

PADMASHREE KRUTARTHA ACHARYA  
INSTITUTE OF ENGINEERING & TECHNOLOGY,  
BARGARH



LESSON PLAN  
Session-2022-2023

Discipline: Common

Semester: 1st

Subject: Engg. Math.-I

Name of the Teaching Faculty: Mr. S.K. Sahu

Mr. S. Meher & Mr. R.R. Sahu

Subject: Eng. Mathematics - I No. of Days/per week class allotted 02

Semester From Date: 25.10.2021 Date: 10.02.2022 No. of Weeks: 08 to 7 = 15

Week	Class Day	Theory / Practical Topics
1st	1	Definition of a Determinant from linear equation, Row, column, order of Determinant.
	2	Value of 2nd and 3rd order Determinant.
2nd	1	Minor of a Determinant
	2	Co-factor of a Determinant
3rd	1	Properties of a Determinant with verification through examples.
	2	Proof of Determinant using properties.
4th	1	Cramer's rule for the system of linear equations involving 2 and 3 variables
	2	Types of solution of system of linear equations: unique, no, infinite solution
5th	1	Definition of matrix, row, column, order of matrix, general form of matrix of order $m \times n$
	2	Algebra of a matrix: Addition, Subtraction, Multiplication (Scalar)
6th	1	Defn of Diagonal matrix, unit matrix, Transposed matrix, upper and lower triangular matrix
	2	$n$ th order matrix, Definition of Square, Singular, Non-Singular matrix.

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Subject: CSE, EE, ME, Civil, No. of Days/per week class allotted 02  
Metallurgical

Semester From Date: 24/10/2019 To Date: 20/2/2020 No. of Weeks: 08+07=15

Week	Class Day	Theory / Practical Topics
7 <sup>th</sup>	1	Multiplication of a matrix of 2nd, 3rd order and other orders
	2	Properties of matrix w.r.t. addition and multiplication
8 <sup>th</sup>	1	Adjoint and inverse of a matrix
	2	Solution of System of linear equations by Matrix inverse method.
9 <sup>th</sup>	1	Trigonometric function, sign of trigonometric function.
	2	Trigonometric Ratio
10 <sup>th</sup>	1	Addition or compound angle $\sin(A+B)$ , $\cos(A+B)$ , $\tan(A+B)$ , $\cot(A+B)$ $\sin(A+B+C)$ , $\cos(A+B+C)$
	2	compound angle: $\tan(A+B+C)$ $\sin(A-B)$ , $\cos(A-B)$ , $\tan(A-B)$
11 <sup>th</sup>	1	Deduction from addition theorem. $\sin(\pi-\theta)$ , $\cos(\pi-\theta)$ , $\tan(\pi-\theta)$ $\sin(2\pi-\theta)$ , $\cos(2\pi-\theta)$ , $\tan(2\pi-\theta)$
	2	$\sin(\pi+\theta)$ , $\cos(\pi+\theta)$ , $\tan(\pi+\theta)$ , $\sin(2\pi+\theta)$ , $\cos(2\pi+\theta)$ , $\tan(2\pi+\theta)$ , $\sin(n\pi+\theta)$ , $\cos(n\pi+\theta)$ .
12 <sup>th</sup>	1	Trigonometric function of angle $\frac{\pi}{2}-\theta$ , $\frac{\pi}{2}+\theta$ , $n\frac{\pi}{2}+\theta$
	2	Multiple angle; $\sin 2A$ , $\cos 2A$ , $\tan 2A$ , $\cot 2A$

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Subject: Eng. Mathematics-I No. of Days/per week class allotted 02

Semester From Date: 25.10.2022 To Date: 20.02.2023 No. of Weeks: 15

Week	Class Day	Theory / Practical Topics
13 <sup>th</sup>	1	Multiple angle: $\sin 3A, \cos 3A, \tan 3A$ , Application of formulae
	2	Sub multiple angle: $\sin A/2, \cos A/2, \tan A/2, \cot A/2$ . Application of formulae
14 <sup>th</sup>	1	Sub multiple angle: $\sin a, \cos a, \tan a$ i.e. $\sin a = \sin 2 \cdot \frac{a}{2}, \sin a = \frac{2 \cos \frac{a}{2} \sin \frac{a}{2}}$
	2	Application of multiple & sub multiple angle formulae to the trigonometrical problem.
15 <sup>th</sup>	1	Inverse trigonometric function
	2	Properties of inverse trigonometric function

  
Signature of the Faculty