

# DEPARTMENT OF COMPUTER SCIENCE

COURSE CURRICULUM & MARKING SCHEME PROGRAM

CODE: DPDC02

PGDCA 1<sup>st</sup> & 2<sup>nd</sup> SEMESTER

**(Based on CBCS)**



**D. P. VIPRA COLLEGE,**

(AN AUTONOMOUS INSTITUTION)

OLD HIGH COURT ROAD BILASPUR (CHHATTISGARH)

RE-ACCREDITED "A" GRADE BY NAAC Phone No: 07752-424497

**Website: [www.dpvipracollege.ac.in](http://www.dpvipracollege.ac.in)**

**Email: [dpvipracollege@gmail.com](mailto:dpvipracollege@gmail.com)**

**Scheme of Post Graduate Diploma in Computer Application under Semester System**

**Program Code& Name: DPDC02 - PGDCA**

**Session 2025-26**

Semester	Course Code	Course Name	Credit			Total Credit	Marks			
			L	T	P		ESE	CIA	Total	
									MAX	MIN
First	PGDCAT101	Introduction to Computer Fundamental & Information Technology	3	1	-	4	70	30	100	40
	PGDCAT102	PC Package & Tally	3	1	-	4	70	30	100	40
	PGDCAT103	Programming in C	3	1	-	4	70	30	100	40
	PGDCAP101	Office Automation-Lab	-	-	3	3	35	15	50	20
	PGDCAP102	Programming in C-Lab	-	-	3	3	35	15	50	20
<b>Total</b>						<b>18</b>	<b>280</b>	<b>120</b>	<b>400</b>	<b>160</b>
Second	PGDCAT201	Operating System	3	1	-	4	70	30	100	40
	PGDCAT202	Web Technology	3	1	-	4	70	30	100	40
	PGDCAT203	Relational Database Management Systems (ORACLE)	3	1	-	4	70	30	100	40
	PGDCAP201	Web Technology & RDBMS - Lab	-	-	3	3	70	30	100	40
	PGDCAP202	Major Project	-	-	3	3	70	30	100	40
<b>Total</b>						<b>18</b>	<b>350</b>	<b>150</b>	<b>500</b>	<b>200</b>

Program Code and Name	<b>DPDC02-Post Graduate Diploma in Computer Application</b>			Semester	<b>II</b>
Exam Code and Name	<b>4022 - Post Graduate Diploma in Computer Application Second Semester</b>			Paper	<b>I</b>
Course Code	<b>PGDCAT201</b>			Course Type	<b>T</b>
Course Title	<b>OPERATING SYSTEM</b>				
Total Credit	<b>4</b>				
Total Marks	CIA: 30	ESE: 70	Max Marks: 100	Min. Pass. Marks: 40	
Prerequisites (if any)					
Course Outcomes	CO1: Recognizing the basic and types of operating system. CO2: Understanding Process and CPU scheduling and deadlock handling to manage process. CO3: Understanding logical and physical address space, paging and segmentation. CO4: Learning Device Management and file system implementation and file system interface.				

<b>Contents of Course</b>		
<b>Unit</b>	<b>Contents</b>	<b>No. of Period</b>
I	<b>Introduction to Operating System:</b> What is an Operating System, Architecture of Operating Systems, Types of Operating Systems, Process Model, Process States and Transitions, System Calls.	15
II	<b>Process Management:</b> Process Scheduling, Cooperating Processes, Inter-process Communication, CPU Scheduling: Scheduling Criteria, Scheduling Algorithms, Process Synchronization: Background, Deadlocks.	15
III	<b>Memory Management:</b> Background, Logical versus Physical Address space, swapping, Contiguous allocation, Paging, Segmentation, Segmentation with Paging, Virtual Memory: Demand Paging.	15
IV	<b>Device Management:</b> Device Management: Techniques for Device Management, Dedicated Devices, Shared Devices. <b>File-System Implementation:</b> A Simple File System, Logical & Physical File System, File-System Interface: Access Methods, Directory Structure, Free-Space Management, Directory Implementation.	15
Total no. of Lectures		60

Reference books	1. Operating System Concepts, Silberschatz and Galvin, Pearson Education Pub. 2. Operating Systems Internals and Design Principle, William Stallings, Prentice Hall Publishers. 3. Operating Systems, A.S.Tannenbaum, PHI. 4. Operating Systems-A Concept Based Approach, Dhananjay M.Dhamdhare, TMH.
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<b>Assessment and Evaluation</b>		
Suggested Continuous Evaluation Methods:		
Maximum Marks: 100 Marks	Continuous Internal Assessment (CIA): 30 Marks	End Semester Exam (ESE) : 70 Marks
Continuous Internal Assessment (CIA)	Internal Test/Quiz- (2): 20 & 20 Assignment / Seminar: 10 Total Marks: 30	Better marks out of the two Test / Quiz + obtained marks is Assignment shall be considered against <b>30</b> Marks
End Semester Exam (ESE)	<b>Three Section - A, B &amp; C</b> Section A: Q1. Objective- 10 x 1 = 10 Mark; Section B: Long Answer type questions 1 out of 2 from each unit- 4 x 5 = 20 Marks; Section C: Descriptive answer type questions 1 out of 2 from each unit- 4 x 10 = 40 Marks;	

Program Code and Name	<b>DPDC02-Post Graduate Diploma in Computer Application</b>			Semester	<b>II</b>
Exam Code and Name	<b>4022 - Post Graduate Diploma in Computer Application Second Semester</b>			Paper	<b>II</b>
Course Code	<b>PGDCAT202</b>			Course Type	<b>T</b>
Course Title	<b>RELATIONAL DATABASE MANAGEMENT SYSTEM (ORACLE)</b>				
Total Credit	<b>4</b>				
Total Marks	CIA: 30	ESE: 70	Max Marks: 100	Min. Pass. Marks: 40	
Prerequisites (if any)					
Course Outcomes	<p>CO1: Understand fundamental concepts of database systems, including data models, DBMS architecture, and database users.</p> <p>CO2: Design conceptual data models using ER diagrams and convert them into relational schemas.</p> <p>CO3: Implement integrity constraints, triggers, and views for secure and efficient database management.</p> <p>CO4: Evaluate physical database design techniques such as indexing, file organization, and clustering for performance optimization.</p>				

<b>Contents of Course</b>		
<b>Unit</b>	<b>Contents</b>	<b>No. of Period</b>
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	15
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.	15
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, standalone and embedded query languages, introduction to SQL constructs (SELECT...FORM, WHERE... GROUP BY... HAVING ... ORDERBY...), INSERT, DELETE, UPDATE, VIEW definition and use, temporary tables, nested queries, and correlated nested queries, integrity constrains: Not null, unique, check, primary key, foreign key, reference, triggers.	15
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.	15
Total no. of Lectures		60

Reference books	<ol style="list-style-type: none"> <li>1. Database system concept, H.Korth and A.Silberschatz, TMH</li> <li>2. DataBase Management System, C.J.Date, Narosha Publication.</li> <li>3. An Introduction to database systems–Bipin Desai, Galgotia Publication.</li> <li>4. SQL, PL/SQL Evan Bayross(2<sup>nd</sup>edition)BPB publications.</li> </ol>
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End Semester Exam (ESE)	<b>Three Section - A, B &amp; C</b> Section A: Q1. Objective- 10 x 1 = 10 Mark; Section B: Long Answer type questions 1 out of 2 from each unit- 4 x 5 = 20 Marks; Section C: Descriptive answer type questions 1 out of 2 from each unit- 4 x 10 = 40 Marks;	

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Exam Code and Name	<b>4022 - Post Graduate Diploma in Computer Application Second Semester</b>			Paper	<b>III</b>
Course Code	<b>PGDCAT203</b>			Course Type	<b>T</b>
Course Title	<b>WEB TECHNOLOGY</b>				
Total Credit	<b>4</b>				
Total Marks	CIA: 30	ESE: 70	Max Marks: 100	Min. Pass. Marks: 40	
Prerequisites (if any)					
Course Outcomes	CO1: Analysis the basics of Internet, its use and evolution CO2: General Introduction to WWW, connections and basics of E-mail. CO3: Website development basics using HTML and its tags. CO4: Learning Basics of PHP and MySQL.				

<b>Contents of Course</b>		
<b>Unit</b>	<b>Contents</b>	<b>No. of Period</b>
I	Internet: Evolution & Protocols of internet, Applications of Internet, Internet Vs Internet, Growth of Internet, History of Internet. WWW, World Wide Web (WWW) History, Working, Web Browsers, client server architecture. Connectivity - Dial-up, Leased line, VSAT etc., URLs, Domain names, Portals, Applications. E-Mail: Concepts, Basics of Sending & Receiving, E-mail, Free E-mail services.	15
II	Searching the Web, HTTP, URLs, Web Servers, Web Protocols. Web Publishing Concepts, Domain Name Registration, HTML, Design Tools, HTML Editors, Image Editors. Introduction to HTML, HTML Concepts of Hypertext, Versions of HTML, Elements of HTML Syntax, Head & Body Sections, HTML tags, Inserting Texts formatting, text style. Images, Hyperlinks, Backgrounds and Colour Controls, Table Layout and Presentation, Use of Font Size & Attributes, List types and its Tags, Forms.	15
III	PHP Introduction to PHP, Server-side scripting, Role of Web Server software, including files, comments, variables and scope, echo and print, Operators: Logical, Comparison and Conditional operators, Branching statements, Loops, break and continue PHP functions. Passing information between pages, HTTP GET and POST method, String functions: str len, stripslashes, strpos, strcmp, substr, str replace, string case, Array constructs: array(), list() and foreach(), PHP advanced functions: Header, Session, Cookie, Object Oriented Programming using PHP: class, object, constructor, destructor and inheritance.	15
IV	MySQL Features of MySQL, data types, Introduction to SQL commands-SELECT, DELETE, UPDATE, INSERT, PHP functions for MySQL operations: mysql_connect, mysql_select_db, mysql_query, mysql_fetch_row, mysql_fetch_array, mysql_fetch_object, mysql_result, Insertion and Deletion of data using PHP, Displaying data from MYSQL in webpage.	15
Total no. of Lectures		60

Reference books	<ol style="list-style-type: none"> <li>1. M.L.Young: Complete Reference b: Internet; 2ndEdition; Tata Mc Graw Hill, 2006.</li> <li>2. Thomas A.Powel; WebDesign:C.R.;SecondEdition;TMH,2009.</li> <li>3. Thomas A.Powel; HTML &amp; XHTML:C.R.;FourthEdition;TMH,2008.</li> <li>4. Harely Hahn:The Internet,Tata Mc Graw Hill.</li> <li>5. G.Robertson: Handson HTML,BPB Publications.</li> <li>6. Joel Sklar: Principles of Web Design, BPB Publications</li> </ol>
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<b>Assessment and Evaluation</b>		
Suggested Continuous Evaluation Methods:		
Maximum Marks: 100 Marks	Continuous Internal Assessment (CIA): 30 Marks	End Semester Exam (ESE) : 70 Marks
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End Semester Exam (ESE)	<b>Three Section - A, B &amp; C</b> Section A: Q1. Objective- 10 x 1 = 10 Mark; Section B: Long Answer type questions 1 out of 2 from each unit- 4 x 5 = 20 Marks; Section C: Descriptive answer type questions 1 out of 2 from each unit- 4 x 10 = 40 Marks;	

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Course Code	<b>PGDCAP201</b>			Course Type	<b>P</b>
Course Title	<b>Web Technology &amp; RDBMS - Lab</b>				
Total Credit	<b>3</b>				
Total Marks	CIA: 30	ESE: 70	Max Marks: 100	Min. Pass. Marks: 40	
Prerequisites (if any)					
Course Outcomes	CO1: To Enhance knowledge on latest techniques. CO2: To Make ready for IT industry. CO3: To Upgrade skill set as per IT industry. CO4: To Handle real world applications.				

<b>Contents of Course</b>																																														
<b>Important Guidelines for Project</b>	<b>No. of Period</b>																																													
<p>1. Create a HTML file for displaying a webpage with following Tags. The file should contain a brief description about all these tags:</p> <ol style="list-style-type: none"> <li>a. Bold</li> <li>b. Italics</li> <li>c. Underline</li> <li>d. Alignment</li> <li>e. Paragraph</li> <li>f. Text color</li> <li>g. Headings</li> <li>h. HR</li> <li>i. Back ground Color</li> <li>j. Line break</li> <li>k. Pre</li> </ol> <p>2. Write HTML Code to demonstrate the use of Anchor Tag.</p> <p>3. Write a code for using 10 hex color, rgb value and code on your webpage.</p> <p>4. What are the various types of lists in HTML? Demonstrate each by taking an example of each. Also show how the lists can be nested?</p> <p>5. Design tables as follows: -</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="6" style="text-align: center;">IP University Courses</th> </tr> <tr> <th colspan="3" style="text-align: center;">Graduate</th> <th colspan="3" style="text-align: center;">Post Graduate</th> </tr> <tr> <th style="text-align: center;">BBA</th> <th style="text-align: center;">BCA</th> <th style="text-align: center;">B. Tech</th> <th style="text-align: center;">MBA</th> <th style="text-align: center;">MCA</th> <th style="text-align: center;">M. Tech</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">240</td> <td style="text-align: center;">120</td> <td style="text-align: center;">100</td> <td style="text-align: center;">200</td> <td style="text-align: center;">100</td> <td style="text-align: center;">80</td> </tr> </tbody> </table> <p>6. Design tables as follows: -</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th rowspan="2" style="text-align: center;">Roll No</th> <th rowspan="2" style="text-align: center;">Name</th> <th rowspan="2" style="text-align: center;">Course</th> <th colspan="3" style="text-align: center;">Marks</th> </tr> <tr> <th style="text-align: center;">Internal</th> <th style="text-align: center;">External</th> <th style="text-align: center;">Total</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">123</td> <td style="text-align: center;">abc</td> <td style="text-align: center;">BBA</td> <td style="text-align: center;">20</td> <td style="text-align: center;">60</td> <td style="text-align: center;">80</td> </tr> <tr> <td style="text-align: center;">789</td> <td style="text-align: center;">xyz</td> <td style="text-align: center;">BCA</td> <td style="text-align: center;">15</td> <td style="text-align: center;">65</td> <td style="text-align: center;">80</td> </tr> </tbody> </table>	IP University Courses						Graduate			Post Graduate			BBA	BCA	B. Tech	MBA	MCA	M. Tech	240	120	100	200	100	80	Roll No	Name	Course	Marks			Internal	External	Total	123	abc	BBA	20	60	80	789	xyz	BCA	15	65	80	60
IP University Courses																																														
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789	xyz	BCA	15	65	80																																									

7. Write a code to demonstrate table: -

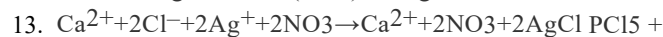
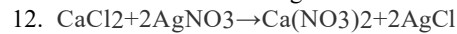
State	Capital	Latitude	Longitude
Alabama	Montgomery	32 N	86 W
Alaska	Juneau	58 N	134 W
Arizona	Phoenix	33 N	112 W
Arkansas	Little Rock	34 N	92 W

8. Write a HTML code to design registration form

9. Explain internal and External link between webpages and make program for each.

10. Create an Educational Institute Website of 3 pages with background image and each web page is inter linked.

11. Write the HTML coding for the following equations:



14. Design a webpage as following-

- Write 5 lines having different paragraph with proper heading.
- Each paragraph having different font size and style.
- Each paragraph having relate diagram.
- Every paragraph having different attractive colors.

15. Explain three ways to implement CSS in HTML? Write example for each.

16. Write a PHP script that displays the current date and time in the format Today is: Monday, 19 May 2025 - 10:30 AM

17. Create a PHP program that takes a number from the user and displays whether the number is even or odd.

18. Create a simple PHP login form

19. Create a simple PHP calculator that can perform addition, subtraction, multiplication, and division

20. Create an **Employee table** in Oracle or MySQL with the following fields: Employee Id as Primary Key, Employee Name, Designation, Department Id, Salary, and Contact Number. Insert five records and display all records.

21. Delete the **fourth record** from the Employee table and display the remaining records.

22. Update the **Employee Name of the third record** in the Employee table to **“Hari”**.

23. Add a **new field Email** to the Employee table and update email values for all employees.

24. Create a **department table** with the following fields: Department Id as Primary Key, Department Name, and Location. Insert three records and display all records.

25. Create a **foreign key relationship** between the Employee table and the Department table using Department Id and display the related records.

26. Create a **Salary table** with the following fields: Salary Id as Primary Key, Employee Id as Foreign Key, Month, Working Days, Gross Salary, Incentive, Deduction, and Net Salary.

27. Insert five records into the Salary table and display all records.

<p>28. Display employee name, department name, and salary by performing an a. <b>Inner Join operation</b> on Employee and Department tables.</p> <p>29. Display the details of employees whose <b>salary is greater than a given amount</b>.</p> <p>30. Use <b>aggregate functions</b> to find the Total Salary, Average Salary, Maximum Salary, and Minimum Salary from the Employee table.</p> <p>31. Display all records from the Employee table in <b>ascending order of salary</b>.</p> <p>32. Create a <b>View</b> that shows Employee Name, Department Name, and Salary.</p> <p>33. Create a <b>new user</b> in Oracle or MySQL and grant <b>Select permission</b> on the Employee table to the user.</p> <p>34. Demonstrate <b>Transaction</b> by inserting records into a table and using <b>Commit and Rollback commands</b>.</p>	
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Text books	1. Roger S. Pressman, Software Engineering, A practitioner's Approach, 6th edition, McGraw Hill International Edition.
Reference books	1. Database system concept, H. Korth and A. Silberschatz, TMH Publications. 2. SQL, PL/SQL the Programming Language of Oracle, Ivan Bayross, PustakKosh Publication. 3. James Rumbaugh, Ivar Jacobson, The unified modeling language user guide Grady Booch, Pearson

<b>Assessment and Evaluation</b>		
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Continuous Internal Assessment (CIA)	Internal Test/Quiz- (2): 20 & 20 Assignment / Seminar: 10 Total Marks: 30	Better marks out of the two Test / Quiz + obtained marks is Assignment shall be considered against <b>30</b> Marks
End Semester Exam (ESE)		

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Exam Code and Name	<b>4022 - Post Graduate Diploma in Computer Application Second Semester</b>			Paper	<b>II</b>
Course Code	<b>PGDCAP202</b>			Course Type	<b>P</b>
Course Title	<b>Major Project</b>				
Total Credit	<b>3</b>				
Total Marks	CIA: 30	ESE: 70	Max Marks: 100	Min. Pass. Marks: 40	
Prerequisites (if any)					
Course Outcomes	CO1: To Enhance knowledge on latest techniques. CO2: To Make ready for IT industry. CO3: To Upgrade skill set as per IT industry. CO4: To Handle real world applications.				

<b>Contents of Course</b>	
<b>Important Guidelines for Project</b>	<b>No. of Period</b>
<p><b>A project report has to be submitted as per the rules described below:</b></p> <ol style="list-style-type: none"> <li>1. <b>Number of Copies:</b> The student should submit One hard bound copy of the Project Report with one CD/DVD.</li> <li>2. <b>No of students:</b> Every student has to submit separate project.</li> <li>3. <b>Acceptance / Rejection of Project Report:</b> The student must submit a project report to the Head of Department/Project Guide for approval. The Head of Department/Project Guide holds the right to accept the project or suggest modifications for resubmission.</li> <li>4. <b>Format of the Project Report:</b> The student must adhere strictly to the following format for the submission of the Project Report <ol style="list-style-type: none"> <li>I. <b>Paper:</b> The report shall be typed on white paper, A4 size or continuous computer stationary bond, for the final submission. The report to be submitted to the University must be original and subsequent copies may be photocopied on any paper.</li> <li>II. <b>Typing:</b> The typing shall be of standard letter size, double-spaced and on one side of the paper only, using black ribbons and black carbons.</li> <li>III. <b>Margins:</b> The typing must be done in the following margins  Left ----- 35mm, Right ----- 20mm  Top ----- 35mm, Bottom ----- 20mm</li> <li>IV. <b>Binding:</b> The Report shall be Rexene bound in black. Plastic, spiral bound Project Reports not be accepted.</li> <li>V. <b>Front Cover:</b> The front cover should contain the following details:  <b>TOP:</b> The title in block capitals of 6mm to 15mm letters.  <b>CENTER:</b> Full name in block capitals of 6mm to 10mm letters.  <b>BOTTOM:</b> Name of the University, year of submission- all in block capitals of 6mm to 10mm letters on separate lines with proper spacing and centering.</li> <li>VI. <b>Blank Sheets:</b> At the beginning and end of the report, two white black bound papers should be provided, one for the purpose of binding and other to be left blank.</li> </ol> </li> <li>5. <b>Abstract:</b> Every report should have an abstract following the Institute's Certificate. The abstract shall guide the reader by highlighting the important material contained in the individual chapters, section, subsection etc.</li> <li>6. <b>Certificates etc:</b> The report should contain the following: <ol style="list-style-type: none"> <li>I. Institute Certificate: Successful completion of project competent authority.</li> <li>II. Acknowledgment</li> <li>III. List of Figures</li> <li>IV. Tables</li> <li>V. Nomenclature and Abbreviations</li> </ol> </li> <li>7. <b>Contents of the Project Report:</b> The project report must contain following in form of chapter, however student may include any other relevant chapter(s):</li> </ol>	60

<p><b>I. Introduction to the project:</b> This chapter shall highlight the purpose of project work, it will also define the chapters to be followed in the Project Report.</p> <p><b>II. Scope of work:</b> Brief scope of the project work done</p> <p><b>III. Existing System and Need for proposed System:</b> If there is some system already in use, then give brief detail of it in order to help to understand the enhancements carried out by the student in the existing system.</p> <p><b>IV. Operating Environment:</b> Hardware and Software required and used.</p> <p><b>V. Proposed System:</b> Which may contain following:</p> <ol style="list-style-type: none"> <li>a. <b>Objectives to be fulfilled:</b> clearly define the objective(s) of the system.</li> <li>b. <b>User Requirements:</b> State the requirements of the use in an unambiguous manner.</li> <li>c. <b>Requirements Determination Techniques and Systems Analysis Methods Employed:</b> Use the formal methods to describe the requirements of the use like Fact Finding Methods, Decision Analysis, and Data Flow Analysis etc.</li> <li>d. <b>Prototyping:</b> If the prototypes has been developed prior to the detailed design, then give details of the prototype.</li> <li>e. <b>System Feature:</b> Which includes as follows: <ul style="list-style-type: none"> <li>❖ Module specifications <ul style="list-style-type: none"> <li>• D.F.D. and ER</li> <li>• System flow charts</li> <li>• Data Dictionary</li> <li>• Structure charts</li> <li>• Database /File layouts</li> <li>• Design of Input Design of Output screens and reports</li> <li>• User Interfaces</li> <li>• Design of Control Procedures</li> </ul> </li> </ul> </li> </ol> <p><b>8. Testing procedures and Implementation phase</b></p> <p><b>9. Problems encountered, Drawbacks and Limitations</b></p> <p><b>10. Proposed Enhancements/ Future enhancement</b></p> <p><b>11. Conclusions</b></p> <p><b>12. Bibliography</b></p> <p><b>13. Annexure</b></p>	
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Text books	1. Roger S. Pressman, Software Engineering, A practitioner's Approach, 6th edition, McGraw Hill International Edition.
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