# Scheme of teaching and examination

## B.E. VIII Computer Science & Engineering

<table>
<thead>
<tr>
<th>S. No</th>
<th>Board of Study</th>
<th>Subject Code</th>
<th>Subject Name</th>
<th>Periods per week</th>
<th>Scheme of examination</th>
<th>Total Marks</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>L</td>
<td>T</td>
<td>P</td>
<td>ESE</td>
</tr>
<tr>
<td>1</td>
<td>Comp. Science &amp; Engg.</td>
<td>322811(22)</td>
<td>Artificial Intelligence &amp; Expert Systems</td>
<td>4</td>
<td>1</td>
<td>-</td>
<td>80</td>
</tr>
<tr>
<td>2</td>
<td>Comp. Science &amp; Engg.</td>
<td>322812(22)</td>
<td>Data Mining &amp; Warehousing</td>
<td>3</td>
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<td>-</td>
<td>80</td>
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<tr>
<td>3</td>
<td>Comp. Science &amp; Engg.</td>
<td>322813(22)</td>
<td>Software Project Management</td>
<td>3</td>
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<td>-</td>
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<tr>
<td>4</td>
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<td>Refer Table-3</td>
<td>4</td>
<td>-</td>
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<td>80</td>
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<tr>
<td>5</td>
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<td>Refer Table-4</td>
<td>4</td>
<td>-</td>
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<td>80</td>
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<tr>
<td>6</td>
<td>Comp. Science &amp; Engg.</td>
<td>322821(22)</td>
<td>Artificial Intelligence &amp; Expert Systems Lab</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>40</td>
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<tr>
<td>7</td>
<td>Comp. Science &amp; Engg.</td>
<td>322822(22)</td>
<td>Network Security Lab</td>
<td>-</td>
<td>-</td>
<td>3</td>
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<td>8</td>
<td>Comp. Science &amp; Engg.</td>
<td>322823(22)</td>
<td>Software Technology Lab-5</td>
<td>-</td>
<td>-</td>
<td>3</td>
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<tr>
<td>9</td>
<td>Comp. Science &amp; Engg.</td>
<td>322824(22)</td>
<td>Major Project</td>
<td>-</td>
<td>-</td>
<td>7</td>
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<tr>
<td>10</td>
<td>Comp. Science &amp; Engg.</td>
<td>300825(22)</td>
<td>Report Writing &amp; Seminar</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>-</td>
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<td>11</td>
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<td>Library</td>
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<td>-</td>
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<td></td>
<td>TOTAL</td>
<td>18</td>
<td>3</td>
<td>19</td>
<td>620</td>
</tr>
</tbody>
</table>

L-Lecture, T- Tutorial, P- Practical, ESE- End Semester Examination, CT- Class Test, TA- Teacher's Assessment

* To be completed after VI Semester and before the commencement of VII Semester

### Professional Elective-II

#### (Table-3)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Board of Studies</th>
<th>Subject Code</th>
<th>Subject Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Computer Science &amp; Engg.</td>
<td>322871(22)</td>
<td>Neural Network &amp; Fuzzy Logic</td>
</tr>
<tr>
<td>2</td>
<td>Computer Science &amp; Engg.</td>
<td>322872(22)</td>
<td>Distributed Parallel Processing</td>
</tr>
<tr>
<td>3</td>
<td>Computer Science &amp; Engg.</td>
<td>322873(22)</td>
<td>Distributed Multimedia</td>
</tr>
<tr>
<td>4</td>
<td>Computer Science &amp; Engg.</td>
<td>322874(22)</td>
<td>Decision Support System</td>
</tr>
<tr>
<td>5</td>
<td>Computer Science &amp; Engg.</td>
<td>322875(22)</td>
<td>Wireless Networks</td>
</tr>
<tr>
<td>6</td>
<td>Computer Science &amp; Engg.</td>
<td>322876(22)</td>
<td>Real Time Systems</td>
</tr>
<tr>
<td>7</td>
<td>Computer Science &amp; Engg.</td>
<td>322877(22)</td>
<td>Pattern Recognition</td>
</tr>
<tr>
<td>8</td>
<td>Computer Science &amp; Engg.</td>
<td>322878(22)</td>
<td>Cyber Crime &amp; Laws</td>
</tr>
</tbody>
</table>

Note-1 : 1/4 of total strength of students subjects to Minimum Strength of twenty students is required to offer an elective in the college in a particular academic session.

Note -2 : Choice of elective course once made for an examination cannot be changed for future examination.
<table>
<thead>
<tr>
<th>S.No.</th>
<th>Board of Studies</th>
<th>Code</th>
<th>Name of Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Management</td>
<td>300881 (36)</td>
<td>Enterprise Resource Planning</td>
</tr>
<tr>
<td>2</td>
<td>Information Technology</td>
<td>300882 (33)</td>
<td>E-Commerce &amp; strategic IT</td>
</tr>
<tr>
<td>3</td>
<td>Management</td>
<td>300883 (36)</td>
<td>Technology Management</td>
</tr>
<tr>
<td>4</td>
<td>Information Technology</td>
<td>300884 (33)</td>
<td>Decision Support &amp; Executive Information system</td>
</tr>
<tr>
<td>5</td>
<td>Computer Science &amp; Engg.</td>
<td>300885 (22)</td>
<td>Software Technology</td>
</tr>
<tr>
<td>6</td>
<td>Management</td>
<td>300886 (36)</td>
<td>Knowledge Entrepreneurship</td>
</tr>
<tr>
<td>7</td>
<td>Management</td>
<td>300887 (36)</td>
<td>Finance Management</td>
</tr>
<tr>
<td>8</td>
<td>Management</td>
<td>300888 (36)</td>
<td>Project Planning, Management &amp; Evaluation</td>
</tr>
<tr>
<td>9</td>
<td>Mechanical Engg.</td>
<td>300889 (37)</td>
<td>Safety Engineering</td>
</tr>
<tr>
<td>10</td>
<td>Computer Science &amp; Engg.</td>
<td>300890 (22)</td>
<td>Bioinformatics</td>
</tr>
<tr>
<td>11</td>
<td>Mechanical Engg.</td>
<td>300891 (37)</td>
<td>Energy Conservation &amp; Management</td>
</tr>
<tr>
<td>12</td>
<td>Nanotechnology</td>
<td>300892 (47)</td>
<td>Nanotechnology</td>
</tr>
<tr>
<td>13</td>
<td>Management</td>
<td>300893 (36)</td>
<td>Intellectual Property Rights</td>
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<tr>
<td>14</td>
<td>Mechanical Engg.</td>
<td>300894 (37)</td>
<td>Value Engineering</td>
</tr>
<tr>
<td>15</td>
<td>Civil Engg.</td>
<td>300895 (20)</td>
<td>Disaster Management</td>
</tr>
<tr>
<td>16</td>
<td>Civil Engg.</td>
<td>300896 (20)</td>
<td>Construction Management</td>
</tr>
<tr>
<td>17</td>
<td>Civil Engg.</td>
<td>300897 (20)</td>
<td>Ecology and Sustainable Development</td>
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<tr>
<td>18</td>
<td>Chem. Engg.</td>
<td>300898 (19)</td>
<td>Non Conventional Energy Sources</td>
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<tr>
<td>19</td>
<td>Electrical Engg.</td>
<td>300899 (24)</td>
<td>Energy Auditing and Management</td>
</tr>
</tbody>
</table>

Note (1) - 1/4th of total strength of students subject to minimum of twenty students is required to offer an elective in the college in a particular academic session.

Note (2) - Choice of elective course once made for an examination cannot be changed in future examinations.
UNIT I  Overview & Search Techniques:-

UNIT II  Knowledge Representation (KR):-

UNIT III  Handling uncertainty & Learning: -

UNIT IV  Natural Language Processing(NLP) & Planning :

UNIT V  Expert System & AI languages:-

Text Books :-
2. Dan W.Patterson  Introduction to Artificial Intelligence and Expert Systems- Prentice Hall of India.

Reference Books :-
CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C.G.)

Semester: VIII
Subject: Data Mining and Warehousing
Total Theory Periods: 40
Total Marks in End Semester Exam: 80.
Minimum number of class tests to be conducted: 02.

Unit-I


Unit-II

Data Design And Data Representation: Principles of dimensional modeling, Dimensional modeling advanced topics, data extraction, transformation and loading, data quality.

Unit-III

Information Access And Delivery: Matching information to classes of users, OLAP in data warehouse, Data warehousing and the web. Implementation And Maintenance: Physical design process, data warehouse deployment, growth and maintenance.

Data Mining:

Unit-IV


Unit-V


Text Books:
1. Prabhu, Data warehousing- concepts, Techniques, Products and Applications, Prentice hall of India
2. Soman K P, “Insight into Data Mining: Theory & Pratice”, Prentice hall of India

Name of Reference Books:
2. Gupta, “Introduction To Datamining with Case Studies”, PHI
4. IBM, “Introduction to Building The Datawarehouse” PHI
Unit 1: Fundamentals of SPM
Essential elements of Software Project Management, rapid development focus, What’s a project?, Project vs. Program Management, PM Tools, Project Manager, Gantt Chart, Network Diagram.

Unit 2: Project integration management

Unit 3: Planning

Unit 4: Risk and Change Management

Unit 5: Project testing & Project success

Name of Text Books:
2. Software project Management;: A Concise Study, Kelkar, Prentice hall of India

Name of Reference Books:
1. Project Management for Business and Technology- Principles and Practice, Nicholas, Prentice Hall Of India
2. Software Engineering, Pressmann, MHI
UNIT-I Introduction to Artificial Neural Networks:
Elementary Neurophysiology, Models of a Neuron, Neural Networks viewed as directed graphs, Feedback, from neurons to ANN, Artificial Intelligence and Neural Networks; Network Architectures, Single-layered Feed forward Networks, Multi-layered Feed forward Networks, Recurrent Networks, Topologies.

UNIT-II Learning and Training :
Activation and Synaptic Dynamics, Hebbian, Memory based, Competitive, Error-Correction Learning, Credit Assignment Problem: Supervised and Unsupervised learning, Memory models, Stability and Convergence, Recall and Adaptation.

UNIT-III A Survey of Neural Network Models :

UNIT-IV Applications :

UNIT-V Neural Fuzzy Systems :
Introduction to Fuzzy sets, operations, relations, Examples of Fuzzy logic, Defuzzification, Fuzzy Associative memories, Fuzziness in neural networks and examples .

Text Books:
1. Artificial Neural Networks by B. Yagna Narayan, PHI
2. Neural Networks Fuzzy Logic & Genetic Algorithms by Rajshekaran & Pai, Prentice Hall

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. Neural Network Design by Hagan Demuth Deale Vikas Publication House
UNIT - I

Parallel processing – Definition, Architectures; Programmability- Operating Systems Support, Types of Os, Parallel Programming Models, Software Tools; Data Dependency Analysis; Shared Memory Programming; Thread based Implementation- Management, Example, Attributes Mutual exclusion, Events & condition Variables, Deviation computation.

UNIT-II

Distributed Computing -1- message passing, general model, programming model, PVM-Process Control, Information, Message Buffers, Signaling, Sending, receiving, Group Operations, Starting PVM, Compiling PVM Application, PVM Console Commands.

UNIT-III

Distributed Computing-II- remote procedure call, parameter passing, Locating the server, semantics, security, problem areas, Java Remote method invocation, DCE, Deploying application in DCE, POSIX Thread reference-Creation, Attributes, Termination, Mutual Exclusion primitives, Condition Variables, Cancellations, Specific data Functions.

UNIT-IV


UNIT-V


TEXT BOOKS

I. Introduction to Parallel Processing by M. Sasikumar et al- Prentice Hall of India.
II. Parallel Distributed Processing by David E Ramulhat , MIT press

REFERENCE BOOKS

I. Parallel Processing by Rajaraman V- Prentice Hall of India.
II. An Introduction to Distributed and Parallel Processing by John A. Sharp; Alfred Waller Ltd
III. Parallel and Distributed Processing by Rolim, Jose ; Springer
Unit-I: **Components of Distributed system**
Application software, Document store, Image and still video store, Audio and full motion video store, Object directory service agent, Components service agent, User interface service agent.

**Distributed Client - Server Operation:** Clients in distributed work group computing, Database operations, Middleware in distributed work group computing.

Unit-II: **Multimedia object server**
Types of multimedia server, mass storage for multimedia servers, write once read many optical disks, rewritable optical disks, Optical disk libraries, network topologies for multimedia object servers.

**Multi server Network topologies:** traditional LANs, Extended LANs, High Speed LANs, WANs, Network performance issues.

Unit-III: **Distributed Multimedia database**
Database organization for multimedia applications, transaction management for multimedia system, managing hypermedia records as objects.

**Managing distributed object:** Inter server communication, object server architecture, object identification, object revision management, optimizing network location of object, object directory services, multimedia object retrieval, database replication techniques, Object migrations schemes, Optimizing object storage.

Unit-IV: **System Design Methodology and Considerations**
Fundamental Design issue, key deliverables, data mining enterprise requirements, technology assessments, Business information model, Examining current architecture and feasibility, Performance analysis: Performance analysis and monitoring, Impact of performance issues on design.

Unit-V: **Designing for performance**
Storage management, Access management and optimization of storage distribution, Maximizing network transportation, managing system performance.

**Multimedia system design:** System design methodology, designing system object, object oriented multimedia system, designing objects, system design analysis, system extensibility.

**Text Books**
1) Multimedia system design : Prabhat K.Andleigh , Kiran Thakrar
3) Data And Computer Communication by " William Stallings
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

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


Reference Books
2. V.S.Janakiraman and K.Saruveshi, Decision Support Systems, PHI
UNIT-1


UNIT-2


UNIT-3

CELLULAR COMMUNICATION-Frequency reuse and mobility Management, Cell Cluster Concept, Co Channel and Adjacent Channel Interference, Call Blocking and Delay at Cell Site, Cell Splitting, Sectoring;

UNIT-4

Multiple Access Technique, Random Access, Carrier Sense Multiple Access( CSMA), Conflict Free Multiple Access Technology and Spectral Efficiency-FDMA, TDMA, CDMA; Mobility management and In wireless network-CAC, Handoff Management, Location Management for Cellular Network and PCS network, Traffic calculation.

UNIT-5


TEXTBOOKS
1. WIRELESS COMUNICATION & NETWORKING by Mark & Zuang , PHI
2. Wireless Communications And Networks, WILLIAM STALLINGS , PHI

REFERENCES
2. Principles Of Wireless Networks, By PAHLAVAN , PHI
CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C.G.)

Subject: Real Time System.                  Code: 322876 (22)
Total Theory Periods: 50                         Total Tut Periods: Nil.
Total Marks in End Semester Exam: 80.
Minimum number of class tests to be conducted: 02.

Unit-I
Basic Real-Time Concepts, Computer Hardware, Language Issues:
Basic component Architecture, terminology, Real Time Design Issues, CPU, Memories, Input-Output, Other Devices Language Features, Survey of Commonly Used Programming Languages, Code Generation

Unit-II
Software life cycle, Real Time Specification and Design Techniques, Real Time Kernels:

Unit-III
InterTask Communication and Synchronization, Real Time memory Management, System Performance Analysis and Optimization:

Unit-IV
Queuing Models, Reliability, Testing, And Fault Tolerance, Multiprocessing Systems:

Unit-V
Hardware/Software Integration, Real Time Applications:

Text Books:
1. Real Time System, Jane W.S.Liu
2. Real Time Systems Design and Analysis by Phillip A. Laplante, PHI

Reference Books:
1. Hard Real Time Computing Systems Predictable Scheduling Algorithms and applications by Giorgio C. Buttazzo
2. Real Time Design Patterns: Robust Scalable Architecture for Real Time System by Bruce Powel Douglass
UNIT 1

UNIT 2
Statistical Decision Making- Bayes’ Theorem, Multiple features, Conditional independent features, Decision boundaries, Unequal cost of errors, Leaving- one-out technique, Characteristics curves Nonparametric Decision making- Histograms, Kernel & window estimation, Nearest neighbor classification technique, Adaptive Decision boundaries & Discriminant Function, choosing a decision making Technique; Clustering.

UNIT 3
Artificial Neural Networks- Introduction, Nets without hidden layers, Nets with hidden layers, The Back-Propagation Algorithm, Hopfield Nets, Classifying Sex from facial Images. Pattern recognition using SAS.

UNIT 4

UNIT 5
Image Analysis- Scene segmentation & labeling, Counting Objects, Perimeter measurement, Representing boundaries, Projection, Hough transformation, shapes of regions, texture, color, system design, the classification of white blood cell, Image Sequence Computer Vision.

TEXT BOOKS
1. PATTERN RECOGNITION AND IMAGE ANALYSIS by Earl Gose ; Prentice- Hall of India

REFERENCES
3. Foryth , Computer Vision, PHI
Unit 1

Unit 2:

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:

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

Text Book
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. Author 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
Experiments to be performed:

(i) Write a Prolog program to find the rules for parent, child, male, female, son, daughter, brother, sister, uncle, aunt, ancestor given the facts about father and wife only.

(ii) Write a program to find the length of a given list.

(iii) Write a program to find the last element of a given list.

(iv) Write a program to delete the first occurrence and also all occurrences of a particular element in a given list.

(v) Write a program to find union and intersection of two given sets represented as lists.

(vi) Write a program to read a list at a time and write a list at a time using the well defined read & write functions.

(vii) Write a program given the knowledge base,

If x is on the top of y, y supports x.
If x is above y and they are touching each other, x is on top of y.
A cup is above a book. The cup is touching that book. Convert the following into wffs, clausal form; Is it possible to deduce that "The book supports the cup".

(viii) Write a program given the knowledge base,

If Town x is connected to Town y by highway z and bikes are allowed on z, you can get to y from x by bike.
If Town x is connected to y by z then y is also connected to x by z.
If you can get to town q from p and also to town r from town q, you can get to town r from town p.
Town A is connected to Town B by Road 1.
Town B is connected to Town C by Road 2.
Town A is connected to Town C by Road 3.
Town D is connected to Town E by Road 4.
Town D is connected to Town B by Road 5.
Bikes are allowed on roads 3, 4, 5.
Bikes are only either allowed on Road 1 or on Road 2 every day. Convert the following into wff’s, clausal form and deduce that “One can get to town B from town D”.

(ix) Solve the classical Water Jug problem of AI.

(x) Solve the classical Monkey Banana problem of AI.

(xi) Solve the classical Crypt arithmetic problems such as DONALD + GERALD = ROBERT of AI.

(xii) Solve the classical Missionary Cannibals problem of AI.

(xiii) Solve the classical Travelling Salesman Problem of AI.

(xiv) Solve the classical Blocks World Problem of AI.

(xv) Write a program to search any goal given an input graph using AO* algorithm.

List of Equipments/Machine required:

(i) PC with Windows XP
(ii) Visual Prolog compiler

Recommended Books:

(i) Ivan Bratko: Logic & Prolog Programming.
(ii) Carl Townsend: Introduction to Turbo Prolog, (BPB, Publication).
(iii) W.F. Clocksin & Mellish: Programming in PRLOG (Narosa Publication House)
List of Experiments to be performed:

2. Socket Security Programming for address structures, byte manipulation & address conversion functions, elementary socket system calls.
3. APIs security Programming for windows socket API, window socket & blocking I/O model, blocking sockets, blocking functions, timeouts for blocking I/O.
5. Web databases security programming.
6. Component Security Programming for CORBA.
7. CGI Security programming and Firewall
8. Programming for Cryptography and Digital Signature.

Recommended Books:-
1. Steven.W.R: UNIX Network Programming, PHI (VOL I & II)
2. Window Socket Programming by Bobb Quinn and Dave Schutes
4. NETWORK PROGRAMMING With Windows Socket By Baner .P., PH New Jersey
CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C.G.)

Semester: VIII
Subject: Software Technology Lab- 5.
Total Practical Periods: 40
Total Marks in End Semester Exam: 40.

List of Experiments to be performed:

1. Write a program in ASP.Net using text box, control, multiline text box & password.
2. Write a program in ASP.Net using events in text box.
3. Write a program in ASP.Net using Labels, TextBox & Button Control.
4. Write a program in ASP.Net using RadioButton.
5. Write a program in ASP.Net using Checkboxlist.
6. Write a program in ASP.Net using Dropdownlist.
7. Write a program in ASP.Net using ListBox.
8. Write a program in ASP.Net using DataList controls.
9. Write a program in ASP.Net using DataList controls with styles.
10. Write a program in ASP.Net for validation in text box.
11. Write a program in ASP.Net for insertion using ADO.NET.
12. Write a program in ASP.Net for Searching using ADO.NET.
13. Write a program in ASP.Net for Deletion using ADO.NET.
14. Write a program in ASP.Net for Updation using ADO.NET.
15. Write a program in ASP.Net using HTML Server Controls.
16. Write a program in ASP.Net using Web Server Controls.

Text/Reference Books

1) Microsoft .NET, Microsoft Press
2) ASP.NET, Techmedia
Guidelines

Allocation of project:

1. Information regarding broad area must be made available to the students well in advance (may be during previous semester).
2. Information must cover following parameters.
   I. **Broad area**: Subject or expertise/application area.
   II. **Required skills**: Knowledge of subject(s), software, tools & other characteristics.
   III. **Type of project**: Hardware, software, design, survey, study based etc.
   IV. **Guide available**: Name of Guide (S) from Department & Institute.
   V. **Other related information** depending upon specific branch & institute.
3. It is also recommended to give proper counselling to pick up suitable project.
4. Students must get chance to select projects as per their choice or decided mutually between students and department faculty (HoD) concern.
5. One project group must contain maximum four students, however students can do project individually but it should be approved by department.
6. Compiled list of projects must be submitted to the University within 25 days of start of semester.
7. Compiled list may contain following parameters.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Title of Project</th>
<th>Name of Students</th>
<th>Name of Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Name of HoD
Signature of HoD

Name of Principal

Monitoring of project:

1. It is recommended to give projects as per the specializations of existing faculty of the department instead of outside person/agency.
2. Project must be allocated, developed and monitored by department / institution itself, but not by outside agencies.
3. Regular review by guide is recommended to ensure development & contribution of students.
Internal Evaluation & Submission of project:

1. Evaluation of project would be as per the examination scheme of the University, which is based on internal as well as external evaluation.
2. Internal assessment requires submission of project report for getting approved by the concern authority. However printing and binding would be as per the conventional format.
3. Evaluation will be based on Live demonstration / presentation and Viva.
4. Final submission of project is expected as,
   - Submission of a copy to the University,
   - One copy to the Institution central library,
   - One copy to the department.

External Evaluation:

External assessment of project would be like conduction of practical exams of University, and must be executed as per the norms of practical exams.

NOTE: Completion of Project outside the department/Institution should not be encouraged.
Unit -I
Introduction to Technical Writing: how differs from other types of written communication Purpose of technical writing, Correspondence: prewriting, writing and rewriting Objectives of Technical Writing. Audience Recognition: High-tech audience, Low tech audience, Lay audience, Multiple Audience.

Unit - II
Correspondence: Memos, Letters, E-mails, Its differentiation, types of letters, Document Design, its importance, Electronic Communication: Internet, Intranet, extranet, Writing effective e-mail.

Unit - III
Summary: Report Strategies, Effective style of technical report writing: Structures: content, introduction, conclusions, references, etc., Presentation, Writing first draft, revising first draft, diagrams, graphs, tables, etc. report lay-out.

Unit -IV

Unit -V
Proposals & Presentation: Title page, Cover letter, Table of Content, list of illustrations, summary, discussion, conclusion, references, glossary, appendix, Case Studies. Oral Presentation/ Seminar:

Text Books:

Reference Books:
1. Sunita Mishra, "Communication Skills for Engineers" Pearson Education
2. Davies J.W. "Communication for engineering students", Longman
UNIT-I
Conceptual foundation of Business Process reengineering: Role of information Technology and BPR; Process improvement and Process redesign, Process identification and mapping; Role/Activity diagrams, Process Visioning, and benchmarking. [No of Periods: 8 + 2]

UNIT -2
Enterprise Resource Planning: Evolution of ERP- MRP and MRP II, structure of ERP- two tier architecture, three tier architecture, Electronic data processing, management information system, Executive information system, ERP as an integrator of information needs at various Levels. [No of Periods: 8 + 2]

UNIT -3
Typical Business Processes: Core processes, Product control, Sales order processing, Purchases, Administrative processes, Human resource, Finance support processes, Marketing, Strategic planning, Research and development, Problems in traditional view. [No of Periods: 8 + 2]

UNIT -4
ERP models/functionality: Sales order processing, Production scheduling, forecasting, distribution, finance, features of each of the models, description of data flow across each module, overview of supporting databases & packages. [No of Periods: 8 + 2]

UNIT -5
ERP implementation issues: Opportunities and problems in ERP selection, and implementation; ERP implementation: identifying ERP benefits, team formation, Consultant intervention, Selection of ERP, Process of ERP. [No of Periods: 8 + 2]

Books:
2. Rahul V. Altekar, Enterprise wide Resource Planning-theory and practice, PHI

References:
1. ALEXIS LEON: Enterprise Resource Planning, TMH
2. S. SADAGOPAN: MIS, PM
3. V. RAJARAMAN: Analysis and Design of Information Systems, PHI
4. MONK’ & BRADY: Concepts in ERP, Vikas pub, Thomson
CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY BHILAI
(C.G.)

Semester: VIII Branch: Common to All Branches
Subject: E-Commerce and Strategic IT Code: 300882 (33)
Total Theory Periods: 50 Total Tutorial Periods: Nil
Total Marks in End Semester Exam: 80.
Minimum number of class tests to be conducted: 02


Unit – II
Network Infrastructure : LAN, Ethernet(IEEE standard 802.3) LAN , WAN , Internet, TCP/IP Reference Model, Domain Name Server , Internet Industry Structure,

NIT – III
Electronic payment systems, types of electronic payment systems, digital token-based electronic payment systems, smart cards & electronic payment systems, credit card based electronic payment systems, risk and electronic payment systems, designing electronic payment systems.

UNIT – IV
Information Distribution and Messaging: FTP,E-Mail,WWW server,HTTP, Web service implementation, Information publishing , Web Browsers, HTML, Common Gateway Interface

UNIT – V Mobile & wireless computing fundamentals, mobile computing framework, wireless delivery technology and switching methods, mobile information access devices, mobile data internetworking standards, cellular data communication protocols, mobile computing applications, personal communication service.

BOOKS :
1. Frontiers of E-commerce by Kalakota & Whinston (Addison-wesley) E-business roadmap for success by Dr. Ravi Kalakota & Marcia Robinson (addision wesicy)
2. Electronic Commerce By Bharat Bhasker (TMH)
CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C.G.)

Semester: VIII        Branch: Common to All Branches
Subject Name: Technology Management        Subject Code: 300883 (36)
Total Theory periods: 40        Total Tutorial periods: 10
Total Marks in End Semester Exam: 80
Minimum number of class tests to be conducted: 02

Unit I
Technology: - Definitions, Types and Characteristics, Management of Technology (MOT), Technological Environment, Parameters of Technological Environment; Science & Technology in India. [No of Periods: 8 + 2]

Unit II
Innovation Management: - Invention v/s Innovation, Definition and components of innovation. Types of innovations: Product, Process and system innovations, Understanding Innovation Process. [No of Periods: 8+2]

Unit III
Technology life cycle, Technology evolution and S-curves of Technology Evolution, Technology Diffusion, Dynamics of Diffusion, Mechanism of Diffusion. [No of Periods: 8 + 2]

Unit IV
Technology strategies & Intelligence: Technology Strategy & types, Models for technology strategy formulation Definition of Technology Intelligence, Technology Audit, Process of Technology Intelligence: Technology Scanning, Monitoring, Forecasting and Assessment. [No of Periods: 8 + 2]

Unit V
Acquisition and technology transfer. Over view of - GATT, Intellectual property rights (IPR) [No of Periods: 8 + 2]

Texts Books:

Reference Books:
3. Plsek, Creativity, Innovation and Quality, PHI
UNIT-I Decision Support System:
What is a DSS, Decision Making Rational Decisions, Definitions of Rationality, Bounded Rationality and Muddling Through, The Nature of Managers, Appropriate Data Support, Information Processing Models, Group Decision Making?

UNIT-II Component OF DSS:
Data Component: Information and its Usefulness, Characteristics of Information, Databases to Support Decision Making, Database Management Systems, Data Warehouses, Data Mining and Intelligent Agents
Mail Component: Integration of Mail Management Examples of Use implications for DSS.

Unit-III Intelligence and Decision Support Systems:

Unit-IV Designing A DSS: Planning for DSS, Designing a Specific DSS, Interviewing Techniques, Other Techniques, Situational Analysis Design Approaches, Systems Built from Scratch, Using Technology to Form the Basis of the DSS, Evaluating a DSS Generator, Using a DSS Generator, The Design Team, DSS Design and Re-engineering Discussion.


Name Of Text Books:
Decision Support System By Vicki I Sauter
Management Information System-Gerald V. Post & David L. Anderson
UNIT-1
ASSEMBLY LANGUAGE PROGRAMMING
Pentium Assembly languages-Registers, Memory Model, Addressing mode, 1source Link, Installation, Assembler Directives.
ASSEMBLER DESIGN

UNIT-2
LINKERS
Linking -Combining Object Modules, Pass I, Pass II; Library Linking; Position Independent Code (PIC); Shared Library Linking.
LOADERS- Binary Image; Types of Loaders.

UNIT 3
MACROPROCESSORS
Macro in NASM- Local Labels in Macro Body, Nested Macros.; Design of Macroprocessors – Major Data Structures, Macroprocessing Technique, Simple macroprocessors without nesting, Nested calls & definitions

UNIT – 4
COMPILERS
Lexical Analysis; Syntax Analysis; Intermediate Code Generation; Target Code Generation; Optimizing Transformation

UNIT – 5
TEXT EDITORS
Design of a Text Editor ; Data Structures for Text Sequences; Text Document Design; Text view Design
DEBUGGER
Features; Breakpoint mechanism; Hardware support; context of Debugger; Check pointing & reverse Execution

Textbooks
1. SYSTEM SOFTWARE by Santanu Chattopadhyay ; Prentice Hall of India
2. Software Engineering By Roger S Pressman ; Mc-Graw Hill

References
1. Foundations of Software Technology and Theoretical Computer Science, By V. (Venkatesh) Raman: Springer
2. Software Visualization by John Stasko; MIT press
3. Software Engineering By Rajib Mall : PHI
Unit – I
Introduction: Entrepreneurship in Knowledge economy, abundant & accessible information, implication, impact & consequence, knowledge based opportunities, aims, scope, and objectives.

Unit-II
Managing knowledge & intellectual capital:
Knowledge management, loss of knowledge, knowledge implementation, knowledge creation, property intellectual capital.

Unit-III
Contemporary information problems:
Information overload, winning & losing barrier to entry, emerging issues, customers, investors, myth of inevitable program.

Unit-IV
Creating enterprise cultures:
Working with employer, organizing for entrepreneurship, unity & diversity, ten essential freedoms, freedom of operation, effective issue monitoring, establish search criteria.

Unit-V
Becoming a knowledge entrepreneur:
Entrepreneur qualities, knowledge entrepreneur, challenge of launching new product, creating launch support tool, examples of best practice.

Text & Reference Books
Amrit Tiwana ,The Knowledge Management tool kit, Pearson  Education.
Lunlin Conlson, Knowledge Entrepreneur, Thomas Press.
Catheriue L Mann, Knowledge entrepreneurship, Oxford
Heinke Robkern ,Knowledge entrepreneurship,.
Bonnie Montano,Knowledge Management, , IRM Press, London
UNIT I
Financial Management –an overview: Introduction, finance and other disciplines, objectives and scope of financial management, role and responsibility of finance manager.  
[No of Periods: 8 + 2]

UNIT II
Working capital management-nature, need, importance and concept of working capital, trade off between profitability and risk, Determining finance mix.  
[No of Periods: 8 + 2]

UNIT III
Inventory management-Introduction, objectives, ordering cost, carrying cost, lead time, economic order quantity and safety stock, deterministic model.  
[No of Periods: 8 + 2]

UNIT IV
Management of cash-introduction motives for holding cash, objectives of cash management and technique/process of cash management.  
[No of Periods: 8 + 2]

UNIT V
Receivables management-introduction, objectives, credit terms, credit policies and collection policies.  
[No of Periods: 8 + 2]

Text books:
Basic financial management, M Y Khan and P K Jain, TMH
Financial Management, I M Pandey.

References books:
Financial management and policy, V K Bhalla,Anmol publications pvt. Ltd.
Financial management, Van Horne.
UNIT I
Identification of projects—generation and screening of idea, monitoring corporate appraisal, preparing project profiles and project rating index.

UNIT II
Feasibility studies: Market and demand analysis, technical analysis, financial analysis and economic viability.

UNIT III
Project appraisal: Criteria, net present value, internal rate of return, payback period and accounting rate of return method.

UNIT IV
Project management and implementation—
Project planning, project control, prerequisites of implementation. Network techniques of project management—Project evaluation and review technique (PERT) and critical path method (CPM).

UNIT V
Project review and control—
Initial review, performance evaluation, abandonment analysis and its behavioral issues.

Text books:
Project planning, analysis, selection, implementation and review by Prasanna Chandra, TMH.
Reference Books:
Project management—Dr. Harold Kerzner.
Total Project management—Dr. P K Macmillan.
UNIT – I
Safety Philosophy and principles of Accident prevention
Introduction, accident, injury, unsafe act, unsafe condition, reportable accidents, need for safety, break down of accidents, hazardous industries.
Theories & Principle of accidents
Casualty, cost of accident, computation of cost, utility of cost data.
Accident reporting & Investigation
Identification of the key facts, corrective actions, classification of facts.
Regulation
American (OSHA) and Indian Regulation.

UNIT – II
Safety Management
Division of responsibility, Location of Safety function, size of safety department, qualification for safety specialist, safety committee – structure and functions.

UNIT – III
Safe Working Condition and Their Development
SOP for various Mechanical equipments, Incidental safety devices and methods, statutory of provisions related to safeguarding of Machinery and working condition.

UNIT – IV
Safety in Operation and Maintenance
Operational activities and hazards, starting and shut down procedures, safe operation of pumps, compressor, heaters, reactors, work permit system, entry into continued spaces.

UNIT – V
Safety in Storage and Emergency Planning
Safety in storage, handling of chemicals and gases, storage layout, ventilation, safety in chemical laboratories, emergency preparedness on site plan, off site plan, toxic hazard control.

TEXT BOOKS
Safety and Accident Prevention in Chemical Operation – H.H. Faweett and Wood
Personal Protective Equipment – NSC Bombay

REFERENCE BOOKS
Ergonomics - P. Krishna Murthy
Fire Prevention Hand Book – Derek James
UNIT-1
Bioinformatics introduction, Application, Data Bases and Data Management, Central Dogma; information search and Data retrieval, Genome Analysis and Gene mapping Analysis, Mapping, Human Genome Project (HGP).

UNIT-2
Alignment of Pairs and Sequences; Alignment of Multiple Sequences and Phylogenetic Analysis; Tools for similarity Search and Sequence Alignment- FASTA BLAST.

UNIT-3
Profiles and Hidden Marcov Models (HMMs); Gene Identification and Prediction-Basics, Pattern Recognition, Methods and Tools; Gene Expression and Micro arrays.

UNIT-4
Protein Classification and Structure Visualization; Protein Structure Prediction; Proteomics; Computational methods-Analysis of Pathways, Metabolic Network Properties, Metabolic Control Analysis, Stimulation of Cellular Activities, Biological Mark Up Languages.

UNIT-5

TEXT BOOKS
II. BIOINFORMATICS by V. R Srinivas, Prentice Hall of India

REFERENCES
1. BIOINFORMATIC COMPUTING by Bergeron, MIT Press.
2. Evolutionary Computation in Bioinformatics, Gary B. Fogel, David W. Corne (Editors), 2002
4. Current Topics in Computational Molecular Biology (Computational Molecular Biology), Tao Jiang, Ying Xu, Michael Zhang (Editors), 2002, MIT Press
UNIT – I
Energy Scenario
Commercial and Non-commercial energy, primary energy resources, commercial energy production, final energy consumption, energy needs of growing economy, long term energy scenario, energy pricing, energy sector reforms, energy and environment, energy security, energy conservation and its importance, re-structuring of the energy supply sector, energy strategy for the future, air pollution, climate change, Energy Conservation Act – 2001 and its features.

UNIT – II
Energy Conservation in Electric Utility and Industry

UNIT – III
Energy in Manufacturing

UNIT – IV
Heat Recovery System

UNIT – V
Energy Conservation Economics
Basic discounting, life cycle costing and other methods, factors affecting economics, energy pricing and incentives for conservation, energy conservation of available work identification of irreversible processes, primary energy sources, Optimum use of prime movers, energy efficient house keeping, energy recovery in thermal systems, waste systems and waste heat recovery in thermal systems, waste heat recovery techniques, conservation in energy intensive industries, thermal insulation.

TEXT BOOKS
2. Energy Management – Paul O’Callaghan –

REFERENCE BOOKS
2. Energy Management in illuminating System – Kao Chen – CRC Publishers
Unit I: Introduction to nanotechnology: background, definition, basic ideas about atoms and molecules, physics of solid state, review of properties of matter and quantum mechanics

Unit II: Preparation of Nanostructured Materials: Lithography: nanoscale lithography, E-beam lithography, dip pen lithography, nanosphere lithography. Sol gel technique Molecular synthesis, Self-assembly, Polymerization


References:

1. Guozhong Cao, “Nanostructures and Nanomaterials”, Imperial College Press, London
Unit-I

Unit-II
Patents: Introduction to patent law and condition for patentability, Procedure for obtaining patents, Rights of a patentee, Patent infringements, Biotechnology patents and patents on computer programs, Patents from an international perspective.

Unit-III
Trademark and Geographical Indications: Statutory authorities and registration procedure, Rights conferred by registration, Licensing, assignment and transfer of trademark rights, Trademark infringement, Geographical Indication of Goods & Appellations of Origin.

Unit-IV
Copyright: Registration procedure and copyright authorities, Assignment and transfer of copyright, copyright infringement and exceptions to infringement, Software copyright.

Unit-V
Introduction to the law on Industrial Designs, Registration and piracy, International perspective, Introduction to the law on semiconductor layout design, Registration, commercial exploitation and infringement.

Text Books:
1. Vinod V Sople, Managing Intellectual Property, PHI
2. Kumar K, Cyber law, intellectual property and e-commerce security, Dominent Publication and distribution, New Delhi.

Reference Books:
1. Inventors Guide to Trademarks and Patents- Craig Fellenstein, Rachel Ralson- Pearson Education.
2. Intellectual Property – David Bainbridge, Longman
UNIT – I
Basic Concepts
Meaning of the term value, basic kind, reasons for poor value, value addition, origin and history. Benefits, relevance in Indian scenario.

UNIT – II
Techniques
Different techniques, organizing value engineering study, value engineering and quality.

UNIT – III
Job Plan
Different phases, General phase, Information phase, Functional Phase, Creation Phase, Evaluation Phase, Investigation Phase, Implementation Phase, Audit.

UNIT – IV
Selection of evaluation of VE Projects
Project selection, method selection, value standard, application of methodology.

UNIT – V
Value Engineering Program
VE operations in maintenance and repair activities, VE Cost, life cycle, cost model, training for VE, general value engineering, case studies.

TEXT BOOKS
Industrial Engineering & Management – O.P. Khanna – Dhanpat Rai & Sons

REFERENCES
Compendium on Value Engineering – H.G. Tufty – Indo American Society
Unit 1
Nature of disasters – natural and other disasters, Earthquakes, floods, draught, cyclones, fire and other environmental disasters.

Unit 2
Behaviour of structures in disaster prone areas, Disaster zoning, Hazard assessment, Environmental Impact Assessment

Unit 3
Methods of mitigating damage during disasters, disaster preparedness.

Unit 4
Management systems during disasters, Construction Technology for mitigation of damage of structures.

Unit 5
Short-term and long-term relief measures.

Name of Text Books:
Design of Earthquake Resistant Buildings – Minoru Wakabayashi (McGraw Hill Publication)
Dynamics of Structures: Theory and Application to Earthquake Engineering (2nd edition) – Anil K Chopra (Pearson Education Publication)

Name of Reference Books:
Fundamentals of Vibrations – Anderson, R.A. (Mc Millan)
Earthquake engineering damage assessment and structural design – S.F. Borg
Disasters and development – Cuny F (Oxford University Press Publication)
Unit 1
The Owner's Perspective
Introduction-The project life cycle-Major Types of Construction-Selection of Professional Services-Construction contractors-Financing of constructed facilities-Legal and regulatory Requirements-The changing Environment of the construction Industry-The Role Project Managers

Unit 2
Organizing for Project Management
What is project management? – Trends in Modern Management-Strategic planning and project programming- Effects of project risks on organization-Organization of Project Participants-Traditional designer-Constructor sequence-Professional construction management-Owner-Builder-Operation-Turnkey operation-Leadership and Motivation for the Project team-Interpersonal behaviour in project organization-perceptions of Owners and Contractors

Unit 3
The Design and Construction Process
Design and construction as an integrated system-Innovation and technological Feasibility-Innovation and technological feasibility-Design Methodology-Functional Design-Physical Structures-Geotechnical Engineering Investigation-Construction Site Environment-Value engineering-Construction Planning-Industrialized Construction and Prefabrication-Computer Aided Engineering

Unit 4
Labour, Material and Equipment Utilization

Unit 5
Cost Estimation

Name of Text Books:
Project Management: A systems Approach to Planning, Scheduling and Controlling – Harold Kerzner (CBS Publishers & Distributors, Delhi, 1988)

Name of Reference Books:
Construction Project Management – Frederick E.Gould (Wentworth Institute of Technology, Vary E.Joyce, Massachussetts Institute of Technology, 2000)
Unit 1
Nature of ecology and sustainable development
Definition, scope of ecology and sustainable development, geomorphology, oceanography, climatology and biogeography.

Unit 2
Energy and environment
Introduction of energy environment, use of solar cells for heating and operated drills, methane gas digesters, environmentally friendly method of energy conservation, difference between conventional and non-conventional energy sources, future trends of energy systems.

Unit 3
Theory of isostasy
Concept of isostasy for sustainable development, discovery of the concept, concept of Hayford and Bowie, Joly, and Holmes, Global isostatic adjustment.

Unit 4
Physical geography and man human impact on the natural environment
Modification of land forms, direct alternation of land forms, wind deflation, coastal erosion and deposition, modification of the atmosphere, ultration process in eco and energy systems.

Unit 5
Obstacles in sustainable development
Pollution growth, species extinction, restriction of bat lands, desertification, soil erosion, soil pollution, characterisation of contaminated soil, global warming and ozone depletion etc.

Name of Text Books:
Energy and environment – Fowler (McGraw Hill, New Delhi)
Restoration Ecology and sustainable development – Krystyna M. Urbanska et.al. (Cambridge University Press, U.K.)

Name of Reference Books:
Reuniting Economy and Ecology in Sustainable Development – Russ Beaton et.al. (-----)
Theory and implementation of economic models for sustainable development – Jeroen C.J.M. Van Den Bergh (------------)
Economy and Ecology: Towards sustainable development – F. Archibugi et.al. (--------)
Evaluating Sustainable Development: Giving People a voice in their destiny – Okechukwu Ukaga et.al. (-------)
Unit I

Unit II

Unit III

Unit IV

Unit V

Name of Text Books:
1. John A Duffie & William A Beckman: Solar Energy Thermal processes Wiley Inter science publication

Name of Reference Books:
UNIT I:

UNIT II:

UNIT III:

UNIT IV:

UNIT V:

Text Books:

Reference Books: