

## LESSON PLAN

BRANCH : MECH, ELECT & ETC • EN64.		SESSION:2023-2024	SEMESTER	2nd	
NAME OF FACULTY: BISWAJIT MALLIK / TAPASWINI BEHERA		SUBJECT	TH-02b(ENGG. CHEM.)		
NO OF CLASSES/WEEK GIVEN AS PER SYLLABUS =04		DATE OF SEMESTER STARTING	DATE OF SEMESTER CLOSING		
		29.1.24	14.5.24		
NO OF CLASSES/WEEK ALLOTTED AS PER TIME TABLE =04		TOTAL NOS. OF WORKING DAYS AS PER SCTE&VT: 60			
SI No.	Chapter	Name of Topic	As per Syllabus No. of classes allotted	As per plan No. of classes required to complete	Detail Content of this chapter
1	UNIT-1	Physical Chemistry	22	22	<p>Chapter 1: Atomic structure : Fundamental particles ( electron, proton &amp; neutron), Definition, mass and charge ). Rutherford's Atomic model ( postulates and failure), Atomic mass and mass number, Definition, examples and properties of Isotopes, Isobars and isotones. Bohr's Atomic model ( Postulates only), Bohr-Bury scheme, Aufbau's principle, Hund's rule, Electronic configuration (up to atomic no 30).</p> <p>Chapter 2 : Chemical Bonding : Definition , types ( Electrovalent, Covalent and Coordinate bond with examples ( formation of NaCl, MgCl<sub>2</sub>, H<sub>2</sub>O<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>, H<sub>2</sub>O, CH<sub>4</sub>, NH<sub>3</sub>, NH<sub>4</sub><sup>+</sup>, SO<sub>2</sub> ).</p> <p>Chapter 3 : Acid base theory : Concept of Arrhenius, Lowry Bronsted and Lewis theory for acid and base with examples ( Postulates and limitations only). Neutralization of acid &amp; base.</p> <p>Definition of Salt, Types of salts ( Normal, acidic, basic, double, complex and mixed salts, definitions with 2 examples from each).</p> <p>Chapter 4: Solutions : Definitions of atomic weight, molecular weight, Equivalent weight, Determination of equivalent weight of Acid, Base and Salt. Modes of expression of the concentrations ( Molarity , Normality &amp; Molality) with Simple Problems. pH of solution ( definition with simple numericals ) Importance of pH in Industry ( sugar, textile, paper industries only)</p> <p>Chapter 5 : Electrochemistry : Definition and types ( Strong &amp; weak) of Electrolytes with example. Electrolysis ( Principle &amp; process) with example of NaCl (fused and aqueous solution).</p> <p>Faraday's 1st and 2nd law of Electrolysis ( Statement, mathematical expression and Simple numerical) Industrial application of Electrolysis- Electroplating ( Zinc only).</p> <p>Chapter 6 : Corrosion: Definition of Corrosion, Types of Corrosion- Atmospheric Corrosion, Waterline corrosion. Mechanism of rusting of Iron only. Protection from Corrosion by (i) Alloying and (ii) Galvanization.</p>

				Chapter 7 : Metallurgy: Definition of Mineral, ores , gangue with example. Distinction between Ores And Minerals. General methods of extraction of metals, i) Ore Dressing ii) Concentration ( Gravity separation, magnetic separation, Froth floatation & leaching) iii) Oxidation (Calcinations, Roasting ) iv) Reduction (Smelting, Definition & examples of flux, slag) v) Refining of the metal ( Electro refining, & Distillation only)	
2	UNIT-2	INORGANIC CHEMISTRY	8	8	Chapter 8 : Alloys: Definition of alloy. Types of alloys   Ferro, Non Ferro & Amalgam) with example. Composition and uses of Brass, Bronze, Alnico, Duralumin
3	UNIT-3	ORGANIC CHEMISTRY	10	10	Chapter 9 : Hydrocarbons : Saturated and Unsaturated Hydrocarbons ( Definition with example) Aliphatic and Aromatic Hydrocarbons ( Huckle's rule only). Difference between Aliphatic and aromatic hydrocarbons IUPAC system of nomenclature of Alkane, Alkene, Alkyne, alkyl halide and alcohol ( up to 6 carbons ) with bond line notation. Uses of some common aromatic compounds ( Benzene, Toluene, BHC, Phenol, Naphthalene, Anthracene and Benzoic acid) in daily life.

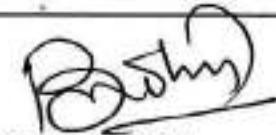
4	UNIT-4 INDUSTRIAL CHEMISTRY	20	20	<p>Chapter 10 : Water Treatment : Sources of water, Soft water, Hard water, hardness, types of Hardness (temporary or carbonate and permanent or non-carbonate), Removal of hardness by lime soda method ( hot lime &amp; cold lime—Principle, process &amp; advantages ), Advantages of Hot lime over cold lime process.</p> <p>Organic Ion exchange method ( principle, process, and regeneration of exhausted resins)</p> <p>Chapter 11 : Lubricants: Definition of lubricant, Types ( solid, liquid and semisolid with examples only ) and specific uses of lubricants ( Graphite, Oils, Grease), Purpose of lubrication</p> <p>Chapter 12 : Fuel: Definition and classification of fuel, Definition of calorific value of fuel, Choice of good fuel.</p> <p>Liquid: Diesel, Petrol, and Kerosene --- Composition and uses.</p> <p>Gaseous: Producer gas and Water gas (Composition and uses). Elementary idea about LPG, CNG and coal gas (Composition and uses only).</p> <p>Chapter 13 : Polymer: Definition of Monomer, Polymer, Homo-polymer, Co-polymer and Degree of polymerization. Difference between Thermosetting and Thermoplastic, Composition and uses of Polythene, &amp; Poly-Vinyl Chloride and Bakelite.</p> <p>Definition of Elastomer ( Rubber). Natural Rubber (it's draw backs ). Vulcanisation of Rubber.</p> <p>Advantages of Vulcanised rubber over raw rubber.</p> <p>Chapter 14: Chemicals in Agriculture: Pesticides: Insecticides, herbicides, fungicides Examples and uses.</p> <p>Bio Fertilizers: Definition, examples and uses.</p>



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**SSB REGIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, CHITRADA, MAYURBHANI**

**LESSON PLAN**

BRANCH- BASIC SCIENCE ENGINEERING		SESSION 2023-24	SEMESTER 2nd	2nd	
NAME OF FACULTY- SHILPA MISHRA		SUBJECT	COMM. ENG.		
NO. OF CLASSES/WEEK GIVEN AS PER SYLLABUS		DATE OF SEM. STARTING	DATE OF SEM. CLOSING		
NO. OF CLASSES/WEEK ALLOTED AS PER TIME TABLE		04	29.1.24	14.5.24	
TOTAL NOS. OF WORKING DAYS AS PER SCTE&VT:		60			
SL. NO.	CHAPTER	NAME OF TOPIC	AS PER SYLLABUS NO. OF CLASSES ALLOTED	AS PER PLAN NO. OF CLASSES REQUIRED TO COMPLETE	DETAIL CONTENT OF THIS CHAPTER
UNIT-I	LITERATURE APPRECIATION	1. Reading comprehension	20	20	<p>Sub-skills of reading comprehension are to be worked out and tested through an unseen passage in about 200-500 words.</p> <p>A student should get acquainted with sub-skills of reading for the purpose of:</p> <ul style="list-style-type: none"> <li>• Skimming the text</li> <li>• Scanning for necessary information</li> <li>• Close reading for inference and evaluation</li> <li>• Main Idea and supporting points</li> <li>• Guessing the meaning of un-familiar words</li> <li>• Note-making</li> <li>• Summarizing</li> <li>• Supplying a suitable title</li> </ul>
		2. Text			<p>The following chapter from "Invitation to English", Book-1 for +2 students of CHSE, Odisha, 2016 reprint to be covered in class room:</p> <ul style="list-style-type: none"> <li>• Standing Up For Yourself By Yevgeny Yevtushenko</li> <li>• The Magic Of Teamwork By Sam Pitroda</li> <li>• Imchape Rock By Robert Southey</li> <li>• To My True Friend By Elizabeth Pinard</li> </ul> <p>The student is to answer comprehension questions from these chapters in the end examination.</p>
UNIT-II	VOCABULARY	use of synonyms, antonyms	05	05	<ul style="list-style-type: none"> <li>• Same word used in different situations in different meaning</li> <li>• Single word substitute</li> </ul>
UNIT-III	APPLICATION OF ENGLISH GRAMMAR		08	08	<ul style="list-style-type: none"> <li>• Countable vs Uncountable Noun</li> <li>• Articles and Determiners</li> <li>• Modal Verbs</li> <li>• Tenses</li> <li>• Voice-change</li> <li>• Subject-verb Agreement</li> </ul>
UNIT-IV	FORMAL WRITING SKILLS		15	15	<ol style="list-style-type: none"> <li>1. Paragraph writing           <ul style="list-style-type: none"> <li>• Meaning</li> <li>• Features of Paragraph Writing (Topic Statement, Supporting Points and Plot Compatibility)</li> <li>• Developing Ideas into Paragraphs (Describing Place/ Person/ Object /Situation and any general topic of interest)</li> </ul> </li> <li>2. Notice</li> <li>3. Agenda</li> <li>4. Report writing (Format of a Report, Reporting an event / news)</li> <li>5. Writing personal letter</li> <li>6. Letter to the Principal, Librarian, Head of the Deptt, and Hostel Superintendent</li> <li>7. Writing Business letters</li> <li>• Layout of a Business Letter</li> <li>• Letter of Enquiry, Placing an Order, Execution of an Order, Complaint, Cancellation of an order (Features, Format and example)</li> <li>8. Job application and C.V. (Features, Format and example)</li> </ol>
UNIT-V	ELEMENTS OF COMMUNICATION	A. Introduction to Communication	1.2	1.4	<ol style="list-style-type: none"> <li>1. Meaning, Definition and concept of communication</li> <li>2. Good Communication and Bad Communication</li> <li>3. Communication model</li> <li>• One-way Communication Model and Two-way Communication Model with examples</li> <li>4. Process of communication and factors responsible for it</li> <li>• Sender, Message, Channel, Receiver / Audience, Feedback, Noise, Context</li> </ol>
		B. Professional Communication			<ol style="list-style-type: none"> <li>1. Meaning of professional communication</li> <li>2. Types of professional communication</li> <li>2.1. Formal or Systematic Communication           <ul style="list-style-type: none"> <li>• Upward communication (How it takes place, symbol, merits and demerits)</li> <li>• Down-ward communication (How it takes place, symbol, merits and demerits)</li> <li>• Parallel communication (How it takes place, symbol, merits and demerits)</li> </ul> </li> <li>2.2. Informal communication</li> <li>• Grape vine communication (How it takes place, symbol, merits and demerits)</li> </ol>
		D. Non-Verbal Communication			<ol style="list-style-type: none"> <li>1. Meaning of nonverbal Communication</li> <li>2. Different areas of Non-verbal Communication</li> <li>• Kinesics or Body Language (Postures and Gestures, Facial Expression and Eye Contact)</li> <li>• Proxemics or Spatial Language (Private Space, Personal Space, Social Space, Public Space)</li> <li>• Language of Signs and Symbols (Audio Sign and Visual Sign in everyday life with merits and demerits)</li> </ol>

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LESSON PLAN						
BRANCH : BASIC SCIENCE			SESSION:2023-2024		SEMESTER	2nd
NAME OF FACULTY: SANGRAM SOY			SUBJECT		TH-01(COMP. APPLICATION)	
NO OF CLASSES/WEEK GIVEN AS PER SYLLABUS =04			DATE OF SEMESTER STARTING 27/01/2024		DATE OF SEMESTER CLOSING 14/05/2024	
NO OF CLASSES/WEEK ALLOTTED AS PER TIME TABLE =04			TOTAL NOS. OF WORKING DAYS AS PER SCTE&VT: 60			
SI No.	Chapter	Name of Topic	As per Syllabus No. of classes allotted	As per plan No. of classes required to complet	Detail Content of this chapter	
1	1	COMPUTER ORGANISATION	5	5	(a)Introduction to Computer (b)Evolution of Computers (c)Generation of Computers (d)Classification of Computers (e)Basic Organisation of Computer (Functional Block diagram) (f)Input Devices, CPU & Output Devices. (g)Computer Memory and Classification of Memory	
2	2	COMPUTER SOFTWARE	7	7	(a)Software concept, System software, Application software (b)Overview of Operating System Objectives and Functions of O.S., (c)Types of Operating System: Batch Processing, Multiprogramming, Time Sharing OS (d)Features of DOS, Windows and UNIX (e)Programming Languages Compiler, interpreter (f) Computer Virus Different Types of computer virus Detection and prevention of Virus (g)Application of computers in different Domain	
3	3	COMPUTER NETWORK AND INTERNET	8	8	(a)Networking concept, Protocol, Connecting Media, Date Transmission mode (b)Network Topologies,(c) Types of Network (d)Networking Devices like Hub, Repeater, Switch, Bridge, Router, Gateway & NIC (e)Internet Services like E-Mail, WWW, FTP, Chatting, Internet Conferencing, Electronic Newspaper & Online Shopping. (f)Different types of Internet connectivity and ISP	
4	4	FILE MANAGEMENT AND DATA PROCESSING	5	5	(a)Concept of File and Folder (b)File Access and Storage methods: Sequential, Direct, ISAM (c)Data Capture, Data storage Data Processing and Retrieval	
5	5	PROBLEM SOLVING METHODOLOGY	5	5	(a)Algorithm, Pseudo code and Flowchart (b) Generation of Programming Languages (c)Structured Programming Language (d)Examples of Problem solving through Flowchart	

6	6	OVERVIEW OF C PROGRAMMI NG LANGUAGE	15	15	(a) Constants, Variables and Data types in C (c) Managing Input and Output operations. (c) Operators, Expressions, (d) Type conversion & Typecasting (e) Decision Control and Looping Statements [if, If-else, If-else-if, Switch, While, DoWhile, For, Break, Continue & Goto] Programming Assignments using the above features.
7	7	ADVANCED FEATURES OF C	15	15	(a) Functions and Passing Parameters to the Function (Call by Value and Call by Reference), (b) Scope of Variables and Storage Classes (c) Recursion Function and Types of Recursion (d) One Dimensional Array and Multidimensional Array (e) String Operations and Pointers (f) Pointer Expression and Pointer Arithmetic Programming Assignments using the above features. (g) Structure and Union (Only concepts, No Programming)

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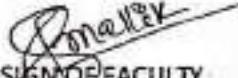
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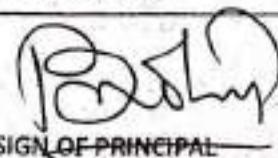
## SSB REGIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, CHITRADA, MAYURBHANJ

## LESSON PLAN

BRANCH: <del>Mechanical Civil Computer</del> Electrical & Electronics	SESSION:	SEMESTER	2nd		
NAME OF FACULTY: Parmananda Malik	SUBJECT	Engg. Mathematics - II			
NO OF CLASSES/WEEK GIVEN AS PER SYLLABUS =	06	DATE OF SEMESTER STARTING 29/1/21	DATE OF SEMESTER CLOSING 14/5/21		
NO OF CLASSES/WEEK ALLOTED AS PER TIME TABLE =	TOTAL NOS. OF WORKING DAYS AS PER SCTE&VT:				
Sl No.	Chapter	Name of Topic	As per Syllabus No. of classes allotted	As per plan No. of classes required to complete	Detail Content of this chapter
01	01	Vector algebra	15	15	<p>1) Introduction</p> <p>2) Types of vectors</p> <p>3) Representation of vector</p> <p>4) Magnitude and direction of vector</p> <p>5) Addition and subtraction of vectors</p> <p>6) Position vectors</p> <p>7) Scalar Product of two vectors</p> <p>8) dot Product</p> <p>9) Angle between two vectors</p> <p>10) Scalar and vector Projection of two vectors</p> <p>11) vector Product</p> <p>12) Meaning of vector Product</p> <p>13) Area of triangle</p> <p>14) Area of Parallelogram</p> <p>15) Revision</p>
02	02	Limits and Continuity	12	10	<p>1) Definition of function based on Set theory.</p> <p>2) types of functions</p> <p>3) types of function, Constant function</p> <p>4) Absolute value function</p> <p>5) Greatest Integer function</p>


  
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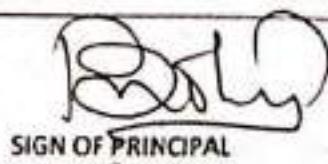

  
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**SSB REGIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, CHITRADA, MAYURBHANI**

BRANCH: Electrical & Civil Computer Sc.				LESSON PLAN		
NAME OF FACULTY: Paramananda Maitrik		SESSION:	SEMESTER	2nd		
NO OF CLASSES/WEEK GIVEN AS PER SYLLABUS =	06	SUBJECT	Engg.	MATHEMATICS-71		
NO OF CLASSES/WEEK ALLOTTED AS PER TIME TABLE =		DATE OF SEMESTER STARTING			DATE OF SEMESTER CLOSING	
TOTAL NOS. OF WORKING DAYS AS PER SCTE&VT:						
Sl No.	Chapter	Name of Topic	As per Syllabus No. of classes allotted	As per plan No. of classes required to complete	Detail Content of this chapter	
02	02		12	10	6) Trigonometric function . Exponential function 7) Logarithmic Function . Introduction of limit 8) Existence of limit . method of evaluating limit 9) $\lim_{n \rightarrow \infty} \frac{n^p - a^n}{n^q} = n^{p-q}$ , $\lim_{n \rightarrow \infty} \frac{e^n - 1}{n} = \log e$ , $\lim_{n \rightarrow \infty} (1 + \frac{1}{n})^n$ 10) Definition of continuity function at a point and problem based on it	
03	03		21	21	1) Definition of derivative of a function at a point. 2) Algebra of derivative 3) Derivatives of standard function . 4) $m^n$ , $a^x$ , $\log x$ , $e^x$ , $\sin x$ , $\cos x$ , $\sec x$ , $\csc x$ 5) $\sin x$ , $\cos x$ , $\tan x$ , $\cot x$ , $\sec x$ , $\csc x$ 6) Derivative of composite function 7) method of differentiation . 8) parametric function . 9) Implicit function .	
					10) a function w.r.t another function 11) Application of derivative 12) successive differentiation . 13) Two order successive differentiation 14) Partial differentiation .. 15) Two variable , problem based on above.	

  
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**SSB REGIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, CHITRADA, MAYURBHANJ**

Mechanical, Civil, Computer & LESSON PLAN

BRANCH:	Electrical & E.E.T.C.		SESSION:	SEMESTER	2nd
NAME OF FACULTY:	Paramananda Majhi		SUBJECT	Engg. Mathematics -II	
NO OF CLASSES/WEEK GIVEN AS PER SYLLABUS =	05		DATE OF SEMESTER STARTING	DATE OF SEMESTER CLOSING	
NO OF CLASSES/WEEK ALLOTED AS PER TIME TABLE =	TOTAL NOS. OF WORKING DAYS AS PER SCTE&VT:				
SI No.	Chapter	Name of Topic	As per Syllabus No. of classes allotted	As per plan No. of classes required to complete	Detail Content of this chapter
04	04	Integration	15	15	<p>1) Definition of Integration      2) Inverse differentiation.      3) Integral of standard function.      4) Integral by parts.      5) Integration of the following      (i) <math>\int \frac{dx}{x^2+a^2}</math> (ii) <math>\int \frac{dx}{x^2-a^2}</math> (iii) <math>\int \frac{dx}{\sqrt{x^2+a^2}}</math>      (iv) <math>\int \frac{dx}{\sqrt{a^2-x^2}}</math> (v) <math>\int \sqrt{a^2-x^2} dx</math> (vi) <math>\int x^2 dx</math>      (vii) <math>\int \frac{dx}{x^2-a^2}</math> (viii) <math>\int \frac{dx}{\sqrt{a^2-x^2}}</math>      6) Definite integral      7) <math>\int_a^b f(x) dx = \int_b^a f(x) dx</math>      8) Application of Integration      9) Area enclosed by curve and x-axis      10) <math>\int_a^b f(x) dx = - \int_b^a f(x) dx</math></p> <p>11) <math>\int_a^b f(x) dx = \int_a^b f(x) dx + \int_b^c f(x) dx</math>, <math>a &lt; b &lt; c</math>      12) <math>\int_a^a f(x) dx = 0</math>, If <math>f(x)</math> is odd      13) <math>= 2 \int_0^a f(x) dx</math>, If <math>f(x)</math> is even.      14) Application of Integration      15) Area enclosed by curve and x-axis</p>
05	05	Differential Equations	12	12	<p>1) Order and degree of a differential equation      2) Solution of differential Equation.      3) 1st order and 1st degree equation      4) Linear equation</p>

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Mechanical, Civil, Computer & Engg. LESSON PLAN

BRANCH: Electrical & Engg.	SESSION:	SEMESTER	2nd
NAME OF FACULTY: Parmanananda Malik	SUBJECT	Engg. Matrix & C8 - II	DATE OF SEMESTER CLOSING
NO OF CLASSES/WEEK GIVEN AS PER SYLLABUS = 6	DATE OF SEMESTER STARTING		

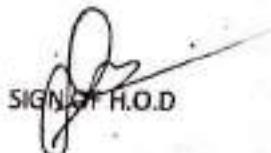
NO OF CLASSES/WEEK ALLOTED AS PER TIME TABLE \*

TOTAL NOS. OF WORKING DAYS AS PER SCTE&VT:

SI No.	Chapter	Name of Topic	As per Syllabus No. of classes allotted	As per plan No. of classes required to complete	Detail Content of this chapter
05	05				5) linear equation $\frac{dx}{dt} + P(t)y = Q$ 6) about P, Q are function of t 7) Revise all TOPIC Related question 8) degree of differential equation 9) linear equation



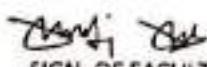
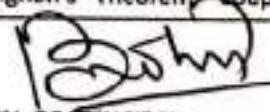
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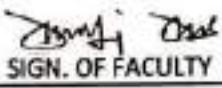
SSB REGIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, CHITRADA, MAYURBHANJ					
LESSON PLAN					
BRANCH: ELECTRICAL ENGINEERING			SESSION: WINTER		SEMESTER: 1ST
NAME OF FACULTY:-DIBYAJYOTI DAS			SUBJECT: ENGINEERING MECHANICS		
NO OF CLASSES/WEEK GIVEN AS PER SYLLABUS= 04			DATE OF SEMESTER STARTING	DATE OF SEMESTER CLOSING	
NO OF CLASSES/WEEK GIVEN AS PER TIME TABLE= 04			29-1-24	14-5-24	
TOTAL NOS. OF WORKING DAYS AS PER SCTEBVT: 60					
SL. NO.	CHAPTER	NAME OF TOPIC	AS PER SYLLABUS NUMBER OF CLASSES ALLOTTED	AS PER PLAN NO. OF CLASSES REQUIRED TO COMPLETE	DETAILS CONTENT OF THIS CHAPTER
1	1	FUNDAMENTALS OF ENGINEERING MECHANICS	14	14	<p>1.1 Fundamentals. Definitions of Mechanics, Statics, Dynamics, Rigid Bodies,</p> <p>1.2 Force Force System. Definition, Classification of force system according to plane &amp; line of action. Characteristics of Force &amp; effect of Force. Principles of Transmissibility &amp; Principles of Superposition. Action &amp; Reaction Forces &amp; concept of Free Body Diagram.</p> <p>1.3 Resolution of a Force. Definition, Method of Resolution, Types of Component forces, Perpendicular components &amp; non-perpendicular components.</p> <p>1.4 Composition of Forces. Definition, Resultant Force, Method of composition of forces, such as</p> <p>1.4.1 Analytical Method such as Law of Parallelogram of forces &amp; method of resolution.</p> <p>1.4.2. Graphical Method. Introduction, Space diagram, Vector diagram, Polygon law of forces.</p> <p>1.4.3 Resultant of concurrent, non-concurrent &amp; parallel force system by Analytical &amp; Graphical Method.</p> <p>1.5 Moment of Force. Definition, Geometrical meaning of moment of a force, measurement of moment of a force &amp; its S.I units. Classification of moments according to direction of rotation, sign convention, Law of moments, Varignon's Theorem, Couple</p>
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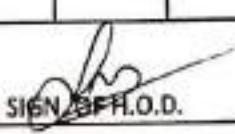
## SSB REGIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, CHITRADA, MAYURBHANJ

## LESSON PLAN

BRANCH: ELECTRICAL ENGINEERING			SESSION: WINTER	SEMESTER: 1ST	
NAME OF FACULTY:-DIBYAJYOTI DAS			SUBJECT: ENGINEERING MECHANICS		
NO OF CLASSES/WEEK GIVEN AS PER SYLLABUS= 04			DATE OF SEMESTER STARTING	DATE OF SEMESTER CLOSING	
			29. 1. 24	14. 5. 24	
NO OF CLASSES/WEEK GIVEN AS PER TIME TABLE= 04				TOTAL NOS. OF WORKING DAYS AS PER SCTE&VT: 60	
SL. NO.	CHAPTER	NAME OF TOPIC	AS PER SYLLABUS NUMBER OF CLASSES ALLOTTED	AS PER PLAN NO. OF CLASSES REQUIRED TO COMPLETE	DETAILS CONTENT OF THIS CHAPTER
2	2	EQUILIBRIUM	8	8	<p>2.1 Definition, condition of equilibrium, Analytical &amp; Graphical conditions of equilibrium for concurrent, non-concurrent &amp; Free Body Diagram.</p> <p>2.2 Lamia's Theorem – Statement, Application for solving various engineering problems</p>
3	3	FRICTION	10	10	<p>3.1 Definition of friction, Frictional forces, Limiting frictional force, Coefficient of Friction, Angle of Friction &amp; Repose, Laws of Friction, Advantages &amp; Disadvantages of Friction.</p> <p>3.2 Equilibrium of bodies on level plane – Force applied on horizontal &amp; inclined plane (up &amp; down).</p> <p>3.3 Ladder, Wedge Friction.</p>
4	4	CENTROID & MOMENT OF INERTIA	14	14	<p>4.1 Centroid – Definition, Moment of an area about an axis, centroid of geometrical figures such as squares, rectangles, triangles, circles, semicircles &amp; quarter circles, centroid of composite figures.</p> <p>4.2 Moment of Inertia – Definition, Parallel axis &amp; Perpendicular axis Theorems. M.I. of plane lamina &amp; different engineering sections</p>



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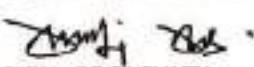
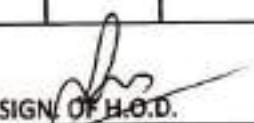
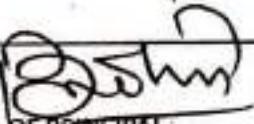


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SSB REGIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, CHITRADA, MAYURBHANJ						
LESSON PLAN						
BRANCH: ELECTRICAL ENGINEERING				SESSION: WINTER	SEMESTER: 1ST	
NAME OF FACULTY:-DIBYAJYOTI DAS				SUBJECT: ENGINEERING MECHANICS		
NO OF CLASSES/WEEK GIVEN AS PER SYLLABUS:- 04			DATE OF SEMESTER STARTING		DATE OF SEMESTER CLOSING	
NO OF CLASSES/WEEK GIVEN AS PER TIME TABLE:- 04			TOTAL NOS. OF WORKING DAYS AS PER SCTE&VT: 60			
SL. NO.	CHAPTER	NAME OF TOPIC	AS PER SYLLABUS NUMBER OF CLASSES ALLOTTED	AS PER PLAN NO. OF CLASSES REQUIRED TO COMPLETE	DETAILS CONTENT OF THIS CHAPTER	
5	5	SIMPLE MACHINES	8	8	<p>5.1 Definition of simple machine, velocity ratio of simple and compound gear train, explain simple &amp; compound lifting machine, define M.A, V.R. &amp; Efficiency &amp; State the relation between them, State Law of Machine, Reversibility of Machine, Self Locking Machine.</p> <p>5.2 Study of simple machines – simple axle &amp; wheel, single purchase crab winch &amp; double purchase crab winch, Worm &amp; Worm Wheel, Screw Jack.</p> <p>5.3 Types of hoisting machine like derricks etc, Their use and working principle. No problems</p>	
6	6	DYNAMICS	6	6	<p>6.1 Kinematics &amp; Kinetics, Principles of Dynamics, Newton's Laws of Motion, Motion of Particle acted upon by a constant force, Equations of motion, DeAlembert's Principle.</p> <p>6.2 Work, Power, Energy &amp; its Engineering Applications, Kinetic &amp; Potential energy &amp; its application.</p> <p>6.3 Momentum &amp; impulse, conservation of energy &amp; linear momentum, collision of elastic bodies, and Coefficient of Restitution</p>	
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**SSB REGIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, CHITRADA, MAYURBHANJ**

**LESSON PLAN**

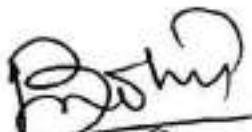
BRANCH : BASIC SCIENCE.		SESSION:2023-2024		SEMESTER	2 <sup>nd</sup>
NAME OF FACULTY: NIBEDAN RAUL		SUBJECT		TH-2.a(ENG. PHY.)	
NO OF CLASSES/WEEK GIVEN AS PER SYLLABUS =04		DATE OF SEMESTER STARTING 20/01/24.		DATE OF SEMESTER CLOSING 14/05/24 .	
NO OF CLASSES/WEEK ALLOTED AS PER TIME TABLE =04		TOTAL NOS. OF WORKING DAYS AS PER SCTE&VT- 60			
SI No.	Chapter	Name of Topic	As per Syllabus No. of classes allotted	As per plan No. of classes required to complete	Detail Content of this chapter
1	UNIT-1	UNITS & DIMENSIONS	3	3	1.1 Physical quantities - (Definition). 1.2 Definition of fundamental and derived units, systems of units (FPS, CGS, MKS and SI units). 1.3 Definition of dimension and Dimensional formulae of physical quantities. 1.4 Dimensional equations and Principle of homogeneity. 1.5 Checking the dimensional correctness of Physical relations.
2	UNIT-2	SCALARS & VECTORS	3	3	2.1 Scalar and Vector quantities (definition and concept), Representation of a Vector – examples, types of vectors. 2.2 Triangle and Parallelogram law of vector Addition (Statement only). Simple Numerical. 2.3 Resolution of Vectors – Simple Numericals on Horizontal and Vertical components. 2.4 Vector multiplication [scalar product and vector product of vectors].
3	UNIT-3	KINEMATICS	6	6	3.1 Concept of Rest and Motion. 3.2 Displacement, Speed, Velocity, Acceleration & FORCE (Definition, formula, dimension & SI units). 3.3 Equations of Motion under Gravity (upward and downward motion) - no derivation. 3.4 Circular motion: Angular displacement, Angular velocity and Angular acceleration (definition, formula & SI units). 3.5 Relation between -(i) Linear & Angular velocity, (ii) Linear & Angular acceleration). 3.6 Define Projectile, Examples of Projectile. 3.7 Expression for Equation of Trajectory, Time of Flight, Maximum Height and Horizontal Range for a projectile fired at an angle, Condition for maximum Horizontal Range.
4	UNIT-4	WORK & FRICTION	5	5	4.1 Work – Definition, Formula & SI units. 4.2 Friction – Definition & Concept. 4.3 Types of friction (static, dynamic), Limiting Friction (Definition with Concept). 4.4 Laws of Limiting Friction (Only statement, No Experimental Verification). 4.5 Coefficient of Friction – Definition & Formula, Simple Numericals. 4.6 Methods to reduce friction
					5.1 Newton's Laws of Gravitation – Statement and Explanation.

5	UNIT-5	GRAVITATION	5	5	<p>5.2 Universal Gravitational Constant (G)- Definition, Unit and Dimension.</p> <p>5.3 Acceleration due to gravity (g)- Definition and Concept.</p> <p>5.4 Definition of mass and weight.</p> <p>5.5 Relation between g and G.</p> <p>5.6 Variation of g with altitude and depth (No derivation – Only Explanation).</p> <p>5.7 Kepler's Laws of Planetary Motion (Statement only).</p>
6	UNIT-6	OSCILLATIONS & WAVES	6	6	<p>6.1 Simple Harmonic Motion (SHM) - Definition &amp; Examples.</p> <p>6.2 Expression (Formula/Equation) for displacement, velocity, acceleration of a body/ particle in SHM.</p> <p>6.3. Wave motion – Definition &amp; Concept.</p> <p>6.4 Transverse and Longitudinal wave motion – Definition, Examples &amp; Comparison.</p> <p>6.5 Definition of different wave parameters (Amplitude, Wavelength, Frequency, Time Period).</p> <p>6.6 Derivation of Relation between Velocity, Frequency and Wavelength of a wave</p> <p>6.7 Ultrasonics – Definition, Properties &amp; Applications.</p>
7	UNIT-7	HEAT AND THERMODYNAMICS	7	7	<p>7.1 Heat and Temperature – Definition &amp; Difference</p> <p>7.2 Units of Heat (FPS, CGS, MKS &amp; SI).</p> <p>7.3 Specific Heat (concept, definition, unit, dimension and simple numerical)</p> <p>7.4 Change of state (concept), Latent Heat (concept, definition, unit, dimension and simple numerical)</p> <p>7.5 Thermal Expansion – Definition &amp; Concept</p> <p>7.6 Expansion of Solids (Concept)</p> <p>7.7 Coefficient of linear, superficial and cubical expansions of Solids – Definition &amp; Units.</p> <p>7.8 Relation between <math>\alpha</math>, <math>\beta</math> &amp; <math>\gamma</math></p> <p>7.9 Work and Heat - Concept &amp; Relation.</p> <p>7.10 Joule's Mechanical Equivalent of Heat (Definition, Unit)</p> <p>7.11 First Law of Thermodynamics (Statement and concept only)</p>
8	UNIT-8	OPTICS	4	4	<p>8.1 Reflection &amp; Refraction – Definition.</p> <p>8.2 Laws of reflection and refraction (Statement only)</p> <p>8.3 Refractive index – Definition, Formula &amp; Simple numerical.</p> <p>8.4 Critical Angle and Total internal reflection – Concept, Definition &amp; Explanation</p> <p>8.5 Refraction through Prism (Ray Diagram &amp; Formula only – NO derivation)..</p> <p>8.6 Fiber Optics – Definition, Properties &amp; Applications.</p>
9	UNIT-9	ELECTROSTATICS & MAGNETOST	7	7	<p>9.1 Electrostatics – Definition &amp; Concept.</p> <p>9.2 Statement &amp; Explanation of Coulomb's laws, Definition of Unit charge.</p> <p>9.3 Absolute &amp; Relative Permittivity (<math>\epsilon</math>) – Definition, Relation &amp; Unit.</p> <p>9.4 Electric potential and Electric Potential difference (Definition, Formula &amp; SI Units).</p> <p>9.5 Electric Field, Electric field intensity (E) – Definition, Formula &amp; Unit.</p> <p>9.6 Capacitance - Definition, Formula &amp; Unit.</p> <p>9.7 Series and Parallel combination of Capacitors (No derivation, Formula for effective/Combined/total capacitance &amp; Simple numericals).</p> <p>9.8 Magnet, Properties of a magnet.</p> <p>9.9 Coulomb's Laws in Magnetism – Statement &amp; Explanation, Unit Pole</p>

		ATICS			(Definition). 9.10 Magnetic field, Magnetic Field intensity ( $H$ ) - (Definition, Formula & SI Unit). 9.11 Magnetic lines of force (Definition and Properties) 9.12 Magnetic Flux ( $\Phi$ ) & Magnetic Flux Density ( $B$ ) – Definition, Formula & Unit.
10	UNIT-10	CURRENT ELECTRICITY	6	6	10.1 Electric Current – Definition, Formula & SI Units. 10.2 Ohm's law and its applications. 10.3 Series and Parallel combination of resistors (No derivation, Formula for effective/ Combined/ total resistance & Simple numericals). 10.4 Kirchhoff's laws (Statement & Explanation with diagram). 10.5 Application of Kirchhoff's laws to Wheatstone bridge - Balanced condition of Wheatstone's Bridge – Condition of Balance (Equation).
11	UNIT-11	ELECTROMAGNETISM & ELECTROMAGNETIC INDUCTION	5	5	11.1 Electromagnetism – Definition & Concept. 11.2 Force acting on a current carrying conductor placed in a uniform magnetic field, Fleming's Left Hand Rule 11.3 Faraday's Laws of Electromagnetic Induction (Statement only) 11.4 Lenz's Law (Statement) 11.5 Fleming's Right Hand Rule 11.6 Comparison between Fleming's Right Hand Rule and Fleming's Left Hand Rule.
12	UNIT-12	MODERN PHYSICS	3	3	12.1 LASER & laser beam (Concept and Definition) 12.2 Principle of LASER (Population inversion & Optical Pumping) 12.3 Properties & Applications of LASER 12.4 Wireless Transmission – Ground Waves, Sky Waves, Space Waves
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**SSB REGIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, CHITRADA, MAYURBHANJ**

**LESSON PLAN**

BRANCH: Mech. Civil & Comp Sc - Engg.			SESSION: 2023-24	SEMESTER: 2nd
NAME OF FACULTY: BASTA HANSDAH			SUBJECT(Th-4a): BASIC ELECTRICAL ENGINEERING	
NO OF CLASSES/WEEK GIVEN AS PER SYLLABUS=04			DATE OF SEMESTER STARTING 29/1/2024	DATE OF SEMESTER CLOSING 14/5/2024
NO OF CLASSES/WEEK GIVEN AS PER TIME TABLE=04			TOTAL NOS OF WORKING DAYS AS PER SCTE&VT:	
SL.NO	CHAPTER	NAME OF THE TOPIC	AS PER SYLLABUS NUMBER OF CLASSES ALLOTED	AS PER PLAN NO. OF CLASSES REQUIRED TO COMPLETE
1	1	FUNDAMENTALS	5	5
2	2	A.C. THEORY	8	8
3	3	GENERATION OF ELECTRICAL POWER	3	3
DETAILS CONTENTS OF THIS CHAPTER				
<p>1.1 Concept of current flow.          1.2 Concept of source and load.          1.3 State Ohm's law and concept of resistance.          1.4 Relation of V, I &amp; R in series circuit.          1.5 Relation of V, I &amp; R in parallel circuit.          1.6 Division of current in parallel circuit.          1.7 Effect of power in series &amp; parallel circuit.          1.8 Kirchhoff's Law.          1.9 Simple problems on Kirchhoff's law.</p>				
<p>2.1 Generation of alternating emf.          2.2 Difference between D.C. &amp; A.C.          2.3 Define Amplitude, Instantaneous value, cycle, Time period, frequency, phase angle, phase difference.          2.4 State &amp; Explain RMS value, Average value, Amplitude factor &amp; Form factor with Simple problems.          2.5 Represent AC values in phasor diagrams.          2.6 AC through pure resistance, inductance &amp; capacitance          2.7 AC through RL, RC, RLC series circuits.          2.8 Simple problems on RL, RC &amp; RLC series circuits.          2.9 Concept of Power and Power factor          2.10 Impedance triangle and power triangle</p>				
<p>3.1 Give elementary Idea on generation of electricity from thermal, hydro &amp; nuclear power station with block diagram</p>				

4	CONVERSION OF ELECTRICAL ENERGY	7	7	<p>4.1 Introduction of DC machines.</p> <p>4.2 Main parts of DC machines.</p> <p>4.3 Classification of DC generator</p> <p>4.4 Classification of DC motor.</p> <p>4.5 Uses of different types of DC generators &amp; motors.</p> <p>4.6 Types and uses of single phase induction motors.</p> <p>4.7 Concept of Lumen</p> <p>4.8 Different types of Lamps (Filament, Fluorescent, LED bulb) its Construction and Principle.</p> <p>4.9 Star rating of home appliances (Terminology, Energy efficiency, Star rating Concept)</p>
5	WIRING AND POWER BILLING	4	4	<p>5.1 Types of wiring for domestic installations.</p> <p>5.2 Layout of household electrical wiring (single line diagram showing all the important component in the system).</p> <p>5.3 List out the basic protective devices used in house hold wiring.</p> <p>5.4 Calculate energy consumed in a small electrical installation</p>
6	MEASURING INSTRUMENTS	3	3	<p>6.1 Introduction to measuring instruments.</p> <p>6.2 Torques in instruments.</p> <p>6.3 Different uses of PMMC type of instruments (Ammeter &amp; Voltmeter).</p> <p>6.4 Different uses of MI type of instruments (Ammeter &amp; Voltmeter).</p> <p>6.5 Draw the connection diagram of A.C/ D.C Ammeter, voltmeter, energy meter and wattmeter. (Single phase only).</p>



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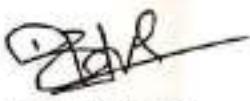


**SSB REGIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY, CHITRADA, MAYURBHANI**

**LESSON PLAN**

BRANCH: Mech, Civil, & Comp Sc. Engg.			SESSION: 2023-24	SEMESTER: 2nd	
NAME OF FACULTY: BASTA HANSDAH			SUBJECT(Th-4b): BASIC ELECTRONICS ENGINEERING		
NO OF CLASSES/WEEK GIVEN AS PER SYLLABUS=04			DATE OF SEMESTER STARTING 29/1/2024	DATE OF SEMESTER CLOSING 14/5/2024	
NO OF CLASSES/WEEK GIVEN AS PER TIME TABLE=04			TOTAL NOS OF WORKING DAYS AS PER SCTE&VT:		
SLNO	CHAPTER	NAME OF THE TOPIC	AS PER SYLLABUS NUMBER OF CLASSES ALLOTED	AS PER PLAN NO. OF CLASSES REQUIRED TO COMPLETE	
1	1	ELECTRONIC DEVICES	8	8	<b>DETAILS CONTENTS OF THIS CHAPTER</b>
					<p>1.1 Basic Concept of Electronics and its application.          1.2 Basic Concept of Electron Emission &amp; its types.          1.3 Classification of material according to electrical conductivity (Conductor, Semiconductor &amp; Insulator) with respect to energy band diagram only.          1.4 Difference between Intrinsic &amp; Extrinsic Semiconductor.          1.5 Difference between vacuum tube &amp; semiconductor.          1.6 Principle of working and use of PN junction diode, Zener diode and Light Emitting Diode (LED)          1.7 Integrated circuits (I.C) &amp; its advantages.</p>
2	2	ELECTRONIC CIRCUITS	9	9	<p>2.1 Rectifier &amp; its uses.          2.2 Principles of working of different types of Rectifiers with their merits and demerits          2.3 Functions of filters and classification of simple Filter circuit (Capacitor, choke input and π)          2.4 Working of D.C power supply system (unregulated) with help of block diagrams only          2.5 Transistor, Different types of Transistor Configuration and state output and input current gain relationship in CE, CB and CC configuration (No mathematical derivation)          2.6 Need of biasing and explain different types of biasing with circuit diagram. (only CE configuration)          2.7 Amplifiers (concept), working principles of single phase CE amplifier          2.8 Electronic Oscillator and its classification          2.9 Working of Basic Oscillator with different elements through simple Block Diagram</p>

3	3	COMMUNICATION SYSTEM	3	3	<p>3.1 Basic communication system (concept &amp; explanation with help of Block diagram)</p> <p>3.2 Concept of Modulation and Demodulation, Difference between them</p> <p>3.3 Different types of Modulation (AM, FM &amp; PM) based on signal, carrier wave and modulated wave (only concept, No mathematical Derivation)</p>
4	4	TRANSDUCERS AND MEASURING INSTRUMENTS	10	10	<p>4.1 Concept of Transducer and sensor with their differences.</p> <p>4.2 Different type of Transducers &amp; concept of active and passive transducer.</p> <p>4.3 Working principle of photo emissive, photoconductive, photovoltaic transducer and its application</p> <p>4.4 Multimeter and its applications</p> <p>4.5 Analog and Digital Multimeter and their differences</p> <p>4.6 Working principle of Multimeter with Basic Block diagram</p> <p>4.7 CRO, working principle of CRO with simple Block diagram</p>



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