SYLLABUS FOR THE BATCH FROM YEAR 2023 TO YEAR 2026

B.A. / B.Sc.

(12+3 SYSTEM OF EDUCATION)

Computer Applications (Vocational)

(Credit Based Grading System)
Examinations: 2023–26

GURU NANAK DEV UNIVERSITY AMRITSAR

B.A./B.Sc. (Semester System) (12+3 System of Education) (CBGS) *(Batch 2023-26)*
(Faculty of Engineering & Technology)

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B.A./B.Sc. (12+3 System of Education) *(Semester–I) (CBGS) (Batch 2023-26)*
(Faculty of Engineering & Technology)

SEMESTER–I

COMPUTER APPLICATIONS (VOCATIONAL)

COMPUTER FUNDAMENTALS & PC SOFTWARE

(THEORY)

Time : 3 Hours   **L T P**
                                                          Credits   3 0 0
                                                                          Marks: 75

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Computers and their Applications:
- Introduction to computers and their basic concepts
- Evolution of Computers
- Applications of computers

Components of Computer:
- Block diagram of computer
- Input Devices: - Keyboard, Mouse, Joy Stick, Light pen, Track Ball, Scanner, Graphic Tablet, Microphone, Magnetic Ink Card Reader (MICR), Optical Character Reader (OCR), Bar Code Reader, Optical Mark Reader (OMR)
- Output Devices: - Monitor, printers, plotters, voice response units.
- Storage Devices: - Primary- RAM – Dynamic RAM, Static RAM, ROM–PROM, EPROM, EEPROM, Cache, Secondary- Magnetic storage devices and Optical Storage Devices

SECTION–B

Basics of Windows 7 :
a) The Desktop, the Taskbar
b) Start Menu
c) Program, Document, Settings, Find, Help, Run, Shutdown
d) About the My Computer Icon
e) About the networking neighborhood Icon
f) Recycle bin
g) Folders–Creation and Definition
h) New Rules for File Names
i) Windows Explorer (Definition)
j) Shortcut Icons with creation and definition

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SECTION–C

MS–Word 2010 :

Overview, creating, saving, opening files, printing document, formatting pages, paragraphs and sections, creating lists and numbering. Headings, styles, fonts and font size Editing, positioning and viewing texts, Finding and replacing text, inserting page breaks, page numbers, book marks, symbols and dates. Using tabs and tables, header and footer.

SECTION–D

MS Power Point 2010 :

Presentation overview, entering information, Presentation creation, opening and saving presentation, Printing Slides, Views (View slide sorter view, notes view, outlines view), Formatting and enhancing text formatting, Creating Graphs, Tables, inserting audio and video

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SEMESTER–I

COMPUTER APPLICATIONS (VOCATIONAL)

COMPUTER FUNDAMENTALS & PC SOFTWARE

(PRACTICAL)

$$\begin{array}{ccc} & \textbf{L} & \textbf{T} & \textbf{P} \end{array}$$
Credits   0   0   1
Marks: 25

4 Hours/week

SEMESTER–II
COMPUTER APPLICATIONS (VOCATIONAL)
PROGRAMMING USING C
(THEORY)

Time : 3 Hours   **L T P**

Credits   3 0 0

Marks: 75

Instructions for the Paper Setters:-

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Note for Candidate:

The students can use only Non–programmable & Non–storage type calculator.

Practical marks will include the appropriate weightage for proper maintenance of Lab record

SECTION–A

Data Representation, Flow Charts, Problem Analysis, Decision tables, Pseudo codes and Algorithms.

Programming Using C:

Basics of C: Introduction to C, Applications and Advantages of C, Tokens, Types of Errors

Data Types: Basic & Derived Data Types, User Defined Data Types, Declaring and initializing variables.

SECTION–B

Operators and expressions: Types of operators (Unary, Binary, Ternary), Precedence and Associativity

Data I/O Functions: Types of I/O function, Formatted & Unformatted console I/O Functions

Control Statements: Jumping, Branching and Looping–Entry controlled and exit controlled, Advantages/Disadvantages of loops, difference between for, while and do–while.

SECTION–C

Arrays: Types of Arrays, Advantages/Disadvantages of arrays. Insertion, Deletion, Searching and sorting operations on array

Strings: Introduction to Strings and String functions, array of strings.

Functions: User Defined & Library Function, Function (Prototype, Declaration, Definition), Methods of passing arguments, local and global functions, Recursion.

SECTION–D

Storage Classes: Introduction to various storage classes, scope and lifetime of a variable, Storage class specifiers (auto, register, static, extern), advantages and disadvantages.

Pointers: Introduction, Advantages/Uses of pointers, Limitations of pointers, Difference between void pointer and Null pointer, Pointer arithmetic, operators not allowed on pointers, Types of Pointer**,** Passing Pointers to function, concept of pointer to pointer.

Structure and Union: Introduction to structure and union, pointers with structure.

References:-

1. Programming in C   :   Schaum Outlines series.

2. C Programming   :   Stephen G. Kochan.

3. Let Us C   :   Yashwant Kanitkar

SEMESTER–II

COMPUTER APPLICATIONS (VOCATIONAL)

PROGRAMMING USING C

(PRACTICAL)

L T P
Credits   0 0 1
Marks: 25

4 Hours/week

B.A./B.Sc. (12+3 System of Education) *(Semester–III) (CBGS) (Batch 2023-26)*
(Faculty of Engineering & Technology)

SEMESTER–III

COMPUTER APPLICATIONS (VOCATIONAL)

OPERATING SYSTEM

(THEORY)

Time : 3 Hours   **L T P**
                                                                   Credits   3 0 0
                                                                                          Marks: 75

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

1   What is an Operating System - Evolution of OS Machine Language, Assembly, Compiler, Interpreter.

2   Types of Operating Systems with Examples
     a) Single User Systems
     b) Multi User Systems : Unix, Xenix, Vax/VMS.

SECTION–B

3   Functions of Operating System
     a)   Memory Management (Fixed Sized partition, Variavle Sized Partition, Dynamic Memory Management with Reallocation Technique, Paging Demand Paging Techniques).
     b)   CPU Management (For come First served, Shortest Job First, Round Robin Policy).
     c)   File Management.
     d)   I/O Device Management.
     e)   Command Interpreter.
     f)   Data Management.
     g)   Programme Developing Tools.
     h)   Time Sharing.
     i)   Security.
     j)   Communication

4   Booting a System.

SECTION–C

5   Features and Benefits of Unix.
        a)   Unix System (Multi-programming, time-sharing, multitasking).
        b)   Components of Unix (Kernel, Shell).
        c)   UNIX file system (Data Block, list, super block, boot block).
        d)   Types of Files (Ordinary, Directory and Special Files).
        e)   Types of users in UNIX - levels of users (0-2)

SECTION -D

Login and Logout from Unix Session.
Types of Shells (Bourne, c-shell, r-shell).

Shell as a command inte, clear.

Simple Directory and File Commands Cat, is, in, chmod, mail, who, whoami, cal, pwd, date, ps, mkdir, cd, rmdir, rm, tput, clear.
Piping, filters, batch processing, shell programming (echo, read, case constructs)

Editors (vi): Commands for opening, inserting, modifying, deleting and saving files.

References:

1. "UNIX Basics", Ian Darwin TCP Informatics January, 2005.

2. "Basics of Os Unix and Shell Programming", Isrd, Tata McGraw-Hill Education, 01-Aug-2006.

3. "UNIX in a Nutshell": System V Edition: A Desktop Quick Reference for System V Release 4 and Solaris 2.0 by Daniel Gilly, The staff of O'Reilly Media, O'Reilly Media Inc.

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SEMESTER–III

COMPUTER APPLICATIONS (VOCATIONAL)

OPERATING SYSTEM

(PRACTICAL)

L T P
Credits 0 0 1
Marks: 25

4 Hours/week

Practical based on Operating System

B.A./B.Sc. (12+3 System of Education) *(Semester–IV) (CBGS) (Batch 2023-26)*
(Faculty of Engineering & Technology)

SEMESTER–IV

COMPUTER APPLICATIONS (VOCATIONAL)

RELATIONAL DATA BASE MANAGEMENT SYSTEMS & ORACLE

(THEORY)

Time : 3 Hours   **L   T   P**
                                                          Credits   3   0   0
                                                                  Marks: 75

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Introduction to database management system, components of DBMS, Advantages and disadvantages, ER. Diagrams, DDL, DCL, DML. Data Models, Hierarchical Model, Network Model and Relational Model, Relational Databases. Relational Algebra and Calculus. Different Keys used in RDBMS.

SECTION–B

DBA, Responsibilities of DBA, and Normalization of Data: First, Second and Third Normal form. Concurrency Control and its management, Protection, Security, Recovery of database.

SECTION–C
Oracle 10g
Introduction to Oracle 10 SQL – DDL, DML, DCL. Built in Functions: Aggregate, Character, Arithmetic Functions, View Security amongst users, Sequences, indexing object Features of Oracle 10.

SECTION–D

Reporting Using SQL Plus
Specifying column heading, Formatting Columns, Char formats, Break, Inserting spaces when the break value changes, Inserting spaces after every row. Break on multiple columns with different spacing Computer, T Title, B Title, Page size line size, pause.

PL/SQL
Relationship between SQL & PL/SQL
Advantages of PL/SQL
PL/SQL block structure
Valuable and Constant declaration
Declaration using attributes % type attribute If elsif ends if statement

B.A./B.Sc. (12+3 System of Education) *(Semester–IV) (CBGS) (Batch 2023-26)*
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SEMESTER–IV

COMPUTER APPLICATIONS (VOCATIONAL)

RELATIONAL DATA BASE MANAGEMENT SYSTEMS & ORACLE

(PRACTICAL)

L T P
Credits   0   0   1
Marks: 25

4 Hours/week

Practical based on **Relational Data Base Management System & ORACLE**

B.A./B.Sc. (12+3 System of Education) *(Semester–V) (CBGS) (Batch 2023-26)*
(Faculty of Engineering & Technology)

SEMESTER–V

COMPUTER APPLICATIONS (VOCATIONAL)

INTERNET AND WEB DESIGNING

(THEORY)

Time : 3 Hours　　　　　　　　　　　　　　　　　　　　　　　　**L T P**
　　　　　　　　　　　　　　　　　　　　　　　　　　　　Credits　3 0 0
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　Marks: 75

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section

SECTION-A

1. BBS
2. Intro to Networks and Internet

SECTION-B

3. E–Mail, Browsers
4. HTTP, WWW, Shell, TCP/IP–(PPP, SLIP)

SECTION-C

5. FTP
6. HTML, Web Designing

SECTION-D

7. Web site Designing using HTML

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SEMESTER–V

COMPUTER APPLICATIONS (VOCATIONAL)

INTERNET AND WEB DESIGNING

(PRACTICAL)

L T P
Credits 0 0 1
Marks: 25

4 Hours/week

Practical Based on Internet and Web Designing

B.A./B.Sc. (12+3 System of Education) *(Semester–VI) (CBGS) (Batch 2023-26)*
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SEMESTER–VI

COMPUTER APPLICATIONS (VOCATIONAL)

BUSINESS DATA PROCESSING

(THEORY)

Time : 3 Hours   **L T P**
                                                                          Credits   3 0 0
                                                                          Marks: 75

Instructions for the Paper Setters:-
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SECTION - A
1. Introduction to Data Processing.
2. Need of Computers in Business.
3. Characteristics of Business Organization and Use of computers in various work areas of business. a) Payroll System b) Inventory Control c) Online Reservation d) Computer in Banks e) Computer Application in Educational Institutions
4. Concept of Data Processing Methods with Examples. a) Batch Processing b) Online Systems c) Time Sharing d) Real Time Systems e) Distributed Processing.

SECTION-B
5. **File Organization**.
a) Types of Files (Master, Transaction, Work, Backup, Audit Files)
b) File Organization (Serial, Sequential, Indexed Sequential, Direct Assess Files)
6. **MS Excel 2010**
     a) Parts, Features
     b) Creating a simple worksheet
     c) Computations in a Worksheet
     d) Different function on different data
     e) Printing the Worksheet
     f) Formatting
     g) Graphs
     h) What if Analysis (Data sort, fill, query, filter)

SECTION-C
7. Iterative controls * Simple Loops (Loop–end loop) * Numeric FOR Loops * While Loops
8. Intro and Advantages of procedures and functions with examples.
9. Intro to database Triggers * Creation a database trigger with example * Enable and disable of database trigger * Drop a database trigger

SECTION-D
10. Developer 2000 * Reports 6.0 * Forms 6.0
11. Utilities * Export/Import * SQL *Loader

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SEMESTER–VI

COMPUTER APPLICATIONS (VOCATIONAL)

BUSINESS DATA PROCESSING

(PRACTICAL)

L T P
Credits   0 0 1
Marks: 25

4 Hours/week