Vedang Institute of Technology
Lesson Plan

Discipline: Mechanical Engineering	**Semester: 1st**	**Name of the Teaching Faculty: LINA MAHANTA**
Subject: Engineering Mathematics -I	**No. of days/Per weeks Class Allotted Weeks 5**	**Semester from date: 16/08/2023 to 11/12/2023** **No of Weeks: 15**
Weeks	**Class day**	Theory
1st (Aug 2023)	1st	Matrices-Introduction, Types of matrices
	2nd	Algebra of matrices: Addition, Subtraction
	3rd	Matrix multiplication rules
	4th	Scalar multiplication, Transpose
	5th	Practice problems
2nd	1st	Introduction of Determinant (2×2 and 3×3)
	2nd	Properties of determinants (no proof)
	3rd	Properties – continued
	4th	Application of properties
	5th	Practice problems
3rd	1st	Inverse of 2nd order matrix
	2nd	Inverse of 3rd order matrix
	3rd	Cramer's Rule (2 variables)
	4th	Cramer's Rule – Problems
	5th	Practice problems
4th	1st	Matrix inverse method – concept
	2nd	Solve equations using inverse method
	3rd	Practice problems
	4th	Combined practice – Ch.1
	5th	Doubt clearing
5th	1st	Trigonometry- Trig ratios and identities
	2nd	Compound angle formulas
	3rd	Sub-multiple angle formulas
	4th	Practice problems
	5th	Mixed questions
6th	1st	Inverse circular functions – definitions
	2nd	Properties of inverse functions
	3rd	Principal values (no derivations)
	4th	Practice problems
	5th	Summary & quiz
7th	1st	Coordinate Geometry (2D) Part-a Introduction to coordinate geometry
	2nd	Distance formula
	3rd	Section formula
	4th	Area of triangle (formula only)
	5th	Practice problems

8th	1st	Coordinate Geometry Part b Slope of line
	2nd	Angle between two lines
	3rd	Conditions of perpendicularity and parallelism
	4th	Practice problems
	5th	Summary
9th	1st	Coordinate Geometry Part c (Forms of line) One-point form, Two-point form
	2nd	Slope-intercept form
	3rd	Intercept form
	4th	Perpendicular form
	5th	Practice problems
10th	1st	Equation of Line Line through point and parallel to given line
	2nd	Line through point and perpendicular to line
	3rd	Line through intersection of two lines
	4th	Practice problems
	5th	Summary
11th	1st	Distance from Line Distance of a point from a line
	2nd	Derivation-free problem solving
	3rd	Full practice: all line forms
	4th	Summary
	5th	Quiz
12th	1st	Full revision of Matrices
	2nd	Full revision of Matrices
	3rd	Full revision of Matrices
	4th	Practice Questions
	5th	Quiz Test
13th	1st	Full revision of Trigonometry
	2nd	Full revision of Trigonometry
	3rd	Full revision of Trigonometry
	4th	Practice Questions
	5th	Quiz Test
14th	1st	Full revision of 2D Geometry (a–c)
	2nd	Full revision of 2D Geometry (a–c)
	3rd	Full revision of 2D Geometry (a–c)
	4th	Practice Questions
	5th	Quiz Test
15th	1st	Practice Test/Model Question Paper (covering chapter 1, 2, 3a-c)
	2nd	Evaluation of test + common mistakes discussion
	3rd	Focused revision on weak areas (as per rest results)
	4th	Doubt clearing session

	5th	Final summary of topics and Preparation tips for internal assessment

Faculty Signature HOD

Vedang Institute of Technology
Lesson Plan

Discipline : Electrical & Electronics Engineering	Semester: 1st	Name of the Teaching Faculty: NAMTAZ PRADHAN
Subject: Fundamental of EEE	No. of days/Per weeks Class Allotted Weeks 4	Semester from date:16/08/2023 to 11/12/2023 No of Weeks: 15
Weeks	**Class day**	**Theory**
1st	1st	Introduction to Electronics, Classification of Materials and definitions
	2nd	Resistors: Types, Color coding, Series and Parallel combinations, Simple problems
	3rd	Capacitors: Types, Color coding, Series and Parallel combinations, Simple problems
	4th	Inductors: Types, Color coding, Series and Parallel combinations, Simple problems
2nd	1st	Diodes: PN Junction theory, Forward and Reverse bias characteristics
	2nd	Diodes applications: Half-wave rectification, RMS and average value of half waved rectified signals, Full wave rectification
	3rd	Zenor diode: Characteristics and applications as a voltage regulator
	4th	Special Diodes: LED (applications), Transistors (BJT): Introduction, types (NPN, PNP), Basic Operation
3rd	1st	FET (Field Effect Transistor): Introduction, types (JFET, MOSFET), basic operation (brief). Concept of MOS and CMOS.
	2nd	Signals: DC/AC, voltage/current, ideal/non-ideal sources, independent/dependent sources. RMS, Average, Peak values.
	3rd	Op-Amps: Introduction, block diagram, characteristics of Ideal Op-Amp.
	4th	Practical Op-Amp characteristics and deviations from ideal. Input offset voltage, Input bias current, Slew rate, CMRR (brief).
4th	1st	Open-loop op-amp configurations: Comparator.
	2nd	Closed-loop op-amp configurations: Negative feedback concept. Inverting Amplifier derivation and analysis.
	3rd	Non-Inverting Amplifier derivation and analysis. Voltage Follower (Buffer). .
	4th	Summing Amplifier (Adder) and Differential Amplifier.
5th	1st	Op-Amp as Integrator (with suitable diagram) and Differentiator (with suitable diagram).
	2nd	Introduction to Digital Electronics: Analog vs Digital. Binary Numbers, Number Systems (Decimal, Binary, Octal, Hexadecimal). Conversions (Binary to Decimal).
	3rd	Boolean Algebra: Basic postulates and theorems. Boolean expressions.
	4th	Logic Gates: AND, OR, NOT (truth tables, symbols). IC Gates.
6th	1st	Universal Gates: NAND, NOR (truth tables, symbols).
	2nd	XOR, XNOR gates (truth tables, symbols). De Morgan's Theorems and their application.

	3rd	Introduction to Sequential Logic: Latches and Flip-Flops (SR flip-flop working principle with diagram).
	4th	Counters: Introduction, types (Ripple, Up/Down, Decade).
7th	1st	Current, Voltage (EMF, Potential Difference), Power, Energy. Ohm's Law.
	2nd	Magnetic Circuits: Concept of Magnetic Field, Magnetic Flux, Magnetic Flux Density.
	3rd	Magnetomotive Force (MMF), Reluctance, Permeability. Hopkinson's Law.
	4th	Analogy between Electric and Magnetic Circuits.
8th	1st	Magnetic Force: Definition and Unit. Lorentz Force Law (Force on current-carrying conductor).
	2nd	Electromagnetic Induction: Faraday's Laws of Electromagnetic Induction.
	3rd	Lenz's Law (definition and explanation). Dynamically induced EMF.
	4th	Self-inductance: Definition and derivation of expression.
9th	1st	Mutual Inductance: Definition and derivation of expression. Coefficient of Coupling.
	2nd	AC Fundamentals: Cycle, Frequency, Periodic Time, Amplitude, Angular Velocity.
	3rd	RMS value, Average value, Form Factor, Peak factor for sinusoidal and half-wave rectified AC.
	4th	Phasor Representation of alternating quantities.

10th	1st	AC through Resistor, Inductor, and Capacitor (voltage-current relationships, reactance).
	2nd	R-L Series AC circuit: Impedance, phase angle, power factor.
	3rd	R-C Series AC circuit: Impedance, phase angle, power factor.
	4th	R-L-C Series AC circuit: Impedance, Resonance (series resonance), Q-factor.
11th	1st	Parallel AC circuits (R-L, R-C, R-L-C - basic concepts).
	2nd	O Power in AC Circuits: Active, Reactive, Apparent Power, Power Triangle.
	3rd	Three-phase AC Systems: Advantages. Star Connection (relation between line and phase voltage/current).
	4th	Delta Connection (relation between line and phase voltage/current). Power in 3-phase circuits.
12th	1st	Transformers: Introduction, Principle of operation, General construction.
	2nd	Types of transformers (step-up, step-down, core-type, shell-type).
	3rd	EMF equation derivation of a single-phase transformer.
	4th	Transformation ratio. Ideal and Practical transformer. Losses in transformer (brief).
13th	1st	Auto transformers: Construction and working principle.
	2nd	DC Motors: Introduction, Working Principle (Lorentz Force).
	3rd	Construction of a DC Motor (stator, rotor, commutator, brushes).
	4th	Back EMF in DC motors. Torque equation.
14th	1st	Types of DC Motors: Separately excited, Shunt, Series, Compound.
	2nd	DC Shunt Motor: Characteristics (Speed-Armature current, Torque-Armature current, Speed-Torque).
	3rd	DC Series Motor: Characteristics. Applications of DC motors
	4th	Introduction to AC Motors (brief overview of induction motors).
15th	1st	Revision of Electronic Components & Digital Electronics. Problem-solving.
	2nd	Revision of Electric and Magnetic Circuits. Problem-solving.
	3rd	Revision of AC Circuits. Problem-solving.
	4th	Revision of Transformers and Machines. Problem-solving.

Faculty Signature HOD

VEDANG INSTITUTE OF TECHNOLOGY, DURGA PRASAD, RAM CHANDI, KHURDA

LESSON PLAN
Session (2023-2024)

Discipline: Mechanical	**Semester: 1st**	**Name of the Faculty:** Jyotirmoyee Mishra
Subject: Communicative English, Theory 1a	**No. of Days/week:** 04	**Start Date:** 16/08/2023 **End Date:** 11/12/2023

Week	Class Day	Theory Topics
1st	1st	**READING COMPREHENSION:** Introduction to Reading comprehension
	2nd	Skimming the gist
	3rd	Scanning for necessary information
	4th	Close reading for inference and evaluation
2nd	1st	Main idea and supporting points, Guessing the meaning of un-familiar words
	2nd	Note- making, summarizing, supplying a suitable Title
	3rd	Quiz Test
	4th	**TEXT, INVITATION TO ENGLISH, BOOK -1:** Standing Up for Yourself By Yevgeny Yevtushenko
3rd	1st	The Magic of Teamwork By Sam Pitroda
	2nd	Inchcape Rock By Robert Southey
	3rd	To My True Friend By Elizabeth Pinard
	4th	**VOCABULARY:** Use of synonyms, antonyms
4th	1st	Same word used in different situations in different meaning
	2nd	Single word substitute
	3rd	Quiz Test
	4th	**APPLICATION OF ENGLISH GRAMMAR:** Countable an Uncountable Noun
5th	1st	Articles and Determiners
	2nd	Modal Verbs
	3rd	Tenses
	4th	Voice-change

6th	1st	Subject-verb Agreement
	2nd	Revision
	3rd	**FORMAL WRITING SKILLS:** Paragraph writing, meaning,
	4th	Features of Paragraph Writing (Topic Statement, Supporting Points and Plot Compatibility)
7th	1st	Developing Ideas into Paragraphs (Describing Place/ Person/ Object /Situation and any general topic of interest
	2nd	Notice
	3rd	Agenda
	4th	Report writing (Format of a Report, Reporting an event / news)
8th	1st	Writing personal letter
	2nd	Letter to the Principal, Librarian, Head of the Dept., and Hostel Superintendent
	3rd	Writing Business letters
	4th	Layout of a Business Letter
9th	1st	Letter of Enquiry, Placing an Order, order (Features, Format and example Execution of an Order, Complaint,
	2nd	Job application and C.V. (Features, Format and example)
	3rd	Revision
	4th	**ELEMENTS OF COMMUNICATION: A. Introduction to Communication**
10th	1st	Meaning, Definition and concept of communication
	2nd	Good Communication and Bad Communication
	3rd	Communication model
	4th	One-way Communication Model and Two-way Communication Model with examples
11th	1st	Process of communication and factors responsible for it
	2nd	Sender, Message, Channel, Receiver / Audience,
	3rd	Feedback, Noise, Context
	4th	Revision
12th	1st	**PROFESSIONAL COMMUNICATION*:*** Meaning of professional communication
	2nd	Types of professional communication
	3rd	Formal or Systematic Communication
	4th	Upward communication (How it takes place, symbol, merits and demerits)
13th	1st	Down-ward communication (How it takes place, symbol, merits and demerits)
	2nd	Parallel communication (How it takes place, symbol, merits and demerits)
	3rd	Informal communication Grape vine communication (How it takes place, symbol, merits and demerits)
	4th	Revision
14th	1st	**NON -VERBAL COMMUNICATION:** Meaning of nonverbal Communication

	2nd	Different areas of Non-verbal Communication
	3rd	Kinesics or Body language (postures and Gestures)
	4th	Facial Expression and eye contact
15th	1st	Proxemics or Spatial Language (Private Space, Personal Space, Social Space, Public Space
	2nd	Language of Signs and Symbols
	3rd	Audio Sign and Visual Sign in everyday life with merits and demerits
	4th	Discussion of previous year questions

Vedang Institute of Technology
LESSON PLAN

Discipline: Mechanical Engg.	Semester : 1st	Name of the Teaching Faculty : Reema Sahu
Subject : Engineering Chemistry	No. of days/Per weeks Class Allotted Weeks :4	Semester from date : 16/08/2023 to 11/12/2023 No. of Weeks: 15
Weeks	**Class Days**	**Theory**
1st	1st	Introduction to Atomic structure
	2nd	Fundamental particles (electron, proton & neutron) Definition, mass & charge
	3rd	Rutherford's Atomic model (postulates and failure)
	4th	Atomic mass and mass number, examples and properties of Isotopes, isobars and isotones. Bohr's Atomic model (Postulates only), Bohr-Bury scheme
2nd	1st	Aufbau's principle, Hund's rule, Electronic configuration (up to atomic no 30)
	2nd	Definition , types (Electrovalent, Covalent and Coordinate bond with examples (formation of NaCl, MgCl2, H2,Cl2, O2, N2, H2O, CH4, NH3, NH4 +, SO2)
	3rd	Concept of Arrhenius, Lowry Bronsted and Lewis theory for acid and base with examples (Postulates and limitations only)
	4th	Definitions of atomic weight, molecular weight, Equivalent weight. Determination of equivalent weight of Acid, Base and Salt.
3rd	1st	Modes of expression of the concentrations (Molarity , Normality & Molality) with Simple Problems
	2nd	Definition and types (Strong & weak) of Electrolytes with example. Electrolysis (Principle & process) with example of NaCl (fused and aqueous solution)
	3rd	Faraday's 1st and 2nd law of Electrolysis (Statement, mathematical expression and Simple numerical)
	4th	Definition of Corrosion, Types of Corrosion- Atmospheric Corrosion, Waterline corrosion
4th	1st	Definition of Mineral, ores , gangue with example. Distinction between Ores And Minerals.
	2nd	General methods of extraction of metals
	3rd	Definition of alloy. Types of alloys (Ferro, Non Ferro & Amalgam) with example
	4th	Assignment Question Solving
5th	1st	pH of solution (definition with simple numericals)
	2nd	Importance of pH in industry (sugar, textile, paper industries only)
	3rd	Revise to Chemical Bonding
	4th	Definition of Salt, Types of salts (Normal, acidic, basic, double, complex and mixed salts)

6th	1st	Electrolysis Process
	2nd	Practice Solving Questions
	3rd	Electrolysis (Principle & process) with example of NaCl
	4th	Practice Solving Questions
7th	1st	Saturated and Unsaturated Hydrocarbons (
	2nd	Aliphatic and Aromatic Hydrocarbons (Huckle's rule only).
	3rd	UPAC system of nomenclature of Alkane, Alkene, Alkyne, alkyl halide and alcohol (up to 6 carbons)
	4th	Uses of some common aromatic compounds (Benzene, Toluene, BHC, Phenol, Naphthalene, Anthracene and Benzoic acid)
8th	1st	Sources of water, Soft water, Hard water, hardness
	2nd	Types of Hardness (temporary or carbonate and permanent or non-carbonate)
	3rd	Removal of hardness by lime soda method (hot lime & cold lime—Principle, process & advantages)
	4th	Advantages of Hot lime over cold lime process
9th	1st	Organic Ion exchange method (principle, process, and regeneration of exhausted resins)
	2nd	Definition of lubricant
	3rd	Types of lubricants (solid, liquid and semisolid with examples only)
	4th	specific uses of lubricants (Graphite, Oils, Grease)
10th	1st	Assignment Question Solving
	2nd	Purpose of lubrication
	3rd	Definition and classification of fuel
	4th	Definition of calorific value of fuel
11th	1st	Choice of good fuel
	2nd	Diesel, Petrol, and Kerosene --- Composition and uses.
	3rd	Producer gas and Water gas (Composition and uses)
	4th	Elementary idea about LPG
12th	1st	CNG and coal gas (Composition and uses only)
	2nd	Assignment Question Solving
	3rd	Assignment Question Solving
	4th	Definition of Monomer, Polymer
13th	1st	Homo-polymer
	2nd	Co-polymer and Degree of polymerization.
	3rd	Difference between Thermosetting and Thermoplastic
	4th	Composition and uses of Polythene
14th	1st	Poly-Vinyl Chloride and Bakelite
	2nd	Definition of Elastomer (Rubber)
	3rd	Natural Rubber & it's draw backs

	4th	Vulcanisation of Rubber
15th	1st	Advantages of Vulcanised rubber over raw rubber
	2nd	Pesticides: Insecticides, herbicides
	3rd	Insecticide & Fungicides-Examples and uses
	4th	Bio Fertilizers: Definition, examples and uses
Faculty Signature		**HOD**