic DOS commands • Creating icons and shortcuts • Playing with Control Panel • Finding specifications of a computer • Formatting hard drives • Creating, copying, moving, deleting files and directories • Disk defragmentation

	- Disk backup and restore - User Management on Windows - Updating software manually and automatically - Troubleshooting software issues - Printer installation and troubleshooting - Toner replacement, Paper jam resolution - Connecting and using scanners - Playing with Windows Task Manager - Identifying file types and associating default programs for opening - Zipping and unzipping files - Disk burning - Installation of free Antivirus software and scanning files for malware - Connecting to the internet - Identifying Access Points, Modems, Switches and cables - Creating email addresses and sending/receiving emails - Connecting with and browsing LAN - Installing and using different web browsers - Browsing and searching the Web - Using Google Advanced Search - Using Video Conferencing software
Reference Material	Shelly, G. B., & Vermaat, M. E. (2012). *Discovering computers fundamentals: your interactive guide to the digital world (Latest ed.)*. Cengage Learning

Introduction to MS Office

(DIT Part-I)

Total Marks:	100	Theory Marks:	75	Practical Marks:	25
Total Weeks:	20				
Contact Hours per week:	06				
Total Contact Hours:	120				
Theory Hours:	40				
Practical Hours:	80				

GENERAL OBJECTIVES:

After the completion of this course, students are expected to be able:

- To design documents for personal and business use by using Microsoft Office 2016.

- To prepare documents in English/Urdu language by using MS Word.

- To design spreadsheets by using Microsoft Excel 2016.

- To enhance productivity by automating several computational tasks using Excel Macros.

- To present complex data or ideas in an easy to understand form by using Microsoft PowerPoint 2016.

- To develop small scale databases using Microsoft Access 2016.

Module	Course contents	Allotted Weeks	Contact Hours

01	**INTRODUCTION TO OFFICE AUTOMATION SOFTWARE**
	
	1.1 Introduction
	  1.1.1 Open Source Software
	  1.1.2 Proprietary Software
	1.2 Introduction to Microsoft Office Suite 2016
	1.3 MS Office Applications' Primary User Interface
	  1.3.1 Title bar
	  1.3.2 Quick Access Toolbar
	  1.3.3 Quick Access Toolbar
	  1.3.4 Ribbon
	  1.3.5 Ribbon Commands/Tabs
	  1.3.6 Document Page
	  1.3.7 Status bar
		01 Week	06

02	**MICROSOFT WORD**
	
	2.1 General Features of Word processors
	Editing, Formatting, Page Layout & Printing, Spelling & Grammar, Header & Footer, Picture / Table Insertion & Formatting, Screen Layouts.
	
	2.2 BASIC EDITING
	Creating a New Document, Saving a Document for the First Time, Saving Document in Different File Formats, Creating a Document Using a Template, Using Print Preview, Printing a Document, Opening an Existing Document, Using Zoom, Finding and Replacing Text, Using AutoCorrect, Cutting Copying and Pasting Text.
	
	2.3 TEXT FORMATTING
	Using the Font Group, Changing Fonts and Font Sizes, Applying Character Attributes, Setting Character Spacing, Using Format Painter, Applying Styles, Creating and Modifying WordArt, Using the Clear Formatting Button.
	
	2.4 PARAGRAPH FORMATTING
	Formatting Paragraph, Setting Indents (First Line, Hanging, Left, Right), Setting Line Spacing, Setting Paragraph Spacing, Creating a Bulleted List, Creating a Numbered List.
	
	2.5 PAGE FORMATTING & PRINTING
	The Layout Tab, Setting Margins, Selecting Page Orientation, Choosing Paper Size, Number of Columns setting, Page & Section Breaks. Selection of Printer, Print Settings.
	
	2.6 CREATING TABLES
	Using the Insert Table Dialog Box, Layout Tab on the Table Tools Ribbon (Using AutoFit, Resizing a Row or Column, Merging and Splitting Table Cells).
	
	2.7 URDU LANGUAGE SETTING AND TYPING
	  2.7.1 Built-in settings in Windows-10 OS
	  2.7.2 Using Pak-Urdu Installer in Older Windows OS
		04 Weeks	24

	MICROSOFT EXCEL		
03	3.1 General Features of Spreadsheets Rows, Columns, Worksheets, Workbooks, Functions and Formulas, Editing, Formatting, Screen Layouts. 3.2 WORKING WITH EXCEL Creating a New Workbook, Opening an Existing Workbook, Entering and Editing Data in Worksheet (Entering Basic Data, Deleting and Clearing Cell Contents, Entering Dates, Cutting, Copying and Pasting Data). 3.3 FORMATTING CELLS AND WORKSHEETS Inserting and deleting cells, Merge cells, Format Cells by using Format Painter, Insert and delete columns or rows, Insert headers and footers, Rename a worksheet, Add a worksheet to an existing workbook, Change magnification by using zoom tools. 3.4 USING FORMULAS AND FUNCTIONS Understanding Formulas, Using Absolute and Mixed Cell References in Formulas, Using Cell Ranges in Formulas, Summarizing Data Using Functions (SUM, COUNT, COUNTA, COUNTBLANK, AVERAGE, MIN, MAX), Using Conditional Logic Functions (IF, AND, OR), Using Formulas to Conditionally Summarize Data (SUMIF, COUNTIF), Using Formulas to Modify Text (LEFT, RIGHT, MID, TRIM, UPPER, LOWER, CONCATENATE). 3.5 CREATING CHARTS Creating a new Chart, formatting a Chart with a Quick Style, formatting a Data Series, modifying a Chart's Legend, choosing a different chart type, Switching Between Rows and Columns in Source Data. 3.6 EXCEL MACROS 3.6.1 Definition of Macro 3.6.2 Adding the "Developer" Tab on Ribbon 3.6.3 Steps involved in Recording a simple Macro 3.6.4 Recording a Macro using Absolute References 3.6.5 Recording a Macro using Relative References. 3.6.6 Running a Macro 3.6.7 Creating a Macro for adding a list of items (such as cities, countries, fruits etc) 3.6.8 Creating a Macro for changing the Font and Font size of the whole worksheet 3.6.9 Creating a Macro for changing Date format 3.6.10 Assigning a macro to a Control Button	09 Weeks	54
04	**MICROSOFT POWERPOINT** 4.1 INTRODUCTION PowerPoint Startup Screen, User Interface Components (Title Bar, Quick Access Toolbar, Ribbon, Dialog Box Launcher, Slides Pane, Main Work Area, Status Bar), Ribbon Tabs. 4.2 PRESENTATION BASICS Creating a Presentation, Saving a Presentation, Closing a Presentation, Adding New Slides to a Presentation, Selection of Layout, Duplicating Selected Slides, Rearranging Slides in a Presentation, Deleting Slides	03 Weeks	18

	from a Presentation, Using the Print Preview for Printing Slides, Changing Print Layout. 4.3 <u>WORKING WITH TEXT</u> Using Text Box to Slides, Changing Font Size & Color, Using Format Painter, Creating Numbered Lists, Creating Bulleted Lists, Formatting the Text Box (Using Quick Style, Applying Fill & Border, Applying Texture & Pattern Fill), Checking Spelling. 4.4 <u>ADDING TABLES AND CHARTS IN A PRESENTATION</u> Inserting a Table, Inserting Excel Worksheet, Applying Table Styles, Inserting Chart, Resizing & Moving a Chart. 4.5 <u>USING ANIMATION</u> Applying Transition Effects, Applying Animations, Using Motion Path Animation, Modifying an Animation's Start Options and Timing, Setting Up a Slide Show, Using Presenter View, Creating interactive presentation using Zoom tool.		
05	**MICROSOFT ACCESS** 5.1 <u>Introduction to Microsoft Access 2016</u> Creating a Database, Saving a Database, Opening an Existing Database. 5.2 <u>Creating Tables</u> Creating a Table in Datasheet view, Saving a Table, Creating a custom Table in Design View, Adding fields in a table, Data types in Access, Setting Primary Key field, Creating relationship between two tables. 5.3 <u>Creating Forms</u> Creating a simple Form, Creating a Form using Form Wizard, Creating a Form using Design View, Sorting data within a Form, Filtering data within a Form. 5.4 <u>Creating Reports</u> Creating a simple report, Creating report using Report Wizard, Creating Reports using Design View. 5.5 <u>Creating Queries</u> Creating a query from a table, Adding table to a query, Creating query from multiple tables, Adding criteria to a query.	03 Weeks	18
	Total	**20**	**120**

Lab Requirements (Hardware / Software)	a. Operating System: Minimum Windows 7 or 10 (32 or 64 bit) b. MS OFFICE 2016.

List of Practical	**Practical Number**	**Description**
		MICROSOFT WORD 2016
	1	Running a Microsoft Application such as Word or Excel or PowerPoint or Access and identifying the main user interface components such as Title bar, Quick access toolbar, Ribbon, Tabs, Document Page, Status bar etc.
	2	Identifying different groups available in different Tabs in MS Word 2016.

	3	Create a new document in MS Word 2016 using the File Tab and using the Quick Access Toolbar.
	4	Saving a newly created document in a new folder with a unique file name in default format.
	5	Opening an existing document, adding some contents in it and saving it in PDF format by using Save As command.
	6	Create new documents by using different Sample Templates.
	7	Open an existing multi-page document and explore the print command available in Backstage view for setting various options of Print, Printer and Settings.
	8	Open an existing document and use the Font group of Home Tab for various font settings such as changing font name, font size, superscript, subscript, font color etc.
	9	Open an existing document and use the Advanced tab of Font dialog box for changing the Character Spacing of the current document.
	10	Open an existing document and use the Format Painter button for applying font attributes of a specific text to other text. And use the clear formatting button.
	11	Create a new document, add multiple paragraphs of text and then use the Paragraph group of Home Tab for setting Left, Right, First Line and Hanging Indents.
	12	Open an existing document and then use the Paragraph group of Home Tab for setting Line Spacing and Before/After Paragraph Spacing.
	13	Create a new document, add data items on each line and then convert these data items into bulleted lists and numbered lists. Also create sub lists.
	14	Open an existing multi-page document and use the Page Setup group of Page Layout Tab for setting the page Orientation to Portrait / Landscape, and setting various page Sizes of the current document.
	15	Open an existing multi-page document and use the Page Setup group of Page Layout Tab for setting the Top, Right, Left and Bottom margins of the document.
	16	Open an existing multi-page document and add Page breaks and Section breaks in it.
	17	Open an existing document and use the Print command of the Backstage view for selecting a specific printer, specific page and number of print copies. Finally get a print.
	18	Create a new document and use the Insert Table command of the Tables group in Insert Tab for creating a 3 X 5 table. Add Column headings and Row headings, add data in cells. Resize the Rows height and Columns width.
	19	Open an existing document containing a table, and use the Merge Cells command and Split Cells command of the Merge group of Layout Tab of the Table Tools, for merging more than one cells and splitting a cell respectively.
	20	Install Urdu Language pack in windows 10 to enable Urdu typing. Install Phonetic keyboard for Urdu typing. Then create a new document and add text in Urdu language. Apply Arabic Typesetting and/or Urdu Typesetting fonts on the text.
	MICROSOFT EXCEL 2016	
	21	Starting the MS Excel 2016 for the first time and understanding various options available in the opening screen such as Blank Workbook, Searching for Online Templates, Suggested Searches, Taking a Tour, Recent, Opening other Workbooks etc.
	22	Starting the MS Excel 2016 and identifying or recognizing different user interface components of the application, such as Title bar, Command Tabs, Quick Access Toolbar, File Tab, Ribbon, Name Box, Formula bar, Worksheet Tab, Different groups on different Command Tabs, Row headings, Column headings, Active Cell.
	23	Create a new Blank Workbook. Add contents in all the three worksheets available by default. Save it in default format. Open it again and Save it in PDF format also.
	24	Open an existing Workbook. Add more data in it. Clear some cells' contents. Delete some cells. Cut/Copy some cells and Paste at another worksheet.
	25	Create a new Blank Workbook and add contents in a worksheet. Insert a new cell within the data cells. Insert new column between available columns. Insert new row between available rows. Delete a specific cell. Delete a column/row containing data. Use Format Painter.

26	Open an existing Workbook. Rename its worksheets. Add two new worksheets. Merge some of the adjacent cells. Add Header and Footer in a worksheet. Fill data in adjacent cells in a worksheet by using the Fill Handle.
27	Open an existing workbook having two or more worksheets containing data. Select data in a worksheet and print the selected data by choosing "Print Selection" in the print settings. Then print the Active worksheet. Then print the whole workbook.
28	Create a new Workbook. Add some numeric data in a column. Using the formula bar, write a simple arithmetic equation after assignment operator and observe the result. Use the "Show Formula" button in Formula Auditing group of Formulas Tab to see the formula in the cell. Use this formula to understand the order of operators in excel.
29	Create a new workbook and add numeric contents in a worksheet. Use a Relative reference to write a formula and then copy this formula into other cells to show that the reference is adjusted automatically. Then use an absolute reference. Then use a mixed reference to understand the difference.
30	Open an existing workbook containing numeric data. Use an absolute reference to write a formula and then copy it to other cells to check that the reference is not changed. Then use a mixed reference to understand the difference.
31	Open an existing workbook containing numeric and alphanumeric data. Use SUM(), COUNT(), COUNTA() and COUNTBLANK() functions for summarizing data.
32	Open an existing workbook containing numeric data. Use AVERAGE(), MIN(), MAX() functions for summarizing data.
33	Create a new workbook. Enter Name, Age in years, City Name and Cell Number of 10 students in a worksheet. Now use the AND function to choose only those students who belong to a specific city and having a specific age in years.
34	Create a new workbook. Enter 10 students obtained marks in their 5 different subjects. Calculate the Total Obtained Marks column using the SUM function. By using a specific value for Total Marks, find the percentages of each student. Now use the IF function to assign grades to each student.
35	Create a new workbook. Enter 10 records such that first column contains the names of Items purchased (e.g. Book, Apple, Sugar etc.), second column contains the Category of each item (e.g. Stationery, Fruit, Grocery etc.), third column contains the Price of each item. Now use the SUMIF function to calculate the total price of stationery items purchased.
36	Open the same workbook used in practical No-35 above and add some more records in it. Then use the COUNTIF function to calculate the total number of grocery items purchased.
37	Create a new workbook. Add 10 random string(text) values in column A. Then use the LEFT, RIGHT, MID, TRIM, UPPER, LOWER, CONCATENATE functions to modify the text values.
38	Create a new workbook. Add data such that first column contains the students' class numbers and second column contains their test marks. Then Create a simple Line chart for this data set. Add proper titles for both axes. Modify Chart Title. Edit data series. Add/Remove chart Legend.
39	Open the same workbook used in practical No-38 above and add third column for Test2 marks. Then create a simple line chart for comparing the marks of two tests. Then change the chart style.
40	Open an existing workbook. Developer Tab is hidden by default. First show the Developer Tab to be able to use Macros and VBA tools. Go to File Tab, Click on "OPTIONS", Select "Customize Ribbon", then under the Main Tabs select the "Developer" check box and click ok.
41	Steps involved in recording a macro: 1. Click on "Developer" Tab. 2. Decide whether to record the macro with Absolute References or Relative References (Absolute References is selected by default. If you want to use Relative References then click the button "Use Relative References" just below the Record Macro button). 3. Click the "Record Macro" button. 4. A dialog box appears; Write a meaningful name for this macro. 5. Select a key for short cut, shift+

		key can also be selected. 6. Decide where the macro should be stored and add optional description of this macro. 7. Click "OK". 8. The "Stop Recording" button appears. 9. Perform all the steps that you want to be recorded. 10. Click "Stop Recording" button.
	42	Running a Macro: A recorded macro can be executed in two ways. 1. Click on "Developer" Tab, Click on "Macros" Button, A dialog box appears showing a list of all macros, Select your desired macro, Click "Run" button. 2. Use the short cut key that was selected before recording the macro.
	43	Macro for adding a list of items: 1. Click on "Developer" Tab and then click on "Use Relative References". 2. Start recording a macro. 3. Write 'macList' in the macro name box. 4. Press "SHIFT+L" in the short cut key for this macro. 5. Click "Ok". 6. Now type some names of cities or fruits etc. in each cell. 7. Click "Stop Recording" Button. 8. Open a new worksheet and click on "Macros" button in the "Developer" Tab, select the "macList" macro from the list of macros and click "Run" button. The list of cities or fruits will be printed here automatically. 9. Now open a new worksheet and press the short cut key "CTRL+SHIFT+L". The list is printed again.
	44	Macro for designing a blank Detailed Marks Certificate: 1. Open a new workbook, click on "Developer" Tab, click on "Use Relative References" button, click on "Record Macro" button. 2. Write 'macDMC' in name box and write "D" in the short cut key for this macro, click "Ok" button. 3. Now click in cell A1. Select range A1:D1, click "Merge and Center" button on Home Tab. 4. Write "Detail Marks Certificate", choose a specific Font color, Font size and Font name. 5. Write down student details such as Name, Roll No, Subjects, Subjects' marks etc. in different cells. 6. Write SUM function in a cell for calculating total marks. 7. Write a formula in a cell for calculating the percentage. 8. Format the contents' area by applying borders, colors, fonts, text alignments, column widths and row heights, fill color etc. 9. Click on "Stop Recording" button. 10. Now open a new worksheet and use the short cut key "CTRL+D" to print the whole designed format automatically. 11. It is a blank DMC. As you type data in its cells, it will automatically show the total marks and percentage in the appropriate cells.
	45	Assigning a macro to a control: 1.Open the same workbook created in practical No-44 above. 2. Open a new worksheet. 3. Click the "Insert" Tab, then click "Illustrations", then click "Shapes", then select "Round Corner" rectangle. 4. Draw a button in the blank worksheet. 5. Right Click on this button and select "Assign Macro" command from the menu. 6. Select the "macDMC" macro from the list of macros and click "Ok". 7. Now click this button to add the DMC. Note that the "macDMC" macro can also be added in the Quick Access Toolbar.
	MICROSOFT POWERPOINT 2016	
	46	Create a new presentation in MS PowerPoint 2016 using the File Tab and using the Quick Access Toolbar. Add new slides in it. Add contents in the text boxes. And finally save the presentation in default format. Close the presentation file.
	47	Create a new presentation, select "Title Slide" layout for title slide and "Content and Title" layout for other slides. Add contents in slides. Insert new slides in between slides. Duplicate a slide. Rearrange some slides. Delete some slides.
	48	Open an existing presentation file containing multiple slides. Use print command of Backstage view for selecting different Print Layouts. Then select "2 slides" Handout and Print the slides.
	49	Create a new presentation by selecting the "Training" sample template. Add contents in slides. Format some text boxes using Quick Style, some using Applying Fill and Border, some applying Texture and Pattern Fill. Insert a table in a new slide and apply Table Style on it. Insert a chart based on this table.

	50	Open an existing presentation file. Apply different Transition effects on different slide such as Fade, Wipe, Split etc. Then apply different animations on text boxes in a slide such as Zoom, Swivel, Fly In etc. Setup Slide Show for this presentation.
	MICROSOFT ACCESS 2016	
	51	Start MS Access 2016. Create a new Database by selecting "Students" from Sample Templates using the Backstage view (File Tab). Explore different Objects, such as Tables Forms Reports Queries, of the database using Object Navigation Pane. Then Save and Close the database.
	52	Create a new Blank Database. Add Data items in the Table opened by default. Add 10 rows or records. Change Table View to Design View. Change the field names from Field1, Field2 etc. to Meaningful attributes. Change the data types of each field to appropriate data types. Change data type of ID field from AutoNumber to Number. Save the table.
	53	Open an existing Database and add more tables in it. Create primary keys in all tables. Add foreign key attributes in related tables. Then create relationships among related tables. Apply referential integrity rules on related tables. Save the database.
	54	Open an existing database. Create a simple form for an existing table. Create another form for another table by using Form Wizard. Sort data within forms. Filter data within forms.
	55	Open an existing database. Create a new form by using the "Form Design" button in the Forms group of the Create Tab. Add Existing Fields from Tools group in the Design Tab of Form Design Tools. Adjust the Heights and Widths of the Labels and text fields in the form design grid. Change the text format of Labels and Text fields. Change the view to Form View and navigate the form data. Save the database.
	56	Open an existing database. Create a new Simple Query by using the Query Wizard button on the Queries group of Create Tab. Add more data in the source table and then run the query again.
	57	Open an existing database. Run an existing Query. Change query view to Design View. Add Criteria for extracting specific records from the source table. Apply "AND" and/or "OR" criteria. Save the query and database.
	58	Open an existing database. Create a query based on multiple related tables.
	59	Open an existing database. Create a Simple Report through "Report" Button on the Reports group of Create Tab. Change the report view to "Print Preview". Make changes to report layout in Layout View.
	60	Open an existing database. Create a new report in Design View.

Reference Material	1. Book: Excel Macros for Dummies By "Michael Alexander"
	2. YouTube Channel " LearnIt Training" for MS OFFICE Applications.
	3. Microsoft Official Academic Course (MOAC) which covers the following Microsoft Office Specialist (MOS) Exams:
	    3.2.MOS Exam 77- 725: WORD 2016
	    3.3.MOS Exam 77- 727: EXCEL 2016
	    3.4.MOS Exam 77- 729: POWERPOINT 2016
	    3.5.MOS Exam 77- 730: ACCESS 2016	

Computer Networks

(DIT Part-I)

Total Marks:	100		Theory Marks: 75		Practical Marks: 25

Total Weeks: 20

Contact Hours Per Week: 06

Total Contact Hours: 120

Theory Hours: 40

Practical Hours: 80

General OBJECTIVES:

After completing this course, students will be able to:

- Understanding the basic concept of computer networks.

- Understanding the different types of Cables used for Computer Networks.

- Configuring different network devices.

- Creating different network scenarios in a network simulator (packet tracer)

Module	Course Contents	Allotted Weeks	Contact Hours
01	**BASIC TERMINOLOGIES** 1.1. Components of a Communication Model 1.1.1. Definition 1.1.2. Host / Sender 1.1.3. Media 1.1.4. Message 1.1.5. Protocol 1.1.6. Destination / Receiver 1.2. Computer Networks 1.2.1. Basic Definition & Types 1.2.2. Geographical Area Wise (Physical) (LAN, MAN, WAN, Internet) 1.3. Virtual (Logical) 1.3.1. VLANS 1.3.2. VPNS 1.4. Function / Working	02 Weeks	12
02	**TOPOLOGY** 2.1. Definition 2.2. Types of Topologies 2.2.1. Wired (BUS, Star, Ring, Hybrid, Mesh) 2.2.2. Wireless (Wi-Fi, Satellite, Radio Wave)	02 Weeks	12
03	**NETWORKING DAVIES** 3.1. Node 3.2. NIC 3.3. Modem 3.4. Hub 3.5. Switch 3.6. Wireless Devices 3.6.1. Access Point 3.6.2. Wireless Modem 3.6.3. Wireless USB Antenna 3.7. WAN / Internet 3.7.1. Router 3.7.2. Switch	02 Weeks	12
04	**TRANSMISSION MEDIA** 4.1. Wired media (Guided Media) 4.1.1. Coaxial cable (10 Base2 10 Base 5 10Base T, 100Base X) 4.1.2. BNC Connector 4.1.3. Twisted pair cable 4.1.4. Unshielded twisted- pair i. Cat 2, Cat 3 (Voice Communication) ii. Cat 4, Cat 5, Cat 6 (Data Transmission) iii. RJ-45 Connector 4.1.5. Shielded twisted- pair 4.1.6. Fiber optic cable i. Single Mode ii. Multi-Mode	03 Weeks	18

	4.2. Wireless media
	   4.2.1. Why we use Wireless Media
	   4.2.2. Technologies
	       i. Satellite
	      ii. Wi-Fi
	    iii. Bluetooth
	    iv. Microwave
	    v. Radio Wave
	4.3. Wireless communication with LANs
	   4.3.1. Introduction
	   4.3.2. Wireless Switches / Hub
	   4.3.3. Wireless NIC		

05	**HOW NETWORK TRANSFER DATA (NETWORK MODELS)?**
	
	5.1. OSI Model
	   5.1.1. Application Layer
	   5.1.2. Presentation Layer
	   5.1.3. Session Layer
	   5.1.4. Transport Layer
	   5.1.5. Network Layer
	   5.1.6. Data Link Layer
	   5.1.7. Physical Layer
	5.2. TCP/IP Model
	   5.2.1. Application Layer
	   5.2.2. Transport Layer
	   5.2.3. Network Layer
	   5.2.4. Physical or Link-Layer
		03 Weeks	18

06	**IP ADDRESSES**
	
	6.1. What is IP address?
	   6.1.1. Why we use IP Address
	6.2. IPV4
	   6.2.1. Class A, Class B, Class C, Class D, and Class E, IP addresses
	6.3. Introduction to IPv6
	   6.3.1. Why IP V6 introduced?
	   6.3.2. IP V6 address length (i.e. 128 bits)
		02 Weeks	12

07	**PROTOCOLS**
	
	7.1. Definition
	7.2. Types
	7.3. Routed protocols
	   7.3.1. Definition
	7.4. Routing Protocols
	   7.4.1. Definition
	7.5. Common Protocols
	   7.5.1. TCP / IIP
	   7.5.2. UDP
	   7.5.3. FTP
	   7.5.4. HTTPs
		02 Weeks	12

08	**PRACTICAL PORTION**
	
	8.1. Installing and Configuring Modem
	8.2. DSL Configuration
	8.3. Creating Straight Through cable
	    8.3.1. Practically demonstrate the connection of computer and hub / switch
	8.4. Creating Cross Over Cable
	    8.4.1. Practically demonstrate the connection of two computers without hub / switch
	8.5. Basic Commands for Troubleshooting
	    8.5.1. Ping, ipconfig / all, ipconfig / renew, ipconfig / release, trace route,
	8.6. Packet Tracer (Simulation)
	    8.6.1. Installing network simulator
	    8.6.2. Practically Demonstrate 02-Computers Network
	    8.6.3. Configuring PC's with IP addresses subnet mask and gateway
	    8.6.4. Create two different topologies of 10-10 computers using Hub
	    8.6.5. Place Switch between hubs to connect both technologies
	    8.6.6. Configuring switches by giving name to switches and management IP addresses
	    8.6.7. Connection PCs to switch and then ping each other` that they are working properly.
		04 Weeks	24

	Total	**20**	**120**

Lab Requirements **(Hardware / Software)**	**Recommended:** • Minimum 10 number of Core i3 Computers with 4GB RAM & 250 GB HD or Higher • Wire or Wireless HUB • Minimum 05 number of Crimping Tools • 01 RJ-45 Connector / Per Student • UTP Cable Cat-05 or Higher • Cable Tester • Windows 07 minimum • Cisco Packet Tracer **Additional Resources** • Windows 10 • Switch • Router • DSL Modem • 04 RJ-45 Connectors / Per Student

List of Practical	1. Identify hardware for networking i.e.
	    • NIC
	    • RJ-45 & RJ-11 Connectors
	    • UTP Cable Cat-5 or higher
	    • Crimping Tool
	    • Cable Tester
	2. Making Straight Cable
	3. Connect the computers in LAN using hub
	4. Making Cross-Over Cable
	5. Connecting two computers using cross-over cable
	6. Connecting two hubs or switches using cross-over cable

	7. Use different network commands
	    • Ping
	    • Ipconfig
	    • ipconfig / all
	    • Arp –a
	    • Hostname
	    • Tracert
	8. Installation of Packet Tracer
	9. Creating LAN of two computers, gradually increase the number of computers
	10. Creating Wireless LAN (WLAN)
	11. Demonstrate the Ping Command
	12. Installation, configuration of switch
	13. Creating LAN using switch
	14. Demonstrate the Router by connecting two different types of networks using Packet Tracer

Reference Material	• Networking Essential by Andrew Tanenbaum • Packet Tracer by Cisco (https://www.packettracernetwork.com/tutorials/)

Operating Systems

(DIT Part-I)

Total Marks:	100	Theory Marks: 75	Practical Marks: 25
Total Weeks:	20		
Contact Hours Per Week:	06		
Total Contact Hours:	120		
Theory Hours:	40		
Practical Hours:	80		

General Objectives:

After completion of this course, a student should be able to:

- Understand the basic concept of an operating system
- Understand different types of operating systems
- Install & configure windows 10
- Install & configure different peripheral devices

Module	Course Contents	Allotted Weeks	Contact Hours
	Theory Portion (Part-A)		

01	**OVERVIEW OF AN OPERATING SYSTEM**
	
	1.1. What is Operating System?
	1.2. Types of OS
	 1.2.1. Desktop OS
	  i. Batch OS (Batch Processing)
	  ii. Multiprogramming Operating System
	  iii. Multiprocessing Operating System
	  iv. Multitasking Operating System
	  v. Network Operating System
	  vi. Real Time Operating System
	  vii. Time Sharing Operating System
	  viii. Distributed Operating System
	
	 1.2.2. Mobile / Tablet OS
	  i. Android
	   a. What is android system
	   b. Version & Upgrades
	  ii. IOS
		02 Weeks	12

02	**FUNCTIONS OF AN OPERATING SYSTEM** 2.1. Operating System Structures 2.1.1. User Interface 2.2. Functions 2.2.1. Memory Management 2.2.2. Process Management 2.2.3. Resources Management 2.2.4. File Management 2.2.5. Security 2.2.6. Deadlock Prevention 2.2.7. Coordination Between users and software's	02 Weeks	12
03	**PROCESSES** 3.1. Definition 3.2. Process States (05 States) 3.3. Process structure 3.3.1. PCB and components 3.4. Operations on Processes 3.5. Threads	02 Weeks	12
	Practical portion (Part-B)		
04	**INTRODUCTION TO WINDOWS 10** 4.1. Installation Requirements 4.2. How to create Bootable USB / DVD / CD 4.2.1. Rufus Software 4.3. Step-By Step Installation Process 4.4. Hard Disk Partition 4.5. GUI Basics / Desktop Basic 4.6. Start Menu	07 Weeks	42

	4.7. Task Bar
	4.8. Settings
	4.9. Driver / Hardware Installation
	    4.9.1. VGA / SVGA / AGP / Gaming Card
	    4.9.2. Sound Card
	    4.9.3. Network Interface Card
	        i. Wired
	        ii. Wireless
	4.10. Software Installation
	4.11. User Creation
	    4.11.1. Setting Properties
	    4.11.2. Assigning Role & Permissions
	4.12. Tablet Mode
	4.13. Dual Desktop
	4.14. Network Settings
	    4.14.1. Join Workgroup
	    4.14.2. Connecting with DSL MODEM
	    4.14.3. Connecting with Hotspot
	4.15. Updates & Security
	4.16. Mouse & Keyboard Settings
	4.17. Adding Urdu Keyboards
	4.18. Installing & Configuring Printers & Scanner		

05	**NETWORK CONNECTIVITY (NETWORKING)** 5.1. Creating Workgroup 5.2. Assigning IP Address to NIC / HOST / Computer 5.3. File Sharing 5.4. Printer Sharing 5.5. Assigning Permissions to users 5.6. Practically demonstrate the data sharing between computers	03 Weeks	18

06	**WINDOWS SERVER 2019 / 2016**
	
	6.1. Definition
	6.2. Difference between client and Server
	6.3. Role & Services
	    6.3.1. Print & Document Services
	    6.3.2. Active Directory
	    6.3.3. DHCP
	    6.3.4. DNS
	    6.3.5. WINS
		04
		Weeks
			24

	Total	20	120

Lab Requirements **(Hardware / Software)**	Windows 10 Device Drivers Core i3 4GB RAM 250 GB HD or Higher Printer Scanner DSL Modem Additional: Webcam Joystick Barcode Reader HDMI Cable

List of Practical	1. Identify the basic components of computer i.e. CPU-MOUSE-KEYBOARD-MONITOR
	2. Introduction to BIOS
	    a. Setting System Date & Time
	    b. Setting Boot-Devices Priority
	        i. HD
	        ii. USB Drive / Hard Disk
	        iii. Network
	3. Create bootable USB / DVD / CD
	4. Windows 10 Installation
	5. HD Partition during Installation
	6. Setting username & computer name during installation
	7. Changing Taskbar & Desktop settings
	8. Device Drivers Installation
	    a. Via Settings
	    b. Without settings (Direct installation)
	9. Un-installing a software via settings
	10. Converting windows from computer to tablet mode
	11. Creating & using dual desktops
	12. How to join a workgroup?
	13. Configure & connect DSL Modem
	14. Using Internet via Hotspot
	15. How to add Urdu Keyboard & fonts
	16. Printer Installation
	17. Printer sharing on LAN
	18. Scanner Installation
	19. Demonstrate the scanning document process
	20. Assign IP address to your computer
	21. Share your files & folder
	22. Assign Permissions
	23. Password Recovery
	24. Backup & Restore
	25. Defender
	
	Additional
	    a. Windows Server 2019/2016 Installation
	    b. Install & Configure Active Directory
	    c. Install & Configure DNS
	    d. Install & Configure DHCP

Reference Material	1. Operating Systems by William stalling 2. Windows 10 simplified Book (Paul McFedries) 3. Operating System & Networks by Tariq Mahmood & Imran Saeed (IT Series)

Introduction to Programming

(DIT Part-I)

Total Marks:	100	Theory Marks:	75	Practical Marks:	25

Total Weeks:	20
Contact Hours per week:	06
Total Contact Hours:	120
Theory Hours:	40
Practical Hours:	80

GENERAL OBJECTIVES:

After completion of this course, students will be able to write a python script that uses:

- Variables to store different data type values.
- Arithmetic Operators to perform calculations.
- Conditional Statement (If, else, elif), Execute a block of code based on certain condition. What to run and what to skip.
- Loops (for and While) to execute a block of code again and again based on certain conditions.
- Type Casting to convert the variable as per requirements i.e., from number to string or string to number.
- Strings, to store characters, and work with it by using different built-in functions.
- Lists that organize different data types together as a container.
- Functions
- Turtle library to create basic shapes such as Square, Rectangle, Triangle and Stars.

Module	Course Contents	Allotted Weeks	Contact Hours
	Python Programming Language		
01	**Introduction to Programming** 1.1. What is a program? 1.2. Languages of Programming a computer 1.2.1. Machine Language 1.2.2. Assembly Language 1.2.3. High Level Language 1.3. Algorithm 1.4. Compiler vs Interpreter 1.5. Introduction and Benefits of Python 1.6. History of Python 1.7. Exercise	02 Weeks	12
02	**GETTING STARTED WITH PYTHON** 2.1. Downloading and Installation of Python IDE (PyCharm) 2.2. Anatomy of Python Program 2.3. Write your first Hello World! Script 2.4. Guidelines for creating Script 2.4.1. Importance of comments 2.4.2. Spacing 2.5. Programming Errors: 2.5.1. Syntax Error 2.5.2. Runtime Errors 2.5.3. Logical Errors 2.6. Exercise	02 Weeks	12
03	**VARIABLES & OPERATORS** 3.1. Variables in Python 3.2. Rules and Guidelines for creating a variable 3.3. Assignment Operator 3.4. Multiple Assignments 3.5. Use of Buit-in function (type) 3.6. Arithmetic Operators (+, -, /, *, **) 3.7. Type Conversion Vs Type Casting 3.8. Boolean Operator 3.9. Logical & Comparison Operators 3.10. Exercise	02 Weeks	12
04	**STRINGS** 4.1. Understanding Strings 4.2. Combine vs Repeat Strings 4.3. String's Buit in Methods (capitalize (), len (), lower (), upper (), strip (), replace (), startwith(), endswith()) 4.4. Exercise	02 Weeks	12
05	**LISTS** 5.1. Understanding Lists 5.2. Forward vs Backward Accessing 5.3. Changing, Removing and Adding Element 5.4. Slice a List 5.5. Membership Operator: in vs not in	02 Weeks	12

	5.6. Exercise		
06	**CONDITIONAL STATEMENT:** 6.1. if statement 6.2. else statement 6.3. elif statement 6.4. Exercise	02 Weeks	12
07	**LOOPS:** 7.1. for loop 7.2. while loop 7.3. continue vs break 7.4. Exercise	02 Weeks	12
08	**FUNCTIONS** 8.1. Understanding functions 8.2. print vs return statement 8.3. Variable scope 8.4. Default arguments 8.5. Exercise	02 Weeks	12

09	**WORKING WITH GRAPHICS**
	
	9.1. Introduction to Turtle
	9.2. Basic commands
	        (forward(), back(), left(), right())
	9.3. Draw Shapes
	        (Lines, Square, Rectangle, Circle, Star)
	9.4. Working with Excel File using Panda
	      9.4.1. Reading an Excel file using Python
	      9.4.2. Writing into an excel file using Python
	9.5. Other Useful Python Libraries
	      9.5.1. Numpy
	      9.5.2. Matplotlib
	      9.5.3. Tkinter
	      9.5.4. Django
	      9.5.5. Kotlin
	      9.5.6. Micropython
	      9.5.7. PyGame
	Practical (25,26,27,28,29,30,31)
		04 Weeks	24

		Total 20	120

Lab Requirements
(Hardware / Software)
	1. **Hardware Requirements:**
	    • CPU: Intel Core or Xeon 3GHz (or Dual Core 2GHz) or equal AMD CPU
	    • RAM: 4 GB (6 GB recommended)
	    • Display Resolution: 1280×1024 is recommended, 1024×768 is minimum.
	2. **Software Requirement:**
	    • 64-bit versions of Microsoft Windows 11, 10, 8
	    • Install PyCharm Community

List of Practical	1. Write a script to display "Hello World!! "On console.

2. The electricity bills for the last three months have been 23000, 32000 and 64000. What is the average monthly electricity bill over the three-month period? Write an expression to calculate the mean, and use print() to view the result.

3. Write a script to calculate the area of circle. (Area of Circle: $A = \pi r^2$).

4. Write a script that Count all letters, digits, and special symbols from a given string. **inputString** = "P@#yn26at^&i5ve"

5. Write a script to find all occurrences of "Baqir" in a given string ignoring the case.

   > **inputString** = "Baqir is student of python programming class. Baqir belongs to district peshawar"

6. Write a script to split a given string on hyphens and display each substring.

   > **inputString** = Bareera-is-a-data-scientist

7. Write a script to check whether a number entered by user is even or odd.

8. Write a script to check whether a number is divisible by 7 or not.

9. Write a script to takes score from a user between (1 and 100) and display its grade according to score. (Score: 1-50 Grade: Average) (Score: 51-70 Grade: Good) (Score: 71-100 Grade: Excellent).

10. Write a script to print First 10 natural numbers using loop (while, for).

11. Write a script to print factorial of the given number (while, for).

12. Write a script to calculate the sum of all numbers from 1 to a given number (while, for).

13. Write a program to print multiplication table of a given number (while, for)

14. Write a script to print the list the reverse order.

15. Write a script that takes five fruits name from the user and store it in a list. Display the list elements using for loop.

16. Write a script to turn every item of a list into its square.

    > (numberList= [2,4,6,6,10])

17. Write a script that copy all the elements of the given list and append it to new list name updatedList.

    > list = ['Mango', 'Apple','Banana,'Melon','Grapes']

18. You have been given a Python list. Write a script to find value 20 in the list, and if it is present, replace it with 200. **list** = [22,12,25,667,988,387,20,188,77]

	19. Write a script that takes an input string from a user and find that if the string exists or not in the given list. **list** = ['Pakistan', 'Shayan', 'Baqir', 'GCMS'] 20. Write a script that find all the elements in a list start with letter B. Names = ["Ali", "Shayan","Baqir","Bareera","Zulfiqar"] 21. Write a Python function that accepts two numbers as arguments and returns the sum. 22. Write a Python function that accepts different values as parameters and returns a list. 23. Write a Python function that returns multiple values. 24. Write a Python function to find the factorial of a number. 25. Write a python script to draw star on screen. 26. Write a python script to display rectangle on screen 27. Write a python script to draw square on screen. 28. Write a python script to draw a circle on screen. 29. Write a python script to draw lines on screen.
Reference Material	• Introduction to Programming using Python by Y. Daniel Liang • Python For Dummies by Stef Maruch & Aahz Maruch • https://docs.python.org/3/tutorial/index.html

DATABASE SYSTEMS

(DIT Part-II)

Total Marks:	100	Theory Marks:	75	Practical Marks:	25
Total Weeks:	20				
Contact Hours per week:	06				
Total Contact Hours:	120				
Theory Hours:	40				
Practical Hours:	80				

GENERAL OBJECTIVES:

After completion of this course, students are expected to be able:

- To ascertain the importance of databases in knowledge-based societies.
- To understand the basic concepts of Database and Database Management Systems.
- To transform an Entity Relationship Model into a Relational Schema.
- To use an Open Source software.
- To apply SQL commands for data manipulation in a database.
- To use MySQL Community Server 8.0 for Creating and Maintaining a database.
- To Create Front-end in MS ACCESS for MySQL Databases

Module	Course Contents	Allotted Weeks	Contact Hours

01	**INTRODUCTION TO DATABASE CONCEPTS**
	1.1 Definition of Database
	1.2 Importance/Advantages of Databases
	1.3 Database Models
	       1.3.1 Hierarchical
	       1.3.2 Network
	       1.3.3 Relational
	1.4 Definition of Database Management System (DBMS)
	       1.4.1 Relational DBMS (SQL Based)
	                    (MS Access, MS SQL, MySQL, ORACLE)
	       1.4.2 Non-Relational DBMS (NoSQL)
	                    (MongoDB, HBase, Cassandra)
	1.5 Functions of DBMS
	       1.5.1 Data Dictionary Management
	       1.5.2 Data Storage Management
	       1.5.3 Data Integrity Management
	       1.5.4 Backup & Recovery Management
	       1.5.5 Security Management
	       1.5.6 Multi-User Access Control
		01 Week	06

02	**RELATIONAL DATABASE CONCEPTS**
	
	2.1 Definition of Relational Database & RDBMS
	2.2 Entity, Table, Record, Field
	2.3 Primary Key, Composite Key, Foreign Key
	2.4 Referential Integrity
	2.5 Types of Relationships
	       2.5.1 One-to-One
	       2.5.2 One-to-Many
	       2.5.3 Many-to-Many
		01 Week	06

03	**DATA MODELLING**
	
	3.1 Introduction to Data Modelling & its importance
	3.2 Definition of Entity Relationship Diagram (ERD)
	3.3 Elements of ERD
	3.4 Transforming ERD to Relational Schema
	3.5 Normalization of Relational Database
	       3.5.1 First Normal Form (1NF)
	       3.5.2 Second Normal Form (2NF)
	       3.5.3 Third Normal Form (3NF)
		03 Weeks	18

04	**DATABASE DEVELOPMENT USING MYSQL**
	
	4.1 Introduction to MYSQL
	       4.1.1 Definition and advantages of MySQL
	       4.1.2 Installation of MySQL Community Server 8.0
	       4.1.3 Introduction to MySQL Workbench 8.0
	       4.1.4 Introduction to MySQL Shell 8.0
	       4.1.5 Introduction to MySQL 8.0 Command Line Client
	4.2 Introduction to Structured Query Language (SQL)
	       4.2.1 Data Definition Language (DDL)
	       4.2.2 Data Manipulation Language (DML)
	       4.2.3 Data Control Language
		15 Weeks	90

4.3 MySQL Statements for Database Development
- 4.3.1 Database Manipulation
  - i. CREATE DATABASE statement
  - ii. DROP DATABASE statement
  - iii. USE Statement
- 4.3.2 Basic Data Types
  - i. VARCHAR
  - ii. TEXT
  - iii. LONGTEXT
  - iv. INT
  - v. BIGINT
  - vi. FLOAT
  - vii. DOUBLE
  - viii. BOOL
  - ix. DATE
  - x. TIME
  - xi. YEAR

- 4.3.3 Table Manipulation
  - i. SHOW TABLE Statement
  - ii. CREATE TABLE statement
  - iii. DROP TABLE statement
  - iv. TRUNCATE TABLE statement
  - v. ALTER TABLE statement
  - vi. ALTER TABLE – ADD
  - vii. ALTER TABLE – DROP COLUMN
  - viii. ALTER TABLE – MODIFY COLUMN
  - ix. CREATE INDEX statement
  - x. INSERT INTO statement
  - xi. UPDATE statement
  - xii. DELETE statement
  - xiii. LIMIT clause
  - xiv. INSERT INTO SELECT statement
  - xv. DESC and EXPLAIN statements

- 4.3.4 Data Retrieval
  - i. SELECT statement
  - ii. SELECT DISTINCT statement
  - iii. WHERE clause
  - iv. Operators used in WHERE clause
  - v. Wildcards (% , _) used in WHERE clause
  - vi. AND, OR, NOT Operators
  - vii. ORDER BY clause
  - viii. ORDER BY DESC
  - ix. GROUP BY statement
  - x. HAVING clause

- 4.3.5 Constraints
  - i. NOT NULL
  - ii. UNIQUE
  - iii. PRIMARY KEY
  - iv. FOREIGN KEY
  - v. DEFAULT
  - vi. CHECK

- 4.3.6 Functions
  - i. AVG()

	ii. COUNT()	
	iii. CONCAT()	
	iv. LOWER()	
	v. LENGTH()	
	vi. LTRIM()	
	vii. MIN()	
	viii. MAX()	
	ix. RTRIM()	
	x. REPLACE()	
	xi. REPEAT()	
	xii. STRCMP()	
	xiii. SUBSTR()	
	xiv. SUM()	
	xv. UPPER()	

4.3.7   MySQL Operators
       i.   Arithmetic Operators
       ii.   Comparison Operators
       iii.   Logical Operators

4.3.8   Views
       i.   CREATE VIEW statement
       ii.   DROP VIEW statement

4.3.9   MySQL Joins
       i.   INNER JOIN
       ii.   LEFT JOIN
       iii.   RIGHT JOIN
       iv.   CROSS JOIN

4.3.10   Front-end-Development
       i.   Connection MS Access to MySQL Database.
       ii.   Creating Forms for MySQL Databases
       iii.   Creating Reports for MySQL Databases

TOTAL	**20**	**120**

Lab Requirements (Software)	**Software Requirements:** • Minimum Windows 7 (64-bit, Professional level or higher) • Mac OS X 10.6.1+ • Ubuntu 9.10 (64bit) • Ubuntu 8.04 (32bit/64bit)
List of Practical	<table><tr><th>Practical Number</th><th>Description</th></tr><tr><td>1</td><td>Downloading and Installation of MySQL Server 8.0: 1. Download MySQL Community Server from dev.mysql.com/downloads/mysql/ 2. Install MySQL Server 8.0, MySQL Workbench 8.0 and MySQL Shell 8.0 as follow: (a) Run the downloaded mysql-installer-community-8.0 file. (b) Choose the Custom setup type, click Next. (c) Select 'MySQL Server 8.0' from Servers, 'MySQL Workbench 8.0' and 'MySQL Shell 8.0' from Applications, 'Samples and Examples' from Documentation. Click arrow key to bring these products in the list of "Products to be Installed". Click Next then Click Execute then Next. (d) Leave default settings on Type and</td></tr></table>

		Networking, click next. Keep "Use strong password….." and click next. Create a MySQL Root Password and click next. Leave default settings on "Windows Service" and click next. Keep default settings and click next. Click Execute. Click Finish. (e) Enter password and click check. Then Next and then Execute. Finally click Finish, Next and Finish. (f) The MySQL Workbench 8.0 and MySQL Shell tool will be started. To verify the successful installation of MySQL Server, run the windows command prompt and execute this command "mysql --version". It will show the version and full name. Don't forget to add the path in environment variable.
	2	Starting MySQL Server and Establishing the Session/Connection: 1. The MySQL Server will automatically start by starting windows because it was selected by default during the installation of MySQL Server. 2. If MySQL Server is not started automatically, then (a) Write 'Services' in the search box on Taskbar and press Enter key. (b) Services dialog box appears. Search for the 'MySQL80' service in the list of services. (c) In the 'MySQL80' properties, while 'General' tab is opened, select the Startup Type as Automatic. (d) If the Service status is Stopped, click on Start. 3. Connect to MySQL Server by following these steps: (a) Start windows command prompt. (b) Write 'mysqlsh' command and press Enter key. MySQL JS prompt will appear. (c) Write '\sql' command and press enter key to change command prompt to SQL mode. (d) Write '\connect root@localhost' command and press enter key. Then enter the password. Choose whether to save password or not. (e) If your MySQL Connection Id is shown, then Server is started and connection is established successfully. (f) Now here all SQL commands can be used to play with MySQL databases.
	3	MySQL Workbench User Interface: 1. Start MySQL Workbench 8.0. Title bar shows the application name "MySQL Workbench". Below the title bar is Tab bar which shows Home Tab. Below the Home Tab is Menu bar. 2. On the main window, Click on "Local instance MySQL80 root localhost:3306". 3. Enter the root Password. A new Tab will open containing "Query1 window", Navigator Pane, Information Pane, Output pane etc. This Tab is named as "Local instance MySQL80". You can click the home Tab icon (on the left) to go to the Home Screen. 4. The toolbar available under the menu bar contains controls for creating a new database (Schema), new table, new view, SQL tab etc. 5. In the Navigator Pane, two Tabs are available; Administration and Schemas. Administration Tab provides features for managing the server, clients etc. Schemas Tab allows to manage Databases. 6. Click on Schemas Tab to show available databases.
	4	Using MySQL Shell tool for exploring available databases: 1. Connect to MySQL Server as explained in step-3 of practical No-2 above. 2. Write command "show databases;" and press enter. Available databases are shown.

		3. Write command "use world;" and press enter. Default database will be set to World. (Note the prompt which contains database name) 4. Write "show tables;" and press enter. All tables of 'world' database will be shown. 5. Write "select * from city" and press enter. All records of 'city' table will be shown. 6. CTRL + L is used to clear screen. CTRL + C is used to interrupt execution.
	5	Creating and Deleting a MySQL Database: 1. Connect to MySQL Server as explained in step-3 of practical No-2 above. 2. Write 'create database college;' command and press enter. 3. Write 'create database shop;' command and press enter. 4. Write 'show databases;' command and press enter. The list contains both DBs. 5. Now write 'drop database shop;' command and press enter to delete SHOP Db.
	6	Creating table in a MySQL database: 1. Connect to MySQL Server as explained in step-3 of practical No-2 above. 2. Write 'use college;' command and press enter to set default schema to College. 3. Execute 'show tables;' command to list all tables in College database. It is currently empty because it was only created in practical No-5 above. 4. Execute 'create table Student (id int, name text(15), age int);' command to create a new table called Student. 5. Insert 5 records in Student table using 'INSERT INTO' statement. 6. Extract all data from Student table using SELECT statement.
	7	Adding more attributes in existing table: 1. Start using the 'College' database (created above) in MySQL Shell. 2. Use the ALTER TABLE - ADD statement to add two more columns (City and Phone No) in Student table. 3. Use UPDATE statement to populate these two new columns with data. 4. Extract all records using SELECT statement.
	8	Deleting a Column of a Table and Changing data type of a Column: 1. Start using the 'College' database (created above) in MySQL Shell. 2. Show all data of Student table by using SELECT statement. 3. Use ALTER TABLE- DROP COLUMN statement to delete city column. 4. Use DESC statement to show the structure of Student table. 5. Use ALTER TABLE – MODIFY COLUMN statement to change the data type of phone column from VARCHAR to BIGINT. 6. Again use the DESC statement to show the structure of Student table.
	9	Creating a duplicate table and setting the Primary Key: 1. Start using the 'College' database (created above) in MySQL Shell. 2. Show all data of Student table by using SELECT statement. 3. Execute 'CREATE TABLE studentcopy SELECT id, name, age, phone, city FROM student; ' command to create a duplicate table called studentcopy. 4. Show all records of the new table. 5. Execute 'ALTER TABLE studentcopy ADD Primary Key (id);' command to set the ID field as Primary key of studentcopy table. 6. Execute 'DESC studentcopy' command to check table structure.

	10	**Deleting only data from table and then using INSERT INTO SELECT:** 1. Start using the 'College' database (created above) in MySQL Shell. 2. Show all data of studentcopy table by using SELECT statement. 3. Execute 'TRUNCATE TABLE studentcopy;' command to delete all records in the studentcopy table and then check, it will be empty. 4. Now execute this command to fill the studentcopy table again with the data of student table. ' INSERT INTO studentcopy SELECT * FROM student; ' 5. Check its structure by using the DESC or EXPLAIN statement.
	11	**Creating an Index on a table and using the LIMIT clause:** 1. Start using the 'College' database (created above) in MySQL Shell. 2. Show all data of studentcopy table by using SELECT statement. 3. Execute ' CREATE INDEX idx_age ON studentcopy (age); ' command to create an index on the age field of studentcopy table. 4. Execute ' SELECT * FROM studentcopy LIMIT 3;' to extract only 3 records.
	12	**Applying NOT NULL and Setting Primary Key:** 1. Create a new database and name it as 'Pharma'. 2. Set default database to pharma by using USE statement. 3. Create a new Table Customer with fields CID as INT, CNAME as TEXT, CCITY as TEXT, CPHONE as TEXT. 4. Set CID as Primary Key and NOT NULL. 5. Insert at least 20 records in this table.
	13	**Creating a database table using MySQL Workbench 8.0:** 1. Start MySQL Workbench 8.0 from windows start menu, click on "Local instance MySQL80 root localhost:3306" and enter the root password. 2. In the Navigator pane, click on 'Schemas' tab. All databases are shown. 3. Double click on 'Pharma' database to select it as current database in use. 4. In the Query window, write 'CREATE TABLE supplier (SID INT NOT NULL, SNAME VARCHAR(15), SCITY TEXT(15), SPHONE TEXT(12), Primary Key (SID));' statement for creating a new table Supplier. 5. Press CTRL + ENTER to execute the current statement. The new table is created which can be checked in the left pane by pressing the refresh button. 6. In the next line of Query window write 'SELECT * FROM SUPPLIER;' and press CTRL+ENTER to show all records. The Result Grid below shows empty table.

	14	**Creating More Tables 'Pharma' database in MySQL Workbench:**
		1. Continue using the 'Pharma' database created in practical No-13 above, in MySQL Workbench.
		2. Enter at least 20 records in the 'supplier' table by using the result grid user interface.
		3. Create following 4 more tables in similar way in the MySQL Workbench.
		   a. MedicineType (TID(int), TYPE(text))
		   b. Medicine (MID(int), MNAME(text), MPRICE(int), MEXPIRY(date), SID(int), TID(int))
		   c. CustomerOrdersMedicine (ORDID(int), MID(int), Quantity(int))
		   d. CustomerOrders (ORDID(int), CID(int), ORDDATE(date))

	15	1. Continue using the 'Pharma' database created in practical No-13 & 14 above, in MySQL Workbench. 2. Define Foreign keys in newly created tables. 3. Enter at least 20 records in each table created in practical No-14 above using MySQL Workbench. 4. Then extract specific records from these tables using the WHERE clause, using wildcards, using AND OR NOT operators. 5. Create views for these tables. 6. Combine tables using different MySQL JOIN statements.
	16	Creating an ODBC Connection for MS ACCESS: 1. Open Control Panel and click on "System and Security" option. 2. Click on "Administrative tools". In new window, click on "ODBC Source". 3. ODBC Administrative window opens up. Click "System DSN" Tab. Click "ADD" button. 4. Create new data source window opens up. In the list search for "MySQL ODBC Driver". If the driver is not in the list, then you have to download it as explained in practical No-17 below. 5. Select "MySQL ODBC Driver" and click Finish. A configuration window MySQL Connector/ODBC" appears. 6. Give any name of your choice in "Data Source Name" field. Write "localhost" in TCP/IP Server field. Write "root" in User field and enter root password in password field. Select desired MySQL database in drop down menu and click "Test". "Connection Successful" test result message appears. Click "OK" to complete the process.
	17	Downloading MySQL ODBC Connector: 1. Go to www.mysql.com, click on Downloads. 2. Click on MySQL Community Downloads. Then click on "Connector/ODBC". Download relevant mysql odbc 8.0 (32/64 bit) MSI installer. Install the downloaded file.
	18	Developing Front-end for MySQL database: 1. Open a blank database in MS ACCESS. 2. Click on External Data, New Data Source, From other sources, and click on ODBC Database. 3. In the new dialog box, click on "Link to the data source by creating a linked table" 4. In the "Select Data Source" dialog box, click on "Machine Data Source", then select the name of ODBC connection and click 'OK'. 5. The connection is established and all the Tables of the database appears. 6. Now create a form for any table of your connected MySQL database and enter new records. 7. Open the same MySQL database in MySQL Workbench and check the new record there. 8. Create a report in MS ACCESS for any table of your MySQL database. Front-end (through MS ACCESS Forms and Reports) is created
Reference Material		• https://dev.mysql.com/downloads/mysql/ • https://www.w3schools.com/mysql/default.asp • https://www.mysqltutorial.org

Video Editing

(DIT Part-II)

Total Marks:	100	Theory Marks:	75	Practical Marks:	25

Total Weeks: 20

Contact Hours per week: 06

Total Contact Hours: 120

Theory Hours: 80

Practical Hours: 40

GENERAL OBJECTIVES:

After completion of this course, students are expected to be able:

- To Understand the Video Editing in different environment.
- To Design, Edit, Crop different Videos and understand Graphics & colors.
- To Work in Fiver etc as a Free Lancer
- To work with organization and industries

Module	Course Contents	Allotted Weeks	Contact Hours
01	**INTRODUCTION** 1.1. Background and history of video editing 1.2. Goals of editing 1.3. Basics of video editing 1.4. Stages of editing 1.5. Evolution of software	01 Week	06
02	2.1. Introduction to Adobe Premiere Pro 2.2. Installation and activation of Adobe Premiere Pro 2.3. Footage and Aspect ratio 2.4. Video Formats	02 Weeks	12
03	3.1. Different ways to import footage (video) in Premier Pro 3.2. Organizing Assets in different ways 3.3. Preview and Select Assets 3.4. Sequence (timeline) 3.5. Source window in Premiere Pro 3.6. Tools Panel in Premiere Pro 3.7. Timeline in Premiere Pro 3.8. When to cut and why?	03 Week	18
04	4.1. Effects control window 4.2. Video transitions in Premiere Pro 4.3. Video Effects in Premiere Pro 4.4. Opacity and blending modes 4.5. Stabilizing shaky footage 4.6. Adding mask in Premiere Pro 4.7. Different types of cut in video editing 4.8. Continuity of action 4.9. Pacing and Rhythm 4.10. Speed and time re-mapping	04 Weeks	24
05	5.1. Action Edit 5.2. Copy paste attributes in Premiere Pro 5.3. Creating montage in Premiere pro 5.4. Short cut keys in Premiere Pro 5.5. Audio editing 5.6. Supporting software for sound design 5.7. Multi camera editing 5.8. Editing music videos 5.9. Nesting and blending	04 Weeks	24
06	6.1. Titler 6.2. Captions and sub-titles 6.3. Import & work on image sequence 6.4. Graphic tab 6.5. Markers and labels 6.6. Color grading 6.7. Adjustment layers 6.8. Duplicating a person	04 Week	24

07	7.1. Green screen keying 7.2. Export media 7.3. After effects	02 Week	12
		Total	20	120

Lab Requirements **(Hardware / Software)**	Adobe Primer Pro
List of Practical	1) Logo Intro Video Creating 2) Green Screen Background Remove 3) Sound Effects Audio production 4) Video Cutting 5) Social Media Lower Thirds 6) Title Sequences 7) Text Animations 8) Documentaries Video Creating 9) Vlogs Video Production 10) YouTube Videos Editing 11) Promotional Videos Creating 12) Tutorials Editing 13) Corporate and Business Videos 14) Real Estate Videos Creating
Reference Material	• GFX Mentor • https://help.adobe.com/archive/en/premiere-pro/cs6/premiere_pro_reference.pdf

Web Development Essentials

(DIT Part-II)

Total Marks:	100	Theory Marks:	75	Practical Marks:	25

Total Weeks: 20

Contact Hours per week: 06

Total Contact Hours: 120

Theory Hours: 40

Practical Hours: 80

GENERAL OBJECTIVES:

After completion of this course, students are expected to be able:

- To Understand the Basic of Web Development
- To Understand the HTML, CSS and JavaScript Basic Code.
- Create HTML5 documents.
- Create CSS stylesheets Layout Design.
- Implement program logic using JavaScript.

Module	Course Contents	Allotted Weeks	Contact Hours

01	**INTERNET AND WORLD WIDE WEB INTERNET**
	
	1.1 Working of internet
	   1.1.1 Benefits of Internet
	   1.1.2 Ethics of Internet
	1.2 Services of Internet
	   1.2.1 World Wide Web (www)
	   1.2.2 Email
	   1.2.3 Social Networking
	   1.2.4 Mailing List
	   1.2.5 News Group
	1.3 Web Browser
	   1.3.1 Functions of Web Browser
	   1.3.2 Type of Browsers
	1.4 Web Server
	1.5 Web Directories
	1.6 Websites
	   1.6.1 Static
	   1.6.2 Dynamic
	1.7 Search Engine
	1.8 Web Page Program Development
	   1.8.1 Roles in Web site development team
	   1.8.2 Web Development Scope
	1.9 Scripting languages
	   1.9.1 JavaScript
	   1.9.2 PHP
	1.10 Web hosting
	   1.10.1 Web Hosting Services
	   1.10.2 Types of web Hosting
	1.11 Cookie
	   1.11.1 Types of Cookies
	   1.11.2 Uses of Cookies
	   1.11.3 Browser Setting for Cookies
	   1.11.4 Privacy Concerns about Cookies
	1.12 Web 2.0
	1.13 Web 3.0
		04 Weeks	24

02	**HTML5 INTRODUCTION** 2.1 HTML Editors 2.2 HTML Basic 2.3 HTML Elements 2.4 HTML Attributes 2.5 HTML Headings 2.6 HTML Paragraphs 2.7 HTML Styles 2.8 HTML Formatting 2.9 HTML Quotations 2.10 HTML Comments 2.11 HTML Colors	04 Weeks	24

	2.12 HTML CSS		
	2.13 HTML Links		
	2.14 HTML Images		
	2.15 HTML Favicon		
	2.16 HTML Tables		
	2.17 HTML Lists		
	2.18 HTML Block & Inline		
	2.19 HTML Classes		
	2.20 HTML Id		
	2.21 HTML Iframes		
	2.22 HTML Head		
	2.23 HTML Layout		
	2.24 HTML Forms		
03	**CSS INTRODUCTION** 3.1 CSS Syntax 3.2 CSS Selectors 3.3 CSS How To Use 3.4 CSS Comments 3.5 CSS Colors 3.6 CSS Backgrounds 3.7 CSS Borders 3.8 CSS Margins 3.9 CSS Padding 3.10 CSS Height/Width 3.11 CSS Box Model 3.12 CSS Outline 3.13 CSS Text 3.14 CSS Fonts 3.15 CSS Icons 3.16 CSS Links 3.17 CSS Lists 3.18 CSS Tables 3.19 CSS Display 3.20 CSS Max-width 3.21 CSS Position 3.22 CSS Z-index 3.23 CSS Overflow 3.24 CSS Float 3.25 CSS Inline-block 3.26 CSS Align 3.27 CSS Opacity 3.28 CSS Navigation Bar 3.29 CSS Dropdowns 3.30 CSS Attribute Selectors	06 Weeks	36
04	**JAVASCRIPT** 4.1 JS Introduction 4.2 JS Output 4.3 JS Statements 4.4 JS Structure 4.5 JS Comments	06 Weeks	36

4.6	JS Variables		
4.7	JS Let		
4.8	JS Const		
4.9	JS Operators		
4.10	Functions		
	4.10.1 User define function		
	4.10.2 Built-in Function (ABS(), Rand(), Max(), Min(), eval(), parseInt(), parseFloat())		
4.11	JS Arrays		
4.12	JS If Else		
4.13	JS Switch		
4.14	JS For Loop		
4.15	JS While Loop		
	Total	20	120

Lab Requirements
(Hardware / Software)
	Computer Core i3 at least
	    04 GB RAM
	    320 GB HD
	    Internet Connection
	    Gmail account
	
	Notepad++
	Microsoft Visual Code (Latest Edition)

List of Practical	• Installation of Notepad++ • Visual Studio Installation • HTML HEAD, TITLE, FAVICON TAGS • Usage of STYLE & SCRIPT TAGS • HTML Heading Tags Demonstration i.e. H1-H6 • HTML BODY TAG & ITS ATTRIBUTES • USAGE OF FONT & PARAGRAPH TAGS • DEFINE TABLES IN HTML • INSERT IMAGES IN HTML • USE LISTS IN HTML • USE DIV TAGS • DEFINE IFRAME, AUDIO & VIDEOS • Define HTML Internal / External Linking • Create HTML Form • Apply CSS styles on Text, Font, Lists • APPLYING CSS ON TABLE, IMAGES • Usage of BORDER & MARGIN ON different elements • Dropdown & Navigation bar • Use JavaScript for data entry • Variables. Constants & Data types • Different conditional Statements like if, if-else & Switch • Usage of Loops i.e. for & while • Use JavaScript Dialog boxes, Like Prompt, Input, Warnings • Use JavaScript Validation • Define functions in JavaScript
Reference Material	• W3School • HTML, DHTM, JAVASCRIP & PERAL by Ivan Bayross • HTML 5 COMPLETE REFERENCE • WEB DESIGN WITH HTML & CSS by Jeremy Osborn, Jennifer Smith, and the AGI Training Team

Graphics Design

(DIT Part-II)

Total Marks: 100   Theory Marks: 75   Practical Marks   25

Total Weeks: 20

Contact Hours per week: 06

Total Contact Hours: 120

Theory Hours: 40

Practical Hours: 80

GENERAL OBJECTIVES:

After the completion of this course, students are expected to be able:

- To Understand the Adobe Photoshop and Coral Draw in different environment.
- To Design different logos, images and understand colors.
- To work with organization and industries
- To be able to write Urdu in digital environment.

Module	Course Contents	Allotted Weeks	Contact Hours
	Adobe Photoshop 2016		
01	**EXPLORING THE PHOTOSHOP ENVIRONMENT** 1.1. Explore the Photoshop interface 1.2. Customize the Workspace 1.3. Explore the Navigation Tools	01 Week	06
02	**WORKING WITH IMAGE AREAS** 2.1 Select Image Areas 2.2 Save a Selection 2.3 Modify a Selection 2.4 Setting Color Space 2.4.1 Calibrate and Profile your Monitor 2.4.2 Set a Working Color Space in Photoshop 2.4.3 Convert Image from one Color Space to Another 2.4.4 Manage Printing and Color 2.5 Enhancing Image 2.5.1 Print Strokes on an Image 2.5.2 Apply Filter Effects 2.5.3 Convert an Image to Black and White 2.5.4 Blend Layers 2.5.5 Merge Layers and Flatten Image 2.5.6 Convert Color Images to Grayscale	02 Weeks	12
03	**WORKING WITH LAYERS** 3.1 Create Layers 3.2 Create Type Layers 3.3 Transform Layers 3.4 Alter Type Properties 3.5 Apply Layer Styles 3.6 Undo Previous Steps 3.7 Arrange and Group Layers	01 Week	06
04	4.1 Saving Images for Web and Print 4.1.1 Save Images for Use in Print Application 4.1.2 Save Images for the Web 4.1.3 Save Images as PDF 4.2 Managing Assets with Adobe@ Bridge 4.2.1 Explore Adobe Bridge 4.2.2 Work with Adobe Bridge 4.2.3 Work with Stacks and Filters in Adobe Bridge 4.2.4 Apply Metadata and Keywords to Files 4.2.5 Preparing Web Images 4.2.6 Change Measurement Units 4.2.7 Reduce File Size 4.3 Creating Web Page Layouts 4.3.1 Simulate a Web Page 4.3.2 Create Web Page Background 4.3.3 Draw Editable Vector Shapes 4.3.4 Create Effects 4.3.5 Export a Web Page	02 Weeks	12

05	5.1 Enhancing Photographs
	    5.1.1 Retouch Photographs Using Photoshop Tools
	    5.1.2 Create Patterns
	    5.1.3 Create Swatches and Gradients
	    5.1.4 Create a Custom Brush
	    5.1.5 Create Custom Patterns
	5.2 Creating Special Effects
	    5.2.1 Preview Text Effects Using Layer Comps
	    5.2.2 Warp an Image
	5.3 Automating Tasks
	    5.3.1 Create an Action
	    5.3.2 Manage Action
	5.4 Adjusting RGB Color
	    5.4.1 Meet Color Correction Objective
	    5.4.2 Locate Highlights Shadows and Neutral Areas
	    5.4.3 Make Automatic Color and Contrast Adjustment
	    5.4.4 Make Basic Curve Adjustment
	5.5 Sharpening Images
	    5.5.1 Apply Un-sharp Images
	    5.5.2 Sharpen an Image
		03
		Weeks
			12

	Coral Draw 2016		
06	**BASICS:** 6.1 Exploring the Corel DRAW Interface 6.2 Setup Drawing Page 6.3 Corel DRAW Basic 6.4 Manage Workspaces 6.5 Customizing the Command Bar 6.6 Saving and Printing Drawing	02 Week	06

07	7.1 Shapes and Lines:
	    7.1.1 Basic Shapes
	    7.1.2 Working with Paths
	    7.1.3 Modify Paths
	    7.1.4 Adding Text to Objects
	7.2 Colors
	    7.2.1 Fills and Outline
	    7.2.2 Custom File
	    7.2.3 Custom Strokes
	    7.2.4 Drop Shadows
	    7.2.5 Modify Outline
	    7.2.6 Transform Objects
		01
		Week
			06

08	8.1 **Working with Text**
	    8.1.1 Format Artistic Text
	    8.1.2 Fit Text to a Path
	    8.1.3 Create Paragraph Text
	    8.1.4 Wrap Paragraph Text
	    8.1.5 Modify OCT Text
	    8.1.6 Importing Image Text
	    8.1.7 Insert Special Characters
	    8.1.8 Text Effects
		02
		Weeks
			12

	8.2 Working with Objects
	    8.2.1 Modify Objects
	    8.2.2 Add Graphics
	    8.2.3 Add Clipart
	    8.2.4 Spray Objects
	8.3 Styles, Templates Symbols
	    8.3.1 Working with text Styles
	    8.3.2 Working with Templates
	    8.3.3 Create Symbols		

09	9.1 Layers
	    9.1.1 New Layers
	    9.1.2 Manipulate Layer
	9.2 Bitmaps
	    9.2.1 Import and Adjust Bitmaps
	    9.2.2 Trace Bitmaps
	9.3 Advanced Printing Options
	    9.3.1 Edit a Print Style
	    9.3.2 Merge Text with Drawing
		02
		Weeks
			12

10	**Urdu Inpage** 10.1 Toggle English / Urdu 10.2 Tools 10.3 Ribbon 10.4 Status Bar 10.5 Rulers 10.6 Document Area 10.7 Scroll Bars 10.8 Cursors 10.9 Text Box 10.10 Title Text Box 10.11 Picture Box 10.12 Graphic Box 10.13 Line 10.14 Guides 10.15 Text Chain	04 Weeks	24
	Total	20	120

Lab Requirements (**Hardware / Software**)	Adobe Photoshop 2016, Coral Draw 2016
List of Practical	1. Customize pictures 2. Design Visiting Card 3. Design Brochure 4. Design Book Front Page 5. Design Banners 6. Design Logos 7. Design ID Card 8. Design Social Media Post 9. Design letter paid 10. Design Stamp
Reference Material	• GFX Mentor • www.adobe.com

Capstone Project

(DIT Part-II)

Total Project Marks: 100

Total Weeks: 20

Contact Hours per week: 06

Total Contact Hours: 120 Hours
(Supervisor Guidance + Project Report)

GENERAL OBJECTIVES:

After the completion of this course, students are expected to be able to:

- Apply the learned concepts in real world situations.

- Identify a computational problem that can be solved through software.

- Design software solutions for organizational or individual computational problems.

- Format a problem and its solution in a documented form.

- Develop skills for testing the quality of an application software.

- Sell his/her skills in the freelancing market.

S. No	PROJECT ACTIVITIES	Allotted Weeks	Contact Hours
1	Exploring following fields for finding a problem. 1. Application Development using Python 2. Database Development 3. Web Application Development 4. Graphic Design	02 weeks	12
2	Understanding the selected problem in detail	02 weeks	12
3	Developing Solution for the selected problem	10 weeks	60
4	Testing the developed solution	02 weeks	12
5	Modification/Changes in the solution (if required)	02 weeks	12
6	Preparation of Project Report	02 weeks	12