COMMON TO ALL BRANCHES – CSE, ECE, EEE, ME, CIVIL YEAR : I SEMISTER : I

Sl. No.	Course No.	Subject	Periods			Evaluation Scheme					Credit
Theory			L	T	P	SESSIONAL EXAM				SUB TOTAL	
						TA	CT	TOT	ESE		
1	HS1101	ENGLISH PROFESSIONAL COMMUNICATION	2	1	-	15	10	25	50	75	
2	CH1101	ENGINEERING CHEMISTERY	2	1	-	15	10	25	50	75	
3	PH1101	ENGINEERING PHYSICS I	3	1	-	30	20	50	100	150	
4	MH1101	MATHMATICS I	3	1	-	30	20	50	100	150	
5	ME1101	ENGINEERING MECHANICS	3	1	-	30	20	50	100	150	
6	EE1101	BASIC ELECTRICAL ENGINEERING	3	1	-	30	20	50	100	150	
PRACTICAL/DRAWING/DESIGN											
7	CH1102-P PH1102-P	CHEMISTERY/PHYSICS LAB (TO BE TAKEN IN ALTERNATE WEEKS)	-	-	3	25	-	25	25	50	
8	ME1102-P EE1102-P	ENGINEERING MECHANICS/ ELECTRICAL LABORATRY	-	-	3	25	-	25	25	50	
9	ED1101-P	ENGINEERING GRAPHICS I	-	-	3	25	-	25	25	50	
10	WP11010P	WORKSHOP PRACTICE I	-	-	3	25	-	25	25	50	
11	HS1102-P	GENERAL PROFICIENCY I	-	-	-	-	-	50	-	50	
		TOTAL	**16**	**6**	**12**	-	-	-	-	**1000**	

TA-TEACHERS ASSESSMENT CT-CLASS TEST ESE- END SEMESTER EXAMINATION

TOTAL MARKS: 1000 TOTAL PERIODS : 34 TOTAL CREDITS : 32

COMMON TO ALL BRANCHES – CSE, ECE, EEE, ME, CIVIL YEAR : I SEMISTER : II

Sl. No.	Course No.	Subject	Periods			Evaluation Scheme				
Theory			L	T	P	SESSIONAL EXAM				SUB TOTAL
						TA	CT	TOT	ESE	
1	CS1201	INTRODUCTION TO COMPUTING	2	1	-	15	10	25	50	75
2	CH1201	ENVIRONMENT & ECOLOGY	2	1	-	15	10	25	50	75
3	PH1201	ENGINEERING PHYSICS II	3	1	-	30	20	50	100	150
4	MH1201	MATHMATICS I1	3	1	-	30	20	50	100	150
5	ME1201	ENGINEERING THEROMODYNAMICS	3	1	-	30	20	50	100	150
6	EE1201	BASIC ELECTRONICS	3	1	-	30	20	50	100	150
PRACTICAL/DRAWING/DESIGN										
7	EC1202-P	BASIC ELECTRONICS LAB	-	-	3	25	-	25	25	50
8	CS1202-P	COMPUTER PROGRAMMING LAB	-	-	3	25	-	25	25	50
9	ED1201-P	ENGINEERING GRAPHICS II (M/C DRAWING)	-	-	3	25	-	25	25	50
10	WP12010-P	WORKSHOP PRACTICE II	-	-	3	25	-	25	25	50
11	HS1202-P	GENERAL PROFICIENCY II	-	-	-	-	-	50	-	50
		TOTAL	**16**	**6**	**12**	**-**	**-**	**-**	**-**	**1000**

TA-TEACHERS ASSESSMENT CT-CLASS TEST ESE- END SEMESTER EXAMINATION

TOTAL MARKS: 1000 TOTAL PERIODS : 34 TOTAL CREDITS : 32

Semester 1

HS 1101 ENGLISH FOR PROFESSIONAL COMMUNICATION

Objective of the Course

To impart basic skills of Communication in English through intensive practice to the First Year LJG Students of Engineering so as to enable them to function confidently & effectively in that Language in line Professional Sphere of their life.

Desired Entry Behavior

The student must have some basic command of English so that the Student must be able to:

1. Write reasonably & grammatically
2. Understand (if not use) at least some 2500 general purpose words of English
3. Use some 2000 (at least 1500) general-purpose words of English to express himself in writing & 1500 such words to talk about day-to-day events & experiences of life.'
4. Understand slowly-delivered spoken material in Standard Indian English, and
5. Speak reasonably clearly (if not fluently) on routine matters with his fellow Students

Teaching Method

1 The topics must be covered essentially through plenty of examples. Lecture Classes must be conducted as Lecture-cum-Tutorial Classes.

2 It is a course that aims to develop skills. It is, therefore, "Practical' in orientation. Plenty of exercises of various kinds .must be done by the Students both inside & outside the Classroom.

3 The Teacher must not depend on a single or a set of two to three Text Books. He must choose his materials from diverse sources.

4 Keeping in view the requirements of his Students. the Teacher may have in prepare some testing and exercise material

5 For practice in listening, good Tape Recorders can be used if the more advanced facilities (for example Language Laboratory) are not available. ln fact they can be used very fruitfully.

6 The Teacher must function as a creative Monitor in the Class room.

7 Minimum time should he spent in Teaching Phonetic Symbols, Stress, Intonation etc. The aim should be to enable the student to find out for himself the correct pronunciation of a word from a Learner's Dictionary In Teaching speaking, emphasis should be on clarity, Intelligently & reasonable fluency rather than "Correct" pronunciation of word's. Classroom Presentation & group Discussion should be used to teach Speaking.

Units to be taken up to meet the Objectives of the Course as per AICTE Curriculum

Sections	Sl. No.	Units
COMMUNICATION	1	INTRODUCTION
	2	ROLE OF COMMUNICATION
	3	OBJECTIVE OF COMMUNICATION
	4	PROCESS OF COMMUNICATION
	5	ELEMENT OF COMMUNICATION
	6	ESSENTIALS OF COMMUNICATION.
	7	FLOW OF COMMUNICATION
	8	BARRIERS/ FACTORS INHABITING COMMUNICATION
	9	VERBAL/ NON-VERBAL COMMUNICATION
	10	KINETICS/ BODY LANGUAGES
	11	STYLE IN TECHNICAL COMMUNICATION
	12	COMMUNICATION SKILLS — READING, WRITING, SPEAKING.
PROFESSIONAL WRITING	1	BUSINESS LETTERS / OFFICIAL LETTERS
	2	LETTER WRITING SKILLS
	3	LETTER WRITING PROCESS
	4	FORM & STRUCTURE
	5	LETTER FORMATS
	6	ESSENTIALS OF LETTER WRITING
	7	TYPES OF PROFESSIONAL LETTERS
	8	PLANNING OF THE LETTERS
	9	D. O. LETTER
	10	RESUME & JOB APPLICATION
GRAPHICS	1	INTRODUCTION
	2	PLANNENG OF GRAPHICS
	3	PLACING OF GRAPHICS
	4	CONSTRUCTION OF GRAPHICS
	5	TYPE OF GRAPHICS
PHONETICS & PHONOLOGY	1	INTRODUCTION/ PHONETICS & PHONOLOGY
	2	ORGANS OF SPEECH/SPEECH MECHANISM
	3	PHONETIC SYMBOLS
	4	CONSONANTS / VOVELS/ DIPHTHONGS CLASSIFICATION

	5	STRESS PATTERN/INTONATION
	6	PRONUNCIATION GUIDELINE
	7	SYLLABLE *I* SYLLABLE-DIVISION
	8	TONES
REPORT WRITING	1	INTRODUCTION
	2	TYPES OF REPORT
	3	IMPORTANT FEATURE OF REPORT
	4	STRUCTURE & LAYOUT FORMAT
	5	LANGUAGE & STYLE
	6	PROJECT REPORT, LABORATRY REPORT, INDUSTRY REPORT,…….. CULTURAL
	7	PROPOSALS - NATURES, SIGNIFICANCE, TYPES, STRUCTURES
DISCUSSION SKILLS	1	INTRODUCTION
	2	IMPORTANCE OF GROUP DISCUSSION SKILLS
	3	PROCESS OF GROUP DISCUSSION
	4	GROUP DISCUSSION STRATEGIES, INTERACTION STRATEGIES, INDIVIDUAL CONTRIBUTIONS
	5	LEADERSHIP SKILLS TEAM MANAGEMENT, CREATING A FRIENDLY CO-OPERATIVE ATMOSPHERE
PRESENTATION SKILLS	1	NATURE &IMPORTANCE OF PRESENTATION
	2	INTRODUCTION MEANING OF PRESENTATION
	3	PLANING PRESENTATION
	4	OBJECTIVE WITH CENTRAL IDEA, MAIN IDEAS, ROLE OF SUPPORTING MATERIAL - STE[PS
	5	HANDLING STAGES FRIGHT
STUDY SKILLS	1	**NOTE MAKING** • **MECHANICS OF NOTEMAKING** • **NOTE WRITING TECHNIQUES** • **REDUCTION DEVICES** • **ORGANISATION TECHNIQUES** • **METHOD OF SEQUENCEING**
	2	**SUMMARIZING & PARAGRAPHING** • **MECHANICS OF SUMMARIZING** • **SUMMARIZING TECHNIQUES** • **OUTLINING & PARAGRAPHING**
	3	**REFERENCING** • **REFERENCE SKILLS** • **METHOD OF REFERENCING** • **USING FOOTNOTES** • **SCANNING SKILLS** • **SKIMMING SKILLS** • **LOCATING BOKS IN THE LIBRARY/FINDING** • **REQUIRED INFORMATION/ MEANING PRONUNCIATION**

WRITING COMMUNICATION	01	**SENTENCES** • REQUISITES OF GOOD SENTENCE WRITING • EFFECTIVE SENTENCE STRUCTURE • SENTENCE BUILDING • SENTENCECOHERENCE • USE OF CONNECTIVES • SENTENCE EMPHASIS/SENTENCE THEME • DEVELOPMENT OF PARAGRAPH
	02	**PARAGRAPH WRITING** • PARAGRAPH STRUCTURE • PRINCIPLE OF PARAGRAPH WRITING • PARAGRAPH LENGTH/ COHERENCE/ DIVISION
	03	USE OF MODALS / CONNECTIVES / MODIFIES, PUNCTUATION'S & SPELLING • CONCORD
TELEPHONIC CONVERSATION	01	INTRODUCTION
	02	LISTENING/ SPEAKING
	03	TELEPHONIC SKILLS REQUIRED
	04	PROBLEMS OF TEMPIIONIC CONVERSATION
	05	INTENSIVE LISTENING
LISTENING COMPREHENSIO	01	TO COMPREHEND SPOKEN MATERIAL IN STANDARD INDIAN ENG LISH/ BRITISH ENGLISH & AMERICAN ENGLISH
	02	CURRENT SITUATION IN INDIA REGARDING ENGLISH
	03	AMERICAN ENGLISH VS. BRITISH ENGLISH
INTERVIEW	01	THE INTERVIEW PROCESS
	02	PLANING/ PURPOSE/ CONVERSATION/ TWO-WAY INTERACTIN/ INFORMALITY
	03	PRE-INTERVIEW PREPARATION TECHNIQUES
	04	PROJECTING A POSITIVE IMAGE
	05	ANSWERING STRATEGIES

CH1101 - ENGINEERING CHEMISTRY (2-1-0)

Atoms and Molecules

Practical in a box illustrating energy quantization, angular momentum quantization, radial and angular Parts of H atom, Wave functions/ orbital's, probability and charge distribution. Many electron atoms Homonuclear and Hetronuclear diatomics, covalent bonds, ionic bonds and electro negativity concepts Hybridization and shapes of molecules. Non =covalent interaction (Van Der Waals and hydrogen Bonding).

Reaction Dynamics

Rate laws, mechanism and theories of reaction rates (collision and transition state theory). Lasers in Chemistry

Electrochemistry

Application of electrode potentials predict redox reactions in solution with special reference to Lattimer and Frost Diagrams

Transition Metal Chemistry.

Structures of coordination compounds. corresponding to coordination numbers up to 6. Types of ligands. Isomerism (geometrical, optical, ionization, linkage & coordination). Theories of bonding in co-ordination compounds, viz. crystal field theory, valence bond theory. Chelation. Brief application in organic synthesis and medicines etc.

Organo metallic Chemistry and **Catalysis**

Structure and bonding in organo metallic complexes, the sixteen *and* eighteen, electron rules, Homogeneous catalysis, the role of metals in catalytic cycles during some chemical reactions (e.g. Hydroforrnyalation hydrorogenation etc.). Role of metals in biology, oxygen carrier, electron transfer

Structure and Reactivity of Organic Molecules

Inductive effect, resonance, hyper conjugation, electrometric effect. Carbonation, carbanion and free Radicals Brief study of some addition, elimination and substitution reactions, Conformational analysis (acyclic and cyclic molecules), geometrical and optional isomerism; E, Z and R S nomenclature.

Polymerization

Basic concepts, classification *and* industrial application,

Photochemistry

Photo excitation of Carbon substrates (Norrish type I and type II reactions), selected examples of the Application of photolysis. Photosynthesis (z- diagram). Chemistry of vision.

- Acid-base titration (estimation of commercial caustic soda).
- Redox titration (estimation of iron using permanganometry).
- Preparation and analysis of a metal complex (for example thiourea /copper sulfate or nickel chloride /ammonia complexes.
- Chemical kinetics (determination of relative rates of reaction of iodide with H_2O_2 at room t**emperature (clock reaction).**
- Heterogeneous equilibrium (determination of partition coefficient of acetic acid between n-butanol and water.
- Photochemical oxidation-reduction (study of photochemical reduction of ferric salt). Viscosity of solutions (determination of percentage composition of sugar solution from viscosity).
- Synthesis of aspirin.
- Synthesis of p-nitro aniline from actinide
- Detection of functional groups in organic compounds.
- Radical polymerization of vinyl monomers such as styrene, acrylonitrile etc.
- Conductor metric titration (determination of the strength of a given HCI solution by titration against a standard NaOH solution.

PH 1101 ENGINEERING PHYSICS —I (3-1-0)

Theory of Relativity

Inertial frame of reference Noninetrial frames and fictions forces, Outline of relativity, Michelson- Morley experiment, Lorentz transformation of space and time, length contraction, variation of mass with velocity, equivalence of mass & energy.

Geometrical optics

Combination of thin lenses, cardinal points of coaxial system of thin lenses, thick lenses location and properties of cardinal points, graphical construction of images.

Physical optics

Interference analytical " treatment of interference, intensity distribution of fringe system. Coherent and Non-coherent sources, fundamental conditions of interference, Fresnel's biprism, displacement of fringes, Wedge shaped films, Newton's rings.

Diffraction- single slit and double slit diffraction, diffraction grating, Limit of resolution, resolving power of grating land image forming systems.
Polarisation — Brewster' law, double refraction, geometry of calcite crystal, optic axis, nicol prism. Circularly and elliptically polarized light, retardation plates, production and analysis of planes, polarimeter.

Thermal Physics

Kinetic theory of gases, Maxwellian distribution, mean free path, transport phenomena in gases, imperfect gases and Vander Waal's equation of state.

Acoustics

Production and applications of Ultrasonic's, Acoustics of buildings.

Dynamics of fluid

Continuity equation "Bernoulli's theorem and its applications, Torricelli's theorem, Viscosity flow of, Liquid through a capillary tube, capillaries in series and parallel, Stoke' s formula, rotation iscometer.

PH 1102-P — Engineering Physics — I (0-0-3/2)

List of Experiments

- To determine the coefficient of viscosity of water by capillary flow.
- To determine the thermal conductivity of *a* bad and good conductor by Lee "s /method and Sean's method respectively.
- To determine the wave length of light by Newton's ring method.
- To determine the wave length of light by Fresnel's biprism.
- To determine the dispersive power of the given material of the prism.
- To determine the local length of combination of two thin lenses by nodal Slide assembly and its verification.
- Determination of *elm* by JJ. Thorns4an's method.
- Measurement of thermo emf between different types of thermocouples *as* a function of temperature difference between the junctions, measurement of an unknown temperature.
- Use of Carry Foster Bridge.
- Study of electromagnetic induction.
- Study of electromagnetic damping end: determination of terminal velocity reached by a magnet. falling in a metallic tube.
- Study of LCR circuits with AC current.
- Determination of Plank's Constant using photocells.

MH1101 MATHEMATICS – l (3-1-0)

Calculus of Functions of One Variable

Successive differentiation, Iibnitz's theorem (without proof), Rolle's theorem, Mean value theorem 11 and Taylor's theorem. Fundamental theorems of integral calculus, elementary reduction formulae for integrals. Applications to length, area, volume, surface area of revolution, moments and centers of gravity.

Infinite Series: Convergence**,** divergence, comparison test**,** ratio test, Cauchy Leibnitz's theorem, absolute and conditional convergence. Expansions of functions into Taylor and Maclaurin series.

Calculus of Functions of Several Variables

Partial derivatives. chain rule. gradient and directional derivative. Differentiation of implicit functions. Exact differentials Tangent planes and normals. Maxima, minima and saddle points. Simple problems in extrema of functions with constraints - methods of Lagrange multipliers Multiple integrals- double, and triple integrals. Jacobeans and transformations of coordinates. Applications to areas, volumes etc.

Vector Calculus

Scalar and vector fields. Line and surface integrals. Gradient, divergence. and curl. Line integrals / independent of path: Green's theorem, divergence theorem and Stoke's theorem (without proofs)and their simple applications.

ME1101 ENGINEERING MECHANICS (3-1-0)

Fundamentals of Mechanics — Basic concepts

Force Systems and Equilibrium

Force, Moment and couple, Principle of Transmissibility, Varignon's theorem, Resultant of force systems-concurrent and non-concurrent coplanar forces, Free-body diagram equations and their uses in solving elementary engineering problems.

Plane Trusses

The structural model, simple trusses, analysis of simple trusses: method of joints, Method of sections, graphical method.

Friction

Introduction, laws of coulomb friction, simple contact friction problems, belt friction, the square crew thread rolling resistance

Properties of Surfaces

First moment of an area and centroid, second moment and product of area of a plane area transfer theorems, relations between second moment and product of area, polar moment of inertia, principal axes, mass moment of inertia.

Virtual Work

Work of a force, Principle of Virtual work and its application.

Kinematics of Rigid bodies

Plane motion, Absolute motion, Relative *motion,* translating axes and rotating axes.

Kinetics of Rigid bodies

Plane motion, Work and energy, Impulse and momentum.

ME1102-P — **Engineering Mechanics** (3-1-0)

List of Experiments

- To determine the Newton's second law of motion by Fletcher's trolley apparatus.
- To determine the moment of inertia of *a* flywheel about its axis of rotation.
- To verify: (a) the conditions of equilibrium of forces by parallel force apparatus (b) the principal of moments by crank lever.
- To determine *the* dry friction between inclined plane and slide boxes of different materials,
- To determine the coefficient of friction between the belt and rope and the fixed pulley.
- To determine the velocity ratio of a simple screw jack and *to* plot graph between *(a)* Effort-Load (b) Friction-Load (c) Efficiency-Load.
- To measure the area of a figure with the help of a Polar Planimeter.

EE 1101 - BASIC ELECTRICAL ENGINEERING (3-1-0)

DC Networks

Kirchhoff's laws, node voltage and mesh current methods; Delta-star and star –delta conversion; Classification of Network Elements, Superposition principle, Thevenin's and Norton's theorems

Single Phase AC Circuits

Single phase EMF, generation, average and effective values of sinusoids; Solution of R,L,C series circuits the J operator complex representation of impedances; Phasor diagram, power factor, power in Solution of parallel and series parallel circuits; Resonance.

Three phase AC Circuits

Three phase EMP, generation, delta *and* Y-connection, line and phase quantities; Solution of three phase circuits, balanced supply voltage and balanced load Phasor diagram ;measurement of power in three phase circuits, three phase four wire circuits; Unbalanced circuits.

Magnetic Circuits

Ampere's circuital law, BH curve solution of magnetic circuits, Hysteresis and eddy current losses, Relays, an application of magnetic force

Transformers

Construction, EMF, equation, ratings phasor diagram on no load and full load' Equivalent circuit, regulation and efficiency calculations; Open and short circuit test; Auto-transformers and three phase transformers.

Induction Motors

The revolving magnetic field, principle of operation, ratings; Equivalent circuit; Torque speed characteristics Starters for squirrel cage and would rotor type induction motors; Single phase induction motors.

DC Machines

Construction, EMF and torque equations, Characteristics of DC generators and motors; Speed control Of DC motors and Dc motor starters; Armature reaction and commutation

Electrical Measuring Instruments

DC PMMC instruments, shunts and multipliers, multi-meters, Moving iron ammeters and voltammeters: Dynamometer wattmeter's, AC watt-hour meters, Extension of instrument ranges.

Power Supply Systems

General structure of electrical power systems- power transmission and distribution via overhead Lines and underground cables, steam, hydro, gas and nuclear power generation.

EE 102-P— Basic Electrical Engineering **0-0-3/2**

List of Experiments

- To measure the armature and field resistance of a DC machine.
- To calibrate a test (moving iron) ammeter and a (dynamometer) wattmeter with respect to standard (DCPMMC) ammeter and voltmeters.
- Verification of circuit theorems, Thevenin's and Superposition theorems (with DC Sources .only).
- Voltage-current Characteristics of incandescent lamps and fusing time-current characteristics of fuse wire.
- Measurement of current, voltages and power in R-L-C series circuit excited by (single pulse) AC supply.
- Open circuit and short circuit tests on a single-phase transformer.
- Connection .and starting of a three-phase induction motor mine direct line online (DOL) or star delta starter.
- Connection and measurement of power consumption of &fluorescent lamp.
- Determination of open circuit characteristic (OCC) of a DC machine.
- Starting and speed control of a DC Shunt motor.
- Connection and-testing of a single phase energy-meter (unity power factor only).
- Two-wattmeter method of measuring power in three-phase circuit (resistive load only).
- Measurement of thermo emf between different types of thermocouples as a function of temperature difference between the junction, measurement of an unknown temperature.
- Design and use of potentiometer.
- Study of LCR circuits with AC current.

ED1101-P ENGINEERING GRAPHICS (0-0-3)

General

Importance, Significance and scope of engineering drawing, Lettering, Dimensioning, Scales, Sense of proportioning, Different types of projections, Orthographic projections, B.I.S. Specifications.

Projections of Points and Lines

Introduction of planes of projection Reference and auxiliary planes, projections of points. and lines in different quadrants, traces, inclinations, and true lengths of the lines projections on auxiliary planes. shortest distance, intersecting and non-intersecting lines.

Planes other than the Reference Planes

Introduction of other planes (perpendicular and oblique), their traces, inclinations etc., projections of points and lines lying in the planes, conversion of oblique plane into auxiliary plane and solutions of related problems.

Projections of Plane Figures

Different cases of plane figures (of different shapes) making different angles with one or both

”
reference planes and lines lying in the plane figures making different given angles (with one or both

reference planes). Obtaining true shape of the plane figure by projection.

Projection of Solids

Simple cases when solid is placed in different positions Axis faces and tines lying in the faces of the solid making given angles.

Development of Surface

Development of simple objects with and without sectioning.

Isometric Projection -

Nomography

Basic concepts and uses

WP1101-P WORKSHOP PRACTICE I & II (0-0-3)

Carpentry: Timber, definition, engineering applications, seasoning and preservation, plywood and ply boards.

Foundry: Molding sands, constituents and characteristics, Pattern, definition, materials, types, core prints Role of gate, runner, riser, core and chaplets. Causes and remedies of some common casting defects like blow holes, cavities, inclusions.

Metal Joining: Definitions of welding, brazing and soldering processes and their applications. Oxyacetylene gas welding process, equipment and techniques, type of flames and their applications. Manual metal arc welding technique and equipment, AC and DC welding, electrodes, constituents and functions of electrode coating. Welding positions. Type of weld joint. Common welding defects such as cracks, undercutting, slag inclusions, porosity.

Metal Cutting: Introduction to machining and common machining operations. Cutting tool materials. Definition of machine tools, specification and block diagram of lathe, shaper, drilling machine and grinder, Common

Lathe operations such as turning, parting, chamfering and facing. Quick return mechanism of shaper. Difference between drilling and boring. Files — material and classification.

Forging: Forging principle, materials, operations like drawing, upsetting, bending and forge welding, use of forged parts.

List of Jobs to be made in the Workshop

Group A

1. T-Lap joint and Bridle joint (Carpentry shop) 4 hrs.
2. Mould of any pattern (Foundry shop) 2 hrs
3. Casting of any simple pattern (Foundry shop) 2 hrs

Group B

1. (a) Gas welding practice by student on mild steel flat 2 hrs

   (b) Lap joint by Gas welding
2. (a) MMA Welding practice by students 2 hrs

   (b) Square butt joint by MMA Welding
3. (a) Lap joint by MMA Welding 1 hrs

   (b) Demonstration of brazing 1 hrs --
4. Tin smithy for making mechanical joint and soldering of joints. 2 hrs

Group C

1. Job on lathe with chic step turning and chamfering operations
2. Job on shaper for finishing two sides of a job 2 hrs
3. (a) Drilling two holes of size 5 and 12 mm diameter on job used/to be used for shaping 2 hrs

   (b) Grinding a corner of above job on bench grinder 2 hrs
4. Finishing of two sides of a square piece by filing 2 hrs

Semester II

CS1201 - INTRODUCTION TO COMPUTING (2-1-0)

Introduction

Introduction to the computer devices such as keyboard, mouse, printers, disk, files, floppies, etc. Concept of computing, contemporary OSs such as DOS, Windows 95, MAC-OS, UNIX, etc.(Only brief user level description).

Introduction to the e-mail, ftp, rlogin and other network services, world wide web.

Introduction to the typesetting software such as Microsoft office.

Introduction to Programming

Concept of algorithms, Example of Algorithms such as how to add ten numbers, roots of a quadratic equation. Concept of sequentially following up the steps of the algorithm.

Notion of program, programmability and programming languages. Structure of programs, object codes, compilers.

Introduction to the Editing tools such as vi or MS-VC editors.

Concepts of the finite storage, bits, bytes, kilo, mega and gigabytes, Concepts of character representation. -

Languages for system programming, study of Basic, Fortran, Pascal, Cobol etc.

CSI202-P -- COMPUTER PROGRAMMING LAB (0-0-3)

Concepts of flow charts and decision tables, Examples and practice problems.
Introduction to Digital computers and its components, Introduction to DOS and UNIX operating systems.

Development of computer programs for example

- Roots of quadratic and Cubic equations
- summation of N natural numbers
- Arranging numbers in ascending and descending orders
- Separation of odd and even numbers_ etc,

CH1201 ENVIRONMENT AND ECOLOGY (2-1-0)

General

Introduction, components of the environment, environmental degradation.

Ecology

Elements of Ecology; Ecological balance and consequences of change, principles of environmental .impacts assessment,

Air Pollution and Control

Atmospheric composition energy balance, climate, weather, dispersion, Sources aid effects of pollutants, primary and secondary pollutants, green house effect, depletion of ozone layer, standards and control measures.

Water Pollution and Control

Hydrosphere, natural water, pollutants their origin and effects, river/lake/ground water pollution standards and control

Land Pollution

Lithosphere, pollutants (municipal, industrial, commercial, agricultural hazardous solid vvastes): their origin and effects, collection and disposal of solid waste, recovery and conversion methods.

Noise Pollution

Sources, effects, standards and control

PH1201 ENGINEERING PHYSICS — II (3- I -0)

Vector analysis

Scalar and vector fields, gradient of a scalar field, Divergence and curl of a vector fields, Line integral of a vector field, Gauss-divergence theorem, Stoke's theorem.]

Electromagnetism

Quantization & conservation of charge, Coulomb's law (vectorial form) and superposition principle, Concept of electric field lines, flux of E-field**,** Gauss' law, Electric Potential energy and potential, conductors, capacitors and dielectric materials, Magnetic field. Force on a Moving charge in a magnetic field, Force on current element, Torque on current loop,. Biot-Savart law, Ampere's law. Electromagnetic induction and Faraday's law, Magnetism in materials, Maxwell's equations, Electromagnetic Waves.

Thermoelectricity

Seebeck effect, law of successive temperatures, Law of intermediate metals, peltier effect, Thomson effect, Thermoelectric power, application **of thermodynamics** on thermocouple.

Modern Physics

Elements of wave properties of particles and particle properties of waves, Nuclear Energy, Lasers-spontaneous and stimulated emission of radiation, Einstein coefficient, Parts of laser, types of lasers and their application.

Solid State Devices

Energy band diagram; covalent bonds; bound and free electrons, holes, electron and hole nobilities. intrinsic and extrinsic semiconductors, Fermi and impurity levels; impurity compensation, charge neutrality equation and semiconductor conductivity, Einstein relation, drift and diffusion current, photo conductivity and Hall effect.

MH1201 - MATHEMATICS — II (3-1.-0)

Linear Algebra

Vector spaces—linear independence and dependence of vectors, inner products, linear transformation. Matrices and determinants, Systems of linear equations-consistency and inconsistency Gauss elimination, rank Of a matrix, inverse of a matrix. Eigen values and eigenvectors oaf a matrix; diagonalization of a 'matrix.

Ordinary Differential Equations

Formation of ODE s, definition of order, degree and solutions, ODE's of first order separable variables, homogeneous and non-homogenous equations, exactness and integrating factors, linear equations and Bernoulli equations, General linear ODE's of nth order, solutions of homogenous and nonhomogenous equation operator method. methods of undetermined coefficients and of variation of parameters. Solution of simple simultaneous ode's.

Laplace Transforms

Transforms of elementary functions, backward, central, shift and average operators and relations between them. Newton's forward **and backward** interpolation, **Lagrange interpolation** and the error formula for interpolation. Numerical differentiation and integration-Trapezoial rule and Simpson's one-third rule including error formulas.

ME1201 - ENGINEERING THERMODYNAMICS (3-1-0)

Fundamentals and definitions
System, properties, state, state change, diagram, Dimension and units.

Work mechanism and thermodynamics
Definitions, Displacement work at part of a system boundary, Engine indicator, Displacement work in various 'quasi static processes, Shaft work , electrical work, Heat, temperature, thermal equilibrium Zeroth law of thermodynamics, sign convention for heat transfer.

First law of thermodynamics
Statement, application to non cyclic and cyclic process, Energy, mode of energy, pure substances, Specific heats, and First law applied to flow processes.

Second law of thermodynamics
Direct and reversed heat **engine, -Kelvin —** plancks and clausius statement of second law and their equality, reversible and irreversible process, Carnot cycle, carnot theorem, thermodynamic temperature scale.

Entropy
Definition, calculation through **T-ds** relation, T-S diagrams, entropy as a measure of irreversibility, Clausius inequality.

Properties of pure substances including steam tables and Mollier diagram.

Psychometrics:
Properties of Ideal gas and ideal gas mixture with a condensable vapour.

Second law analysis of engineering processes, Availability and irreversibility and their application in thermal engineering:

EC1201- **BASIC ELECTRONICS** (3-1-0)

Semiconductor Diodes

Introduction, Ideal Diode, PN semiconductor diode, Diode Equivalent circuits, Zenner diode, Light diodes

Bipolar Junction Transistor

Introduction, Transistor Construction. Transistor Operation, common base configuration, common emitter & common collector configuration.

Field Effect Transistor

Introduction, Construction & characteristics of JFETs, Transfer characteristics, Depletion type MOSFET, Enhancement type MOSFET.

Operational Amplifier

Introduction, Differential & common mode operation, constant gain multiplier, Voltage summing, Voltage buffer.

Semiconductor devices

Introduction of silicon controlled rectifier, GTO, TRIAC, DIAC, injunction transistors, IGBT.

Cathode Ray Oscilloscope

Introduction, Cathode ray tube- theory & construction.

Electronic Instruments

Introduction, Electronic voltmeters, vacuum type voltmeters, Differential amplifiers, DC Voltmeter with direct coupled amplifier, Electronic multimeter.

Transducers

Introduction, Classification & types of electrical transducers.

Display devices & recorders

Introduction, Digital instruments, Digital Vs Analog instruments, Recorders- Analog recorders, Graphic recorders, Strip chart recorders.

Data acquisition System

Introduction, Components and uses.

EC 1202-P- BASIC ELECTRONICS LAB (0-0-3)

- Characteristics curve for common base emitter & common base emitter & common collector transducers
- Characteristics of field effect transistors
- Verification of properties of operational amplifiers
- Study of CRO
- Study of working of data acquisition system,

WP 1202-P Engineering Graphics – II (0-0-3)

Basic Concepts

I.S drawing conventions, line symbols, Kinds of line, drawing sheet layout rules of printing preferred.

Projections

Perspective orthographic, isometric & oblique projections, isometric scale, isometric drawing, Technical sketching.

Shape description (External)

Multiplanar representation in first & third angle systems of projections, Glass box concept, Sketching of orthographic views from pictorial views, precedence of lines.

Sketching of pictorial (isometric & oblique) views from multiplanar orthographic views. Reading exercise, missing line & missing view exercises.

Shape Description (Internal)

Importance of sectioning principals of sectioning, Types of sections, Cutting plane representation, section lines, conventional practices.

Size Description

Dimensioning tools of dimensioning, size & location dimensions Principles & conventional dimensioning. Dimensioning exercises.

Computer Aided Drafting

Basic Concepts and use.