

# GOVT. BILASA GIRLS' P.G. (Auto.) COLLEGE

Link Road, Bilaspur (C.G.)

Phone No. : 07752-224249, Website : [www.bilasagrilscollege.ac.in](http://www.bilasagrilscollege.ac.in)



## SYLLABUS

Post Graduate Diploma in  
Computer Application  
(PGDCA)

**2021-22**





# Rules and Regulations for the Semester System at the Graduation Level

1. These subjects are compulsory for all students:-
  - (a) Environmental Studies (I Semester)
  - (b) English Language (II and III Semester)
  - (c) Hindi Language (IV and V Semester)
  - (d) Skill Based Course (VI Semester)
2. In each semester there will be only one theory paper in each elective Subject.
3. For Honours Degree Course, there will be one additional theory paper in each semester i.e. semesters, III to VI.  
For Honours Degree Course, separate practical classes will be held round the year but the examinations shall be held only in even semesters i.e. semesters II, IV and VI.
4. **Marks Pattern:-**
  - (i) For non practical subjects, each theory paper will be of 100 marks i.e. 80 External + 20 Internal.
  - (ii) For practical subjects, each theory paper will be of 75 marks i.e. 60 External + 15 Internal.
  - (iii) Practical examination will be of 50 marks. Practical Classes will be held round the year but examination shall be held only in even semesters i.e. semesters II, IV and VI.
5. **Theory Examination:-**  
Duration for theory examination shall be of two and half hours.
6. **Practical Examination:-**  
Duration for Practical examination shall be as suggested in the syllabi.
7. **Admission Period:-**
  - (i) Admissions in the First Semester shall be completed before 15th of July every year.
  - (ii) Admissions in Semesters i.e. II, III, IV, V and VI shall be completed within 7 days after the completion of examinations on the provisional basis.
  - (iii) The provisional admission shall be regularized within 7 days from the date of declaration of result.
  - (iv) Request for permission for late admission shall not be entertained.
8. **Schedule of Classes-**
  - (i) I Semester's classes will be commenced from 16th of July every year
  - (ii) III and V Semester's classes will be commenced from 2nd July every year.
  - (iii) II, IV and VI Semester's classes will be commenced from 2nd January every year.
  - (iv) All the classes shall be continued till seven days prior to the commencement of the examination.
9. **Examination Schedule- Tentative Schedules of examinations are as under-**
  - (i) Odd semester (I, III & V) - 20th November to 20th December.
  - (ii) Even semester (II, IV & VI) - 15th April to 14th May.
10. **Examination Pattern -**
  - (a) Questions will be asked Unit wise and Section wise. Questions will be set from all Units Covering the entire syllabi.
  - (b) For non practical subjects, maximum marks will be 80 (External).
  - (c) For the practical based subjects, maximum marks will be 60 (External).
  - (d) In each theory paper there will be three sections and the marks distributed for different sections will be in the following pattern -

**Theory (Non- Practical):- There will be three sections A, B and C in the question paper.**  
**Section - A Objective Type/ In few words (30 words)**

There will be 15 questions to be set, three from each unit and 10 to be attempted. Each question will carry 2 marks.

**Section - B Short Answer Type (60 words)**

There will be 5 questions to be set, 1 from each unit and all five questions to be attempted. Each question will carry 6 marks.

**Section - C Long Answer / Eassy Type Question**

There will be 5 questions to be set, 1 from each unit and 2 to be attempted. Each question will carry 15 marks.

**Marks Scheme for - Non-practical subject -**

Types of Questions	Question to be set from each Unit	Total No. of Questions	Questions to be solved	Marks assigned	Total Marks
Objective / In few words	03	15	10	02	20
Short Answer Type Questions	01	05	05	06	30
Long / Essay type of questions	01	05	02	15	30
<b>Total - 80</b>					

(i) **Theory (Practical Subject):-** There will be three sections A, B and C in the question paper.

**Section - A Objective Type/ In few words (30 words)**

There will be 15 questions to be set, three from each unit and 10 to be attempted. Each question will carry 2 marks.

**Section - B Short Answer Type (60 words)**

There will be 5 questions to be set, 1 from each unit and all five questions to be attempted. Each question will carry 4 marks.

**Section - C Long Answer / Eassy Type Question**

There will be 5 questions to be set, 1 from each unit and 2 to be attempted. Each question will carry 10 marks.

**Marks Scheme for - Practical Subject -**

Types of Questions	Question to be set from each Unit	Total No. of Questions	Questions to be solved	Marks assigned	Total Marks
Objective / In few words	03	15	10	02	20
Short Answer Type Questions	01	05	05	04	20
Long / Essay type of questions	01	05	02	10	20
<b>Total - 60</b>					

For question papers of compulsory papers of General group subjects i.e. Environmental Studies, English Language, Hindi Language and Skill Based Course, the pattern of question shall be applicable as suggested by the concerned Board of Studies.

**(ii) Practical**

	Each Practical
Laboratory Note Book / Project	10
Vive voce	10
Lab work / Field work	30
<b>Total - 50</b>	

- (e) In odd semester examination, a candidate shall appear in papers of odd semester(s) only. Similarly in even semester examinations, a candidate shall appear in papers of even semester(s) only. Papers of odd and even semesters shall not be confined in one examination.
- (f) Minimum passing marks for external/ semester end theory and practical shall be 34%.



- (g) There shall be provision of 3 grace marks and it would be distributed in maximum two theory Papers / Practical.

### Internal Assessment

- Internal Tests are compulsory for theory papers and must be held as per following calendar:-

Odd Semesters 1st Test - August, 2nd Test - October and 01 Assignment (during semester)

Even Semesters 1st Test - February, 2nd Test - March and 01 Assignment (during semester)

- Each test & Assignment will be of 20 marks for the subjects without practical & 15 marks for the subjects having practicals. Average of the marks obtained in the best of two tests & assignment shall be incorporated as the final marks. Qualifying marks is 40%.
- If a candidate failed to attend the test on bonafide grounds, one special test may be arranged on the production of relevant documents, before submission of application forms and fees to the office.
- The Unit tests/Assignment marks to be sent to the examination cell of the college as per notification to be issued by the Principal/ Controller Examination from time to time.
- If a candidate (whose status is Regular / Ex/Supplementary) failed in First Year of the current session (2013-14) of annual system will be appeared in the first semester examination as ex-student with under the rules and regulations of Semester System. Number of Internal Test of passed year (2013-14) will not be incorporated or carried forward.

	Non Practical Subject		Practical Subject	
	External	Internal	External	Internal
<b>MAX MARKS</b>	<b>80</b>	<b>20</b>	<b>60</b>	<b>15</b>
<b>MIN MARKS</b>	<b>28</b>	<b>08</b>	<b>21</b>	<b>06</b>

### Eligibility criteria for appearing in the examinations

- A candidate should have 75% of attendance both in theory and practical classes. 65% attendance may be considered only on special circumstances and on certification by the Principal of the college.
- A candidate shall have to qualify in the internal tests securing at least 40% marks.
- A candidate shall be allowed to appear in those papers only in which she has secured qualifying marks in internal test.
- If a candidate after taking admission in 1st semester could not continue the classes or could not obtain eligibility cannot appear in the 1st semester examinations. In such cases the student will not be allowed to continue in second semester and she has to continue the classes and obtain eligibility in 1st semester again in next academic year as ex-student.

### 11. Lecture Periods /Classes

There shall be a minimum of 50-60 hours Classes for each theory papers in respective course. Minimum of 50-60 hours shall be for each practical paper. This shall be strictly adhered to.

### 12. Other Guidelines

- There will be no provision for Revaluation, Supplementary or Betterment (Division Improvement).
- A candidate has to clear all the papers within 12 semesters (six years) from the year of first admission in the programme.
- A candidate will choose Honours subject just before the start of third semester from any one of the three elective subjects /group selected by her in the first semester. A candidate can change the Honours subject within 15 days from the date of admission in the third semester.
- The system of credit of ten point scale examination marks in the final mark sheet shall be introduced only after its formal approval by the competent authorities.

- (v) The system of Choice based credit system and Gradation system shall be introduced only after its formal approval by the competent authorities.

**For Honours Degree Course (Total Marks: 2800).**

**13. Admission -**

**The process of admission in Honours Degree Course will be as follows -**

- (i) Student shall select course (Pass Course / Honours Degree Course) at the time of first admission in the college.
- (ii) Admission shall be on merit basis after receiving the application from students.
- (iii) Number of seats for Honours Degree Course will be decided as per the Govt. Rules.

**(A) Each theory Paper (Non Practical Subject)**

<i>Each Theory Paper</i>		<i>Internal Assessment</i>	
Full Marks	Minimum Passing 34%	Full Marks	Minimum Marks 40%
80	28	20	08

**(B) Each theory Paper (Practical Subject)**

<i>Each Theory Paper</i>		<i>Internal Assessment</i>	
Full Marks	Minimum Passing 34%	Full Marks	Minimum Marks 40%
60	21	15	06

**(C) Each Practical Paper**

<i>Minimum Passing Percentage</i>	<i>Full Marks</i>	<i>Minimum Passing Marks</i>
34%	50	17

**(D) Grace Marks**

Total/Maximum 03 in two theory paper/practical.

**Amendments in Promotion Rules for Semester System at the Graduation Level**

- (a) A Candidate is eligible to continue the second semester classes immediately after the 1<sup>st</sup> Semester examinations and can appear in the 2<sup>nd</sup> semester examinations notwithstanding the number of arrear papers in 1<sup>st</sup> semester provided she must have appeared in the 1<sup>st</sup> semester examination.
- (b) A candidate will be promoted to 3<sup>rd</sup> semester with not more than two papers of 1<sup>st</sup> semester and she will continue to attend classes of 3<sup>rd</sup> semester provisionally. She will be allowed to get final admission in the 3<sup>rd</sup> semester with maximum of four back papers in all 1<sup>st</sup> semester and 2<sup>nd</sup> semester.
- (c) A Candidate is eligible to continue the 4<sup>th</sup> semester classes immediately after 3<sup>rd</sup> semester examination and can appear in the 4<sup>th</sup> semester examination with maximum 2 back papers in 1<sup>st</sup> semester and/or any numbers of back papers in 2<sup>nd</sup> and 3<sup>rd</sup> semester.
- (d) A candidate will be promoted in 5<sup>th</sup> semester with not more than 2 back papers in 3<sup>rd</sup> semester and not more than 4 back papers in all 3<sup>rd</sup> and 4<sup>th</sup> semester provided she has cleared 1<sup>st</sup> and 2<sup>nd</sup> semester examination.
- (e) A candidate is eligible to continue the 6<sup>th</sup> semester immediately after the 5<sup>th</sup> semester examination and can appear in 6<sup>th</sup> semester examination with maximum of 2 back papers in 3<sup>rd</sup> semester and/or any number of back papers in 4<sup>th</sup> and 5<sup>th</sup> semester examination.
- (f) If a Candidate of 6<sup>th</sup> Semester is passed in all the semesters except the 5<sup>th</sup> Semester with back in only one subject, she is allowed to appear in the back paper of the 5<sup>th</sup> Semester with the examination of 6<sup>th</sup> Semester.



- (g) The students at the UG Level can view their valued answer copies and apply for the **Challenged Valuation** within 03 days from the date of the declaration of the result.
- (h) A candidate will be eligible to get Graduation and Graduation Honours degree after passing all the six semester examination. For cleaning all semester papers a candidate will be given a period 6 years (12 semesters) from the year of first admission.

## सेमेस्टर स्नातक स्तर प्रमोशन नियम

### प्रथम सेमेस्टर में प्रवेश की पात्रता:-

- प्रथम सेमेस्टर में छात्राओं का प्रवेश छ.ग. शासन के प्रवेश नियम के आधार पर किया जावेगा।

### द्वितीय सेमेस्टर में प्रवेश की पात्रता:-

- विद्यार्थी को प्रथम सेमेस्टर की परीक्षा के तत्काल बाद कितने भी विषयों में बैक के साथ द्वितीय सेमेस्टर में अध्ययन की पात्रता होगी, बशर्ते वह प्रथम सेमेस्टर की परीक्षा में शामिल हुआ हो।

### तृतीय सेमेस्टर में प्रवेश की पात्रता:-

- प्रथम सेमेस्टर में 02 से अधिक विषयों में बैक नहीं होना चाहिए।
- प्रथम एवं द्वितीय सेमेस्टर में सम्मिलित रूप से 04 विषयों से अधिक में बैक न हो।

### चतुर्थ सेमेस्टर में प्रवेश की पात्रता:-

- प्रथम सेमेस्टर में 02 से अधिक विषयों में बैक नहीं होना चाहिए।
- द्वितीय एवं तृतीय सेमेस्टर में कितने भी विषयों में बैक हो।

### पंचम सेमेस्टर में प्रवेश की पात्रता:-

- प्रथम सेमेस्टर उत्तीर्ण होना चाहिए।
- द्वितीय सेमेस्टर उत्तीर्ण होना चाहिए।
- तृतीय सेमेस्टर में 02 से अधिक विषयों में बैक न हो।
- तृतीय एवं चतुर्थ सेमेस्टर में सम्मिलित रूप से 04 विषयों से अधिक में बैक न हो।

### षष्ठम् सेमेस्टर में प्रवेश की पात्रता:-

- प्रथम सेमेस्टर उत्तीर्ण होना चाहिए।
- द्वितीय सेमेस्टर उत्तीर्ण होना चाहिए।
- तृतीय सेमेस्टर में 02 से अधिक विषयों में बैक न हो।
- चतुर्थ एवं पंचम सेमेस्टर में कितने भी विषयों में बैक हो।
- यदि कोई छात्रा सभी सेमेस्टर में उत्तीर्ण है एवं केवल पंचम सेमेस्टर में 01 (एक) विषय में बैक है, ऐसी छात्रा को षष्ठम् सेमेस्टर की परीक्षा के साथ परीक्षा देने का अवसर दिया जावेगा।
- विशेष -
  - ✓ मूल्यांकित उत्तर-पुस्तिकाओं के अवलोकन व Challenged Valuation की प्रक्रिया इस स्नातक स्तर सेमेस्टर परीक्षा अप्रैल-मई से लागू है। छात्राएं परीक्षा परिणाम घोषित होने की तिथि से 3 दिन के भीतर इस हेतु आवेदन प्राचार्य को दे सकती हैं।
  - ✓ विद्यार्थी को स्नातक एवं स्नातक आर्नस की उपाधि तभी प्राप्त होगी जबकि उसने सभी 06 सेमेस्टर की परीक्षाएँ उत्तीर्ण कर ली हों एवं 06 सेमेस्टर की परीक्षाएँ उत्तीर्ण करने हेतु उसे प्रथम प्रवेश की तिथि से लेकर 06 वर्षों की अवधि प्राप्त होगी।
  - ✓ छात्रा जिस सत्र बैक की परीक्षा में सम्मिलित होगी उसी सत्र का पाठ्यक्रम एवं परीक्षा संबंधी नियम लागू होगा।

2021-22

## Structure & Syllabi for One Year PG Diploma Programme of P.G.D.C.A.

1. The title of the programme will be Post Graduate Diploma in Computer Application (P.G.D.C.A.) and will be introduced from the academic year 2014-15.
2. **Objectives:** The objectives of the Programme shall be to provide sound academic base for proceeding career in Computer Application.
3. **Eligibility for admission:** In order to be eligible for admission to PGDCA a candidate must be Graduate in any stream with minimum 40% marks in aggregate.
4. **Duration:** The duration of the P.G.D.C.A. Program shall be one year.
5. **The scheme of Examinations:** The P.G.D.C.A. Examination will be of 800 marks as given Below:
  - I) Theory Papers: 600 marks
  - II) Project and Practical Papers: 200 marks
6. **The Standard of Passing and Award of Class**

In order to pass in the examination the candidate has to obtain 40% marks out of 100. (Min 40% marks must be obtained in theoretical papers as well as practical papers of University Examination).

The class will be awarded on the basis of aggregate marks obtained by the candidate for examinations.
7. **The Medium of Instruction and Examination (Written and Viva ) shall be English/Hindi.**
8. **Instructions to Paper Setters:**
  - a. In each theory paper, six questions are to be set and paper have maximum 100 marks. Question paper should be in English as well as Hindi.
  - b. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 30 marks.
  - c. Apart from Question No. 1, rest of the paper shall consist of five units as per the syllabus.


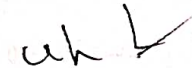


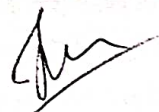

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## SYLLABUS

## P.G. DIPLOMA IN COMPUTER APPLICATION

YEAR WISE PLAN  
PGDCA  
Session -2021-22

S.N.	Subject Name	End Semester Examination Maximum Marks	End Semester Examination Minimum Passing Marks
1	Fundamentals of Computer and Information Technology	100	40
2	PC- Packages and Computerized Accounting System	100	40
3	Data Communication and Computer Network	100	40
4	Programming using 'C' & C++	100	40
5	Relational Database Management System (Oracle)	100	40
6	System Analysis & Design	100	40
7	PC Package and Tally ERP Lab	50	17
8	C.C++ and Oracle Lab	50	17
9	Project	100	40



GOVT. BILASA GIRLS P.G. COLLEGE BILASPUR (C.G.)

2021-22

SYLLABUS

P.G. DIPLOMA IN COMPUTER APPLICATION

PAPER-I

FUNDAMENTALS OF COMPUTER & INFORMATION TECHNOLOGY

UNIT-I

Introduction to Computer and Information Technology: Brief history of development of computer & generations of computer, Computer system characteristics. Capabilities and limitations block diagram of computer. Types of computer-Analog, Hybrid, digital, micro, mini, mainframe, super computer. Personal computer, types of PCs desktop, laptop, notebook, palmtop etc. Number system Data representation in computers, Number system of computers binary, octal, hexadecimal, representation & their conversion, Coding system ASCII, BCD, EDCDIC etc.

UNIT-II

INPUT/OUTPUT devices: keyboard, mouse, monitor, trackball, joystick, digitizing table, scanners, digital cameras, MICR, OCR, OMR, Bar-code reader, Voice recognition, light pen, touch screen, devices, printer, plotter.

UNIT-III

Storage device: Data storage and retrieval methods-sequential, direct and index sequential- various storage devices-magnetic tape, magnetic disks, cartridge tape, data drives hard disk drives, floppy disks, optical disks-CD, VCD, CDR, CDRW, DVD.

UNIT-IV

Computer software: types of software, system software, application software, operating system, utility program, assemblers, compilers and interpreter. Operating system functions, Types batch, single user, multi user, multiprogramming, multiprocessing, Programming languages, machine, assembly, high level, 4GL, their merits and demerits. Computer virus -types of virus, virus detection & prevention virus on network.

UNIT-V

Data Communication & networks: analog and digital signals, modulations, amplitude modular (am), frequency modulation (fm), phase modulation (pm), communication process, direction of transmission flow, simplex, half duplex, full duplex. Types of network LAN, WAN, MAN etc, Topologies of LAN ring, bus star, mesh and tree topologies, communication protocols TCP/IP protocol suit. Communication channels media twisted, coaxial fiber optic, serial and parallel communication, Network operating system (NOS), bridges, hub, routers, repeater and gateways. Modern working and characteristics. Types of connections- dialup leased lines, ISDN, broadband.

Text & Reference Books

- 01. Computer fundamentals, P.K. Sinha, BPB
- 02. Computer today by S.K. Basandra Galgotia Publications.
- 03. Fundamentals of information by Axexos Leon & Mathews Leon, Vikas Publishing House, New Delhi

The bottom of the page features several handwritten signatures and initials in black ink. On the left, there is a long horizontal line followed by a signature that appears to be 'S. Sinha'. In the center, there is a circular stamp or signature. To the right, there are several more signatures and initials, including one that looks like 'T.S.'.

P.G. DIPLOMA IN COMPUTER APPLICATION

SYLLABUS

PAPER-II

PC PACKAGES & COMPUTERIZED ACCOUNTING SYSTEM

UNIT-I

Fundamental of DOS & Windows: Fundamental of DOS booting process, internal and external commands, creating and executing batch files and directories creating text files. Introduction to windows features, various versions of windows, origin of windows parts of windows screen types and anatomy of windows using.

UNIT-II

Introduction to word processing (MS-word): Advantages of word processing, editing a file using paragraphs, bullets, indentation, ect. Formatting features, printing the documents, it includes paper-size, margins, header and footer, page no., using macros. Advance word processing, header and footers. Finding text, mail merge and other application, mathematical calculations, table handing.

UNIT-III

Introduction to spread sheet (MS-Excel): Definition and advantages of electronic worksheet, working of spread sheet, range and related operations. Setting saving and retrieving work sheet file, inserting deleting coping & moving of data cells, inserting and deleting rows & columns, protecting cell printing a worksheet, erasing a worksheet, graphs, creation, types of graphs creating a chart sheet 3D column charts, moving and changing the size of chart, printing the chart.

UNIT-IV

Introduction to Powerpoint (MS- Powerpoint): Creating a presentation, inserting/deleting slides, different slide views, editing slides, Slide transition & editing special effects inserting sound, picture, chart, organization chart.

UNIT-V

Accounting software Tally ERP 9: Basic principles of double entry accounting system, creating new company security controls, groups, ledger, voucher type, modifying, new company, voucher entry, generating profit & loss account, trial balance and balance sheet, backup & restore.

**Text & Reference Books:**

01. Comdex Computer Course Kit (Windows 7 with office 2010), Gupta vikas, Dreamtech Publication.
02. Mastering MS Office 2000, Professional Edition by Courter, BPB Publication.
03. MS Office 2000 Training Guide by Maria, BPB Publication.
04. PC Software, Ravi Taxalli, BPB
05. Computer Fundamental by P.K. Sinha
06. Financial Accounting with Tally 9.001 edition by Vikas Gupta.
07. Mastering Tally ... ERP 9 By A.K. Nandhani.





**SYLLABUS  
PAPER-III  
DATA COMMUNICATION & COMPUTER NETWORK**

**UNIT-I**

Introduction to Data Communication– Network models, protocols and architecture, standards organizations, line configuration, topology, transmission mode, classification of networks, OSI reference model, TCP/IP model.

**UNIT- II**

Analog and digital signals, Data encoding, parallel and serial transmission, modems, transmission media: guided media, unguided media, transmission impairment, performance, Synchronous and asynchronous transmission.

**UNIT- III**

Multiplexing, LLC, error detection and correction, flow control, HDLC, LANs- applications, architecture, Ethernet, 802.3 LANs, token ring, FDDI, IEEE 802.6, circuit switching, packet switching, message switching, connection oriented and connectionless services.

**UNIT-IV**

Principles of internetworking– connection– oriented, connectionless, Routing concepts, routing algorithms– distance-vector routing, link state routing, shortest path routing. Congestion control, QOS, internetworking, network devices.

**UNIT-V**

Network security requirements and attacks, public key and private key encryption and digital signatures, digital certificate, firewalls, IDS (Intrusion Detection System)

**Text & Reference Books:**

01. Computer networks– A.S. Tanenbaum. PHI
02. Data communication and networking – Behrouz A. Forouzan. TMH

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P.G. DIPLOMA IN COMPUTER APPLICATION  
SYLLABUS

PAPER-IV  
SYSTEM ANALYSIS AND DESIGN

**UNIT-I**

The system concept: characteristics, elements and types of a system, the system development life cycle, considerations, for candidate systems prototyping. The role of system analyst.

**UNIT- II**

System planning and initial investigation: Information Gathering, information gathering tools. Structured analysis, the tools of structured analysis (DFD, Data Dictionary, Decision tree and Pseudo codes Decision Tables), PROS and CONS of each tool, system performance definition description of outputs, feasibility study. Cost/ Benefit analysis, Data analysis, Cost/ Benefit analysis, the system proposal.

**UNIT- III**

Stages of system design: Design methodologies, development activities, input design, output design forms design, types of forms, basics of form design layout considerations and forms control.

**UNIT-IV**

File structure: File organization, objectives of database, data structure, system testing and quality assurance, why system testing, what do we test for, the test plan quality assurance, trends in testing, role of data processing auditor, training and documentation.

**UNIT-V**

Implementing and software maintenance: conversion combating resistance to change, post implementation review, software maintenance, hardware/software selection and the computer contract, suppliers, procedure for hardware/software selection, financial considerations in selection, the computer contract system security disaster recovery planning.

**Text & Reference Books:**

01. System analysis and design, Elias M. Awad, Galgotia Publication (P) Ltd.
02. System analysis and design, International Ed. Perry Edwards, McGraw Hill Pub.

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P.G. DIPLOMA IN COMPUTER APPLICATION

SYLLABUS

PAPER-V  
PROGRAMMING IN C &  
C++

UNIT-I

Introduction to "C" Language: Fundamentals, simple I/O statements, reading and writing, data types constants, variable, operators & expressions, library function, control statements, if-else, while, do-while, goto, for statements switch, break, looping statements, functions recursion, arrays, multidimensional arrays, strings & pointers.

UNIT- II

Programming in C++, functions, class, object, constructor and destructor. Call by reference, call by value, return by reference, inline function, constant argument, function overloading, static member function, static data member,. Classes: implementing class, classes and members, accessing class members, implementing class methods, array of object, friend function. Constructor & destructors: parameterized constructor, multiple constructor, constructor with default argument, copy constructor, destructor.

UNIT- III

Operator overloading & type casting: Operator overloading, unary operator overloading, binary operator overloading, manipulates string using operator overloading, type conversions: basic to class, class to basic, class to class.

UNIT-IV

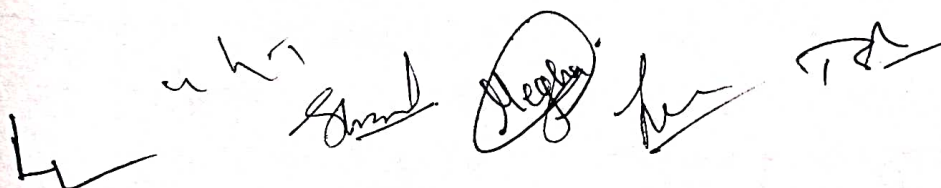
Inheritance, virtual function: single inheritance, multilevel inheritance, multiple inheritance, hybrid inheritance, hierarchical inheritance, virtual base class, abstract class.

UNIT-V

Pointer & File: Pointer to object, this pointer, virtual function and pure virtual function. File: opening and close file, detecting end of the file

Text Books:

01. Let us C by Yaswant Kanetkar BPB
02. Object oriented Programming with C++, E.Blagusamy, Tata mc Graw-Hill
03. C++ Complete reference, Herbert Schildt, TMH.
04. ANSIC programming, E.Blagusamy, TMH



P.G. DIPLOMA IN COMPUTER APPLICATION  
SYLLABUS

PAPER-VI

RELATIONAL DATABASE MANAGEMENT SYSTEM (ORACLE)

UNIT-I

Overview of Database Management: Data, information, data independence, database administration roles, DBMS architecture, different kinds of DBMS users importance of data dictionary, contents of data dictionary, types of database languages. Data models: network, hierarchical, relational. Introduction to distributed database, client/server databases, object-relational databases, introduction to ODBC concept

UNIT- II

Relational Model: Entity relationship model as a tool for conceptual design-entities attributes and relationships. ER diagrams; concept of keys: candidate key, primary key, alternate key, foreign key; strong and weak entities, case studies of ER modeling generalization; specialization and aggregation, Converting an ER model into relational schema. Extended ER features, introduction to UML, Representation in UML diagram.

UNIT- III

Structured Query Language (SQL): Relational Algebra: select, project, cross product different types of joins (inner join, outer joins, self join); set operations, tuple relational calculus, domain relational calculus, simple and complex queries using relational algebra, stand alone and embedded query languages, introduction to SQL constructs (SELECT...FROM, WHERE... GROUP BY... HAVING ... ORDERBY...), INSERT, DELETE, UPDATE, VIEW definition and use, temporary tables, nested queries, and correlated nested queries, integrity constraints: Not null, unique, check, primary key, foreign key, reference, triggers.

UNIT-IV

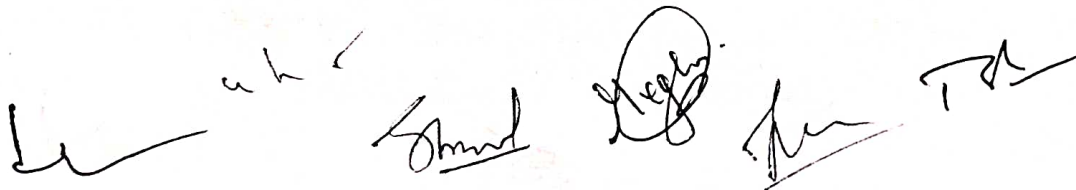
Relational database design: Normalization concept in logical model; pitfalls in database design, update anomalies: functional dependencies join dependencies, Normal forms (1NF, 2NF, 3NF). Boyce code normal form, decomposition, multi-valued dependencies, 4NF, 5NF. Issues in physical design; concepts of indexes, file organization for relational tables, de-normalization, clustering of tables, clustering indexes.

UNIT-V

Introduction to Query processing and protection the database: parsing, translation, optimization, evaluation and overview of query processing. Protecting the database integrity, security and recovery, Domain constraints, referential integrity, assertion, triggers, security & authorization in SQL

Text & Reference Books:

01. Database system concept, H. Korth and A. Silberschatz, TMH
02. Data Base Management System, C.J. Date, Narosha Publication.
03. An Introduction to database systems – Bipin Desai, Galgotia Publication.
04. SQL, PL/SQL Evan Bayross (2<sup>nd</sup> edition) BPB publications.





2019-20

Paper VII

PC Package & Tally ERP Lab

Note: Practical should be as per syllabus of theoretical papers.

Paper VIII

C, C++ & Oracle Lab

Note: Practical should be as per syllabus of theoretical papers.

Paper IX

PROJECT

Note:

01. It is compulsory, that students would have group of maximum of two students and project should done under Government sectors/ Public Sector/ Pvt. Limited S/W Company/ Software Technology park of India/ ISO 9001 certified company be etc.

02. The students should not make any project under local or private institutions.

03. The students should make project themselves and project will not be copy of other project.

Steps for Live Project

01. Getting customer's requirements

02. Designs, database and business logics.

03. Developing software application project.

04. Testing and implementing the project.

05. Troubleshooting the project application after implementation.

The break-up of marks for Practical will be as under

Sn	Argument	Maximum Marks	Minimum Passing Marks
1	Lab Record	10	
2	Viva-voce	20	
3	Program Development & Execution	20	
4	Total Marks	50	17

The break-up of marks for Practical will be as under

S.n	Argument	Maximum Marks	Minimum Passing Marks
1	Lab Record	25	
2	Viva-voce	25	
3	Program Development & Execution	50	
4	Total Marks	100	40

*[Handwritten signatures and marks]*