PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH

PROGRESS REGISTER

Session-2022-2023

Discipline: Civil/Mechanical Engg.

Semester: 1st Section-E Subject: Engg. Mathematics-I

Name of the Teaching Faculty: Mr. Rajaram Sahu

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 : 14

Date	Topics to be covered as per Lesson Plan	Topics actually covered	Points/contents Discussed (in brief)	Signature of Teacher
26.10.22	Determinant	Definetion from linear equation	Linear eqn Elimination method, Definedion	Kalu
27.10.22	Determinant	Row, column order	2nd, 3rd, 4th order determinant	Kalu
28.10.22	Determinant	Value of 2nd order determinant	Determinant involving real number Trigonometric	Kalu
29.10.22	Determinant	Value of 3rd order determinant	Examples for 3rd order determinant	Kalu
31.10.22	Determinant	Minor-1	Minor of 2nd order determinant	Kalu
2.11.22	Determinant	Minor-2	Minor of 3rd order determinant	Kalu
3.11.22	Determinant	Co-factor	General formula, 2nd order determinant	Kalu
4.11.22	Determinant	Co-factor	3rd order determinant	Kalu
5.11.22	Determinant	Properties 1, 2, 3	Varification through examples	Kalu
7.11.22	Determinant	Properties 4, 5, 6	Varification through examples	Kalu
9.11.22	Determinant	Application of properties in Problems	Proof of examples using properties	Kalu

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10.11.22	Determinant	Application of Properties in problems	Examples for finding values of unknown variables	Kralu
11.11.22	Determinant	Cramer's Rules	Solution of linear equations for 2-variables	Kralu
12.11.22	Determinant	Cramer's rule for No solution, unique soln	System of linear equations	Kralu
14.11.22	Determinant	Cramer's rule for infinite solution	System of linear equations	Kralu
17.11.22	Matrix	Definition, General form	Array, Different examples	Kralu
18.11.22	Matrix	Row, column, order	mx1, 1xn, mxn, n, 2nd, 3rd order	Kralu
19.11.22	Matrix	Types of matrix	Row, column, zero matrices	Kralu
21.11.22	Matrix	Types of matrices	Square, scalar, diagonal.	Kralu
23.11.22	Matrix	Types of matrices	Unit, transposed, singular, Non singular	Kralu
24.11.22	Matrix	Algebra of Matrices	Addition, Substraction, Scalar multiplication	Kralu
25.11.22	Matrix	Algebra of Matrices	Multiplication of 2nd and 3rd order matrices	Kralu

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26.11.22	Matrix	Properties w.r.t. addition	closure, commutative, Associative, distributive	Kalu
28.11.22	Matrix	Properties w.r.t. Multiplication	closure, commutative, Associative, distributive	Kalu
30.11.22	Matrix	Adjoint	2nd order, 3rd order matrices examples	Kalu
1.12.22	Matrix	Adjoint, inverse of a matrix	inverse of 2nd order, 3rd order matrices	Kalu
2.12.22	Matrix	Matrix inverse method	System of linear equation	Kalu
3.12.22	Trigonometry	Trigonometric Function	Domain, co-domain	Kalu
5.12.22	Trigonometry	Trigonometric ratio, sign	h, P, b of right angled triangle, Sin, cos, Tan, cot, cosec, Sec	Kalu
7.12.22	Trigonometry	Compound angle	Sin(A±B), cos(A±B)	Kalu
8.12.22	Trigonometry	compound angle	tan(A±B) cot(A±B) tan(A+B+C)	Kalu
9.12.22	Trigonometry	Deduction from addition theorem	Sin($\frac{\pi}{2}$ ± θ) cos($\frac{\pi}{2}$ ± θ) tan($\frac{\pi}{2}$ ± θ)	Kalu
10.12.22	Trigonometry	Deduction from Addition theorem	Sin(π ± θ) cos(π ± θ) tan(π ± θ)	Kalu

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12.12.22	Trigonometry	Deduction from Addition theorem	$\sin(2\pi \pm \theta)$, $\cos(2\pi \pm \theta)$ $\tan(2\pi \pm \theta)$ $\sin(n\pi \pm \theta)$,	Kalu
13.12.22	Trigonometry	Multiple angle	$\sin 2A$, $\cos 2A$, $\tan 2A$, $\cot 2A$,	Kalu
14.12.22	Trigonometry	Multiple angles	$\sin 3A$, $\cos 3A$, $\tan 3A$	Kalu
15.12.22	Trigonometry	Sub-multiple angle	$\sin A/2$, $\cos A/2$, $\tan A/2$, $\cot A/2$	Kalu
16.12.22	Trigonometry	Inverse trigonometric function	Domain, co-domain	Kalu
17.12.22	Trigonometry	Properties of Inverse T. F.	$\sin(\sin^{-1}x)$, ... $\sin^{-1}x + \cos^{-1}x$, $\sin^{-1}x + \cos^{-1}y$	Kalu
19.12.22	Trigonometry	$\sin(A \pm B)$ $\cos(A \pm B)$ $\tan(A \pm B)$	Exercise	Kalu
20.12.22	Trigonometry	- do -	- do -	Kalu
21.12.22	Trigonometry	$\sin 2A$, $\cos 2A$, $\tan 2A$, $\sin 3A$, $\tan 3A$	Exercise	Kalu
22.12.22	Trigonometry	- do -	Exercise	Kalu
23.12.22	Trigonometry	- do -	Exercises	Kalu

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24.12.22	2-dimensional Geometry	Introduction	x-axis, y-axis, origin, coordinate	Kralu
26.12.22	2-dimensional Geometry	Distance, Division	Distance between two points, external, internal division	Kralu
28.12.22	2-dimensional Geometry	Area of a triangle	Examples	Kralu
29.12.22	— do —	Slope of 2 lines condition.	formula, angle between 2 lines, parallel condition	Kralu
30.12.22	2-dimensional Geometry	Equation of Straight line	1 and 2 point form	Kralu
31.12.22	2-D-Geometry	Equation of line	Slope, intercept, Perpendicular form.	Kralu
2.1.23	2-D-Geometry	Equation of line	Eqn of line through a point and Parallel to a line, ⊥ to a line	Kralu
4.1.23	2-D-Geometry	Equation of a line	Eqn of line through intersection of 2 lines	Kralu
5.1.23	2-D-Geometry	Eqn of a line	Distance of a point from a line	Kralu
7.1.23	Circle	center and radius of a circle	Equation, center, radius	Kralu
9.1.23	Circle	Equation of circle	center and radius form	Kralu

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11.1.23	Circle	Equation of a circle	General eqn of a circle	Rcalm
12.1.23	circle	Equation of a circle	End point of diameter form	Rcalm
13.1.23	Circle	Equation of circle	Eqn of circle passing through 2 points	Rcalm
16.1.23	3-Dimensional Geometry	3-dimension introduction	X, Y and Z-axis, coordinate, origin	Rcalm
18.1.23	3-D-Geometry	Distance between 2-points	Formulae, Examples	Rcalm
19.1.23	3-D-Geometry	Division formulae	Internal and external division	Rcalm
20.1.23	3-D-Geometry	Direction ratios & Cosine.	Formulae, angle between 2 line, condition for ∥ and ⊥	Rcalm
21.1.23	3-D-Geometry	Equation of a plane	Formula, General form	Rcalm
25.1.23	3-D-Geometry	Eqn of a plane	Angle between two planes, perpendicular distance	Rcalm
27.1.23	3-D-Geometry	Eqn of a plane	Eqn of plane passing through a point and ∥ and ⊥ to a plane	Rcalm
28.1.23	Sphere	Equation of sphere	center & radius form	Rcalm

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30.1.23	Sphrere	Eqn of a Sphere	General form, Examples	Realm
1.2.23	Sphere	Eqn of a Sphere	Eqn of Sphere on end points of diameter, Problems	Realm
2.2.23	Sphere	Eqn of a Sphere	Syetem of Sphere	Realm