राष्ट्रीय प्रौद्योगिकी संस्थान रायपुर
NATIONAL INSTITUTE OF TECHNOLOGY RAIPUR
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COURSE OF STUDY AND SCHEME OF EXAMINATION OF B.TECH
NATIONAL INSTITUTE OF TECHNOLOGY, RAIPUR

Branch- Computer science & Engineering **Course- B.Tech.(NIT Scheme)**

Semester- VIII

S.No.	Board of Studies	Sub. Code	Subject Name	Periods/week			Examination Scheme					Total Marks	Credits L+(T+P)/2
				L	T	P	TA	FE	SE	T.C.A	ESE		
1	Comp.Sc. & Engg.	CS20811(CS)	Software Project Management	3	1	-	20	15	15	50	70	120	4
2	Comp.Sc. & Engg.	CS20812(CS)	Data Mining & Ware Housing	3	1	-	20	15	15	50	70	120	4
3	Comp.Sc. & Engg.	**Refer Table-3**	Elective III	3	1	-	20	15	15	50	70	120	4
4	Comp.Sc. & Engg.	**Refer Table-4**	Elective IV (Professional)	4	1	-	20	15	15	50	70	120	4
5	Comp.Sc. & Engg.	CS20821(CS)	Software Project Management(Lab)	-	-	3	30	-	-	30	20	50	2
6	Comp.Sc. & Engg.	CS20822(CS)	Data Mining & Ware Housing(Lab)	-	-	3	30	-	-	30	20	50	2
7	Comp.Sc. & Engg.	CS20823(CS)	Major Project	-	-	16	100	-	-	100	100	200	8
8	Comp.Sc. & Engg.	CS20824(CS)	Discipline	-	-	-	50	-	-	50	-	50	1
			Total	13	4	22	290	60	60	410	420	830	30

H.O.D
Comp.Sc. & Engg.

MEMBER
Board of Studies
Deptt. Of CS&E

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Board of Studies
Deptt. Of CS&E

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Deptt. Of CS&E

Elective – III

S.NO.	Board of Studies	Subject Code	Subject Name
1	Computer Science & Engg.	CS20831(CS)	Cellular & Mobile Computing
2	Computer Science & Engg.	CS20832(CS)	Cryptography Network Security
3	Computer Science & Engg.	CS20833(CS)	OODBMs
4	Computer Science & Engg.	CS20834(CS)	Decision Support Systems
5	Computer Science & Engg.	CS20835(CS)	Cyber Crime & Laws
6	Computer Science & Engg.	CS20836(CS)	Flexible Elective(Subject will be decided by the department as per the latest requirement of Academic/Industries)
7	Computer Science & Engg.	CS20837(CS)	Flexible Elective(Subject will be decided by the department as per the latest requirement of Academic/Industries)
8	Computer Science & Engg.	CS20838(CS)	Flexible Elective(Subject will be decided by the department as per the latest requirement of Academic/Industries)
9	Computer Science & Engg.	CS20839(CS)	Flexible Elective(Subject will be decided by the department as per the latest requirement of Academic/Industries)
10	Computer Science & Engg.	CS208310(CS)	Flexible Elective(Subject will be decided by the department as per the latest requirement of Academic/Industries)

Elective – IV

S.NO.	Board of Studies	Subject Code	Subject Name
1	Computer Science & Engg.	CS20841(CS)	Text Mining
2	Computer Science & Engg.	CS20842(CS)	Distributed Computing
3	Computer Science & Engg.	CS20843(CS)	Graph Theory
4	Computer Science & Engg.	CS20844(CS)	Soft Computing
5	Computer Science & Engg.	CS20845(CS)	Artificial & Neural Network
6	Computer Science & Engg.	CS20846(CS)	Flexible Elective(Subject will be decided by the department as per the latest requirement of Academic/Industries)
7	Computer Science & Engg.	CS20847(CS)	Flexible Elective(Subject will be decided by the department as per the latest requirement of Academic/Industries)
8	Computer Science & Engg.	CS20848(CS)	Flexible Elective(Subject will be decided by the department as per the latest requirement of Academic/Industries)
9	Computer Science & Engg.	CS20849(CS)	Flexible Elective(Subject will be decided by the department as per the latest requirement of Academic/Industries)
10	Computer Science & Engg.	CS208410(CS)	Flexible Elective(Subject will be decided by the department as per the latest requirement of Academic/Industries)

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS

Name of Subject	Software Project Management	Subject Code	CS20811(CS)
Semester	B.Tech VIII Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks	70	Minimum Marks	28
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
3	1	-	4

UNIT-I: Introduction and Software Project Planning
Fundamentals of Software Project Management (SPM), Need Identification, Vision and Scope document, Project Management Cycle, SPM Objectives, Management Spectrum, SPM Framework, Software Project Planning, Planning Objectives, Project Plan, Types of project plan, Structure of a Software Project Management Plan, Software project estimation, Estimation methods, Estimation models, Decision process.

UNIT-II: Project Organization and Scheduling
Project Elements, Work Breakdown Structure (WBS), Types of WBS, Functions, Activities and Tasks, Project Life Cycle and Product Life Cycle, Ways to Organize Personnel, Project schedule, Scheduling Objectives, Building the project schedule, Scheduling terminology and techniques, Network Diagrams: PERT, CPM, Bar Charts: Milestone Charts, Gantt Charts.

UNIT-III: Project Monitoring and Control
Dimensions of Project Monitoring & Control, Earned Value Analysis, Earned Value Indicators: Budgeted Cost for Work Scheduled (BCWS), Cost Variance (CV), Schedule Variance (SV), Cost Performance Index (CPI), Schedule Performance Index (SPI), Interpretation of Earned Value Indicators, Error Tracking, Software Reviews, Types of Review: Inspections, Walkthroughs, Code Reviews

UNIT-IV: Software Quality Assurance and Testing
Testing Objectives, Testing Principles, Test Plans, Test Cases, Types of Testing, Levels of Testing, Test Strategies, Program Correctness, Program Verification & validation, Testing Automation & Testing Tools, Concept of Software Quality, Software Quality Attributes, Software Quality Metrics and Indicators, The SEI Capability Maturity Model CMM), SQA Activities, Formal SQA Approaches: Proof of correctness, Statistical quality assurance, Clean room process.

UNIT-V: Project Management and Project Management Tools
Software Configuration Management: Software Configuration Items and tasks, Baselines, Plan for Change, Change Control, Change Requests Management, Version Control, Risk Management: Risks and risk types, Risk Breakdown Structure (RBS), Risk Management Process: Risk identification, Risk analysis, Risk planning, Risk monitoring, Cost Benefit Analysis, Software Project Management Tools: CASE Tools, Planning and Scheduling Tools, MS-Project.

Books:
1. Software Project Management by M. Cotterell
2. Information Technology Project Management
3. Management Information and Control by
4. Software Project Management by S. A. Kelkar

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Name of Subject	Data Mining and Ware Housing	Subject Code	CS20812(CS)
Semester	B.Tech VIII Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks	70	Minimum Marks	28
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
3	1	-	4

Unit-I Data Warehousing – Introduction and Design:
Overview And Concepts: Need for data warehousing, Basic elements of data warehousing, Architecture And Infrastructure: Architectural components, Infrastructure and metadata. Data Design And Data Representation: Principles of dimensional modeling, Dimensional modeling, data extraction, transformation and loading, data quality. OLAP in data warehouse – ROLAP, MOLAP, HOLAP. OLTP Vs OLAP, Various Data Warehouse Schemas.

Unit-II Data Mining - Introduction:
Data Mining Primitives, Languages, and System Architectures: Data mining primitives, Query language, Designing GUI based on a data mining query language, Knowledge Discovery in Databases (KDD), KDD Process, Data Preprocessing, Data Cleaning, Data Transformation, Data Compression and Dimension Reduction, Principal Component Analysis, Binning Methods.

Unit-III Data Mining – Characterization, Discrimination & DMQL:
Data generalization and summarization-based characterization, Analytical characterization: analysis of attribute relevance, Mining class comparisons: Discriminating between different classes, Mining descriptive statistical measures in large databases, DMQL.

Unit-IV Data Mining Techniques – Association Rules and Classification:
Data Mining Algorithms: Association rules, Classification and Prediction. Association Rules – Market Basket Analysis, Apriori Algorithm, Tree Based Algorithms. Classification – CART, Naïve Bayes Technique, Information Gain, Neural Network Based Techniques, Prediction Techniques, Regression Models.

Unit-V Data Mining Techniques – Clustering & Advanced Topics:
Data Mining Algorithms: Clustering. Partitioned Algorithms, Hierarchical Algorithms, Density Based Algorithms, Grid Based Algorithms, Model Based Algorithms. Introduction to Web Mining: Web Content Mining, Web Structure Mining, Web Usage Mining. Introduction to Spatial Mining.

Text Books:
1. J. Han and M. Kamber, "Data Mining Tools and Techniques", Morgan Kaufmann Publishers.
2. Prabhu, Data ware housing- concepts, Techniques, Products and Applications, Prentice hall of India
3. Soman K P, "Insight into Data Mining: Theory & Practice" , Prentice hall of India
4. M.H. Dunham, "Data Mining Introductory and Advanced Topics", Pearson Education.
5. Paulraj Ponniah, "Data Warehousing Fundamentals", John Wiley.
6. Ralph Kimball, "The Data Warehouse Lifecycle toolkit", John Wiley.

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Name of Subject	Cellular & Mobile Computing	Subject Code	CS20831(CS)
Semester	B.Tech VIII Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks	70	Minimum Marks	28
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
3	1	-	4

Unit-I INTRODUCTION TO MOBILE & WIRELESS DEVICES
Mobile and Wireless Devices, History, Applications, Simplified Reference Model; Wireless Transmission, Frequencies for Radio Transmission, Regulations, Signals, Antennas, Signal Propagation, Multiplexing, Modulation, Wireless LANs And Wireless WANs, Spread Spectrum, FHSS and DSSS Spread Spectrum Technology; Cellular Systems, The Radio Spectrum, Cell Size and Achievable Throughput; Medium Access Control, Specialized MAC; SDMA; FDMA; TDMA; CDMA.

UNIT-II TELECOMMUNICATION & BROADCAST SYSTEMS
GSM; Mobile Services, System Architecture, Radio Interface, Protocols, Localization and Calling, Handover, Security, New Data Services; DECT, TETRA, UMTS & IMT-2000; CDPD, Data Over Analog and Digital Cellular, Paging and Two-Way Paging; Satellite Systems, Applications, GEO, LEO, MEO, Routing, Localization, Handover; Broadcast Systems, Cyclic Repetition of Data, Digital Audio Broadcasting.

UNIT-III WIRELESS NETWORKS
Wireless LAN, Hidden Nodes in Wireless Networks, Ordered MAC Techniques and Wireless Networks, Deterministic MACs for Wireless Networks, Comparison Of MAC Techniques for Wireless Networks; Infrared V/S Radio Transmission; IEEE 802.11, Architecture, Layers, Management; HIPERLAN; Bluetooth; Wireless ATM, Services, Reference Model, Functions, RAL, Handover, Location Management, Addressing, QOS,APCP.

UNIT-IV MOBILE NETWORK AND TRANSPORT LAYERS
Mobile Network Layer; Mobile IP, DHCP, ADHOC Networks; Mobile Transport Layer; Traditional TCP, Indirect TCP, Snooping TCP, Mobile TCP; Fast Transmit/Fast Recovery, Transmission/Time Out Freezing, Selective Retransmission, Transaction Oriented TCP.

Unit -V MOBILE SYSTEM DEVELOPMENT & SUPPORT
File Systems; World Wide Web, HTTP; HTML; System Architectures; WAP; Architecture, Wireless Datagram Protocol, Wireless Transport Layer Security, Wireless Transaction Protocol, Wireless Session Protocol, Wireless Application Environment; WML; WML script; Wireless Telephony Applications.

Name of Text Books:-
1. Mobile Communications – Schiller, Jochen; 2nd Indian Reprint, Pearson Education Asia – Addison Wesley Longman PTE. Ltd.
2. Wireless and mobile network architecture, Chlamtac, John Wiley and Sons.

Name of Reference Books :-
1. Mobile Data Wireless LAN Technologies – Dayem, Rifaat A.; Prentice Hall International.
2. The Essential Guide To Wireless Communication Applications – Dornan, A.; 1st Indian Reprint, Pearson Education Asia.

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Name of Subject	Cryptography and Network Security	Subject Code	CS20832(CS)
Semester	B.Tech VIII Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks	70	Minimum Marks	28
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
3	1	-	4

Unit-I

Introduction to security attacks, services and mechanism, introduction to cryptography. Conventional Encryption: Conventional encryption model, classical encryption techniques- substitution ciphers and transposition ciphers, cryptanalysis, stereography, stream and block ciphers. Modern Block Ciphers: Block ciphers principals, theory of confusion and diffusion,.

Unit-II

Standard(DES), strength of DES, differential and linear crypt analysis of DES, block cipher modes of operations, triple DES, IDEA encryption and decryption, strength of IDEA. Design of Stream Cipher RC5 .Introduction to graph, ring and field, prime and relative prime numbers, modular arithmetic, Fermat's and Euler's theorem, primality testing, Euclid's Algorithm, Chinese Remainder theorem, discrete logarithms. Principals of public key crypto systems, RSA algorithm, security of RSA, key management, Diffle-Hellman key exchange algorithm, introductory idea of Elliptic curve cryptography,

Unit-III

Message Authentication and Hash Function: Authentication requirements, authentication functions, message authentication code, hash functions, birthday attacks, security of hash functions and MACS, MD5 message digest algorithm, Secure hash algorithm(SHA). Digital Signatures: Digital Signatures, authentication protocols, digital signature standards (DSS), proof of digital signature algorithm.

Unit-IV

Authentication Applications: Kerberos and X.509, directory authentication service, electronic mail security-pretty good privacy (PGP), S/MIME

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Unit-V

IP Security: Architecture, Authentication header, Encapsulating security payloads, combining security associations, key management. Web Security: Secure socket layer and transport layer security, secure electronic transaction (SET). System Security: Intruders, Viruses and related threads, firewall design principals, trusted systems.

Books:

1. William Stallings, "Cryptography and Network Security: Principals and Practice", Prentice Hall, New Jersy.
2. Johannes A. Buchmann, "Introduction to Cryptography", Springer-Verlag.
3. Bruce Schiener, "Applied Cryptography".

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Name of Subject	OODBMS	Subject Code	CS20833(CS)
Semester	B.Tech VIII Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks	70	Minimum Marks	28
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
3	1	-	4

Unit I. The Extended Entity Relationship Model and Object Model:
The ER model revisited, Motivation for complex data types, User defined abstract data types and structured types, Subclasses, Super classes, Inheritance, Specialization and Generalization, Constraints and characteristics of specialization and Generalization, Relationship types of degree higher than two.

Unit II. Object-Oriented Databases:
Overview of Object-Oriented concepts, Object identity, Object structure, and type constructors, Encapsulation of operations, Methods, and Persistence, Type hierarchies and Inheritance, Type extents and queries, Complex objects; Database schema design for OODBMS; OQL, Persistent programming languages; OODBMS architecture and storage issues; Transactions and Concurrency control, Example of ODBMS

Unit III. Object Relational and Extended Relational Databases:
Database design for an ORDBMS - Nested relations and collections; Storage and access methods, Query processing and Optimization; An overview of SQL3, Implementation issues for extended type; Systems comparison of RDBMS, OODBMS, ORDBMS

Unit IV. Parallel and Distributed Databases and Client-Server Architecture:
Architectures for parallel databases, Parallel query evaluation; Parallelizing individual operations, Sorting, Joins; Distributed database concepts, Data fragmentation, Replication, and allocation techniques for distributed database design; Query processing in distributed databases; Concurrency control and Recovery in distributed databases. An overview of Client-Server architecture

Unit V. Databases on the Web and Semi Structured Data:
Web interfaces to the Web, Overview of XML; Structure of XML data, Document schema, Querying XML data; Storage of XML data, XML applications; The semi structured data model, Implementation issues, Indexes for text data.
Enhanced Data Models for Advanced Applications: Active database concepts. Temporal database concepts.; Spatial databases, Concepts and architecture; Deductive databases and Query processing; Mobile databases, Geographic information systems.

Name of Text Books:
1. Rajesh Narang, Object Oriented Interfaces and Databases,Prentice Hall of India
2. Raghu Ramakrishnan, Johannes Gehrke, Database Management Systems [3e], McGraw-Hill

Name of Reference books:
1 Elmasri and Navathe, Fundamentals of Database Systems [4e], Pearson Education
2. Korth, Silberchatz, Sudarshan , Database System Concepts, McGraw-Hill.
3. Peter Rob and Coronel, Database Systems, Design, Implementation and Management,ThomsonLearning.
4. C.J.Date, Longman, Introduction To Database Systems, Pearson Education

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Name of Subject	Decision Support System	Subject Code	CS20834(CS)
Semester	B.Tech VIII Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks	70	Minimum Marks	28
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
3	1	-	4

Unit-I Overview of different types of decision-making:
Strategic, tactical and operational. Consideration of organizational structures. Mapping of databases, MIS, EIS, KBS, expert systems, OR modeling systems and simulation, decision analytic systems onto activities within an organization. Extension to other 'non organizational' areas of decision making. Relationship with knowledge management systems

Unit-II
Studies of human cognition in relation to decision making and the assimilation of information. Cultural issues. Implications for design of decision-making support. Communication issues.

Unit -III
Normative, descriptive and prescriptive analysis: requisite modeling. Contrast with recognition primed decision tools.

Unit -IV
Database, MIS, EIS, KBS, Belief nets, data mining. OR modeling tools: simulation and optimization. History, design, implementation: benefits and pitfalls. Risk assessment. Decision analysis and strategic decision support.

Unit -V
Group decision support systems and decision conferencing. Intelligent decision support systems: tools and applications. Cutting-edge decision support technologies. History, design, implementation: benefits and pitfalls. Deliberative e-democracy and e-participation

Text Books
1. P.R. Kleindorfer, H.C. Kunreuther, P.J.H. Schoemaker "Decision Sciences: an integration perspective' Cambridge University Press 1993
2. G.M. Marakas, Decision support Systems in the 21st Century, Prentice Hall, 1999.

Reference Books
1. E. Turban and J.E. Aronson (2001) Decision support Systems and Intelligent Systems. 6th Edition. Prentice Hall
2. V.S.Janakiraman and K.Sarukesi, Decision Support Systems, PHI
3. Efrem G. Mallach, Decision Support and Data Warehouse Systems, tata McGraw-Hill Edition
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Name of Subject	Cyber Crime and Laws	Subject Code	CS20835(CS)
Semester	B.Tech VIII Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks	70	Minimum Marks	28
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
3	1	-	4

Unit 1: Introduction to Cyber Law
Evolution of Computer Technology, emergence of Cyber space. Cyber Jurisprudence, Jurisprudence and law, Doctrinal approach, Consensual approach, Real Approach, Cyber Ethics, Cyber Jurisdiction, Hierarchy of courts, Civil and criminal jurisdictions, Cyberspace- Web space, Web hosting and web Development agreement, Legal and Technological Significance of domain Names, Internet as a tool for global access.

Unit 2 : Information technology Act
Overview of IT Act, 2000, Amendments and Limitations of IT Act, Digital Signatures, Cryptographic Algorithm, Public Cryptography, Private Cryptography, Electronic Governance, Legal Recognition of Electronic Records, Legal Recognition of Digital Signature, Certifying Authorities, Cyber Crime and Offences, Network Service Providers Liability, Cyber Regulations Appellate Tribunal, Penalties and Adjudication.

Unit 3:Cyber law and related Legislation
Patent Law, Trademark Law, Copyright, Software – Copyright or Patented, Domain Names and Copyright disputes, Electronic Data Base and its Protection, IT Act and Civil Procedure Code, IT Act and Criminal Procedural Code, Relevant Sections of Indian Evidence Act, Relevant Sections of Bankers Book Evidence Act, Relevant Sections of Indian Penal Code, Relevant Sections of Reserve Bank of India Act, Law Relating To Employees And Internet, Alternative Dispute Resolution , Online Dispute Resolution (ODR).

Unit 4: Electronic Business and legal issues:
Evolution and development in E-commerce, paper vs paper less contracts E-Commerce models- B2B, B2C,E security.

Unit 5: Application area : business, taxation, electronic payments, supply chain, EDI, E markets, Emerging Trends

Text Book
1 Cyber Laws: Intellectual property & E Commerce, Security- Kumar K, dominant Publisher
2 Information Security policy &implementation Issues, NIIT, PHI

Reference books
1 Cyber CRIME notorious Aspects of the Humans & net Criminals activity in Cyber World Barna Y Dayal D P Dominant Publisher
2 Cyber Crime Impact in the new millennium, Marine R.C. Auther press
3 Spam Attack, Cyber Stalking & abuse, Barna Y, Dayal D P Dominant publisher
4 Frauds & Financial criouses in Cyber space, Barna Y, Dayal D P , Dominant publisher
5 Information Security , NIIT: PHI

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Name of Subject	Artificial Neural Network	Subject Code	CS20845(CS)
Semester	B.Tech VIII Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks	70	Minimum Marks	28
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
3	1	-	4

UNIT-I Introduction to Artificial Neural Networks:
Fundamental concepts-Biological neural network (BNN), artificial neural networks (ANN), comparisons between Brains vs. computer, Von-Neumann computer vs. ANN, Basic model of ANN - network architecture (topologies), learning (training) methods, activation functions, Terminologies of ANN, Evolution of NNs, Learning Rules, McCulloch-Pitts neuron model, Linear separability, Hebb network.

UNIT-II Supervised Learning Based Neural networks:
Introduction, study of architecture and training process of various networks like- Perceptron Networks, Adaptive Linear Neuron (ADALINE), Multiple Adaptive Linear Neurons (MADALINE), Error Back-propagation networks (EBPNs), variations in BPNs, Radial Basis Function Networks (RBFN) etc. applications of BPNs and RBFNs in pattern classification, Case study- NETTALK

UNIT-III Unsupervised Learning Based Neural networks:
Introduction, study of architecture and training process of various networks like- Fixed weight Competitive nets, Kohonen Self Organizing Feature Maps (KSOFMs), Counter Propagation Networks (CPNs), Adaptive Theory Resonance (ART) networks etc., Applications of these networks.

UNIT-IV Associative memory networks:
Introduction, Training algorithm for pattern association-Hebb Rule, Outer product rule, and study of Various Associative memory networks like-Auto associative memory Network, Heteroassociative Network, Bidirectional Associative Memory Network, Hopfield Nets, Iterative Associative Nets etc.)

UNIT-V Special Networks:
Introduction , Study of architecture, features and applications of various networks like- Simulated Annealing Network, Boltzmann Machine, Cauchy Machine, Cognitron and Neo-Cognitron networks and Optical neural networks etc.

Text Books:
1. Fundamentals of Neural Networks by Lauren Fausett, Pearson Education.

Reference Books:
1. Neural Networks by James A. Freeman and David M. Strapetuns, Prentice Hall,.
2. Neural Network & Fuzzy System by Bart Kosko, PHI.
3. Principals of Soft Computing by S.N. Sivanandam and S.N. Deepa, Wiley India
4. Neural networks- A classroom Approach by Satish Kumar, TMH

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
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Name of Subject	Software Project Management Lab	Subject Code	CS20821(CS)
Semester	B.Tech VIII Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks		Minimum Marks	
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
		3	2

1. Program for configuration Management.
2. Perform SA/SD for the following software.
• Hotel Automation System
• Book Shop Automation Software
• Word processing Software
• Software Component Cataloguing Software.
3. Design and development of test cases for testing.
4. Writing program for computing Software Metrics
5. Development of Software tool for Halstead Analysis.
6. Perform Cost/Benefit analysis.
7. Illustration of various activities of Software development using MS Project 2000.
8. Lab exercise involving development of various practical applications using software like VB, JDK.
[Students are to be given a major assignment to be completed using one or more of these tools, Student's exposure to any CASE tool is desirable]
9. Case Studies : Payroll System, Banking System, Purchase Order System, Library Management System, Railway Reservation System, Bill Tracking System, College Admission System, State Management System.

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SYLLABUS

Name of Subject	Data Mining and Ware housing Lab	Subject Code	CS20822(CS)
Semester	B.Tech VIII Sem	Board of Studies	Comp. Sc. & Engg.
Maximum Marks		Minimum Marks	
Lecture Periods/Week	Tutorial Periods/Week	Practical Periods/Week	Credits
		3	2

1. Experiments on Input Techniques: Concepts, instances, attributes
2. Experiments on Output Techniques: Knowledge Representation
3. Classification Experiments - Basic methods
4. Classification Using Decision Trees
5. Classification Using C4.5
6. Classification Using CART
7. Experiments on Clustering Techniques
8. Experiments on Associations Techniques
9. Experiments on Visualization Techniques
10. Experiments on Summarization Techniques
11. Creating a Data Warehouse – Defining Dimension and Fact Table
12. Implementation of Star Data Warehouse Schema
13. Implementation of Snowflake Data Warehouse Schema
14. Implementation of Fact Constellation Warehouse Schema