<table>
<thead>
<tr>
<th>S.No.</th>
<th>Board of Study</th>
<th>Subject Code</th>
<th>Subject</th>
<th>Periods per week</th>
<th>Scheme of Exam</th>
<th>Total Marks</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>L</td>
<td>T</td>
<td>P</td>
<td>ESE</td>
</tr>
<tr>
<td>1</td>
<td>Electrical Engg.</td>
<td>324812 (24)</td>
<td>Utilization of Electrical Energy</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>80</td>
</tr>
<tr>
<td>2</td>
<td>Electrical &amp; Electronics Engg.</td>
<td>325812 (25)</td>
<td>Management Concepts &amp; Techniques</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>80</td>
</tr>
<tr>
<td>3</td>
<td>Electrical &amp; Electronics Engg.</td>
<td>325811 (25)</td>
<td>High Voltage Engg.</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>80</td>
</tr>
<tr>
<td>4</td>
<td>Refer Table – III</td>
<td></td>
<td>Professional Elective - III</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>80</td>
</tr>
<tr>
<td>5</td>
<td>Refer Table – IV</td>
<td></td>
<td>Open Elective - 4</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>80</td>
</tr>
<tr>
<td>6</td>
<td>Electrical &amp; Electronics Engg.</td>
<td>325821 (25)</td>
<td>Utilization of Electrical Energy Lab</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>7</td>
<td>Electrical Engg.</td>
<td>325822 (25)</td>
<td>Advanced Communication Lab.</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>8</td>
<td>Electrical &amp; Electronics Engg.</td>
<td>325823 (25)</td>
<td>High Voltage Engg. Lab</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>9</td>
<td>Electrical &amp; Electronics Engg.</td>
<td>325824 (25)</td>
<td>Major Project</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>100</td>
</tr>
<tr>
<td>10</td>
<td>Electrical &amp; Electronics Engg.</td>
<td>300825 (25)</td>
<td>Report Writing &amp; Seminar</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>Library</td>
<td></td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
<td>15</td>
<td>4</td>
<td>21</td>
<td>620</td>
</tr>
</tbody>
</table>

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

---

**Tabel – 3**

### Professional Elective - III

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Board of Study</th>
<th>Subject Code</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Electronics &amp; Telecom. Engg.</td>
<td>328876(28)</td>
<td>Industrial Automation</td>
</tr>
<tr>
<td>2</td>
<td>Electrical Engg.</td>
<td>324871(24)</td>
<td>EHV AC &amp; DC Transmission</td>
</tr>
<tr>
<td>3</td>
<td>Electrical Engg.</td>
<td>324872(24)</td>
<td>Flexible AC Transmission System</td>
</tr>
<tr>
<td>4</td>
<td>Electrical Engg.</td>
<td>324875(24)</td>
<td>VLSI Design</td>
</tr>
<tr>
<td>5</td>
<td>Electronics &amp; Telecom. Engg.</td>
<td>328874(28)</td>
<td>DSP Processors &amp; Applications</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.
<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>Bio Informatics</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>
</tr>
<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>
</tr>
<tr>
<td>18</td>
<td>Chem. Engg.</td>
<td>300898 (19)</td>
<td>Non Conventional Energy Sources</td>
</tr>
<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: Electric Drives
Basic concept of electric drives, choice of electric drives, fundamental torque equation, speed torque converter and multi quadrant operation, equivalent values of drive parameters, concept of load torque, calculation of time and energy loss in transient operation, steady state stability and load equalization.

UNIT II: Control Of Electric Drives
Modes of operation, classification of drives, closed loop control of drives, current, torque speed, position etc. Controllers PI, PID, PLL, Heating and Cooling of motors, Selection of motor power rating under different loading conditions, Continuous, Short and Intermittent periodic duty, Review of torque speed characteristics of AC and DC motors.

UNIT III: AC Drives
Induction motor drives, Review of conventional method of Starting, Braking and Speed control, Voltage source inverter (VSI) and Current source inverter (CSI) fed three-phase induction motor drives, Cycloconverter fed drives, Static Kramer & Scherbius drives.
Synchronous motor drives: Speed control of synchronous motor using voltage and current source inverters, Self controlled synchronous motor drives employing load commuted thyristor inverter.

UNIT IV: Traction drives
Nature of traction load, Important feature of traction drives, Motors employed in traction, Conventional method for AC and DC traction drives control, Semiconductor converter controlled drives employing DC motors, AC motors for 25 KV AC traction.
Heating and welding: Types of electric heating, resistance ovens, Induction heating, dielectric heating, Arc furnace, Resistance welding and Arc welding.

UNIT V: Illumination & Energy Conservation

Text Books:

Reference Books:
2. “A first course on Electric drives” S K Pillai, University press.
UNIT I:
Basic management and techniques: Planning, nature purpose and objectives of planning, organizing, nature and purpose of organizing, authority and responsibility, staffing, supply of human resources, performance appraisal, controlling, system and process of controlling, control techniques.
Human resource management: nature and scope of human resource planning, training and development, recruitment and selection, career growth, absenteeism, grievances, motivation and its types, need of motivation, reward and punishment, models of motivation, leaders, types of leaders, leadership styles, roles and functions of leaders, conflict management, types and causes of conflict, group and team working, organizational design and development.

UNIT II
Marketing management: marketing environment, customer markets and buyer behavior, marketing mix, advertising and sales promotion, channels of distribution.

UNIT III
Production/operations management: planning and design of production and operations systems, facilities planning, location, layout and movement of materials, materials management and inventory control, maintenance management, PERT and CPM.

UNIT IV
Management information systems: role of information in decision making, information system planning, design and implementation, evaluation and effectiveness of the information system, statistical quality control, total quality management and ISO certificate.

UNIT V
Social and ethical issues in management: ethics in management, social factors, unfair and restrictive trade practices.
Strategic and technology management: need, nature, scope and strategy SWOT analysis, value chain concept.

Text Books:
1. Industrial management and engineering economics, K. C. Arora, Khanna Pbs.
2. Industrial engineering and production management, Martand Telsang, S. Chand
3. Industrial management and organization, Ahuja, Khanna Pbs.
4. Industrial engineering and management, O. P. Khanna, DRD

Reference Books:
1. Industrial organization and management, Ramchandran, Ramana Muthry, TMH.
2. Management science, Ramchandra, TMH.
3. Industrial engineering and production management, Mahajan, DRP.
Unit 1 - Insulation In Electrical Power System
General Characteristics of Gaseous Insulation, Basic process of ionization in a gas, Breakdown Voltage, Paschen’s Law, BDV in gases-gap between two spheres, rod plane & rod gaps, Surface discharge of solid dielectric, Corona discharge on transmission line conductor, Corona loss, methods of reducing corona, Breakdown in liquid dielectric, transformer oil testing, Breakdown in solid dielectric.

Unit 2-Line & Substation Insulation
Electrical & mechanical characteristics of insulators, materials for insulators, Types of insulators(Pin, Post, Suspension), Insulation of OH transmission line, Insulation of transformer, Generator, Cables, rotating machines, Properties of Insulation, Puncture Voltage.

Unit 3-Transient Phenomena In Power System
Sources of Over voltage single phase ground in unearthed system, Lightning discharge, Protection of equipment from lightning stroke, lightning arrestors, protection of rotating machines and substations.

Unit 4 - Generation of AC & DC High Voltages
Half Wave rectifier circuit, Voltage multiplier circuit, Van-de Graff generator, generation of impulse voltage & current, measurement of high voltage & current, impulse voltage measurement.

Unit 5- Preventive testing of Insulation
Objective & methods, measurement of tan?, capacitance, PD in insulation, Testing of bushing, Insulators, transformer, cables, rotating machine.

Text Books:
1) C.L. Wadhwa - High Voltage Engg. (2nd Ed New Age International Ltd.)
2) M.S. Naidu & V. Kamraju - High Voltage Engg. (3rd Ed Tata McGraw Hill) Title

Reference Books:
D.V. Razevig - High Voltage Engg. (Translated from Russian by M.P. Chourasia) Khanna Publishers
Unit – I

Unit – II

Unit – III

Unit – IV
Programmable Logic Controller: Evaluation of PLC, PLC Architecture, Basic Structure. PLC Programming: Ladder Diagram – Ladder diagram symbols, Ladder diagram circuits. PLC Communications and Networking, PLC Selection: I/O quantity and Type, I/O Remoting requirements, Memory size and type, Programmer Units. PLC Installation, Advantages of using PLCs.

Unit – V
Distributed Control System: Introduction, Overview of Distributed Control System, DCS Software configuration, DCS Communication, DCS Supervisory Computer Tasks, DCS Integration with PLCs and Computers, Features of DCS, Advantages of DCS.

Text Books:
1. Process Control Instrumentation Technology, C.D. Johnson, PHI

Reference Books:
1. Introduction to Instrumentation & Control, A.K. Ghosh, Eastern Economy Edition
2. Intelligent Instrumentation, George C. Barney, Prentice Hall India
UNIT – I
Constitution of EHV AC and DC Links, Kind of DC Links, Limitations and advantages of AC and DC Transmission, Principal application of AC and DC Transmission, trends EHV AC and DC Transmission, Power-handling capacity, Converter analysis Garentz circuit, Firing control, overlapping.

UNIT – II
Extra long distance lines, Voltage profile of loaded and unloaded line along the line, Compensation of lines, series and shunt compensation, Shunt reactors, Tuned power lines, Problems of extra long compensated lines, FACT concept and application.

UNIT – III
Traveling waves on transmission systems, Their shape, attenuation and distortion, effect of junction and termination on propagation of traveling waves, Over voltages in transmission system, Lightning, switching and temporary over voltage: Control of lighting and switching over voltages.

UNIT – IV
Components of EHV dc system, converter circuits, rectifier and inverter valves, Reactive power requirements, harmonics generation, adverse effects, Classification, Remedial measures to suppress, filters, Ground return, Converter faults & protection harmonics misoperation, Commutation failure, Multi-terminal D.C. lines.

UNIT – V
Control of EHV dc system desired features of control, control characteristics, constants current control, Constant extinction angle control, Ignition angle control, parallel operation of HVAC & DC system, Problems and advantages.

Textbooks:
1. Begmudre, EHV AC Transmission.
2. Kimbark, HVDC Transmission.

Reference Books:
2. Arritilaga, HVDC Transmission.
UNIT I:
Flow of power in AC system, loading capability, controllable parameters, basic types of FACTS controllers, review of semiconductor devices (diodes, SCR’s, MOSFET’s, IGBT’s etc.)

UNIT II: Voltage Source Converters (VSC)
Basic concepts of VSC, single-phase full wave bridge converter operation, single phase-leg operation, three-phase full wave bridge converter and its operation, transformer connections for 12-pulse, 24-pulse and 48-pulse operation.

UNIT III: Current source converters (CSCs)
Basic concepts, three-phase CSCs, three-phase full wave rectifier, comparison of VSC and CSC. Static shunt compensators: basic concepts, method of controllable VAR generation, Static VAR compensator (SVC), application of SVC in power systems.

UNIT IV: Static Synchronous Series Compensator (STATCOM)
Introduction, mathematical model, working of STATCOM, V-I and V-Q characteristics, transient stability enhancement and exchange of real power using STATCOM, comparison of SVC and STATCOM, Merits of hybrid compensators.

UNIT V: Static Series Compensators
Objectives of series compensation, variable impedance type series compensation, GTO thyristor controlled series capacitors (GCSC), thyristor controlled series capacitor (TCSC), basic concepts of GCSC and TCSC. Introduction to Unified Power Flow Controller (UPFC)

Text Books:
1. Understanding FACTS by Hingorani.
2. Thyristor controlled FACTS devices, Mathur

Reference Books:
1. FACTS for Transmission lines, Song, Yu.
Chhattisgarh Swami Vivekanand Technical University, Bhilai (C.G.)

Semester: 8th  
Branch: Electrical & Electronics Engg. and Electrical Engg.

Subject: VLSI Design  
Code: 324875 (24)

Total Theory Periods: 40  
Total Tut Periods: 12

Total Marks in End Semester Exam: 80  
Minimum number of Class tests to be conducted: 2

UNIT – I
Introduction to Integrated Circuits: SSI, MSI and LSI. VLSI Design flow, Design hierarchy concept of regularity, Modularity and Locality, VLSI design styles with FPGA and CPLD.

UNIT – II
Design Aspects: Standard cell based design, Basic steps of fabrication process of PMOS, CMOS and Bi-CMOS, layout design rules, CMOS lay out design rules, Lay out of CMOS inverter, NAND Gate, NOR Gate, Full Adder, Calculation of resistance and capacitance.

UNIT – III
Layout Design: Lay out design of RAM, ROM, PLA Decoder, MUX, 4bit Adder, Comparator, Combinational and Sequential Logic.

UNIT – IV
Combinational Logic Design: Introduction to VHDL and Verilog, Introduction to CAD Tools, Power dissipation in Logic gates entity, Signal Architecture, Configuration and Definition, Operators, Data Types, Generic, Generate loops, Data flow, Structural and behavioral programming, process, Procedure, Component in VHDL and Verilog, Libraries, Case Statement..

UNIT – V
Sequential Logic Design: Sequential design by VHDL and Verilog FSM, Bus structure in VHDL, Test bench Synthesis, Operator overloading, Blocks, Delays, Verifications..

Recommended books:
2. VHDL Programming by Perry, TMH Pub.

Reference Books:
UNIT – I

Instruction Set and Architecture of DSP Processor: Computational characteristics of DSP algorithms and applications: their influence on defining a generic instruction-set architecture for DSPs.

UNIT – II

Architectural Requirement of DSPs: High throughput, low cost, low power, small code size, embedded application techniques for enhancing computational throughput; parallelism and pipelining.

UNIT – III

Data-path of DSPs: multiple on-chip memories and buses, dedicated address generator units, specialized processing units. Hardware multiplier, ALU, Shifter and on-chip peripherals for communication and control.

UNIT – IV

Control Unit of DSPs: Pipelined instruction execution, specialized hardware for zero-overhead looping, Interrupts. Architecture of Texas instruments fixed-point and floating-point DSPs, Brief description of ADSP 218X/2106X DSPs, Programmer’s model.

UNIT – V

Advanced DSPs: TI’s 320C6X, ADI’s Tiger-SHARC, Lucent technologies’ DSP 16000 VLIW processors. Applications: a few case studies of application of DSPs in Communication and Multimedia.

Text Books:

Reference Books:
1. Digital Signal Processing in VLSI, R.J. Higgins
2. Texas Instruments TMSC5X, C54X and C6X Users manuals.
CHHATISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI (C.G.)

Semester: 8th
Subject: Utilization of Electrical Energy Lab
Total practical periods: 50
Total Marks in end Semester Exam: 40

List of Experiments: (To be performed minimum 10 experiments)

- To derive the transfer function of an armature controlled separately exited dc motor and to verify how the change in applied voltage affects the motor speed by simulator.
- To derive the transfer function of a field controlled separately excited dc motor and to verify how the change in field current affects the motor speed by simulator.
- To study the different types of dc motor binding.
- To study the speed control of separately excited dc motor using proportional control and turbo feedback.
- To study the speed control of separately excited dc motor using proportional integral controllers.
- To study the binding methods of three phase induction motor.
- To study the performance of V S I fed three phase induction motor using spwm technique keeping voltage / frequency constant using simulator.
- To study the speed control of a three phase induction motor using static voltage controllers for (1) constant $T_{in}$, (2) $T_{in}=k T^2$
- To analyze the speed control of a three phase wound rotor induction motor using external capacitor on rotor side.
- To study frequency control synchronous motor drive.
- To Study the heating time constant for a short time duty motor.
- To Study the heating time constant for a controls duty motor.
- To study the cooling time constant for an intermittent duty motor.
- To study the cooling time constant for a short time duty motor.

Reference Books:

Chhattisgarh Swami Vivekanand Technical University, Bhilai

Semester: 8th Branch: EEE
Subject: Advanced Communication Lab Code: 325821 (25)
Total practical periods: 36
Total Marks in end Semester Exam: 40

List of Experiments:
- To perform experiment with delta modulation techniques and to study the waveforms.
- To perform experiment with adaptive delta modulation techniques and to study the waveforms.
- To study Signal sampling and reconstruction techniques.
- To study the effect on reconstructed waveform of the use of sample / hold circuit.
- To study the TDM Pulse Amplitude Modulation / Demodulation & to draw their waveforms.
- To study Time Division Multiplexing [Pulse Code Modulation /Demodulation]
- To study ASK Modulation.
- To study FSK Modulation.
- To study PSK Modulation.
- To study ASK Demodulation.
- To study FSK Demodulation.
- To study PSK Demodulation.
- To study Data Conditioning techniques.
- To study Data Reconditioning circuit.
- To generate any code using digital circuits.

List of Equipments/Machine Required:
Communication Trainer Kits, Function Generator, Power Supply, CRO, Discrete Components.

Recommended Books:
List of Experiments

1. To calibrate the voltmeter of high voltage control panel with the help of standard sphere gap.
2. To determine the corona starting voltage for
   a) rod-plane gap
   b) rod-sphere gap
3. To study & determine breakdown strength of cable (11KV).
4. Study & determination of breakdown voltage of rod & rod gap.
5. To test “One minute with stand voltage” or transformer oil.
6. To test power frequency breakdown strength of solid insulating materials.
   a) Paper
   b) Presspan
   c) Bakelite
7. To determine flash over voltage of 11 KV Disc insulation.
8. To find the string efficiency of a string of 11KV insulator disc.
9. To study impulse generator & obtained standard impulse voltage wave.

List of Equipment Required:

1. Oil Testing Machine (Min. 60 KV)
2. High Voltage variable supply 0 to 60 KV (A.C.)
3. Measuring Instruments
4. Megger 5 KV
Chhattisgarh Swami Vivekanand Technical University, Bhilai (C.G.)

Semester: 8th
Subject: Major Project
Total Practical Periods: 72
Total Marks in End Semester Examination: 100

Major guidelines:

?? The students are expected to take up a Project under the guidance of a faculty from the Institute. This may be an extension of the Minor project undertaken in VII semester or a new one.

?? The topic of the project should be justified for the degree of BE (Electronics & Telecommunication).

?? The project selected should ensure the satisfaction of the urgent need to establish a direct link between education, industrial application, national development and productivities.

?? The students may be asked to work individually or in a group having not more than FOUR students.

?? The student/group of student should collect all necessary information from literature on selected topic/project.

?? It should include the scope of project, identification of necessary data, source of data, development of design method and identification, methodology, software analysis (if any).

?? Students should deliver a seminar on the selected Project/topic.

?? The students are expected to submit the report in standard format approved by the University in partial fulfillment of the requirement for the degree of B.E. (Electronics & Telecommunication).

?? There will be an external viva-voce at the end of the semester and the students are to demonstrate the project at the time of viva-voce.

?? The project report should contain the following:

☞ A cover page mentioning the project title, names of the students, Affiliated Institute/College, Session, Batch and the name of the University.
☞ A bonafide certificate to be issued by the Head of the Institute.
☞ A forwarding certificate from the Head of the Department.
☞ A completion certificate from the Project guide.
☞ A certificate of Approval from both Internal and External Examiner.
☞ Acknowledgement from the students
⇒ Abstract
⇒ Contents
⇒ Description of the Project (to be divided in chapters)
⇒ Conclusion
⇒ Bibliography
⇒ A CD containing the Software/Program used in the project.
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:
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
[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:
2. Tarek Khalil, “Management of Technology”, Mcgraw Hill.

Reference Books:
1. Lowell Steele, “Managing Technology”, Mcgraw Hill.  
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:

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
CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI
(C.G.)

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.

Branch: Common to All Branches.
Code: 300885 (22)
Total Tut Periods: Nil.

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
CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI
(C.G.)

Semester: VIII  Subject: Knowledge Entrepreneurship
Total Theory Periods: 40  Code: 300886 (36)
Total Marks in End Semester Exam: 80  Total Tut Periods: 12
Minimum no. of class tests to be conducted: 2

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.

UNIT II
Working capital management-nature, need, importance and concept of working capital, trade off between profitability and risk, Determining finance mix.

UNIT III
Inventory management-Introduction, objectives, ordering cost, carrying cost, lead time, economic order quantity and safety stock, deterministic model.

UNIT IV
Management of cash-introduction motives for holding cash, objectives of cash management and technique/process of cash management.

UNIT V
Receivables management-introduction, objectives, credit terms, credit policies and collection policies.

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, 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

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
E nergy 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
E nergy Conservation in Electric Utility and Industry

UNIT – III
E nergy in Manufacturing

UNIT – IV
H eat Recovery System

UNIT – V
E nergy 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
1. Energy Management – W.R. Murphy, G. Mckay
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 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
Semester: VIII Engineering Code: 300894 (37)
Total Theory Periods: 50 Total Tutorial Period: 12
Total Marks in End Semester Exam: 80
Minimum number of class tests to be conducted: 2

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)
Earth quake 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-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. (--- ----)
CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C.G.)

Semester: VIII  Branch: Common to All Branches
Subject: Non Conventional Energy Sources  Code : 300898 (19)
Total Theory Periods: 50  Total Tutorial Periods: 00
Total Marks in End Semester Exam: 80
Minimum number of class tests to be conducted: 02

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: