Vedang Institute of Technology
Lesson Plan

Discipline: EEE	Semester: 1st	Name of the Teaching Faculty: SMRUTIREKHA PANDA
Subject: Fundamental of EEE	No. of days/Per weeks Class Allotted Weeks 4	Semester from date: 01/08/2023 to 30/11/2023 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.

1st	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).
2nd	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.
3rd	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.
4th	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.
1st	1st	AC through Resistor, Inductor, and Capacitor (voltage-current relationships, reactance).
	2nd	R-L Series AC circuit: Impedance, phase angle, power factor.
	3rd	O R-C Series AC circuit: Impedance, phase angle, power factor.
	4th	R-L-C Series AC circuit: Impedance, Resonance (series resonance), Q-factor.
2nd	1st	Parallel AC circuits (R-L, R-C, R-L-C - basic concepts).
	2nd	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.
3rd	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).
4th	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.
1st	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

VEDANG INSTITUTE OF TECHNOLOGY

DIPLOMA LESSON PLAN

Session (2023-2024)

Discipline: EEE	**Semester: 1st**	**Name of the Faculty:** Aparna Samantaray
Subject: Computer Application, Theory-1b	**No. of Days/week:** 04	**Start Date:** 16/08/2023 **End Date:** 11/12/2023

Week	Class Day	Theory Topics
3rd (Aug-2023)	1st	**COMPUTER ORGANISATION:** Introduction to Computer
	2nd	Evolution & Generation of Computers
	3rd	Classification of Computers
	4th	Basic Organization of Computer (Functional Block diagram)
4th (Aug-2023)	1st	Input Devices, CPU & Output Devices
	2nd	Computer Memory and Classification of Memory
	3rd	Question Answer discussion
	4th	**COMPUTER SOFTWARE:** Software concept, System software, Application software
5th (Aug-2023)	1st	Overview of Operating System Objectives and Functions of OS
	2nd	Types of Operating System: Batch Processing, Multiprogramming, Time Sharing OS
	3rd	Features of DOS, Windows and UNIX
	4th	Programming Languages Compiler, interpreter
2nd (Sep-2023)	1st	Computer Virus Different Types of computer virus Detection and prevention of Virus
	2nd	Application of computers in different Domain
	3rd	Quiz Test
	4th	**COMPUTER NETWORK AND INTERNET:** Networking concept, Protocol
3rd (Sep-2023)	1st	Connecting Media
	2nd	Data Transmission mode
	3rd	Network Topologies
	4th	Types of Networks

4th (Sep-2023)	1st	Networking Devices like Hub, Repeater, Switch, Bridge, Router, Gateway & NIC
	2nd	Internet Services like E-Mail, WWW, FTP, Chatting, Internet Conferencing, Electronic Newspaper & Online Shopping
	3rd	Different types of Internet connectivity and ISP
	4th	Revision
5th (Sep-2023)	1st	**FILE MANAGEMENT AND DATA PROCESSING:** Concept of File and Folder
	2nd	File Access and Storage methods. Sequential, Direct, ISAM
	3rd	File Access and Storage methods. Sequential, Direct, ISAM (contd...)
	4th	Data Capture, Data storage
1st (Oct-2023)	1st	Data Processing and Retrieval
	2nd	Question Answer discussion
	3rd	**PROBLEM SOLVING METHODOLOGY:** Algorithm, Pseudo code and Flowchart
	4th	Generation of Programming Languages
2nd (Oct-2023)	1st	Structured Programming Language
	2nd	Examples of Problem solving through Flowchart
	3rd	Revision
	4th	**OVERVIEW OF C PROGRAMMING LANGUAGE:** Introduction to C program
3rd (Oct-2023)	1st	Constants, Variables
	2nd	Data types in C
	3rd	Managing Input and Output operations and header files
	4th	Structure of a typical C program
1st (Nov-2023)	1st	Operators
	2nd	Type conversion & Typecasting
	3rd	Programs related to above concept.
	4th	Decision Control statement in C
2nd (Nov-2023)	1st	Programs related to Control statement
	2nd	Programs related to Control statement (contd...)
	3rd	Programs related to Control statement (contd...)
	4th	Loop Statements in C
3rd (Nov-2023)	1st	Programs related to loop
	2nd	Programs related to loop (contd...)
	3rd	Revision
	4th	**ADVANCED FEATURES OF C:** Array
4th (Nov-2023)	1st	One Dimensional Array and Multidimensional Array
	2nd	Quiz Test

	3rd	Functions and Passing Parameters to the Function (Call by Value and Call by Reference)
	4th	Recursion Function and Types of Recursion
2nd (Dec-2023)	1st	String Operations
	2nd	Pointers Pointer Expression and Pointer Arithmetic
	3rd	Structure and Union (Only concepts)
	4th	Discussion of previous year questions

Faculty Signature **HOD**

Vedang Institute of Technology
Lesson Plan

Discipline: Electrical & Electronics Engineering	Semester: 1st	Name of the Teaching Faculty: SUSHREESANGITA ROUT
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	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, KHURDA

LESSON PLAN

Session (2023-2024)

Discipline: EEE	**Semester:1st**	**NameoftheFaculty:** Lina Mahanta
Subject: Engineering Physics	**No. of Days/week:**04	**StartDate:**16/08/2023 **EndDate:**11/12/2023

Week	ClassDay	TheoryTopics
1st	1st	Introduction to: Engineering Physics and its syllabus, Question paper pattern and motivation
	2nd	Unit-I: UNIT & DIMENSIONS Physical quantities, Units, types of units and system of units
	3rd	Unit-I: UNIT & DIMENSIONS Dimension and dimensional formulae of physical quantities
	4th	Unit-I: UNIT & DIMENSIONS Principle of homogeneity and application of dimensional analysis
2nd	1st	Revision
	2nd	Unit-2: SCALARS AND VECTORS Concept of scalar and vector quantities with definition, types of vectors, Rules of vector addition: Statements of Triangle law of vector addition
	3rd	Unit-2 SCALARS AND VECTORS Parallelogram law of vector addition and simple numerical, Concept on Resolution of vectors with simple numerical on Horizontal and vertical components
	4th	Unit-2: SCALARS AND VECTORS Vector multiplication: Dot product and Cross Product with simple numerical on dot and cross products
3rd	1st	Unit-3: KINEMATICS Concept of Rest and Motion with examples, Fundamental ideas on distance, displacement, speed, velocity, acceleration and force, equations of motion under gravity both for upward and downward motion
	2nd	Unit-3.• KINEMATICS Circular motion: Conceptual idea on circular motion and terms related to circular motion such as angular displacement, angular velocity and angular acceleration
	3rd	Unit-3: Kinematics Derivations of Relation between- (i) Linear & angular velocity, (ii) Linear & Angular acceleration
	4th	Unit-3 KINEMATICS Projectile motion: Definition and examples, Expression for equation of Trajectory, Time of Flight, Maximum Height and Horizontal Range for a projectile fired at an angel, condition for maximum horizontal range with

		simple numerical
4th	1st	Revision
	2nd	QuizTest
	3rd	Unit-4 WORK AND FRICTION Definition of work, its formula and Sl unit with simple numerical
	4th	Unit-4 WORK AND FRICTION Concept of friction with definition and simple examples, Types of friction
5th	1st	Unit-4 WORK AND FRICTION Definition with concept on limiting friction, and laws of limiting friction (statement only)
	2nd	Unit-4: WORK AND FRICTION Theory on Coefficient of Friction and simple numerical
	3rd	Unit-4: WORK AND FRICTION Methods to reduce friction with examples
	4th	Unit-5: GRAVITATION Introduction, a detail explanation on Newton's Laws of Gravitation
6th	1st	Unit-5: GRAVITATION Definition of Universal Gravitational Constant (G) with its unit and dimensions
	2nd	Unit-5•. GRAVITATION Definition and concept of acceleration due to gravity (g), Relation between 'g' and 'G' and definition of mass and weight
	3rd	Unit-5: GRAVITATION Explanation (No derivation) on variation of ^{i}g' with altitude and depth, statements on Kepler's Laws of Planetary motion
	4th	QuizTest
7th	1st	Unit-6: OSCILLATIONS AND WAVES Definition and examples on Simple Harmonic Motion (SHM), expressions for displacement, velocity and acceleration of a body or article in SHM
	2nd	. Unit-6: OSCILLATIONS AND WAVES Wave Motion (Definition & Concept), Transverse and Longitudinal wave motion (Definition, examples and Comparison
	3rd	Unit-6: OSCILLATIONS AND WAVES Wave parameters and Establish a relation between velocity, frequency and Time period, Ultrasonic- Definition, properties &Applications
	4th	Unit-7: HEAT AND THERMODYNAMICS Heat & temperature- Definition and difference, Units of Heat (FPS, CGS, MKS & SD
8th	1st	Unit-7: HEAT AND THERMODYNAMICS Fundamental ides on Specific heat, Change of State and Latent Heat with simple numerical
	2nd	Unit-7: HEAT AND THERMODYNAMICS Concept on Thermal expansion and Coefficient of linear (a), superficial (ß) and cubical (y) expansions of Solids
	3rd	Unit-7: HEAT AND THERMODYNAMICS Definition and Relation between Work and Heat, Joule's Mechanical Equivalent of Heat, Statement and explanation on 1st Law of thermodynamics
	4th	QuizTest
9th	1st	Unit-8: OPTICS Concept of Reflection and laws of Reflection, Concept of Refraction and laws of Refraction and Refractive index (Definition, formula and

		Simple numerical)
	2nd	Unit-8: OPTICS Concept and Explanation of Total Internal Reflection and Critical angle
	3rd	Unit-8:OPTICS Definition, Properties and Applications on Fiber Optics
	4th	Revision
10th	1st	QuizTest
	2nd	Unit-9:: ELECTROSTATICS AND MAGNETOSTATICS Concept of Electric field and Electric field intensity, Statement and Explanation of Coulomb's law and definition of Unit charge, Absolute & Relative Permittivity(Definition, Relation & Unit),
	3rd	Unit-9: ELECTROSTATICS AND MAGNETOSTATICS Electric potential & Electric potential difference(Definition, formula & SI units), Concept of capacitor and capacitance, Series and parallel combination of capacitors: Formula for e uivalent ca acitance and sim le numerical
	4th	Unit-9: ELECTROSTATICS AND MAGNETOSTATICS Fundamental idea on magnet, Coulomb's law in magnetism and definition of Unit pole
11th	1st	Unit-9: ELECTROSTATICS AND MAGNETOSTATICS Definition of magnetic field and Magnetic field Intensity (H) with its formula and Sl unit, Magnetic lines of forceDefinition and Pro erties
	2nd	Unit-9: ELECTROSTATICS AND MAGNETOSTATICS Magnetic flux(cp) and Magnetic flux density
	3rd	Revision
	4th	QuizTest
12th	1st	Unit-10: CURRENT ELECTRICIIY Introduction to Electric Current, Ohm's law and its applications
	2nd	Unit-10: CURRENT ELECTRICITY Series and parallel combination of resistors: Formula for equivalent resistance and simple numerical
	3rd	Unit-10: CURRENT ELECTRICITY Kirchhoff's laws: Statements & Explanation with diagram
	4th	Unit-IO: CURRENT ELECTRICIN Application of Kirchhoff's law- Derivation of condition of balance of Wheatstone bridge
13th	1st	Revision
	2nd	QuizTest
	3rd	Unit-Il: ELECTROMAGNETISM AND ELECTROMAGNETIC INDUCTION Introduction, Force acting on a current carrying conductor placed in a uniform magnetic field, Fleming's left hand rule
	4th	Unit-Il: ELECTROMAGNETISM AND ELECTROMAGNETIC INDUCTION Statement on Faraday's Laws of Electromagnetic Induction & Lenz's law
14th	1st	Unit-Il: ELECTROMAGNETISM AND ELECTROMAGNETIC INDUCTION Fleming's Right Hand Rule, Comparison between Fleming's Right hand rule &Left hand rule
	2nd	Revision

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