

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:- | Object-Oriented programming with “C++” |
| | PGDCA 102:- | Computer Organization & Architecture |
| | PGDCA 103:- | Concept of DBMS |
| | 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: Object-Oriented programming with “C++”

Max Marks 70

Min Pass Marks 21

Unit-I-

Introduction:- Principals of object-oriented programming, software crisis

A look at procedure- Oriented programming, concepts of object- oriented programming, Benefits of OOPS, Object oriented Languages.

Application Beginning with C++:-What is C++, Application of C++, Structure Creating the source file

Unit-II-

Control Structure:- Token, Keywords, Identifiers and constants, Data types, Operation and its Types

Function In C++:- The main function prototyping and function, Reference, Function Overloading, Classes and Objects, Specifying a classes, Arrays, Memory Allocate for Object, Pointers to Members

Unit-III –

Operator and Function: - Contractors and Deconstructor, Operator Overloading, Type Conversions

Inheritance and its types, Revived classes, Pointers, Virtual Functions.

Unit- IV-

I/O-Operations and Templates: - C++ Stream, I/O operation, Output with Manipulators, Opening and Closing a file, More about open ();, Updating a file Class template, Function Templates, Non-type Template.

Unit-V-

ANSI C++ Standard- Exception Handling, Manipulating Strings, Relational Operation, Comparing and Swapping, Data types, Object- Oriented system Development, Wrapping up

Reference books

Object Oriented with C++- E.Balaguruswami

Learning with C++- Summit Arora

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.

Reference books

Computer System and Architecture- M.Morris Mano.

- John.P.Hayes

Computer fundamental and architecture- B. Ram

PGDCA 103: Concept of DBMS

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

Database & Querying:- 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

Functions & Command :- 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 – ends can, for-end for, do case-endcase, text-endtext,

Unit V

Data Base design:- 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().

Reference books

An Introduction of Database Systems- C.J.Date

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.

Reference books

Software Engineering- Pankaj Sharma

FORMAT FOR PREPARATION OF PROJECT REPORT

STEP 1: IDENTIFY AND DEVELOP YOUR TOPIC

SUMMARY: State your topic as a question. For example, if you are interested in finding out about use of alcoholic beverages by college students, you might pose the question, "What effect does use of alcoholic beverages have on the health of college students?" Identify the main concepts or keywords in your question.

STEP 2: FIND BACKGROUND INFORMATION

SUMMARY: Look up your keywords in the indexes to subject encyclopedias. Read articles in these encyclopedias to set the context for your research. Note any relevant items in the bibliographies at the end of the encyclopedia articles. Additional background information may be found in your lecture notes, textbooks, and reserve readings.

STEP 3: USE CATALOGS TO FIND BOOKS AND MEDIA

SUMMARY: Use guided keyword searching to find materials by topic or subject. Print or write down the citation (author, title, etc.) and the location information (call number and library). Note the circulation status. When you pull the book from the shelf, scan the bibliography for additional sources. Watch for book-length bibliographies and annual reviews on your subject; they list citations to hundreds of books and articles in one subject area. Check the standard subject subheading "--BIBLIOGRAPHIES," or titles beginning with Annual Review of... in the [Cornell Library Classic Catalog](#).

STEP 4: USE INDEXES TO FIND PERIODICAL ARTICLES

SUMMARY: Use periodical indexes and abstracts to find citations to articles. The indexes and abstracts may be in print or computer-based formats or both. Choose the indexes and format best suited to your particular topic; ask at the reference desk if you need help figuring out which index and format will be best. You can find periodical articles by the article author, title, or keyword by using the periodical indexes in the [Library home page](#). If the full text is not linked in the index you are using, write down the citation from the index and search for the title of the periodical in the [Cornell Library Classic Catalog](#). The catalog lists the print, microform, and electronic versions of periodicals at Cornell.

STEP 5: FIND INTERNET RESOURCES

SUMMARY: Use [search engines](#). Check to see if your class has a [bibliography or research guide](#) created by librarians.

STEP 6: EVALUATE WHAT YOU FIND

SUMMARY: See [How to Critically Analyze Information Sources](#) and [Distinguishing Scholarly from Non-Scholarly Periodicals: A Checklist of Criteria](#) for suggestions on evaluating the authority and quality of the books and articles you located.

Watch on YouTube: [Identifying scholarly journals](#) [Identifying substantive news sources](#)

If you have found too many or too few sources, you may need to narrow or broaden your topic. Check with a reference librarian or your instructor.

STEP 7: PREPARATION OF PROJECT REPORT

After the step6 evaluate your hypothesis and the arrange contents in the following steps

ARRANGEMENT OF CONTENTS:

The sequence in which the project report material should be arranged and bound should be as follows:

1. Cover Page & Title Page
2. Abstract
3. Table of Contents
4. Chapters
5. Appendices
6. References
7. Bibliography

The table and figures shall be introduced in the appropriate places

PREPARATION FORMAT:

- 1 Cover Page & Title Page** – A specimen copy of the Cover page & Title page of the project report a
- 2 Abstract** – Abstract should be one page synopsis of the project report typed double line spacing, Font Style Times New Roman and Font Size 14.
- 3 Table of Contents** – The table of contents should list all material following it as well as any material which precedes it. The title page will not find a place among the items listed in the Table of Contents but the page numbers of which are in lower case Roman letters. One and a half spacing should be adopted for typing the matter under this head.
- 4 Chapters** – The chapters may be broadly divided into 3 parts (i) Introductory chapter, (ii) Chapters developing the main theme of the project work (iii) and Conclusion.

The main text will be divided into several chapters and each chapter may be further divided into several divisions and sub-divisions.

- ❖ Each chapter should be given an appropriate title.
- ❖ Tables and figures in a chapter should be placed in the immediate vicinity of the reference where they are cited.
- ❖ Footnotes should be used sparingly. They should be typed single space and placed directly underneath in the very same page, which refers to the material they annotate.

5 Appendices – Appendices are provided to give supplementary information, which is included in the main text may serve as a distraction and cloud the central theme.

- Appendices should be numbered using Arabic numerals, e.g. Appendix 1, Appendix 2, etc.
- Appendices, Tables and References appearing in appendices should be numbered and referred to at appropriate places just as in the case of chapters.
- Appendices shall carry the title of the work reported and the same title shall be made in the contents page also.

6 Table and figures - By the word Table, is meant tabulated numerical data in the body of the project report as well as in the appendices. All other non-verbal materials used in the body of the project work and appendices such as charts, graphs, maps, photographs and diagrams may be designated as figures.

7 BIBLIOGRAPHY

When writing a bibliography, remember that the purpose is to communicate to the reader, in a standardized manner, the sources that you have used in sufficient detail to be identified. If you are unable to find all the necessary information, just cite what you can find and the sources from where you get the detichard Fairley