

# FACULTY OF EDUCATION

## SYLLABUS

### FOR

#### POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS (TEACHER EDUCATION)

(SEMESTER: I & II)

Examinations: 2017–18



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## GURU NANAK DEV UNIVERSITY AMRITSAR

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Post Graduate Diploma in Computer Applications  
(Teacher Education) (Semester-I)

**SCHEME OF COURSE**

**SEMESTER-I**

<b>PAPER</b>	<b>SUBJECT</b>	<b>THEORY</b>	<b>PRACTICAL</b>
PAPER-I	Fundamentals of Computer and Operating Systems.	50	50
PAPER-II	PC-Computing (MS office & DTP)	50	50
PAPER-III	Introduction to Scripting Languages and Web Designing.	50	50
PAPER-IV	Programming in C	50	50
<b>TOTAL = 200 + 200 = 400 Marks:</b>		<b>200</b>	<b>200</b>

**SEMESTER-II**

<b>PAPER</b>	<b>SUBJECT</b>	<b>THEORY</b>	<b>PRACTICAL</b>
PAPER-V	Computer Aided Teaching	50	50
PAPER-VI	Database Management System, System Analysis & Design.	50	50
PAPER-VII	Project Report		100
<b>TOTAL = 100 + 200 = 300 Marks:</b>		<b>100</b>	<b>200</b>

**PAPER-I**  
**FUNDAMENTALS OF COMPUTER & OPERATING SYSTEMS**

**Time: 3 Hours**

**Max. Marks: 100**  
**Theory Marks: 50**  
**Practical Marks: 50**

**Instructions for Examiners/Paper Setters:-**

1. There shall be six papers and one project report. Each paper will be of 3 hours duration.
2. Each theory paper will be of 50 Marks. In each paper a separate practical of 50 marks will be conducted before/after the theory papers. Project report will be of 100 marks.
3. Each paper will be divided into five units. Examiners will set two questions from each unit with internal choice.
4. The students will be asked to attempt five questions selecting one question from each unit. Each question will carry 10 marks.

**UNIT-I**

**Fundamentals of Computer:** Introduction to computer, Applications of computer, Components of computers, Input-output devices (keyboard, mouse, track ball, light pen, cards, printers, plotters, scanners), Secondary storage devices(floppy disk, magnetic disk, Winchester disk, optical disk).

**UNIT-II**

Connecting devices to Computers (Expansion slots, Adapter Boards, Serial/Parallel I/O Ports, SCSI). Problem Analysis : Flowcharts, Algorithms, Decision tables. Types of Software, Translators (compiler, interpreter, assembler), Introduction to data communication and network. Number System, Computer Arithmetic.

**UNIT-III**

**Introduction to Windows 95:** Parts of window screen (Desktop, window, icons), start menu, Taskbar settings, application & document window, anatomy of a window (Title bar, minimize, maximize button, control box, scroll bars, scroll buttons, scroll boxes), Window explorer (expansion, collapsing of directory tree, copying, moving, deleting files, folder, creating folders), About desktop icons (recycle bin, my computer, network neighborhood, briefcase), folder, shortcut creation, setting of screen saver, color, setting, wallpaper, changing window appearance.

**UNIT-IV**

**Introduction to Operating System:** Meaning of operating system, its functions, batch systems, real systems, multiprogramming, multitasking, single, multi user systems. Memory Management Techniques, Process Management, Device Management, File Management Techniques.

**UNIT-V**

**Disk Operating System:** Define dos, Structure of Ms-Dos (description of booting files, steps to boot the system), hot & cold booting, internal command (cls, dir, date, time, vol, ver, copy con, type, ren, del, md, rd, cd, path, prompt), external commands edit, attrib, backup, restore, chkdsk, diskcopy, diskcomp, deltree, edit, format, fdisk, find, label, more, xcopy, move, print, scandisk, sort, sys, doskey, tree).

**References:**

1. PC Software: By Rachpal Singh & Gurinder Singh.
2. Operating System: Galvin Sielberschatz.
3. Fundamentals of Computer: By P.K. Sinha.

**PAPER-II**  
**PC COMPUTING (MS OFFICE & DTP)**

**Time: 3 Hours**

**Max Marks: 100**  
**Theory Marks: 50**  
**Practical Marks: 50**

**Instructions for Examiners/Paper Setters:-**

1. There shall be six papers and one project report. Each paper will be of 3 hours duration.
2. Each theory paper will be of 50 Marks. In each paper a separate practical of 50 marks will be conducted before/after the theory papers. Project report will be of 100 marks.
3. Each paper will be divided into five units. Examiners will set two questions from each unit with internal choice.
4. The students will be asked to attempt five questions selecting one question from each unit. Each question will carry 10 marks.

**UNIT-I**

**MS-Word:** Introduction to MS-Office, Ms-Access, Ms-Excel. Parts of window of word (Title bar, menu bar, status bar, ruler), Creation of new documents, opening document, insert a document into another document. Page setup, margins, gutters, font, Properties, Alignment, page breaks, header footer. Deleting, moving, replace, editing text in document. Saving a document, spell checker, printing a document. Creating a table, entering and editing Text in tables. Changing format of table, height width of row or column. Editing, deleting Rows, columns in table. Borders, shading, Templates, wizards, Drawing objects, mail merge.

**UNIT-II**

**MS-Power Point:** Introduction to Ms power point. Power point elements (Templates, Wizard, Views, Color Schemes), Exploring power point menu (opening & closing menus, working with dialogues boxes), adding text, adding title, moving text area, resizing text boxes, adding pictures. Starting a new slide, saving presentation, printing slides. Views (slide View, slide sorter, notes view, outline view). Formatting & enhancing text formatting, Choosing transitions. Creating a graph, displaying slide show, adding multimedia. Slide transitions. Timing slide display, adding movies & sounds. Using a pick look Wizards to change format.

**UNIT-III**

**MS-Excel:** Introduction to Worksheet/Spreads, Features of excel, Describe the excel Window, different functions on different data in excel, creation of graphs, editing it and formatting, changing chart type of 2nd chart or 3rd chart, creation of worksheet, adding, deleting, moving the text in worksheet, linking different sheets, sorting the data, querying the data, filtering the data (auto and advance filters), What-if analysis, printing a worksheet.

#### **UNIT-IV**

##### **PhotoShop 5.5**

1. Introduction to Graphics, Vector Graphics & Bitmaps.
2. Understanding Image Size & resolution.
3. Relation between resolution, File sizes & output.
4. Using menus & Palettes.
5. Concept of Path (Segment, Anchor, Curved, Closed, Open, Subpath).
6. PhotoShop Tools (Pen, Pencil, Brush, History, Air, Eraser, Rubber stamp, Smudge, Dodge, Burn, Sponge), Masks & Histogram.
7. Acquiring & Importing Images.
8. Concept of Layers Channels & Path, Filters, Rendering Effects, Transformation, Strokes, Image Modes, Canvas & Images.
9. Using navigator & PhotoShop plug-in.

#### **UNIT-V**

##### **Corel Draw9**

1. Concepts of vector graphics.
2. Color palette, Pasteboard & Print Page.
3. Using ruler, unit's etc.
4. Corel Tools (Pick, Shape, Knife, Eraser, Zoom, Freehand, Natural Pen, Dimensions, Ellipse, Polygon etc.).
5. Transformations, Trimming, Welding, Intersection of Objects, Snapping, Using Object Manager.
6. Giving effects, (Envelope, Adding Perspective, Contours, Blending Images).

##### **References:**

PC Software by R. K. Taxali &/or PC Software By Rachpal Singh & Gurinder Singh

**PAPER-III**  
**INTRODUCTION TO SCRIPTING LANGUAGES AND WEB DESIGNING**

**Time: 3 Hours**

**Max Marks: 100**

**Theory Marks: 50**

**Practical Marks: 50**

**Instructions for Examiners/Paper Setters:-**

1. There shall be six papers and one project report. Each paper will be of 3 hours duration.
2. Each theory paper will be of 50 Marks. In each paper a separate practical of 50 marks will be conducted before/after the theory papers. Project report will be of 100 marks.
3. Each paper will be divided into five units. Examiners will set two questions from each unit with internal choice.
4. The students will be asked to attempt five questions selecting one question from each unit. Each question will carry 10 marks.

**UNIT-I**

Introduction to Internet, Web Browser, Protocols – TCP/IP, FTP, POP3, SMTP  
Hardware / Software Requirements. Client/ Server Model, URL, E-Mail

**UNIT-II**

Introduction to HTML, DHTML

**UNIT-III**

**Front Page 2000:** Introduction to Front page 2000: Frontpage windows, various toolbar of Frontpage. Creating a web page using wizard, creating a web page using template and toolbars.

**UNIT-IV**

**Themes:** Creating your own theme, Selecting a color scheme, Selecting graphics, Selecting text, Normal page, Confirmation page, Feedback form, Guest book, One-column body, Search page, Two-column body, Three-column body.

**Forms:** Creating form using wizard, Adding text boxes, Adding radio buttons, Adding check box, Adding drop-down menus, Adding pushbutton & pictures.

**UNIT-V**

**Web Page Designing:** Adding shared borders to the page, Giving title to a page, selecting a background for page, adding text to page, Hyperlink, turning text to heading, adding picture to the page, adding a clipart, adding navigation bars, Publishing your web page, making your web page searchable.

**References:**

1. Learning Front Page 2000, Ramesh Bangra Khanna Book Publishing Co. Pvt. Ltd.
2. Learning to use Internet by Ernest Ackerman.

**PAPER-IV**  
**PROGRAMMING IN C**

**Time: 3 Hours**

**Max Marks: 100**  
**Theory Marks: 50**  
**Practical Marks: 50**

**Instructions for Examiners/Paper Setters:-**

1. There shall be six papers and one project report. Each paper will be of 3 hours duration.
2. Each theory paper will be of 50 Marks. In each paper a separate practical of 50 marks will be conducted before/after the theory papers. Project report will be of 100 marks.
3. Each paper will be divided into five units. Examiners will set two questions from each unit with internal choice.
4. The students will be asked to attempt five questions selecting one question from each unit. Each question will carry 10 marks.

**UNIT-I**

**Fundamentals of C:** Introduction of C, Data Types, Operators, their precedence, expressions and their evaluation.

**Input/Output Functions:** Formatted I/O, Character I/O & String I/O Functions.

**UNIT-II**

**Control Structures:** Taking decisions using if, if-else, switch constructs and Conditional Operator, Description of break and continue statements. Performing loops using for, while, do-while Constructs.

**UNIT-III**

**Functions:** Library Functions vs User-Defined Functions, Declaring (Prototyping) and defining User-Defined functions, ways of passing parameters to functions, Recursive functions, Storage classes.

**Arrays & String:** What are Arrays?, Declaring arrays, initializing arrays, processing of arrays, passing arrays as arguments to functions. What are Strings? How strings are handled in C? String functions, arrays of strings.

**UNIT-IV**

**Pointers:** What is a pointer variable? Declaring pointers, accessing values via pointers, pointer arithmetic, pointer to strings, passing arguments using pointers.

**Structure and Unions:** Defining a structure type, declaring variables of structure type, initializing structures. Accessing Structure Elements, Use of assignment Statement for structures, array of structures, nested structures, Unions; Declaring a Union, Accessing elements of a type union.

**UNIT-V**

**Managing Data Files:** Processing a file, Standard Input/Output, System Level I/O, File updating.

**References:**

1. Yashwant Kanetkar: Let us C, BPB Publications, New Delhi.
2. R.S. Salaria: Application Programming in C, Khanna Book Publishing Co. (P) Ltd., Delhi.

Post Graduate Diploma in Computer Applications  
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**PAPER-V**  
**COMPUTER AIDED TEACHING**

**Time: 3 Hours**

**Max. Marks: 100**  
**Theory Marks: 50**  
**Practical Marks: 50**

**Instructions for Examiners/Paper Setters:-**

1. There shall be six papers and one project report. Each paper will be of 3 hours duration.
2. Each theory paper will be of 50 Marks. In each paper a separate practical of 50 marks will be conducted before/after the theory papers. Project report will be of 100 marks.
3. Each paper will be divided into five units. Examiners will set two questions from each unit with internal choice.
4. The students will be asked to attempt five questions selecting one question from each unit. Each question will carry 10 marks.

**UNIT-I**

- Teaching its meaning, Principles and Maxims,
- Learning its meaning and factors of learning,
- Programmed learning its meaning, types of programmed learning
- Linear, Branching and Mathematics.

**UNIT-II**

Information Communication Technology- Concepts, Objectives and role of ICT in teacher education.

**UNIT-III**

- Innovations in Teaching Technology
- Computer-Assisted-Instructions
- Personalized System of Instruction
- Learner Controlled Instructions
- Use of Computer in School Education.

**UNIT-IV**

- Multi-Media approach in teaching: use of Radio, T.V., Tape Recorder, V.C.R., OHP, Slide Projector and Computer as teaching machines.
- Educational use of internet.

**UNIT-V**

Teaching Material; pictures, charts, diagrams, graphs, cartoons & programmed learning packages.

Use of Computer in making Teaching Material

School records and registers – Students record – Cumulative record card.

Registers – Pupil Attendance Register, Teacher Attendance Register and Admission and Withdrawal Register.

Use of Computer in making records and register.

**References:**

1. Anand Bhushan & Malvinder Ahuja: Educational Technology.
2. M.S. Sachdeva & Inderdev Singh Nandra: A New Approach to Technology of Teaching.
3. M. Mukhopadhyay (Ed.): Educational Technology.
4. S.K. Mangal: Technology of Teaching.



**PAPER-VI**  
**DATABASE MANAGEMENT SYSTEM, SYSTEM ANALYSIS & DESIGN**

**Time: 3 Hours**

**Max Marks: 100**  
**Theory Marks: 50**  
**Practical Marks: 50**

**Instructions for Examiners/Paper Setters:-**

1. There shall be six papers and one project report. Each paper will be of 3 hours duration.
2. Each theory paper will be of 50 Marks. In each paper a separate practical of 50 marks will be conducted before/after the theory papers. Project report will be of 100 marks.
3. Each paper will be divided into five units. Examiners will set two questions from each unit with internal choice.
4. The students will be asked to attempt five questions selecting one question from each unit. Each question will carry 10 marks.

**UNIT-I**

**Basic Concepts:** An overview of database Management, (database, database system, why database, data independence). An architecture for a database system (levels of the architecture, mapping, DBA), Introduction to Relational database systems.

**UNIT-II**

**Relational Model:** Domain and relations, Relational data integrity, relational algebra, relational calculus and SQL languages, Normalization concept – 1NF, 2NF, 3NF, 4NF, Boyce-Codd Normal Forms.

**UNIT-III**

**System Analysis and Design:** System development life cycle, System Development Tools.

**UNIT-IV**

**ORACLE 8: SQL \*PLUS**

Introduction to Oracle 8, SQL – DDL, DML, DCL , Join methods & Sub query, Union, Intersection, Minus, Tree Walking, Built in Functions, Views, Security amongst users, Sequences, Indexing Object Oriented, Features of Oracle 8.0

**UNIT-V**

**PL/SQL:** Introduction to PL/SQL, Cursors-Implicit & Explicit, Procedures, Functions & Packages, Database Triggers

**References:**

1. Database Systems Concepts- by Silberschatz, Korth & Sudarshan
2. (International Editions, Computer Science series-1997)
3. An Introduction of Database system by C.J. Date (Addison-Wesley Publishing Co.)
4. SQL/PL/SQL The Programming Language of Oracle by IVAN BAYROSS

**PAPER-VII**  
**PROJECT REPORT**

**Max. Marks: 100**

Project report of 100 marks assigned by the subject teacher will be prepared by a group of students (not exceeding five) under the supervision & guidance of concerned teacher. The contents/theme of the project report will be based on paper II (Computer-Aided-Teaching) or any other area related to the Viva-voce of Project report will be conducted by an external examiner to be appointed by the University

Principal concerned. In such cases, the candidates shall be examined as per the course outlines in force at that time.

- 2.14 There shall be an examiner in each paper to be appointed by the University on the recommendation of the Board of Studies in Computer Science. The question paper shall be set by the examiner and answer books evaluated by him as per University suggests.
- 2.15 The Diploma shall be awarded on the successful completion/ evaluation of theory and practical papers.

**Note:-** The Ordinances are subject to the addition/amendments approved by the competent authority.