

DEPARTMENT OF COMPUTER SCIENCE

COURSE CURRICULUM & MARKING SCHEME

PROGRAM CODE: DPMS07

Scheme of M. Sc. Computer Science Under Semester System

(Based on CBCS)

SESSION: 2025-26



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 Email: dpvipracollege@gmail.com

Scheme of M. Sc. Computer Science Under Semester System

Program Code & Name: DPMS07 - M.Sc. (Computer Science)

Session 2025-26

Semester	Course Code	Course Name	Credit			Total Credit	Marks			
			L	T	P		ESE	CIA	Total	
									MAX	MIN
First	MCST101	Computer Architecture	3	1	-	4	70	30	100	40
	MCST102	Advanced Computer Network	3	1	-	4	70	30	100	40
	MCST103	JAVA Programming	3	1	-	4	70	30	100	40
	MCSE104	Operating System Concepts	3	1	-	4	70	30	100	40
	MCSP101	Programming Lab in JAVA	-	-	2	2	35	15	50	20
	MCSP102	Programming Lab in Linux	-	-	2	2	35	15	50	20
Total						20	350	150	500	200
Second	MCST201	RDBMS Using ORACLE	3	1	-	4	70	30	100	40
	MCST202	Data Structure with C++	3	1	-	4	70	30	100	40
	MCST203	Software Engineering	3	1	-	4	70	30	100	40
	MCSE201	Cryptography and Network Security	3	1	-	4	70	30	100	40
	MCSP201	Programming Lab in RDBMS	-	-	2	2	35	15	50	20
	MCSP202	Programming Lab in Data Structure in C++	-	-	2	2	35	15	50	20
Total						20	350	150	500	200
Third	MCST301	Theory of Computation	3	1	-	4	70	30	100	40
	MCST302	Data Science using Python	3	1	-	4	70	30	100	40
	MCST303	ASP.NET using C#	3	1	-	4	70	30	100	40
	MCSE304	Mobile Computing	3	1	-	4	70	30	100	40
	MCSE305	Data Mining and Data Warehousing	3	1	-	4	70	30	100	40
	MCSP301	ASP.NET using C# Lab - I	-	-	2	2	35	15	50	20
	MCSP302	Python Programming Lab - II	-	-	2	2	35	15	50	20
Total						20	350	150	500	200
Fourth	MCST401	Compiler Design	3	1	-	4	70	30	100	40
	MCST402	Artificial Intelligence & Machine Learning	3	1	-	4	70	30	100	40
	MCST403	IOT based Programming	3	1	-	4	70	30	100	40
	MCSE404	Advanced Neural Network & Deep Learning	3	1	-	4	70	30	100	40
	MCSE405	Cloud Computing	3	1	-	4	70	30	100	40
	MCSP401	Major Project	-	-	4	4	70	30	100	40
Total						20	350	150	500	200
Grand Total						80	1400	600	2000	800

Program Code and Name	DPMS07, M.Sc. (COMPUTER SCIENCE)			Semester	IV
Exam Code and Name	2074 - M. Sc. COMPUTER SCIENCE FOURTH SEMESTER			Paper	I
Course Code	MCST401			Course Type	T
Course Title	Compiler Design				
Total Credit	4				
Total Marks	CIA: 30	ESE: 70	Max Marks: 100	Min. Pass. Marks: 40	
Prerequisites (if any)					
Course Outcomes	CO1: To Understand the fundamentals of compilers, lexical analysis, and regular expressions. CO2: To Implement and apply parsing techniques (LR, SLR, LALR) and handle ambiguous grammar. CO3: To Apply code optimization techniques and common subexpression elimination. CO4: To Develop efficient code generation strategies and perform peephole optimization.				

Contents of Course		
Unit	Contents	No. of Period
I	Basics of Compilers and Lexical Analysis: Compilers and Translators, Bootstrap compiler, Phases of Compiler, Compiler writing tools, Bootstrapping, Overview of one pass compiler, Finite Automation, Basics of DFA, NFA, Regular sets and Regular expressions.	15
II	Syntax analysis: Basics of context free grammars and derivation of parse trees, Top-down parsing and its implementation, Operator precedence parsing, Predicative top-down parser, Bottom-up parsing, Handel of right sentential form, LR parser, Canonical collection of sets, Construction of parsing action and GOTO table, Construction of LALR parsing table, Handling ambiguous grammar.	15
III	Intermediate Code Generation: Intermediate code generation, representing three address statements, Syntax directed definition, Evaluation Orders for Syntax Directed Definitions Intermediate Languages: Syntax Tree, Three Address Code, Types and Declarations, Translation of Expressions, Type Checking.	15
IV	Code Optimization and Code Generation: Introduction, Loop optimization, Eliminating induction variable, Eliminating local common sub expression, DAG, Eliminating global common sub expression, loop unrolling, loop jamming, Problems hindering code generation, Straight forward code generation, Using DAG for code generation, Peephole optimization.	15
Total no. of Lectures		60

Text books	1. Alfred V. Aho, Ravi Sethi, Jeffrey D. Ullman. "Compilers Principles, Techniques and Tools". Pearson Education,2008.
Reference books	1. O.G.Kakde, "Compiler Design", 2005, Laxmi Publication. 2. AdeshK.Pandey"Concepts of Compiler Design", First Edition, S.K.Kataria& Sons Publication. 3. Steven S. Muchnick, "Advanced Compiler Design Implementation", Morgan Koffman,1997. 4. AllenHolub, "Compiler Design in C", Prentice Hall of India, 1990.

Assessment and Evaluation		
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 30 Marks
End Semester Exam (ESE)	Three Section - A, B & C 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	DPMS07, M.Sc. (COMPUTER SCIENCE)			Semester	IV
Exam Code and Name	2074 - M. Sc. COMPUTER SCIENCE FOURTH SEMESTER			Paper	II
Course Code	MCST402			Course Type	T
Course Title	Artificial Intelligence & Machine Learning				
Total Credit	4				
Total Marks	CIA: 30	ESE: 70	Max Marks: 100	Min. Pass. Marks: 40	
Prerequisites (if any)					
Course Outcomes	CO1: To Understand the fundamentals of AI and intelligent agents. CO2: To Solve problems using search algorithms like BFS, DFS, A*, and hill-climbing. CO3: To Apply pattern recognition and classification techniques like k-NN and k-means. CO4: To Implement basic supervised and unsupervised learning algorithms.				

Contents of Course		
Unit	Contents	No. of Period
I	Introduction: AI definition, foundation of AI and history of AI intelligent agents: Agents and Environments, the concept of rationality, the nature of environments, structure of agents, problem solving agents, problem formulation. Problem Solving: Problem solving as state space search, production system, writing production system and solution for a Water jug problem; Search techniques: Breadth First, and Depth-first, Best- First Search, Hill-climbing, Heuristics, A* algorithm, local and global maxima(minima),	15
II	Knowledge Representation and Reasoning: Predicate and propositional logic, representing knowledge using rules, rules-based deduction systems. Reasoning under uncertainty, review of probability, Baye's probabilistic interferences and Dempster Shafer theory. Pattern Recognition: Meaning of pattern, Pattern Recognition, Classification, K-NN, K-MEANS algorithms. Expert Systems: Introduction, Advantages, components and participants in an expert system, Applications of Expert System.	15
III	Introduction: Meaning and need of Machine Learning, Types of Machine Learning: Supervised Learning, Unsupervised Learning, Reinforcement Learning, Applications of Machine Learning, Type of Data in Machine Learning, Data Repository	15
IV	Supervised Learning: Introduction to supervised learning, its examples, classification models, classification algorithms with Implementation: k-nearest neighbor (kNN), Decision Tree, Random forest, Support Vector Machine (SVM), Unsupervised Learning: Introduction to unsupervised learning, metrics for evaluating a feature, Clustering, types of clustering techniques, partitioning, hierarchical and density-based clustering	15
Total no. of Lectures		60

Text books	1. Artificial Intelligence: E. Rich and K. Knight, Tata McGraw Hill.
Reference books	1. Artificial Intelligence: A New Synthesis By Nilsson, Morgan Kaufmann. 2. Pattern Classification 2nd Edition By R.O. Duda, Hart, Stork (2001), John Wiley, New York. 3. Pattern Recognition : Technique and Applications By Shinghal (2006), Oxford University Press, New Delhi. 4. Christopher M. Bishop, "Pattern Recognition and Machine Learning", Springer, 2006

Assessment and Evaluation		
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 30 Marks
End Semester Exam (ESE)	Three Section - A, B & C 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	DPMS07, M.Sc. (COMPUTER SCIENCE)			Semester	IV
Exam Code and Name	2074 - M. Sc. COMPUTER SCIENCE FOURTH SEMESTER			Paper	III
Course Code	MCST403			Course Type	T
Course Title	IOT Based Programming				
Total Credit	4				
Total Marks	CIA: 30	ESE: 70	Max Marks: 100	Min. Pass. Marks: 40	
Prerequisites (if any)					
Course Outcomes	CO1: To Understand the various concepts, terminologies and architecture of IoT systems. CO2: To Understand and apply various protocols for design of IoT systems. CO3: To Understand various applications of IoT. CO4: To Understand APIs to connect IoT related technologies				

Contents of Course		
Unit	Contents	No. of Period
I	Fundamentals of IoT: Introduction, Definitions & Characteristics of IoT, IoT Architectures, Physical & Logical Design of IoT, Enabling Technologies in IoT, History of IoT, About Things in IoT, The Identifiers in IoT, About the Internet in IoT, IoT frameworks, IoT and M2M.	15
II	Sensors Networks: Definition, Types of Sensors, Types of Actuators, Examples and Working, IoT Development Boards: Arduino IDE and Board Types, RaspberriPi Development Kit, RFID Principles and components, Wireless Sensor Networks: History and Context, the node, Connecting nodes, Networking Nodes, WSN and IoT. Wireless Technologies for IoT: WPAN Technologies for IoT: IEEE 802.15.4, Zigbee, HART, NFC, Z-Wave, BLE, Bacnet, Modbus. IP Based Protocols for IoT IPv6, 6LowPAN, RPL, REST, AMPQ, CoAP, MQTT. Edge connectivity and protocols	15
III	Data Handling & Analytics: Introduction, Bigdata, Types of data, Characteristics of Big data, Data handling Technologies, Flow of data, Data acquisition, Data Storage, Introduction to Hadoop. Introduction to data Analytics, Types of Data analytics, Local Analytics, Cloud analytics and applications.	15
IV	Applications of IoT: Home Automation, Smart Cities, Energy, Retail Management, Logistics, Agriculture, Health and Lifestyle, Industrial IoT, Legal challenges, IoT design Ethics, IoT in Environmental Protection.	15
Total no. of Lectures		60

Text books	1. Vijay Madisetti and ArshdeepBahga, — “Internet of Things (A Hands-on-Approach)”, 1 st Edition, VPT, 2014.
Reference books	1. J. Biron and J. Follett, "Foundational Elements of an IoT Solution", O'Reilly Media, 2016. 2. Keysight Technologies, “The Internet of Things: Enabling Technologies and Solutions for Design and Test”, Application Note, 2016. 3. Daniel Minoli, — “Building the Internet of Things with IPv6 and MIPv6: The Evolving World of M2M Communications”, ISBN: 978-1-118-47347-4, Willy Publications 4. Pethuru Raj and Anupama C. Raman, "The Internet of Things: Enabling Technologies, Platforms, and Use Cases", CRC Press

Assessment and Evaluation		
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 30 Marks
End Semester Exam (ESE)	Three Section - A, B & C 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	DPMS07, M.Sc. (COMPUTER SCIENCE)			Semester	IV
Exam Code and Name	2074 - M. Sc. COMPUTER SCIENCE FOURTH SEMESTER			Paper	IV
Course Code	MCSE404			Course Type	T
Course Title	Neural Network & Deep Learning				
Total Credit	4				
Total Marks	CIA: 30	ESE: 70	Max Marks: 100	Min. Pass. Marks: 40	
Prerequisites (if any)					
Course Outcomes	CO1: To Understand the concept of automata and transition systems. CO2: To Understand the relationship between languages, automata, and grammars. CO3: To Analyze derivation trees and ambiguity in CFGs, and design PDAs to recognize CFLs. CO4: To Evaluate the Turing Machine model, its representation, and its power in accepting languages.				

Contents of Course		
Unit	Contents	No. of Period
I	Introduction to biological neuron, artificial neuron, biological neuron vs. artificial neuron, evolution of neural networks, basic models of artificial neural networks (ANN): connections, learning: - supervised, unsupervised, reinforcement, activation functions, important terminology of ANN. McCulloch-Pitts neuron, linear separability, types of neural networks.	15
II	Perceptron Networks, implementation of AND gate, OR gate, NAND gate etc., Gradient descent algorithm, implementation of AND gate, OR gate, NAND gate etc., Building a neural controller for obstacle avoidance, Pseudo inverse solution, nonlinear separability, Back propagation (BP) networks, Derivation of BP algorithm for single hidden layer architecture, momentum terms, implementation of XOR problem using BP algorithm.	15
III	Radial basis function neural network (RBFNN): architecture, training algorithm, Recurrent neural network (RNN): architecture, training algorithm, Back propagation through time (BPTT). Real time recurrent learning algorithm (RTRL), Functional link artificial neural networks (FLANN): architecture, training, delta learning rule, Extreme Learning Machine (ELM): architecture, learning algorithm, modified multilayer neural network, modified Back propagation (BP) algorithm, Self-organizing map (SOP)	15
IV	Deep Learning: Introduction, Long short-term memory (LSTM) network, Convolution neural network, Boltzman Machine network. Applications: function optimization, classification, prediction, detection	15
Total no. of Lectures		60

Text books	1. Neural Networks and Learning machines by Simon Haykin, PHI, 3rd Edition
Reference books	1. G. Neural Network Design by M. Hagan, 2nd Edition, eBook 2. Principles of Soft Computing by S. N. Shivanandam and S. N. Deepa, Wiley, 2nd Edition 3. Artificial neural networks by B. Yegnanarayana, PHI. 4. Deep Learning by John D. Kelleher, MIT Press. 5. Neural networks and Deep learning by Charu C. Aggarwal, Springer, 1st Edition, 2018.

Assessment and Evaluation		
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 30 Marks
End Semester Exam (ESE)	Three Section - A, B & C 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	DPMS07, M.Sc. (COMPUTER SCIENCE)			Semester	IV
Exam Code and Name	2074 - M. Sc. COMPUTER SCIENCE THIRD SEMESTER			Paper	V
Course Code	MCSE405			Course Type	T
Course Title	Cloud Computing				
Total Credit	4				
Total Marks	CIA: 30	ESE: 70	Max Marks: 100	Min. Pass. Marks: 40	
Prerequisites (if any)					
Course Outcomes	CO1: To Understand basic concepts and models of cloud computing (SaaS, PaaS, IaaS). CO2: To Identify and apply cloud architecture and design patterns. CO3: To Explain cloud security mechanisms and governance practices. CO4: To Describe various cloud storage technologies and architectures.				

Contents of Course		
Unit	Contents	No. of Period
I	Fundamental Cloud Computing- Concepts, terminology, technologies, benefits, challenges, SLAs and business cost metrics associated with cloud computing, SaaS, IaaS, PaaS delivery models, common cloud deployment models, and cloud characteristics. Various applications of cloud computing.	15
II	Cloud Architecture: The technology architecture of cloud platforms and cloud-based solutions and services and their utilization via a set of cloud computing design patterns. hybrid cloud deployment models, compound design patterns, and solution architectures that span cloud and on-premise environments.	15
III	Cloud Security & Governance: Cloud Security: The cloud security mechanisms, A cloud security architecture. a set of security design patterns. Cloud Governance: the definition of cloud governance precepts, roles, practices, and processes, common governance challenges and pitfalls specific to cloud computing.	15
IV	Cloud Storage: The cloud storage devices, structures, and technologies, cloud storage mechanisms, persistent storage, redundant storage, cloud- attached storage, cloud-remote storage, cloud storage gateways, cloud storage brokers, Direct Attached Storage (DAS), Network Attached Storage (NAS), Storage Area Network (SAN), various cloud storage- related design patterns. Cloud Virtualization& Microservices: Core topic areas pertaining to the fundamental virtualization mechanisms and types used within contemporary cloud computing platforms are explored, along with various key performance indicators and related metrics. MicroServices of Cloud Computing.	15
Total no. of Lectures		60

Text books	1. Distributed Computing by Dollymore Cloud Computing (Wind) by Dr. Kumar Saurabh, 2nd Edition, Wiley India
Reference books	1. Cloud Computing: Principles and Paradigms, Editors: Rajkumar Buyya, James Broberg, Andrzej M. Goscinski, Wiley, 2011 Cloud Computing: Principles, Systems and Applications, Editors: Nikos Antonopoulos, Lee Gillam, Springer, 2012

Assessment and Evaluation		
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 30 Marks
End Semester Exam (ESE)	Three Section - A, B & C 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	DPMS07, M.Sc. (COMPUTER SCIENCE)			Semester	IV
Exam Code and Name	2074 - M. Sc. COMPUTER SCIENCE FOURTH SEMESTER			Paper	I
Course Code	MCSP401			Course Type	P
Course Title	Major Project				
Total Credit	4				
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.				

Contents of Course	
Important Guidelines for Project	No. of Period
<p>A project report has to be submitted as per the rules described below:</p> <ol style="list-style-type: none"> 1. Number of Copies: The student should submit One hard bound copy of the Project Report with one CD/DVD. 2. No of students: Every student has to submit separate project. 3. Acceptance / Rejection of Project Report: 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. 4. Format of the Project Report: The student must adhere strictly to the following format for the submission of the Project Report <ol style="list-style-type: none"> I. Paper: 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. II. Typing: The typing shall be of standard letter size, double-spaced and on one side of the paper only, using black ribbons and black carbons. III. Margins: The typing must be done in the following margins Left ---- 35mm, Right ---- 20mm Top ---- 35mm, Bottom ---- 20mm IV. Binding: The Report shall be Rexene bound in black. Plastic, spiral bound Project Reports not be accepted. V. Front Cover: The front cover should contain the following details: TOP: The title in block capitals of 6mm to 15mm letters. CENTER: Full name in block capitals of 6mm to 10mm letters. BOTTOM: Name of the University, year of submission- all in block capitals of 6mm to 10mm letters on separate lines with proper spacing and centering. VI. Blank Sheets: 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. 5. Abstract: 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. 6. Certificates etc: The report should contain the following: <ol style="list-style-type: none"> I. Institute Certificate: Successful completion of project competent authority. II. Acknowledgment III. List of Figures IV. Tables V. Nomenclature and Abbreviations 7. Contents of the Project Report: The project report must contain following in form of chapter, however student may include any other relevant chapter(s): <ol style="list-style-type: none"> I. Introduction to the project: This chapter shall highlight the purpose of project work, it will also define the chapters to be followed in the Project Report. 	60

<p>II. Scope of work: Brief scope of the project work done</p> <p>III. Existing System and Need for proposed System: 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>IV. Operating Environment: Hardware and Software required and used.</p> <p>V. Proposed System: Which may contain following:</p> <ol style="list-style-type: none"> Objectives to be fulfilled: clearly define the objective(s) of the system. User Requirements: State the requirements of the use in an unambiguous manner. Requirements Determination Techniques and Systems Analysis Methods Employed: Use the formal methods to describe the requirements of the use like Fact Finding Methods, Decision Analysis, and Data Flow Analysis etc. Prototyping: If the prototypes has been developed prior to the detailed design, then give details of the prototype. System Feature: Which includes as follows: <ul style="list-style-type: none"> ❖ Module specifications <ul style="list-style-type: none"> • D.F.D. and ER • System flow charts • Data Dictionary • Structure charts • Database /File layouts • Design of Input Design of Output screens and reports • User Interfaces • Design of Control Procedures <p>8. Testing procedures and Implementation phase</p> <p>9. Problems encountered, Drawbacks and Limitations</p> <p>10. Proposed Enhancements/ Future enhancement</p> <p>11. Conclusions</p> <p>12. Bibliography</p> <p>13. Annexure</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

Assessment and Evaluation		
Suggested Continuous Evaluation Methods:		
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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 30 Marks
End Semester Exam (ESE)		