Mandsaur University

Subject Code: - ELE150
Subject Name: - Utilization of Electrical Energy
Semester: - V

L	T	P	C
4	-	-	4

Course Objective:
This subject gives a comprehensive idea of utilization of electrical power in illumination, electric heating, electric welding and electric traction, refrigeration, air-conditioning, vacuum cleaner, electric water heater etc.

Unit-I: Illumination
Nature of light, visibility spectrum curve of relative sensitivity of human eye and wave length of light, definition: Luminous flux, solid angle, luminous intensity, illumination, luminous efficiency, depreciation factor, coefficient of utilization, space to height ratio, reflection factor, glare, shadow, lux, laws of illumination – simple numerical, lighting calculations: solid angle, inverse square and cosine laws, main requirements of proper lighting: absence of glare, contrast and shadow, general ideas about street lighting, flood lighting, monument lighting and decorative lighting, light characteristics etc.

Unit-II: Heating
Advantages of electrical heating, heating methods: resistance heating - direct and indirect resistance heating, electric ovens, their temperature range, properties of resistance heating elements, domestic water heaters and other heating appliances, induction heating - principle of core type and coreless induction furnace, electric arc heating - direct and indirect arc heating, construction, working and applications of arc furnace, dielectric heating, applications in various industrial fields, infra-red heating and its applications, microwave heating.

Unit-III: Welding
Advantages of electric welding, welding method, principles of resistance welding, types – spot, projection seam and butt welding, principle of arc production, electric arc welding, characteristics of arc, carbon arc, metal arc, hydrogen arc methods and their applications, power supply requirement, advantages of using coated electrodes, comparison between AC and DC arc welding, welding of aluminum and copper.

Unit-IV: Traction
Special features of traction motors, selection of traction motor; different system of electric traction and their advantages and limitations, mechanics of train movement: simplified speed time curves for different services, average and schedule speed, tractive effort, specific energy consumption, factors affecting specific energy consumption.

Unit-V: Domestic Electrical Appliances

Working of various domestic electrical appliances: electric iron, electric toaster, electric water heater, microwave oven, fans (ceiling and table fan), washing machine, grinder/ mixer/ juicer, vacuum cleaner, air conditioner, concept of star system for energy conservation.

Course Outcomes:

- Student will be able to design illumination systems for various applications.
- Able to discuss about electric heating and welding.
- Able to discuss energy consumption in domestic electrical appliances.
- Able to figure-out the different schemes of traction systems and its main components.

Reference Books:

1. Open Shaw,Taylor, Utilization of electrical energy., Orient Longmans, 1962.
2. H. Pratap, Art and Science of Utilization of Electrical Energy.
3. Gupta, J.B., Utilization of Elect. Energy, Katariya and sons, New Delhi.
4. Garg, G.C., Utilization of Elect. Power and Elect. Traction.
5. N V Suryanarayan, Utilization of Elect. Power including Electric Drives and Elect. Traction, New Age International.
6. Hancok N N, Electric Power Utilisation, Wheeler Pub.

Mandsaur University

Subject Code: - ELE190
Subject Name: - Digital Electronics
Semester-V

L	T	P	C
2	1	2	4

Course Objectives:

- To study various number systems and to simplify the mathematical expressions using Boolean functions – simple problems.
- To introduce the fundamentals of digital circuits, combinational and sequential circuit.
- To study implementation of combinational circuits
- To study the design of various synchronous and asynchronous circuits.

Unit-I: Number System, Codes & Basic Logic Gates Number systems and their inter-conversion, Binary Arithmetic (Addition, Subtraction, Multiplication and Division), Weighted, Non Weighted codes, BCD codes, Excess-3 code, Gray code, Hamming code, error detection. Complements 9's &10's, Subtraction using 1's & 2's complements, ASCII code, EBCDIC Codes. Logic gates: AND, OR, NOT, Exclusive-OR, NAND, NOR gates, their block diagrams and truth tables.

Unit-II: Boolean Algebra & Simplification of Boolean Functions:: Boolean Algebra, Basic Theorems and properties of Boolean Algebra, Boolean Functions, Simplification of Boolean function using Boolean algebra, Theorems of Boolean algebra. Logic diagrams from Boolean expressions and vica-versa. Converting logic diagrams to universal logic, Representation of logic functions,

Unit-III: Combinational Logic Circuits, Canonical and Standard Forms (Minterms & Maxterms), Sum of Minterms & Product of Maxterms, Conversion Between Canonical Forms, Simplification using Karnaugh map: Two, Three and Four variable functions, NAND and NOR implementation, Adders, Subtractors, Multiplexers and Demultiplexers, Encoders and Decoders, Code Converters, Binary Parallel Adder, Decimal Adder, Parity Checker and Magnitude Comparator. Binary to Gray decoder, BCD to decimal, BCD to 7-segment decoder.

Unit-IV: Sequential Logic Circuits: Introduction of Sequential Circuits, Latches, Flip-Flops, S-R FF, J-K FF, D FF, T FF, Edge Triggered Flip Flop, Master Slave Flip Flop, Triggering of Flip-Flops, Analysis of Clocked Sequential Circuits, State Reduction and Assignment, Flip-Flop Excitation Tables,

Unit-V: Counters and of Registers: Asynchronous and Synchronous Counter, Counters with MOD Numbers, Down Counter, UP/DOWN Counter, Propagation Delay in Ripple Counter, Programmable Counter, Pre-settable Counter, BCD Counter, Cascading, Counter Applications, Decoding in Counter, Decoding Glitches, Ring Counter, Johnson Counter, Rotate Left & Rotate Right Counter. Definition of Register, Shift Register, Buffer Register with their timing diagrams and truth tables.

Course Outcome:

After learning the course, the students should be able to explain about digital number systems and logic circuits. The student should be able to solve logic function minimization. The students should be able to differentiate between combinational and sequential circuits such as decoders, encoders, multiplexers, demultiplexers, flip-flops, counters, registers. digital circuits.

Reference Books:

1. M. Mano; Digital design; Pearson Education Asia
2. Jain RP; Modern Digital Electronics; TMH
3. M. Mano; Digital Logic & Computer Design; PHI
4. Tocci ; Digital Systems Principle & Applications; Pearson Education Asia
5. Gothmann; Digital Electronics; PHI
6. R. H. Gour; Digital Electronics and Micro Computer
7. Malvino, Leech; Digital Principles and Applications
8. S. Salivahanan; Digital Circuits and Design; Vikas Publishing House PVT. LTD.
9. A.K. Maini; Digital Electronics: Principles and Integrated Circuits; Wiley India Publications

List of Experiments

1. To study operation of all Logic Gates.
2. To study the NAND & NOR Gates as Universal Gates.
3. To prove Demorgan's theorem.
4. To study Binary to Gray code conversion & Gray to Binary code conversion.
5. To study Binary to Excess -3 code conversion.
6. To study Binary adder/ Subtractor
7. To study Encoder/Decoder (8 to 3 line Encoder,3 to 8 line Decoder)
8. To study Multiplexer / Demultiplexer (4 to 1 line Mux,1 to 4 line Demux.)
9. To study Flip –Flops (R-S,J-K & T Type Flip –Flops)
10. To study 4 bit Shift Register
11. To study 4 bit Synchronous Binary Counter.
12. To study 4 bit Binary Ripple Counter
13. To study ODD parity Generator & Even parity Generator.

Mandsaur University

Subject Code: - ELE170
Subject Name: - Control System
Semester:-V

L	T	P	C
2	1	2	4

Course Objectives:
This course is aimed to introduce the students about:

- Principles and applications of control systems in every day life.
- The basic concepts of block diagram reduction techniques, time domain analysis of different order control systems and solutions to time invariant systems.
- This course also deals with the different aspects of stability analysis of systems in frequency domain and time domain.

Unit-I
Introduction: Elements of control systems, concept of open loop and closed loop systems, Examples and application of open loop and closed loop systems, brief idea of various control systems used in everyday life.

Unit-II
Mathematical Modeling of Physical Systems: Representation of physical system (Electro Mechanical) by differential equations, determination of transfer function by block diagram reduction techniques and signal flow graph method, Laplace transformation function, inverse Laplace transformation.

Unit-III
Time Response Analysis of First Order and Second Order System: Characteristic equations, response to step, ramp and parabolic inputs. Transient response analysis, steady state errors and error constants. Brief idea of proportional, derivative and integral controllers.

Unit-IV
Stability and Algebraic Criteria: concept of stability and necessary conditions, Routh-Hurwitz criteria and its limitations. Root Locus technique: The root locus concepts, construction of root loci.

Unit-V
Frequency Response Analysis: Frequency response, correlation between time and frequency responses, polar and Bode plots.
Stability in Frequency Domain: Nyquist stability criterion, assessment of relative stability: gain margin and phase margin.

Course Outcomes:
After going through this course the student gets a through knowledge on:

- Open loop and closed loop control systems, concept of feedback in control systems
- Transfer function representation through block diagram algebra and signal flow graphs
- Time response analysis of different ordered systems through their characteristic equation and time domain specifications
- Stability analysis of control systems in s-domain through different criteria.
- Frequency response analysis through bode plot, Nyquist plot, Polar plots.
- Design of PID controllers.

Reference Books:

1. B. S. Manke, Linear Control System, Khanna Publisher.
2. Control Systems Theory and Applications - S. K. Bhattacharya, Pearson.
3. Control Systems - N. C. Jagan, BS Publications.
4. B. C. Kuo, Digital Control Systems, Oxford University Press, 2/e, Indian Edition, 2007.
5. K. Ogata, Discrete Time Control Systems, Prentice Hall, 2/e, 1995.
6. M. Gopal, Digital Control and State Variable Methods, Tata Mcgraw Hill, 2/e, 2003.
7. G. F. Franklin, J. D. Powell and M. L. Workman, Digital Control of Dynamic Systems,
8. Addison Wesley, 1998, Pearson Education, Asia, 3/e, 2000. K. J. Astroms and B. Wittenmark, Computer Controlled Systems - Theory and Design, Prentice Hall, 3/e,1997.

Suggested List of Experiment:

1. Simulation of DC motor working.
2. Simulation of generating standard test signals i.e. step, ramp and unit impulse on a simulator.
3. To study analysis of time response of second order system.
4. To study effect of P, PD, PI, PID Controller on a second order systems.
5. Plotting root locus of a given transfer functions using a simulator.
6. Temperature control using PID.
7. Plotting phase magnitude plot of a given transfer function with a simulator.
8. Obtaining frequency response of a common emitter amplifier and plotting on a Bode plot.
9. Stability Analysis (Root locus, Bode, Nyquist) of Linear Time Invariant System.
10. Transfer function from zeros and poles.
11. Simulation of lag compensator.
12. Simulation of lead compensator.
13. Simulation of lead lags compensator.
14. Simulation of Nyquist plot from a transfer function.

Use SCILAB/MATLAB or other equivalent software as a simulator.

Mandsaur University

Subject Code: - ELE180
Subject Name: - Power Transmission, Distribution & Protections
Semester:- Diploma V

L	T	P	C
2	1	2	4

Course Objective:
This course is introduces the course participants to the overall structure of the electric power supply system, from power transmission to distribution with protection. It includes basic concepts of power systems operation, fault analysis, and power systems protection techniques.

Unit-I Power Transmission
Transmission line parameters: Resistance, inductance and capacitance of 1-Φ, 2 wire lines-composite conductors. Inductance and capacitance of 3-Φ lines. Symmetrical and unsymmetrical spacing transposition-double circuit lines-bundled conductors.
Modeling of Transmission Lines: Classification of lines-short lines-voltage regulation and efficiency-medium lines-nominal T and Π configurations -ABCD constants- long lines- rigorous solution- interpretation of long line equation, ferranti effect, skin effect and proximity effect. Tuned power lines-power flow through lines-Basics only.

Unit-II Overhead Transmission and Underground Transmission
Conductors -types of conductors -copper, Aluminum and ACSR conductors, choice of transmission voltage. Mechanical characteristics of transmission lines – configuration-types of Towers. Calculation of sag and tension- supports at equal and unequal heights -effect of wind and ice- sag template.
Insulators -different types -voltage distribution, grading and string efficiency of suspension insulators. Corona effect.
Underground cables -types of cables -insulation resistance -voltage stress -grading of cables -capacitance of single core and 3 -core cables -current rating.

Unit-III Distribution System
Ac single phase, 3 phase, 3wire & 4 wire distribution, Kelvin's law for most economical size of conductor substation layout showing substation equipment, bus bar single bus bar and sectionalized bus bar, main and transfer for bus bar system, sectionalized double bus bar system, ring mains.

Unit-IV Power System Protection
Circuit breakers – principle of operation- formation of arc-arc quenching theory- restriking voltage-recovery voltage, RRRV. Interruption of capacitive currents and current chopping. Types of circuit breakers: Air blast CB, Oil CB, SF6 CB and Vacuum CB.
Protective relays- zones of protection, essential qualities - classification of relays -electro mechanical, static relays, microprocessor based relay. electromechanical relays-attracted armature, balanced beam, induction disc, thermal relays (brief description only) static relays-

merits and demerits, basic components, comparison and duality of amplitude and Phase comparators. Static over-current, differential, distance relays, directional relay (principle and block diagram only).

Unit-V

Protection of alternator: Merz price differential protection, Earth fault Protection, Differential protection of transformers- percentage differential protection, Buchholz relay and feeder and transmission line protection - time graded and over current protection, current graded system, differential protection.

Causes and effects of over voltage. Traveling wave. Over-voltage protection, earth wire, lighting arresters- multiple gap type, horn gap type, line type, station type and distribution type. Surge absorber.

Course Outcomes:

At the end of the Course the student would be able to:

- Apply power system fundamentals to the design of a system that meet specific needs.
- Design a power system solution based on the problem requirements and realistic constraints.
- Develop a major design experience in power a system that prepares them for engineering practice.

References:

1. B.R. Gupta: “Power system Analysis and Design”, Wheeler publishers.
2. Wadhwa, “Electrical Power system”, Wiley Eastern Ltd. 2005
3. J.B. Gupta, “A course in Electrical Power”, Katharia and sons, 2004.
4. A.Chakrabarti, ML.Soni, P.V.Gupta, V.S.Bhatnagar, “A text book of Power system Engineering”
5. I.J.Nagarath & D.P. Kothari, “Power System Engineering”, TMH Publication,
6. Grainer J.J, Stevenson W.D, “Power system Analysis”, McGraw Hill
7. Stevenson Jr. Elements of Power System Analysis, TMH
8. Sunil S Rao ,”Switch gear and Protection”, Khana Publishers
9. K.R Padiyar,” FACTS Controllers for Transmission and Distribution” New Age International, New Delhi

Suggested List of Experiment:

1. Study of solar cooker.
2. Study of solar water heater.
3. Study of solar photo-voltaic cells.
4. Study of line supports and insulators.
5. Electrical design of Short transmission line.
6. Electrical design of Nominal ‘T’ Medium transmission line.
7. Electrical design of Nominal ‘pie’ Medium transmission line.
8. Drawing of Tower structure.
9. Drawing of insulators.
10. Determination of string efficiency of insulator string.
11. Performance of short/ medium transmissions line.

12. Study of L.T. and H.T. Cables and over head conductors.
13. Voltage distribution in radial and ring main system.
14. Mechanical design of transmission line.
15. Visit to a

- Substation.
- Generating station.
- Places where solar or wind power plant are installed.

Mandsaur University

Subject Code: - ELE161
Subject Name: - Testing and Maintenance of Electrical Machines
Semester:-V

L	T	P	C
4	-	-	4

Course Objective:
This course is about the testing of electrical equipments used in electrical system and also there maintenance with safety and trouble shooting.

Unit-I
Electrical accidents and safety measures - Electrical accidents, safety regulations, treatment of shock, fire extinguishers.

Unit-II
Testing and maintenance of relays and circuit breakers - Testing of relays factory test, commissioning test and preventive periodic maintenance test. Testing of circuit breakers, voltage test, and preventive maintenance of circuit breaker. Hot line maintenance - meaning and advantages, special types of non- conducting materials used for tools for hot line maintenance.

Unit-III
Installation - Types of heavy electrical equipment, unloading accessories precautions for unloading, installation of small and large machines of both static and rotating type. Installation of pole mounted transformer.

Unit-IV
Earthing-Reasons of earthing, earthing system, earth lead and its size, permissible earth resistance for different installations, improvement of earth resistance, double earthing, earth resistance measurement, rules for earthing.

Unit-V
Trouble Shooting -Normal performance of equipment, trouble shooting internal and external faults, instruments and accessories for trouble shooting, trouble shooting charts.

Course Outcomes:
After learning the course, the students will be able to understand installation, testing and maintenance of various electrical equipments, including:

- Trouble shooting chart for various electrical equipment, machines and domestic appliances
- Procedure of different types of earthing for different types of electrical installations
- Familiar about electrical safety regulations and rules during maintenance.

References:

1. B. L. Theraja Electrical Technology Vol I to IV S. Chand & Co., New Delhi.
2. B. V. S. Rao Operation & Maintenance of Electrical Machines Vol –I.

3. B. V. S. Rao Operation & Maintenance of Electrical Machines Vol.-II Media Promoters & Publisher Ltd. Mumbai.
4. C.J. Hubert Preventive Maintenance Hand Books & Journals.

Mandsaur University

Subject Code: - ELE162
Subject Name: - Energy Conservation & Audit
Semester:-V

L	T	P	C
4	-	-	4

Course Objectives:

- Identify the energy losses and wastage.
- Suggest the energy conservation techniques in various sectors.
- Find the opportunity for saving in energy consumption through tariff structure.
- Prepare energy audit report.

Unit-I Energy Conservation in Lighting system

Introduction to Energy Conservation - Present energy scenario, Meaning of term Energy Conservation, Need of energy conservation, , Energy Conservation Act – 2003, Functions of Government Organization (NPC, MNRE, BEE, MEDA).

Energy Conservation in Lighting System - Basic terms used in lighting system (Illumination), Recommended Luminance levels, Procedure for assessing existing Lighting system in a facility. Energy Conservation techniques in lighting system - By replacing Lamp sources, Using energy efficient luminaries, Using light controlled gears, By installation of separate transformer / servo stabilizer for Lighting, Periodic survey and adequate maintenance programs, Energy Conservation techniques in fans, Electronic regulators.

Unit-II Energy Conservation techniques in Electrical Motors

Construction, Power flow and working of Induction motor. Factors governing the selection of Induction motor. Need for energy conservation in Induction motor. Various energy conservation techniques in Induction motor - improving power quality, motor survey, matching motor, minimizing the idle, Redundant running of motor, operating in star mode, rewinding of motor, improving mechanical power and transmission Efficiency. Energy Efficient motors - Comparison with conventional Induction motor

Unit-III Energy Conservation techniques in transformer

Need of energy conservation in transformer. Methods (related to material, design) to improve the performance of transformer.

Energy conservation techniques related to transformer - Loading sharing, Parallel operation, Isolating techniques. Energy efficient transformers - Amorphous transformers, Epoxy Resin cast transformer (Dry type of transformer), Periodic maintenance.

Unit-IV Tariff And Energy Conservation Equipments

Tariff - Types of tariff structure, Terms involved in tariff, Specific tariff: - Time-off-day tariff, Peak-off-day tariff, Power factor tariff, Maximum Demand tariff, Load factor tariff. Application of tariff system to reduce energy bill, Simple numerical based on power factor and load factor tariff.

Energy conservation equipments - Energy conservation equipment related to Lighting system - Centralized Control Equipment (Microprocessor based), Occupancy sensors/Motion Detectors, Control gears: Dimmers, Regulators, and Stabilizers). Energy conservation equipment related to electrical motors - Construction, working and advantages of each energy conservation Equipment listed below - Soft starter: For induction motors, Power Factor Controller, Static capacitor, Automatic star delta starter, Variable Frequency Drives.

Unit-V Energy Audit

Energy flow diagrams and its significance, Energy audit instruments and their use, Prepare questionnaire for energy audit projects, ABC analysis and its advantages referred to energy audit projects, Energy Audit procedure (walk through audit and detailed audit), Calculation of simple payback period (Simple numerical)

Course Outcomes:

The students will be able to

- Identify the demand supply gap of energy in Indian scenario.
- Carry out energy audit of an industry/Organization.
- Select appropriate energy conservation method to reduce the wastage of energy
- Draw the energy flow diagram of an industry and identify the energy wasted or a waste stream.

Reference Books:

1. S. Sivanagraju, M. Balasubba Reddy, D. Srilatha - Generation And Utilization Of Electrical Energy, Pearson, New Delhi
2. P. H. Henderson, India - The Energy Sector, University Press
3. W. C. Turner, Energy Management Handbook, Wiley Press
4. B. G. Desai, J. S. Rana, A. V. Dinesh, R. Paraman - Efficient Use And Management Of Electricity In Industry, Devki Energy Consultancy PVT. Ltd.

Mandsaur University

Subject Code: - ELE163
Subject Name: - Electrical Installation
Semester: - Diploma V

L	T	P	C
4	-	-	4

Course Objective:
This course is about the installation of electrical equipments used in electrical power system such as transmission and distribution lines and cables.

Unit-I Installation of Transmission and Distribution Lines
Erection of steel structures, connecting of jumpers, joints and dead ends; crossing of roads, streets, power/telecommunication lines and railway crossings, clearances; earthing of transmission lines and guarding, spacing and configuration of conductors: arrangement for suspension and strain insulators, anti-climbing devices and danger plates; sizes of conductor, earth wire, Laying of service lines.

Unit-II Laying of Underground Cables
Inspection, storage, transportation and handling of cables, cable laying depths and clearances from other services such as: water, sewerage, gas, heating and other mains, excavation of trenches, direct cable laying (including laying of cable from the drum, laying cable in the trench, taking all measurements and making as installed drawings, back filling of trenches with earth or sand, laying protective layer of bricks etc), laying of cables into pipes and conduits and within buildings, cable filling compounds, epoxy resins and hardeners, cable jointing and terminations.

Unit-III
Elementary idea regarding, inspection and handling of transformers; pole mounted substations, plinth mounted substations, grid substation, busbars, isolation, CT and PT, lightning arrestors, control and relay panels, HT/LT circuit breakers, LT switches, installation of transformers. Earthing system, fencing of yard, equipment foundations and trenches.

Unit-IV
Testing of various electrical equipment such as electrical motor, transformers cables and generator and motor control centers, medium voltage distribution panels, power control centres, motor control centers, lighting arrangement, storage, pre-installation checks, connecting and starting.

Course Outcomes:
After learning the course, the students will be able to understand installation of various electrical equipments in different electrical systems, including:

- Procedure of installation of different types of earthing for different types of systems.
- Installation of different types of lines and underground cables.
- Familiar about electrical safety regulations and rules during Installation.

Reference Books:

1. Bill Atkinson, Roger Lovegrove, Gary Gundry: “Electrical Installation Designs”.
2. V.K. Jain, Amitabh Bajaj, “A Text Book of Design of Electrical Installations”.
3. Brian Scaddan “Electrical Installation Work, 8th edition” Routledge.

Mandsaur University

Subject Code: - ELE200
Subject Name: - Industrial Training
Semester:-V

L	T	P	C
-	-	4	2

Course Objective:

The objective of undertaking industrial training is to provide work experience so that student's engineering knowledge is enhanced and employment prospects are improved. The student should take this course as a window to the real World of Work and should try to learn as much as possible from real life experiences by involving and interacting with industry staff.

SCHEME OF STUDIES Duration: 2 weeks after the IV semester in the summer break, Assessment in V semester.

SCHEME OF EXAMINATION For the assessment of industrial training undertaken by the students, following components are considered with their weightage.

(a) Term work In Industry	Marks allotted
1. Attendance and General Discipline	05
2. Daily diary Maintenance	05
3. Initiative and participative attitude during training	05
4. Assessment of training by Industrial Supervisor/s	05
TOTAL	20

(b) Practical/Oral Examination (Viva-Voce) In Institution	Marks allotted
1. Training Report	10
2. Seminar and cross questioning	20
TOTAL	30

Marks of various components in industry should be awarded to the students, in consultation with the Training and Placement Officer/Faculty of Institute, Who must establish contact with the supervisor/Authorities of the organization where, students are under training to award the marks for term work. During training students will prepare a first draft of training report in consultation with section in-charge. After training they will prepare final draft with the help of T.P.O./Faculty of the institute. Then they will present a seminar on their training and they will face viva-voce on training in the institute.

LEARNING THROUGH INDUSTRIAL TRAINING:

During industrial training students must observe following to enrich their learning: - Industrial environment and work culture, Organizational structure and inter personal communication, Machines/ equipment/ instruments - their working and specifications, Product development procedures and phases- Project planning, monitoring and control. Quality control and assurance,

Maintenance system, Costing system, Stores and purchase systems, Layout of Computer/ EDP/MIS centres, Roles and responsibilities of different categories of personnel, Customer services, Problems related to various areas of Work etc.

GUIDE LINES FOR STUDENTS:

- Students would interact with the identified faculty of the department to suggest his—choices for suitable industry/service centre
- Students have to fill the forms duly sealed and signed by authorities along with training order letter and submit it to training officer in the industry on the first day of training.
- Student would carry with him/her the Identity card issued by institute during training period.
- He/she will have to get all the necessary information from the training officer regarding schedule of the training, rules and regulations of the industry.
- Student is expected to follow these rules, regulations, procedures etc obediently.
- During the training period student is required to keep record of all the useful information in Log— book and maintain the daily diary.
- He/she has to prepare a final report about the whole training for submitting to the department at the time of final presentation and viva.

The training report may contain

1. Title page
2. Certificate
3. Abstract
4. Acknowledgement
5. Index
6. Introduction of industry
7. Industry/manufacturing plant lay out
8. Hierarchy of industry/organization chart
9. Types of major equipments/instruments/machines used in industry with their specification approximate cost and specific use
10. Particulars of Practical Experiences in industry
11. Special/challenging experiences encountered during training if any
12. My liking & disliking of work places
13. Bibliography

INDUSTRIAL TRAINING DAILY DIARY:

Name of the
Trainee:…….College:…….
Industry/Work place:…… Week No.:……
Department/Section:……Date:……

Course Outcome:

Industrial training of the students is essential to bridge the wide gap between the classroom and industrial environment. This will enrich their practical learning and they will be better equipped to integrate the practical experiences with the classroom learning process.