### Scheme of teaching and examination

**B.E. VIII Semester Information Technology**

<table>
<thead>
<tr>
<th>S.N.o</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>1</td>
<td>Info. Technology</td>
<td>333811(33)</td>
<td>Enterprise Resource Planning</td>
<td>3 1 -</td>
<td>80 20 20</td>
<td>120 4</td>
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<tr>
<td>2</td>
<td>Computer Sc. Engg.</td>
<td>322812(22)</td>
<td>Data Mining &amp; Warehouse Housing</td>
<td>4 1 -</td>
<td>80 20 20</td>
<td>120 5</td>
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<td>3</td>
<td>Info. Technology</td>
<td>333813(33)</td>
<td>Design of Unix Operating System</td>
<td>3 1 -</td>
<td>80 20 20</td>
<td>120 4</td>
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<tr>
<td>4</td>
<td>Refer Table-3</td>
<td></td>
<td>Professional Elective-3</td>
<td>4 - -</td>
<td>80 20 20</td>
<td>120 4</td>
<td></td>
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<tr>
<td>5</td>
<td>Refer Table-4</td>
<td></td>
<td>Open Elective - 4</td>
<td>4 - -</td>
<td>80 20 20</td>
<td>120 4</td>
<td></td>
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<tr>
<td>6</td>
<td>Info. Technology</td>
<td>322821(33)</td>
<td>Simulation Lab</td>
<td>- - 3</td>
<td>40 - 20</td>
<td>60 2</td>
<td></td>
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<tr>
<td>7</td>
<td>Info. Technology</td>
<td>322822(33)</td>
<td>Software Technology Lab - 5</td>
<td>- - 3</td>
<td>40 - 20</td>
<td>60 2</td>
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<tr>
<td>8</td>
<td>Info. Technology</td>
<td>322823(33)</td>
<td>Unix / Linux Lab</td>
<td>- - 3</td>
<td>40 - 20</td>
<td>60 2</td>
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<td>9</td>
<td>Info. Technology</td>
<td>322824(33)</td>
<td>Major Project</td>
<td>- - 7</td>
<td>100 - 80</td>
<td>180 4</td>
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<tr>
<td>10</td>
<td>Info. Technology</td>
<td>300825(33)</td>
<td>Report Writing &amp; Seminar</td>
<td>- - 2</td>
<td>- - 40</td>
<td>40 1</td>
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<tr>
<td>11</td>
<td>Library</td>
<td></td>
<td></td>
<td>- - 1</td>
<td>- - -</td>
<td>- - -</td>
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<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>18 3 19</strong></td>
<td><strong>620 100 280</strong></td>
<td><strong>1000 32</strong></td>
<td></td>
</tr>
</tbody>
</table>

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

### Professional Elective (Table-3)

<table>
<thead>
<tr>
<th>S.N.o</th>
<th>Board of Studies</th>
<th>Subject Code</th>
<th>Subject Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Computer Science Engg.</td>
<td>322871(22)</td>
<td>Neural Network &amp; Fuzzy Logic</td>
</tr>
<tr>
<td>2</td>
<td>Computer Science Engg.</td>
<td>322872(22)</td>
<td>Distributed Parallel Processing</td>
</tr>
<tr>
<td>3</td>
<td>Computer Science Engg.</td>
<td>322873(22)</td>
<td>Distributed Multimedia</td>
</tr>
<tr>
<td>4</td>
<td>Computer Science Engg.</td>
<td>322874(22)</td>
<td>Decision Support System</td>
</tr>
<tr>
<td>5</td>
<td>Computer Science Engg.</td>
<td>322875(22)</td>
<td>Wireless Networks</td>
</tr>
<tr>
<td>6</td>
<td>Computer Science Engg.</td>
<td>322876(22)</td>
<td>Real Time Systems</td>
</tr>
<tr>
<td>7</td>
<td>Computer Science 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.N.</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 Technolgy</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 Technolgy</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>Bio Informatics</td>
</tr>
<tr>
<td>11</td>
<td>Mechanical Engg.</td>
<td>300891(37)</td>
<td>Energy Conversation &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>Mech. Engg.</td>
<td>300894(37)</td>
<td>Value Engineering</td>
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<tr>
<td>15</td>
<td>Civil Engg.</td>
<td>300895(20)</td>
<td>Disaster Management</td>
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<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>
</tr>
<tr>
<td>19</td>
<td>Elect. Engg.</td>
<td>300899(24)</td>
<td>Energy Auditing and Management</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.
Unit-I Overview and Concepts:
Need for data warehousing, Basic elements of data warehousing, Trends in data warehousing. Planning And Requirements: Project planning and management, Collecting the requirements. Architecture And Infrastructure: Architectural components, Infrastructure and metadata.

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.

Unit-IV Data Mining Introduction:

Unit-V Web Mining:
Content Mining, Web Structure Mining, Web Usage mining. Advanced Topics: Spatial mining, Temporal mining. Visualisation : 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 databasesData Mining Primitives, Languages, and System Architectures: Data mining primitives, Query language, Designing GUI based on a data mining query language, Architectures of data mining systems Application and Trends in Data Mining: Applications, Systems products and research prototypes, Additional themes in data mining, Trends in data mining

Text Books:
Prabhu,Data ware housing- concepts, Techniques, Products and Applications, Prentice hall of India
Soman K P, “Insight into Data Mining: Theory & Pratice”, Prentice hall of India
M.H. Dunham, “Data Mining Introductory and Advanced Topics”, Pearson Education.

Reference Books:
Gupta, “Introduction To Datamining with Case Studies”, PHI
IBM, “Introduction to Building The Datawarehouse” PHI
UNIT - I Overview of Business Functions:
Business function in an organization, material management, scheduling, shop floor control. Forecasting, accounting & finance, human resources, productivity management.

UNIT - II Typical Business Processes:
Core processes, product control, sales order processing, purchase, administrative process, human resource, finance support processes, marketing, strategic planning, research & development problems in traditional functional view. Need for integrated process view, information as a resource, motivation for ERP.

UNIT – III Evolution of Information System:
EDP (electronic data processing) system, management information systems (MIS), executive information systems, information needs of organization, ERP as an integrator of information needs at various levels, decision making involved at the above level.

UNIT – IV Erp Models /Functionality:
Sales order processing, MRP, scheduling, forecasting, maintenance, distribution, finance, features of each of the models description of data flows across module, overview of the supporting databases, technologies required for ERP.

UNIT – V Implementation Issues:
Pre Implementation issues, financial justification of ERP, evaluation of commercial software during implementation issues, reengineering of various business process, education & training, project management, post implementation issues, performance measurement.

Text Books
1. V.K. Garg & N.K. Venkatkrishnan ; ERP, concepts & practices, PHI.
2. S. Sadagopan : MIS, PHI

Reference Books:
1. V. Rajaraman : Analysis & Design of Information Systems, PHI
2. K. M. Hussain & D. hussain ; Information systems, Analysis, Design & Implementation, TMH.
3. MONAK & BRADY : Conceptss in ERP, vikas pub. Thosmson
4. J. Kanter : Managing with information, PHI
UNIT-1 Introduction:
Introduction to multi-user system, history of UNIX, features & benefits, versions of UNIX, Unix file system, concept of inode table, links, commonly used commands like who, pwd, cd, mkdir, rm, rmdir, ls, mv, ln, chmod, cp, grep, sed, awk, tr, yacc etc. getting started (login/logout)
Vi editor: Introduction to text processing, command& edit mode invoking vi, deleting &inserting line, deleting &replacing character, searching for strings, yanking, running shell command macros, set window, set auto indent, set no., introduction to .exrc file.

UNIT-2 Introduction to Shell Scripts & Awk Programming:
Bourne shell, C shell, shell variables, scripts, Meta characters and environment, if and case statements, for while and until bops., Awk pattern scanning and processing language, BEGIN and End patterns, AWK arithmetic and variable built in variable names and operators, arrays, strings.

UNIT-3 General Overview of the System:
System structure, user perspective, O/S Services assumption about Hardware, The kernel and buffer cache architecture of Unix O/S, System concepts, Buffer headers, Structure of the buffer pool, scenarios for retrieval of the buffer, Reading and writing disk Blocks, advantage and disadvantage of buffer cache.

UNIT-4 Internal Representation of Files System Calls for the System:
INODES, structure of regular Directories, conversions of a path name to an inode, super block, inode assignment to a new file, allocation of disk blocks. OPEN, READ WRITE, CLOSE, file and record locking, File creation, Operation of special files, change directory and change root, change owner and change mode, STAT and FSTAT, PIPES, Mounting and unmounting files system, Link, Unlink.

UNIT-5 Structures of Processes and Process Control:
Process states and transitions layout of system memory, the context of a process, manipulation of process address space, sleep process creation/termination,. The user ID of a process, changing the size of a process. The SHELL.

Text Books:
1. Design of Unix O.S. , Maurice Bach, Prentice Hall of India.

Reference Books:
3. Unix Bible, Lepage, Yves & Iarrera, Paul, IDG Books, India
UNIT-1 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 Feedforward Networks, Recurrent Networks, Topologies.

UNIT-2 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-3 A Survey of Neural Network Models:

UNIT-4 Applications:

UNIT-5 Neural Fuzzy Systems:
Introduction to Fuzzy sets, operations, relations, Examples of Fuzzy logic, Defuzzyfication, 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 Rajshekarans & Pai, Prentice Hall

Reference Books:
1. Neural Networks by James A. Freeman and David M. Strapeluns, 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, Signalling,Sending, receiving, Group Operations, Starting PVM, Compiling PVM Application, PVM Console Commands.

UNIT-III
Distributed Computing-Ill- 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 & References
1) Multimedia system design : Prabhat K. Andleigh, Kiran Thakrar
3) Data And Computer Communication by " William Stallings
CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI (C.G.)

Semester: VIII
Subject: Decision Support System
Total Theory Periods: 40
Total Marks in End Semester Exam: 80.
Minimum number of class tests to be conducted: 02.

Branch: Information Technology
Code: 322874(22)
Total Tutorial Periods: Nil

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 Book

Reference Book
2. V.S.Janakiraman and K.Sarukesi, Decision Support Systems, PHI
CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, 
BHILAI (C.G.)

Semester: VIII 
Subject: Wireless Networks. 
Total Theory Periods: 40 
Total Marks in End Semester Exam: 80. 
Minimum number of class tests to be conducted: 02.

Branch: Information Technology 
Code: 322875(22) 
Total Tutorial Periods: Nil 

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

TEXTBOOK
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
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:
Basic Buffer size Calculation, Classical Queuing Theory, Little’s Law, Faults, Failures, bugs AND effects, Reliability, Testing, Fault Tolerance, Classification of Architectures, Distributed Systems, Non Von Neumans Architectures

Unit-V Hardware/ Software Integration, Real Time Applications:
Goals of Real Time System Integration, Tools, Methodology, The Software Hesisenberg Uncertainty Principle, Real Time Systems As Complex System, First Real Time Application Real Time Databases, Real time Image Processing Real Time UNIX, building Real Time Applicaions with Real Time Programming Languages

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: 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


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


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, Dayaal D P Dominant publisher
4. Frauds & Financial crioues in Cyber space, Barna Y, Dayal D P, Dominant publisher
5. Information Security, NIIT: PHI
Suggested List of Experiments (but should not be limited to):

1. Write shell script for the following
   It should display menu for following
   ✔ Display file contents with line number
   ✔ Display the file contents with page break
   ✔ Quit.
2. Write a shell script for accepting the following information and storing in file.
   i) customer name
   ii) item description
   iii) quantity
   iv) rate
   the user should get the facility to enter as many record as he wants.
3. Calculate factorial value of any number using awk command.
4. Write awk command to count the number of times each word occurs in a sorted list containing one word per line.
5. Suppose we have table with following structure
   item name no. of item sold, cost/item. write a shell script that will display
   i) Total no. of item sold
   ii) Total cost of individual item
   iii) Total cost of all item
6. Write c shell shell script to check the no is prime or not
7. Find greatest among three no. using c-shell script
8. Write interactive shell script to copy the contents of one file to another
9. Display the output of ls-l command in user friendly way.
10. Write a shell script to search a word in list of file . two arguments will be used ,one will contain words to searched and another will contain name of files.
11. Write menu driven shell script to execute 5 basic command of unix
12. Write shell script to check whether the string is vowel
   i) 'unix' or 'UNIX
   ii) it is two character long
13. Write shell script to perform following for each file of current directory
   iii) delete a file if its extension is .old
   iv) copy a file if its extension is .c
   v) move a file if its extension is .Cobol
   vi) display the contents of file if it has read permission
14. Delete one of one file if two file are similar, if not display proper message. write shell Script using command line argument ,without command line argument.
15. Write shell script to generate multiple answer type question .
Objective is to study and learn to use some of the following or any other Frameworks / Specifications:

1. Struts from Apache
2. JSF from SUN
3. ADF from Oracle
4. MyFaces from Apache
5. J2EE Blueprints
6. Hibernate/Trinidad
CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI (C.G.)

Semester: VIII                  Branch: Information Technology.
Subject: Simulation Lab               Practical Code: 322821(33)
Total Practical Periods: 3 per week.
Total Marks in End Semester Exam: 40.

Simulation Lab can be performed using MATLAB, COMMSIM, MULTISIM or in any other tool / language.

Following is a suggested list of experiments to be performed using MATLAB.

**Exercise 1:** Find the value of the following expressions for \( x = 2 \) and \( y = 9 \). Comment on the accuracy of the results obtained with MATLAB as compared to what you get from a pocket calculator.

<table>
<thead>
<tr>
<th>Mathematical Expression</th>
<th>MATLAB Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ( x + 2y - 3(y-x) )</td>
<td>( x + 2<em>y - 3</em>(y-x) )</td>
</tr>
<tr>
<td>2. ( 2x^3 + 5/x^5 )</td>
<td>( 2*x^3 + 5/x^5 )</td>
</tr>
<tr>
<td>3. ( 5x^{1/3} + 9y^{0.173} )</td>
<td>( 5<em>x^(1/3) + 9</em>y^(0.173) )</td>
</tr>
<tr>
<td>4. ( 3\tan(x)/(1+\sin^2(x)) )</td>
<td>( 3*\tan(x)/(1+(\sin(x))^2) )</td>
</tr>
</tbody>
</table>

**Exercise 2:** The surface area of a sphere is given by \( S = 4\pi r^2 \), where \( r \) is the radius. Use MATLAB to compute the radius of a sphere having the surface area 25% greater than that of a sphere of radius 5 meters. Write all the codes necessary to solve above into an M-file named 'sph.m' and store this file into a directory C:\Work. It is desired that this code is executed if you type \texttt{sph} on the MATLAB command prompt as shown below

\texttt{>> sph}

How can it be done?

**Exercise 3:** A vector in MATLAB refers to a single dimensional array. Do the following exercises using MATLAB:

(a) Create a vector \( y \) having a regular spacing of 0.25 between the values 3 and 11, using the colon notation ( : ) and then using \texttt{linspace} command.

(b) Create a vector \( z \) having 20 regularly spaced values starting at -5 and ending at 5, using the colon notation ( : ) and \texttt{linspace} command.

(c) Create a vector \( u \) having 50 logarithmically equally spaced values starting at 10 and ending at 1000.

**Exercise 4:** Solve the following system of equations:

\[
\begin{align*}
4p + 2q + 3r + 2s &= 21 \\
3p + 2q + 4r + s &= 18 \\
2p + q + 3r + 4s &= 18 \\
2p + 2q + 3r + s &= 15
\end{align*}
\]

**Exercise 5:** The \((n+1)^{th}\) term in a Fibonacci series is given by:

\[
T_{n+1} = \frac{1}{\sqrt{5}} \left[ \left( 1 + \frac{\sqrt{5}}{2} \right)^n - \left( 1 - \frac{\sqrt{5}}{2} \right)^n \right], \quad n = 0, 1, 2, 3, \ldots
\]

Display the first 10 terms of the series and find out the sum.

**Exercise 6:** Matrix \( A \) is given as:

\[
A = \begin{bmatrix}
11, & 12, & 13, & 14; & 21, & 22, & 23, & 24; & 31, & 32, & 33, & 34; & 41, & 42, & 43, & 44
\end{bmatrix}
\]

Do the following operation on the same:

i. Interchange the first and 4\(^{th}\) rows

ii. Interchange the 2\(^{nd}\) and 3\(^{rd}\) columns
iii. Interchange the second row with the second column; you are allowed to use more than one line of code, if necessary.

iv. Reset all the elements with odd row and column numbers to zero; rest of the elements must remain unchanged.

v. Rearrange all the columns of the matrix A with their order changed to the sequence: 3, 1, 4, 2 (Ans: \( P = A(:, [3 \ 1 \ 4 \ 2]) \))

vi. What will be the result of the following operation? Why?

\[
>> P = A([1 \ 3 \ 4 \ 2], [3 \ 1 \ 4 \ 2])
\]

**Exercise 7:** Roots of polynomials appear in many engineering applications. Find the real root of the polynomial equation:

\[
4x^5 + 3x^4 - 95x^3 + 5x^2 - 10x + 80 = 0
\]
in the range \(-10 \leq x \leq 10\) by plotting the polynomial.

**Exercise 8:** Obtain graphically an approximate value of the roots of the following equation:

\[x = \sin(x) + p/2\]

**Exercise 9:** Plot the function \(y = e^{5t} - 1\) with the following plot annotation:

i. Set the x-axis and y-axis tic labels with font size of 10 points

ii. Write the x-label and y-label in the font-type Arial with italics faces.

iii. Write the equation \((y = e^{5t} - 1)\) as a label adjacent to its plot.

**Exercise 10:** A complex function \(f(t)\) is defined by the equation:

\[f(t) = (3 - 2.5j) t - 5.5\]

Plot the amplitude and phase of the function as subplot for \(0 \leq t \leq 5\).

**Exercise 11:** An electricity board charges the following rates to domestic users to discourage large consumption of energy:

- For the first 100 units – 40 paise per unit
- For the next 200 units – 50 paise per unit
- Beyond 300 units – 60 paise per unit.

All users are charged a minimum of Rs. 200. If the bill amount so estimated is more than Rs.250, then an additional surcharge of 15% (of bill amount) is added. Write a program to read number of units consumed and print the total electricity bill.

**Exercise 12:** Write the MATLAB script that checks whether a number entered by the user is a perfect number or not. (A perfect number is the one whose all the divisors sum up the number itself. For example, number 28 is a perfect number as \(1+2+4+7+14=28\)).

**Exercise 13:** Consider the evaluation of the function \(\log\left(\frac{1}{1+x}\right)\). When \(x > 1\) the argument will be non-positive and "invalid". Create a function invlog.m using an if-construct that will evaluate the function and print either its value or an error message indicating the input is out of range.

**Exercise 14:** Write a function cubert that accepts an argument \(x\) and computes \(\sqrt[3]{x}\). Your function should work with vector argument in addition to scalar argument, just as built-in MATLAB functions like \(\text{sqrt}\). For example, \(\text{cubert}([8\ 64])\) should return a vector of the cube roots of 8 and 64.
CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI (C.G.)

Semester: VIII
Subject: MAJOR PROJECT
Total Practical Periods: 7 per week.
Total Marks in End Semester Exam: 100.

Guideline

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 counseling 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>
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<tbody>
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</tbody>
</table>

Name of HoD
Signature of HoD

Signature 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-1
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:
1. V.K. GARG & N. K. VENKATKRISHNAN:, ERP, Concepts and Practices, PM
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

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


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)
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, Crativity, 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:
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, OtherTechniques, Situational AnalysisDesign 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
Semester: VIII
Subject: Software Technology
Total Theory Periods: 4 per week.
Total Marks in End Semester Exam: 80.
Minimum number of class tests to be conducted: 02.

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; Checkpointing & 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.
Catherie 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.
CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY BHILAI  
(C.G.)

Semester: VIII  
Subject: Safety Engineering  
Total Theory Periods: 50  
Total Marks in End Semester Exam: 80  
Minimum number of class tests to be conducted: 2

UNIT – I
Safety Philosophy and principles of Accident prevention
Introduction, accident, injury, unsafe act, unsafe condition, reportable accidents, need for safety, breakdown 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
CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI (C.G.)

Semester: VIII                  Branch: Common to All Branches
Subject: Bioinformatics       Code:  300890 (22)
Total Theory Periods: 4 per week.                       Total Tut Periods: Nil.
Total Marks in End Semester Exam: 80.
Minimum number of class tests to be conducted: 02.

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
Computer Aided Drug Design-Introduction, Drug Design Approaches, Designing methods, ADME-Tox
Property Prediction.

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:
2. Kumar K, Cyber law, intellectual property and ecommerce 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)
Chhattisgarh Swami Vivekanand Technical University, Bhilai

Semester: VIII
Subject: Construction Management
Total Theory Periods: 40
Total Marks in End Semester Exam: 80
Minimum number of class tests to be conducted: 2

Branch: Common to All Branches
Code: 300896 (20)
Total Tutorial Periods: 12

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-Build-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

Unit 4
Labour, Material and Equipment Utilization

Unit 5
Cost Estimation

Name of Text Books:
Project Mangement: 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, Massachusetts Institute of Technology, 2000)
Unit 1
Nature of ecology and sustainable development
Definition, scope of ecology an 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:
Chhattisgarh Swami Vivekanand Technical University, Bhilai

Semester: VIII  Branch: Common to All Branches
Subject: Energy Auditing  Code: 300899 (24)
Total Theory Periods: 50  Total Tut Periods: Nil
Total Marks in End Semester Exam: 80
Minimum number of Class tests to be conducted: 2

UNIT I:

UNIT II:

UNIT III:

UNIT IV:

UNIT V:

Text Books:

Reference Books: