Syllabus for Post Graduate Diploma in Computer Science & I.T. 
Application PGDCA 
(One Year, Two Semester Course) 
Session 2018-2019 Onwards

BASIC GOALS & OBJECTIVES

• To Impart computer science & Application Skills to student of PG, M.Phil and PHD of Brauss.

• To Prepare Very, high quality IT/Computer professionals for a global market by grooming them in IT/Computer and Software Development Skills.

• To Provide an opportunity not only to IT/Computer Professional but also to professional and experts from non-IT/domains to acquire a thorough Knowledge of IT concepts and the capacity to swiftly translate this Knowledge into service in their respective domains.

• To Develop Student Sensitivity and Capability to Continually Respond to changing technology and working environment, by using an ‘active Learning’ approach.

• To enable Students to accept opportunities in a framework of Professionally sound and quality conscious organization, as well as to take up entrepreneurial ventures.

• To Enable research in Social Science and allied Subjects in Confluence with Computer & IT related field by creating experimental laboratories & exploring Frontiers areas in the IT field.
**Dr. B.R. Ambedkar University, of Social Sciences (M.P.)**  
**Syllabus for Post Graduate in Computer Science & Application PGDCA**

**Two Semester PGDCA Course**

**CURRICULAM AT A GLANCE**

<table>
<thead>
<tr>
<th>CLASS/SEMESTER</th>
<th>P.G.D.C.A.</th>
<th>CCE 30%</th>
<th>Min.MARKS</th>
<th>TERM END EXAM70%</th>
<th>MIN MARKS</th>
<th>TOTAL 100%</th>
<th>MIN. MARKS</th>
<th>Credit</th>
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<tr>
<td><strong>FIRST SEMESTER</strong></td>
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<td>Paper-103 Office Automation S/W Tools</td>
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<td>10</td>
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<td>Paper-104 Analysis &amp; Design of Information System</td>
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<td>Paper-201 Java Programming</td>
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<td>Paper-203 (A)OPTIONAL Computer Networks Or Paper-203(B) OPTIONAL Computer Oriented Accounting &amp; Financial Applications Or Paper-203(C) OPTIONAL Computer Oriented Numerical &amp; Statistical Techniques</td>
<td>30</td>
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<td>Paper-205 S/W Lab II &amp; Oracle</td>
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<td>Paper-206 Indian Constitution and Social Change</td>
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**INDIVIDUAL PASSING REQUIRED FOR THEORY AND PRACTICE SUBJECT.**
School of Computer Science

PGDCA FIRST SEMESTER
Paper code PGDA 101
COMPUTER FUNDAMENTALS

Max.Marks. 70
Min.Marks. 24

Time: 3 hours

UNIT-I


UNIT-II


UNIT-III


UNIT-IV


UNIT-V


**Books Recommended:**
1. Jain Satish: Introduction to Computer Science, BPB
3. Thomas R: Dos 6 and 6.2 Instant reference, BPB
4. Koparker, P.K.: UNIX for you, TMH
5. MS Windows 95/98 – Tec media Publication
UNIT-I


UNIT-II


UNIT-III


UNIT-IV


UNIT-V

Files: Files in C Modes for files: Functions used in files (getc, Pute, Fopen, close, Fscanf, Fread, Fwire, Fprint, Fseek, Ftell, Rewind). Text versus binary files. The C preprocessor. Preliminaries of C preprocessor Directives (* # define, #undef, #include, ifdef, ifndef, endif, else, if). Bitwise operators.

Books Recommended:
1. Gottfried. Programming with C. TMH
2. Rajaraman, Introduction to X. PHI
4. Y. Kanetkar, Understanding Pointer in C, BPB
5. Y. Kanetkar, Let us C, BPB
6. Y. Kanetkar, Exploring in C, BPB
School of Computer Science

PGDCA FIRST SEMESTER
Paper code PGDA 103
OFFICE AUTOMATION-S/W TOOLS

Max.Marks. 70
Min.Marks. 24

Time: 3 hours

UNIT-I

UNIT-II

UNIT-III

UNIT-IV

UNIT-V

Books Recommended:
1. Mansfield R: The Compact guide to MS-OFFICE, BPC
2. Murray : Mastering POWER POINT 6.0 for Windows. BPB
3. Cowart : ABC'S of MS – ACCESS. BPB.
School of Computer Science

PGDCA SECOND SEMESTER
Paper code PGDCA 202
DATA BASE MANAGEMENT SYSTEM

Time: 3hours
Max.Marks. 70
Min.Marks. 24

UNIT I
Basic Concept:

UNIT II
Three Data Models:

UNIT III
Normalisation:

UNIT IV
Introduction to Database and foxpro package:
Ideas of database hierarchy (bit, byte, field, record): Foxpro commands: create, use, list, display, edit, browse, append, insert, delete, zap, pack, copy, to print, quit, clear, go top, go bottom, modify structure, recall, replace, sort, index locate, continue, seek, search, find, close, Arithmetic, data, time and string function with database using commands functions such as count, average, sum, time, day, doe, cdow, year, date,ctod, dtoc, cmonth, month, val, trim, str), displaying information with ? and ??.

UNIT V
Programming:

Books recommended:
1. Henry F. Korth & A. Silbershazt: Data Base System Concepts, MGH
2. C.J Date: Database Management System, MGH
3. R.K. Taxali: foxpro 2.6, TMH.
7. James MArtin: Principles Of Database Management, PHI
8. James Martin, computer Database organization, PHI
School of Computer Science

PGDCA SECOND SEMESTER
Paper code PGDCA 203(A)
COMPUTER NETWORKS

Time: 3 hours
Max. Marks. 70
Min. Marks. 24

UNIT I

Introduction to Computer Networks:
Basics of data communication. digital vs analog transmission, mode of transmission. computer Networks: Goals and kinds
(LAN/WAN). idea of hardware and software requirements for computer networks. intercomparision of various communication
media wireless transmission, various toplogies, bus, ring, tree & mesh. OSI reference model vs TCP/IP.

UNIT II

Data Link Layer:

UNIT III

Medium Access Sub Layer:
Medium Access Sublayer: Channel allocation problem. Multiple access protocols: ALOHA, CSMA, Collision tree; Standards in LAN/WAN (CCITT & IEEE), High speed LANs: FDDI, Fast Ethernet; Satellite Networks: Polling, FDM, TDM, CDMA.

UNIT IV

The Network and Transport Layer:
Network Layer design issues, and switching techniques, Routing, Algorithms, congestion control algorithms, the network layer in the internet; transport layer: Elements of transport services, transport protocols, the internet transport protocol, TCP & UDP.

UNIT V

Application Layers and Network Management:

Books recommended
1. Tanenbaum: computer Networks. PHI
2. John Freer: Computer Communication & Network, EWP
4. Basandra & Jaiswal: Local Area Network, Galgotia
5. James Martin: Computer Networks & Distributed processing, PHI
6. Uyless Black: Computer Networks, PHI
School of Computer Science
PGDCA SECOND SEMESTER
Paper code PGDCA 203(B)
COMPUTER ORIENTED ACCOUNTING & FINANCIAL APPLICATIONS

Time: 3hours
Max. Marks. 70
Min. Marks. 24

UNIT I

UNIT II
Introduction to Financial Management: Meaning and scope: Ratio analysis: Meaning, advantages, Limitations.

UNIT III

UNIT IV
Introduction to Costing: Nature Importance Principles and Types. Budget and budgetary control: Nature. Importance, Type (Master budget and flexible budget) and Preparation

UNIT V
Introduction to Computerized accounting System: Coding logics codes required, master files, transaction files, introduction to documents used for data collection. processing of different files and outputs obtained. General idea of accounting packages.

Books Recommended:
1. Shukla & Grevel, Advance Accounts, S. Chand & Co.
2. Sharma & Gupta, Financial Management, Kalyani
3. Sharma & Gupta, Management Accounting, Kalyani.
School of Computer Science
PGDCA SECOND SEMESTER
Paper code PGDCA 203(C)

COMPUTER ORIENTED NUMERICAL & STATISTICAL TECHNIQUES

Time: 3 hours

Max. Marks. 70
Min. Marks. 24

UNIT –I


UNIT-II


UNIT-III


UNIT-IV


UNIT-V

Regression Analysis: least square fit: Polynomial and curve fitting: Linear regression and non-linear regression algorithms, multiple regression algorithms, General idea of statistical packages.

Books Recommended:

2. Motewar, S. N. ; A course in computer programming with numerical techniques, Dhanpat Rai and sons, Delhi.
3. Rajaraman V.; Computer Oriented Numerical Mathematics. PHI.
School of Computer Science
PGDCA SECOND SEMESTER
Paper code PGDCA 104
Analysis and Design of Information System

Time: 3hour
Max. Marks. 70
Min. Marks. 24

UNIT-I

UNIT- II

UNIT- III

UNIT-IV

UNIT-V

Books Recommended:
School of Computer Science  
PGDCA SECOND SEMESTER  
Paper code PGDCA 201  
Java Programming  

Time: 3 hours  
Max. Marks: 70  
Min. Marks: 24  

UNIT I  
Introduction to Object Oriented Programming: Basic concept, Benefits of OOPS, Application of OOP, Java evolution: history, features, C, C++ & Java a comparison. Java and WWW, HW,& SW requirements for Java, Structure of simple Java Program, Java tokens, statement, Java virtual machine. command line arguments, programming style, constants & variables, symbolic constants, type casting: Various operators in Java (arithmetic, relation, logical, assignment, increment, decrement, conditional, bitwise, & special operator); arithmetic expressions & their evaluation, precedence of arithmetic operator type conversations in expressions, operator precedence and associatively, mathematical functions.

UNIT II  
Decision making and branching: Decision making with if statement. Simple if statement the if...else statement, nesting of if... else statements. the else if Ladder, the switch statement, The ? operator, the while statement, the do statement the do statement, the for statement, jump in loops, labeled loops, classes, objects and methods; Defining a class objects, accessing class members. constructors, methods: Defining a class, adding variables and methods, creating objects, accessing class members. constructors, methods overloading, static members, nesting of methods inheritance; extending a class members. overriding methods, final variables and methods, final classes, finalize methods, abstract method and classes visibility control.

UNIT III  
Arrays, strings and vectors: Arrays, one dimensional arrays, creating an array, two dimensional arrays, strings, vectors, wrapper classes defining interfaces, multiple inheritance, extending interfaces, implementing interfaces, accessing interface variable, packages: Java API packages, using system packages, naming conventions, creating packages, accessing a package, using a package, using a package, adding a class to a package, hiding classes.

UNIT IV  
Multithreaded programming: creating threads, extending the thread class, stopping and blocking a thread. life cycle of a thread, using thread methods, thread exceptions, thread priority, synchronization, implementing the runnable interface elements algorithms, thrashing other consideration, demand segmentation.

UNIT V  
Applet programming: Local and remote applets. hoe applets differ from applications, preparing to write applets, building applets code, applets life cycle. creating and executable applet. designing a web page, adding applets to HTML file, running the applet, more about applet tag, passing parameters to applets, aligning the display, more about HTML tags, displaying numerical values getting input from the user.

Books Recommended:  
1. Programming with Java a primer by E. Balagurusamy  
3. Mastering in Java, Techmedia Pub. schatz & Galvin  