

JIWAJI UNIVERSITY
GWALIOR



Syllabus

SUBJECT
PGD IN
COMPUTER APPLICATION

INSTITUTE OF
DISTANCE EDUCATION

**SCHOOL OF STUDIES IN DISTANCE EDUCATION
JIWAJI UNIVERSITY, GWALIOR**



Syllabus

PGD in Computer Application (PGDCA)

Paper: PGDCA 101: Introduction to programming using C
PGDCA 102: Computer Organization & Architecture
PGDCA 103: Concept of DBMS through FoxPro
PGDCA 104: Software Engineering

Note: Practical and Viva-Voce shall be conducted jointly by the External and Internal Examiners. However in case of difference of opinion the decision of the External examiner shall be final.

Scheme of Examination

Each theory paper marks are divided into two parts:

- Theory paper will be of 70 marks for which minimum pass marks are 21.
- Assignment will be of 30 marks for which minimum pass marks will be 12.
- In aggregate passing marks of theory and Assignment should not be less than 40% in each subject.

PGD in Computer Application

| Paper | Max. | | Min. | | Total Min in Theo. & Assignment |
|-----------|------|------|-------------|--------|---------------------------------|
| | Theo | Ass. | Theo/Pract. | Assign | |
| Paper 101 | 70 | 30 | 21 | 12 | 40 |
| Paper 102 | 70 | 30 | 21 | 12 | 40 |
| Paper 103 | 70 | 30 | 21 | 12 | 40 |
| Paper 104 | 70 | 30 | 21 | 12 | 40 |
| Project | 200 | -- | 80 | -- | 80 |

40 % and above but less than 50 % in aggregate : Third Division
50 % and above but less than 60 % in aggregate : Second Division
60 % and above in aggregate : First Division
75 % and above in aggregate : First Division with distinction

Note :- A candidate failing in one subjects shall be allowed to appear in (Distance mode) supplementary examination held with next year examination.

P.G. Diploma in Computer Applications

PGDCA 101: Introduction to programming using “C”

Max Marks 70

Min Pass Marks 21

Unit I

Importance of C, basic structure of C program, characters, keywords, identifiers, constants, variables, data types, declaration of variables.

Unit II

Operators arithmetic, relational logical, assignment , increment , decrement, conditional, special operator, precedence of operators, expression, reading & writing a character, input output format, assignment, if, nested if, switch, else if ladder ? : operator, goto, while, do, for statement.

Unit III

Array : one, two, & multidimensional array, declaring & initializing string variables, reading & writing strings from screen, arithmetic operations on string, string handling functions, storage classes.

Unit IV

The C functions, general form , function argument, return statement, returning values , calling a function, no argument , argument but no return values, arguments with return values.

Unit V

Structure initialization , array of structures , unions understanding pointers, declaring & initializing pointers, accessing variables, pointers expression, pointer increments, pointers & characters strings, pointers & functions.

Defining & opening a file, input/output operations on files , closing a file, error handling , random access to files.

PGDCA 102: Computer Organization & Architecture

Max Marks 70

Min Pass Marks 21

Unit I

Component of computer system: number system, binary, octal, hexadecimal conversion 1's compliment and 2's compliment, binary arithmetic – addition, subtraction character codes (ASCII, EBCDIC).

Unit II

Error detection and correction codes Boolean Algebra- Representation of values and complements, truth table, logic gate: AND, OR, NOT, NAND, NOR, XOR, XNOR and karnaugh map method, combination logic design.

Unit III

Flip flops-clocked RS, D, JK flip flops. Counters – Ripple, Synchronous, Ring Counters. Registers- Buffer, Controlled Buffer Register. Addressing Techniques – Direct Immediate, Indirect Addressing.

Unit IV

Control Unit – its purpose, Instruction Word, Instruction Cycle. I/O devices – printers: Dot Matrix, Electro Magnetic, Thermal, Laser, CRT's, keyboards.

Unit V

Memory- Main, RAM, Static & Dynamic, ROM, EPROM, Cache Memory, Auxiliary storage: Floppy Disk, Intro to Microprocessor, Interfacing buses, Bus formats address, data and control.

PGDCA 103: Concept of DBMS through FoxPro

Max Marks 70

Min Pass Marks 21

Unit I

Introduction: Database system, advantages of database systems-redundancy, consistency, sharing, standards, integrity, security, conflicting requirements and data independence, concept of distributed database, DBMS components. Architecture of database systems: Schema, sub-schema; logical and conceptual view. Data Description Language (DDL), DML and database administrator.

Unit II

Data Models : Relational Model-structure, tuple, attributes, relation normalization, key-primary key, candidate key, alternate key, relational calculus & relational algebra-concepts, definition of union, set difference, Cartesian product – selection, intersection, quotient and join. Normal forms: First, Second, Third.

Unit III

FoxPro - Database file, record & field, field types, creating database file-defining, saving structure, entering, listing, removing, updating, searching, sorting, viewing records, closing database. Index – creating index files, multiple fields – compound & structural index, creating index – ascending, descending order, saving index file.

Unit IV

Seek, index, sort, time, date, date arithmetic, mathematical functions- sqrt (), abs (), max (), min (), round (), mod (), len (), mathematical commands sum average,count,calculate, do while-enddo, skip, trim, accept, input, wait, if-end if , scan – endsfan, for-end for, do case-endcase, text-endtext,

Unit V

handling multiple data base database files-select, set relations, designing custom screen @-say –get and read, range,picture, designing custom screen using @ command @ prompt,define menu ,popup features defining : size title character function –isupper(),islower(),replication(),left(),at().

PGDCA 104: Software Engineering

Max Marks 70

Min Pass Marks 21

Unit I

Introduction to software engineering: - concept of software engineering, phases in software development –requirement analysis software design, coding, testing, maintenance, software development process model –water fall, prototyping, spiral model, project size categories, project structure, programming team structure, software cost estimate-software cost factors, estimation techniques – expert, judgment.

Unit II

Delphi COCOMO Model on software size estimate, project scheduling- average duration estimation, project scheduling & milestones, Software conflagration management concept SCM element-identification, control accounting, Auditing Risk Management – Concepts Activities, Risk identification Analysis.

Unit III

Software design- Fundamental Design concept, Abstraction, Information Hiding, Structure, Modularity, Concurrency, Modules and modularization criteria, coupling and cohesion, design Notations – Data Flow Diagram, Structure Chart, HIPO diagram, Procedure template, Structure English, decision tables.

Unit IV

Verification– validation – concept, walk through, Inspection, Static analysis, Testing – fundamental, Error, Fault, Failures and Reliability, Test cases, Functional and Structural testing, Unit testing, Integration, Testing, Validation testing, Recovery testing, Security testing, Stress testing, Performance testing.

Unit V

CASE tools – Fundamental of CASE, Software Developmental, Environment, Different case tools.