GOVT. POLYTECHNIC KALAHANDI
LESSON PLAN (ENGG. PHYSICS)

Discipline: 2nd Sem electrical	Semester 2nd S.2023	Name of the teaching faculty Binayak Sahu (Sr.Lect. in Physics)
Subject: **Engg. Physics (Th.2a)**	No. of days week class allotted: 04	Semester from date 20/02/23 To date 27/06/2023 No. of weeks 15

Week	Class Day	Theory Topics
1st	1st	**Unit-1 UNITS & DIMENSIONS** Physical quantities, Units, types of units and system of units
	2nd & 3rd	**Unit-1 UNITS & DIMENSIONS** Dimension and dimensional formulae of physical quantities Principle of homogeneity and application of dimensional analysis: Checking the correctness of physical relations and Examples
	4th	**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
2nd	1st	**Unit-2: SCALARS AND VECTORS** Parallelogram law of vector addition and simple numericals, Concept on Resolution of vectors with simple numerical on Horizontal and vertical components
	2nd	**Unit-2: SCALARS AND VECTORS** Vector multiplication: Dot product and Cross Product with simple numericals on dot and cross products
	3rd & 4th	**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
3rd	1st	**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.
	2nd	**Unit-3: KINEMATICS** Derivations of Relation between- (i) Linear & angular velocity, (ii) Linear & Angular acceleration
	3rd & 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 numericals
4th	1st	**Unit-4: WORK AND FRICTION** Definition of work, its formula and SI unit with simple numericals
	2nd	**Unit-4: WORK AND FRICTION** Concept of friction with definition and simple examples, Types of friction
	3rd	**Unit-4: WORK AND FRICTION** Definition with concept on limiting friction, and laws of

		limiting friction (statement only)
	4th	Unit-4: WORK AND FRICTION Theory on Coefficient of Friction and simple numericals
5th	1st	Unit-4: WORK AND FRICTION Methods to reduce friction with practical examples
	2nd & 3rd	Unit-5: GRAVITATION Introduction, a detail explanation on Newton's Laws of Gravitation and definition of Universal Gravitational Constant (G) with its unit and dimensions
	4th	Unit-5: GRAVITATION Definition and concept of acceleration due to gravity (g), Relation between 'g' and 'G' and definition of mass and weight
6th	1st & 2nd	Unit-5: GRAVITATION Explanation (No derivation) on variation of 'g' with altitude and depth, statements on Kepler's Laws of Planetary motion
	3rd & 4th	Unit-6: OSCILLATIONS AND WAVES Definition and examples on Simple Harmonic Motion (SHM), expressions for displacement, velocity and acceleration of a body or particle in SHM
7th	1st	
	2nd & 3rd	Unit-6: OSCILLATIONS AND WAVES Wave Motion (Definition & Concept), Transverse and Longitudinal wave motion (Definition, examples and Comparison)
	4th	Unit-6: OSCILLATIONS AND WAVES Wave parameters and Establish a relation between velocity, frequency and Time period, Ultrasonics-Definition, properties & Applications
8th	1st	Unit-7: HEAT AND THERMODYNAMICS Heat & temperature-Definition and difference, Units of Heat (FPS, CGS, MKS & SI)
	2nd & 3rd	Unit-7: HEAT AND THERMODYNAMICS Fundamental ides on Specific heat, Change of State and Latent Heat with simple numericals
	4th	Unit-7: HEAT AND THERMODYNAMICS
9th	1st & 2nd	Concept on Thermal expansion and Coefficient of linear (α), superficial (β) and cubical (γ) expansions of Solids, Relation between α, β and γ
	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	Unit-8: OPTICS
10th	1st	Concept of Reflection and laws of Reflection, Concept of Refraction and laws of Refraction and Refractive index (Definition, formula and Simple numericals)
	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

11th	4th	**Unit-9 ELECTROSTATICS AND MAGNETOSTATICS** Concept of Electric field and Electric field intensity,
	1st	Statement and Explanation of Coulomb's law and definition of Unit charge, Absolute & Relative Permittivity (Definition, Relation & Unit
	2nd & 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 equivalent capacitance and simple numericals
	4th	**Unit-9: ELECTROSTATICS AND MAGNETOSTATICS** Fundamental idea on magnet, Coulomb's law in magnetism and definition of Unit pole
12th	1st	**Unit-9: ELECTROSTATICS AND MAGNETOSTATICS** Definition of magnetic field and Magnetic field Intensity (H) with its formula and SI unit, Magnetic lines of force-Definition and Properties
	2nd	**Unit-9: ELECTROSTATICS AND MAGNETOSTATICS** Magnetic flux(ϕ) and Magnetic flux density (B)
	3rd & 4th	**Unit-10: CURRENT ELECTRICITY** Introduction to Electric Current, Ohm's law and its applications
13th	1st & 2nd	**Unit-10: CURRENT ELECTRICITY** Series and parallel combination of resistors: Formula for equivalent resistance and simple numericals
	3rd	**Unit-10: CURRENT ELECTRICITY** Kirchhoff's laws: Statements & Explanation with diagram
	4th	**Unit-10: CURRENT ELECTRICITY** Application of Kirchhoff's laws to Wheatstone bridge-Derivation of balance condition of Wheatstone bridge
14th	1st & 2nd	**Unit-11: ELECTROMAGNETISM AND ELECTROMAGNETIC INDUCTION** Introduction, Force acting on a current carrying conductor placed in a uniform magnetic field, Fleming's left hand rule
	3rd & 4th	**Unit-11: ELECTROMAGNETISM AND ELECTROMAGNETIC INDUCTION** Statement on Faraday's Laws of Electromagnetic Induction & Lenz's law
15th	1st	**Unit-11: ELECTROMAGNETISM AND ELECTROMAGNETIC INDUCTION** Fleming's Right Hand Rule, Comparison between Fleming's RHR & LHR
	2nd & 3rd	**Unit-12 MODERN PHYSICS** Introduction to LASER and laser beam, its principle: Population inversion & Optical Pumping
	4th	**Unit-12: MODERN PHYSICS** Concept on Wireless Transmission- Ground waves, Sky waves & Space Waves

Binayak Sahu.
Signature of teaching faculty

HOD/Principal
Principal
Govt. Polytechnic
Kalahandi

SUMMER 2023

ENGG. PHYSICS

LESSON PLAN
SUB-COMPUTER APPLICATION (TH1B)

Discipline: Civil/Mechanical	Semester: 2nd	Name of the Teaching Faculty: Mrs. Manik Manjari Khatua
Subject:- Computer Application	No of Days/ per week class allotted:-	Semester : 2nd No of weeks:- 15 (20/03/23 TO 02/07/23)

Week	Class day	Theory Topics
1st	1st	Introduction to computer, Evolution of computer
	2nd	Generation of computer, Classification of computer
	3rd	Classification of computer, Basic Organisation of Computer(Functional Block diagram)
	4th	Input Devices ,CPU, Output Devices
2nd	1st	Computer Memory and Classification of Memory
	2nd	Software concept, System software, Application software, Overview of Operating System Objective and Functions of O.S
	3rd	Types of Operating System: Batch Processing, Multiprogramming, Timesharing O S
	4th	Feature of DOS , Windows and LINUX
3rd	1st	Programming Languages, Compiler, Interpreter, Computer Virus
	2nd	Different Types of computer virus
	3rd	Detection and Prevention of virus
	4th	Application of Computers in different Domain
4th	1st	Networking concept, Protocol,
	2nd	Connecting Media ,Data Transmission mode
	3rd	Network Topologies
	4th	Types of Network
5th	1st	Networking Devices like Hub, Repeater, Switch, Bridge
	2nd	Router, Gateway & NIC
	3rd	Internet Services Like E-Mail, WWW, FTP, Chatting, Internet Conferencing
	4th	Different types of Internet connectivity and ISP
6th	1st	Concept of File and Folder, File access and Storage Methods: Sequential
	2nd	Direct , ISAM
	3rd	Data Capture, Data storage
	4th	Data processing
7th	1st	Data Retrieval
	2nd	Algorithm, Pseudo code and Flow chart generation of programming Languages
	3rd	Structured Programming Languages
	4th	Examples of Problem solving through Flowchart
Week	Class day	Theory Topics
8th	1st	Examples of Problem solving through Flowchart

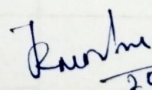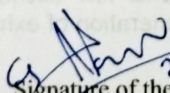|		
	2nd	Examples of Problem solving through Flowchart
	3rd	Constants, Variables and Data types in C, Managing Input and Output operations
	4th	Operators, Expressions, Type conversion & Typecasting
9th	1st	Decision Control and Looping Statements(if, if-else, switch, while)
	2nd	do-while, for, Break ,Continue & goto
	3rd	Programming Assignments Using above features
	4th	Programming Assignments Using above features
10th	1st	Programming Assignments Using above features
	2nd	Programming Assignments Using above features
	3rd	Programming Assignments Using above features
	4th	Programming Assignments Using above features
11th	1st	Programming Assignments Using above features
	2nd	Programming Assignments Using above features
	3rd	Programming Assignments Using above features
	4th	Programming Assignments Using above features
12th	1st	Programming Assignments Using above features
	2nd	Functions and Passing Parameters to the Function(Call by value and call by Reference)
	3rd	Scope of Variables and Storage Classes
	4th	Recursion Function and Types of Recursion
13th	1st	One Dimensional Array and Multidimensional Array
	2nd	String operations and Pointers
	3rd	Pointer Expression and Pointer Arithmetic
	4th	Programming Assignments using the above Features
14th	1st	Programming Assignments using the above Features
	2nd	Programming Assignments using the above Features
	3rd	Programming Assignments using the above Features
	4th	Programming Assignments using the above Features
15th	1st	Programming Assignments using the above Features
	2nd	Programming Assignments using the above Features
	3rd	Programming Assignments using the above Features
	4th	Structure and Union

Signature of Faculty
20|03|23

Principal
G.p,Kalahandi

Discipline: Electrical	Semester: 2nd	Name of the teaching faculty: **Jnyana Ranjan Mishra (Lect. In Chemistry)**
Subject:Engg. Chemistry (Th.2b)	No. of days/week class allotted: 04	Semester from date: 26/03/2023 To date: 27/06/2023 No. of weeks: **15**
Week	Class Day	Theory Topics
1st	1st	**Chapter 1: Atomic structure :** Fundamental particles (electron, proton & neutron Definition,mass and charge)
	2nd	Rutherford's Atomic model (postulates and failure), Atomic mass and mass number, Definition, examples and properties of Isotopes, isobars and isotones
	3rd & 4th	Bohr's Atomic model (Postulates only)
2nd	1st	Bohr-Bury scheme, Aufbau's principle, Hund's rule, Electronic configuration (up to atomic no 30).
	2nd	**Chapter 2 : Chemical Bonding :** Definition , types (Electrovalent, Covalent and Coordinate bond with examples)
	3rd & 4th	Formation of $NaCl$, $MgCl_2$, H_2, Cl_2, O_2, N_2, H_2O, CH_4, NH_3, NH_4^+, SO_2
3rd	1st	**Chapter 3 : Acid base theory :** Concept of Arrhenius, Lowry Bronsted and Lewis theory for acid and base with examples (Postulates and limitations only).
	2nd	Neutralization of acid & base. Definition of Salt, Types of salts (Normal, acidic, basic, double, complex and mixed salts, definitions with 2 examples from each).
	3rd & 4th	**Chapter 4: Solutions :** Definitions of atomic weight, molecular weight, Equivalent weight. Determination of equivalent weight of Acid, Base and Salt
4th	1st	Modes of expression of the concentrations (Molarity , Normality & Molality) with Simple Problems. pH of solution (definition with simple numericals)
	2nd	Importance of pH in industry (sugar, textile, paper industries only)
	3rd	**Chapter 5 : Electrochemistry :** Definition and types (Strong & weak) of Electrolytes with example. Electrolysis (Principle & process) with example of NaCl (fused and aqueous solution).)

	4th	Faraday's 1st and 2nd law of Electrolysis (Statement, mathematical expression and Simple numerical)
5th	1st	Industrial application of Electrolysis- Electroplating (Zinc only)
	2nd	**Chapter 6 : Corrosion**: Definition of Corrosion, Types of Corrosion- Atmospheric Corrosion, Waterline corrosion.
	3rd & 4th	Mechanism of rusting of Iron only
6th	1st & 2nd	Protection from Corrosion by (i) Alloying and (ii) Galvanization.
	3rd & 4th	**Chapter 7 : Metallurgy:** Definition of Mineral, ores , gangue with example. Distinction between Ores And Minerals.
7th	1st	General methods of extraction of metals, i) Ore Dressing ii) Concentration (Gravity separation, magnetic separation, Froth floatation & leaching)
	2nd & 3rd	iii) Oxidation (Calcinations, Roasting) iv) Reduction (Smelting, Definition & examples of flux, slag) v) Refining of the metal (Electro refining, & Distillation only)
	4th	**Chapter 8 : Alloys:** Definition of alloy. Types of alloys (Ferro, Non Ferro & Amalgam) with example
8th	1st	Composition and uses of Brass, Bronze, Alnico, Duralumin
	2nd & 3rd	**Chapter 9 : Hydrocarbons :** Saturated and Unsaturated Hydrocarbons (Definition with example) Aliphatic and Aromatic Hydrocarbons (Huckle's rule only). Difference between Aliphatic and aromatic hydrocarbons
	4th	IUPAC system of nomenclature of Alkane, Alkene, Alkyne, alkyl halide and alcohol (up to 6 carbons) with bond line notation.
9th	1st & 2nd	
	3rd	Uses of some common aromatic compounds (Benzene, Toluene, BHC, Phenol, Naphthalene, Anthracene and Benzoic acid) in daily life.
	4th	**Chapter 10 : Water Treatment :** Sources of water, Soft water, Hard water, hardness
10th	1st	
	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. Organic Ion exchange method (principle, process, and regeneration of exhausted resins)

11th	1st	
	2nd & 3rd	**Chapter 11 : Lubricants**: Definition of lubricant, Types (solid, liquid and semisolid with examples only)
	4th	Specific uses of lubricants (Graphite, Oils, Grease), Purpose of lubrication
12th	1st	**Chapter 12 : Fuel**: Definition and classification of fuel, Definition of calorific value of fuel, Choice of good fuel.
	2nd	Liquid: Diesel, Petrol, and Kerosene --- Composition and uses.
	3rd & 4th	Gaseous: Producer gas and Water gas (Composition and uses). Elementary idea about LPG, CNG and coal gas (Composition and uses only).
13th	1st & 2nd	**Chapter 13 : Polymer**: Definition of Monomer, Polymer, Homo-polymer, Co-polymer and Degree of polymerization.
	3rd	Difference between Thermosetting and Thermoplastic
	4th	Composition and uses of Polythene, & Poly-Vinyl Chloride and Bakelite.
14th	1st & 2nd	Definition of Elastomer (Rubber). Natural Rubber (it's draw backs). Vulcanisation of Rubber.
	3rd & 4th	Advantages of Vulcanised rubber over raw rubber
15th	1st	**Chapter 14: Chemicals in Agriculture:** Pesticides: Insecticides, herbicides, fungicides-Examples and uses.
	2nd & 3rd	Bio Fertilizers: Definition, examples and uses
	4th	Important Question answer discussion

Signature of the HOD/Faculty in-charge   20/03/23

Signature of the teaching faculty   20/03/2023

Signature of the Principal   20/03/13

LESSON PLAN

Discipline: ELECTRICAL ENGINEERING	Semester: SECOND	Name of the Teaching Faculty: SRI HIRENDRA KUMBHAR
Subject: COMMUNICATIVE ENGLISH	No. Of Day / per week: 4 class allotted.	Semester From date : 18/03/2023 To Date: 27/06/2023 No of weeks:15 weeks
WEEK	**CLASS DAY**	**THEORY/PRACTICAL TOPICS**
1st	1st	Reading Comprehension
	2nd	Reading Comprehension
	3rd	Reading Comprehension
	4th	Reading Comprehension
2nd	1st	Reading Comprehension
	2nd	Standing up for yourself
	3rd	Standing up for yourself
	4th	Standing up for yourself
3rd	1st	Standing up for yourself
	2nd	Standing up for yourself
	3rd	Notice Writing
	4th	Notice Writing
4th	1st	Agenda Writing
	2nd	Agenda Writing
	3rd	Use of Synonyms
	4th	Use of Antonyms
5th	1st	Same word used in different situations in different meaning
	2nd	Same word used in different situations in different meaning
	3rd	Single word Substitute
	4th	The Magic of Teamwork
6th	1st	The Magic of Teamwork
	2nd	The Magic of Teamwork
	3rd	The Magic of Teamwork
	4th	The Magic of Teamwork
7th	1st	To My True Friend
	2nd	To My True Friend
	3rd	The Inchcape Rock
	4th	The Inchcape Rock
8th	1st	The Inchcape Rock
	2nd	Countable and Uncountable Noun
	3rd	Articles and Determiners
	4th	Modal Verbs
9th	1st	Tenses
	2nd	Tenses
	3rd	Voice-change
	4th	Voice-change

10th	1st	Subject-verb Agreement	
	2nd	Paragraph Writing	
	3rd	Paragraph Writing	
	4th	Report Writing	
11th	1st	Report Writing	
	2nd	Writing Personal Letter	
	3rd	Letter to Principal, Librarian, Head of the Department and Hostel Superintendent	
	4th	Writing Business Letters (letter of enquiry, placing an order, execution of an order, cancellation, complaint letter)	
12th	1st	Writing Business Letters (letter of enquiry, placing an order, execution of an order, cancellation, complaint letter)	
	2nd	Writing Business Letters (letter of enquiry, placing an order, execution of an order, cancellation, complaint letter)	
	3rd	Job Application and C.V. Writing	
	4th	Job Application and C.V. Writing	
13th	1st	Introduction to Communication	
	2nd	Good Communication and Bad Communication	
	3rd	Communication Models	
	4th	Process of Communication and factors responsible for it	
14th	1st	Meaning of professional communication and its types	
	2nd	Formal Communication (Upward, Downward and Parallel	
	3rd	Formal Communication (Upward, Downward and Parallel	
	4th	Informal Communication (Grape vine Communication)	
15th	1st	Kinesics or Body Language (Postures, Gestures, Facial Expression and Eye contact)	
	2nd	Kinesics or Body Language (Postures, Gestures, Facial Expression and Eye contact)	
	3rd	Proxemics or Spatial Language (Private space, Personal space, Social space and Public space)	
	4th	Language of Signs and Symbols(Audio signs and Visual signs in everyday life with merits and demerits)	

Hirendra Kumbhar
Lect. in English
Name of the Faculty with Designation

Discipline: Electrical/Mechanical Engg.	Semester: 2nd	Name of the teaching faculty: Ritu Biswal
Subject: Engg. Mathematics II Th 3	No. of days/week class allotted: 6	Semester from date: 20/03/2013 To date 27/04/2013 No. of weeks: 14
Week	**Class Day**	**Theory Topics**

1st	1st	**Chapter 2: LIMITS and CONTINUITY:**
		a) Definition of a function
		b) Types of functions
		   i) Constant function,
		   ii) identity function
		   iii) Absolute value function
		   iv) The greatest integer function with examples

	2nd	v) Trigonometric function with example
		   vi) Exponential function
		   vii) Logarithmic function
		   With examples

	3rd	c) Introduction of limit: definition , example d) Existence of limit with example
	4th	e) Methods of evaluation of limit
	5th	Methods of evaluation of limit continues with some examples
	6th (Tutorial class)	problems on existence of limit and evaluation of limit
2nd	1st	i) $\lim\limits_{x \to 0} \dfrac{x^n - a^n}{x - a} = na^{n-1}$ ii) $\lim\limits_{x \to 0} \dfrac{a^x - 1}{x} = \log_e a$ Some problems using these formulae
	2nd	iii) $\lim\limits_{x \to 0} \dfrac{e^x - 1}{x} = 1$ iv) $\lim\limits_{x \to 0} (1+x)^{\frac{1}{x}} = e$ Some problems using these formulae
	3rd	v) $\lim\limits_{x \to \infty} (1+\dfrac{1}{x})^x = e$ vi) $\lim\limits_{x \to 0} \dfrac{\log(1+x)}{x} = 1$ Some problems using these formulae
	4th	vii) $\lim\limits_{x \to 0} \dfrac{\sin x}{x} = 1$ viii) $\lim\limits_{x \to 0} \dfrac{\tan x}{x} = 1$ Some problems using these formulae
	5th	f) Definition of continuity of a function at a point,

	6th (Tutorial class)	Existence of continuity with example
3rd	1st	Problems on limit and continuity
		Chapter 3: DERIVATIVES: a) Derivative of a function at a point b) Algebra of derivative
	2nd	c) Derivative of standard functions: x^n, a^x, $\log_a x$, e^x
	3rd	Derivative of standard functions continues: $\sin x$, $\cos x$, $\tan x$
	4th	Derivative of standard functions continues: $\cot x$, $\sec x$, $\csc x$, $\sin^{-1} x$
	5th	Derivative of standard functions continues: $\cos^{-1} x$, $\tan^{-1} x$, $\cot^{-1} x$
	6th (Tutorial class)	Problem solving on trigonometric functions
4th	1st	Derivative of standard functions continues: $\sec^{-1} x$, $\csc^{-1} x$, d) Derivatives of composite function
	2nd	Derivatives of composite function(Chain rule) continues with examples
	3rd	Derivatives of composite function(Chain rule) continues with examples
	4th	e) Methods of differentiation of i) Parametric function with examples
	5th	Methods of differentiation of ii) Implicit function with examples
	6th (Tutorial class)	Solving problems on derivatives of parametric function and implicit function
5th	1st	Methods of differentiation of iii) Logarithmic function with example
	2nd	Methods of differentiation of iv) A function wrt another function with example
	3rd	f) Applications of derivatives: i) Successive differentiation (up to second order) Some problems on successive differentiation
	4th	Solving problems on successive differentiation
	5th	ii) Partial differentiation (function of two variables up to second order)
	6th (Tutorial class)	Problems on derivative of logarithmic function and successive differentiation.
6th	1st	Partial differentiation continues
	2nd	Some more problems on partial differentiation
	3rd	Revision of derivative
	4th	**Chapter 4: INTEGRATION:** a) Definition of integration as inverse of differentiation b) Integral of standard functions

	5th	**c)** Methods of integration: i) Integration by substitution with examples
	6th (Tutorial class)	Problems on integration by substitution
7th	1st	ii) Integration by parts with examples
	2nd	Problems on integration by parts
	3rd	**d) Integration of the following forms** i) $\int \dfrac{dx}{x^2+a^2}$ ii) $\int \dfrac{dx}{x^2-a^2}$ iii) $\int \dfrac{dx}{a^2-x^2}$ Iv) $\int \dfrac{dx}{\sqrt{x^2+a^2}}$ with examples
	4th	**Integration of the following forms** v) $\int \dfrac{dx}{\sqrt{x^2-a^2}}$ vi) $\int \dfrac{dx}{\sqrt{a^2-x^2}}$ vii) $\int \dfrac{dx}{x\sqrt{x^2+a^2}}$ viii) $\sqrt{a^2-x^2}\,dx$ with **examples**
	5th	**Integration of the following forms** ix) $\sqrt{a^2+x^2}\,dx$ x) $\sqrt{x^2-a^2}\,dx$ **with problems**
	6th (Tutorial class)	Problems on integration by parts
8th	1st	**e) Definite integrals and properties** i) $\displaystyle\int_0^a f(x)\,dx = \int_0^a f(a-x)\,dx$ ii) $\displaystyle\int_a^b f(x)\,dx = -\int_b^a f(x)\,dx$ With problems
	2nd	iii) $\displaystyle\int_a^c f(x)\,dx = \int_a^b f(x)\,dx + \int_b^c f(x)\,dx,\ a<b<c$ $\displaystyle\int_{-a}^a f(x)\,dx = 0$, if $f(x)=odd$ iv) $\displaystyle = 2\int_0^a f(x)\,dx$, if $f(x)=even$ With examples
	3rd	Solving problems on properties of definite integration
	4th	**f) Application of integration** i) Area enclosed by a curve and X-axis and example

	5th	ii) Area of a circle with centre at origin
	6th (Tutorial class)	Solving problems on application of integration
9th	1st	**Chapter 5: DIFFERENTIAL EQUATION:** Definition, ODE, PDE, a) Order and degree of a differential equation
	2nd	Determining Order and degree of a differential equation with examples
	3rd	b) Solution of differential equation Definition i) By method of separation of variable with examples
	4th	method of separation of variable continues with problem solving
	5th	**Some more problems on separation of variables**
	6th (Tutorial class)	Problems on determination of degree and order of a differential equation
10th	1st	ii) Linear equation example
	2nd	Solving linear equation $\dfrac{dy}{dx} + Py = Q,$ where P, Q are functions of x
	3rd	Problems on linear differential equation
	4th	Some more Problems on linear differential equation
	5th	**Revision of differential equation**
	6th (Tutorial class)	**Revision of differential equation**
11th	1st	**Chapter 1: VECTOR ALGEBRA:** a) Introduction: definition of scalar , vector with examples b) Types of vectors: null vector, parallel vector, collinear vectors with examples
	2nd	c) Representation of a vector
	3rd	d) Magnitude and direction of vectors with examples
	4th	e) Addition and subtraction of vectors with examples
	5th	Properties of vector addition and position vector
	6th (Tutorial class)	Problems on magnitude and f) position vector
12th	1st	g) scalar product of two vectors with examples
	2nd	h) Geometrical meaning of dot product
	3rd	Problems on dot product
	4th	i) Angle between two vectors with example
	5th	j) Scalar and vector projection of two vectors with examples
	6th (Tutorial class)	Problems on Scalar and vector projection of two vectors
13th	1st	k) Vector product and geometrical meaning
	2nd	Problems on vector product

	3rd	Revision
	4th	
	5th	
14th	1st	
	2nd	
	3rd	
	4th	
	5th	
15th	1st	
	2nd	
	3rd	
	4th	
	5th	
16th	1st	
	2nd	
	3rd	
	4th	
	5th	