Lesson Plan (2025-2026)

Name	:	Narender Rana
Discipline	:	Common for all branches
Year	:	1st Sem
Subject	:	Applied Mathematics I
Code	:	220012
Duration	:	04/08/2025 to 26/11/2025
Work Load	:	4 Lectures per week

Theory	
Lecture No.	Topics
1	Complex numbers: definition of complex number, real and imaginary parts of a complex number.(L1)
2	Complex numbers: definition of complex number, real and imaginary parts of a complex number.(L2)
3	Addition, subtraction, multiplication and division of complex numbers.(L1)
4	Addition, subtraction, multiplication and division of complex numbers.(L2)
5	Conjugate of a complex number, modulus and amplitude of complex numbers.
6	Polar and Cartesian form and their inter conversion.
7	Logarithms and its basic properties.(L1)
8	Logarithms and its basic properties.(L2)
9	Logarithms and its basic properties.(L3)
10	Permutation and value of ${}^{n}P_{r}$ with solved examples.
11	Combination and value of ${}^{n}C_{r}$ with solved examples.
12	Binomial theorem for positive integral index with simple problems. (L1)
13	Binomial theorem for positive integral index with simple problems. (L2)
14	General term from binomial expansion and related problems.
15	Binomial theorem for any index with simple problems
16	Definition of Matrix and its types with examples .
17	Addition and subtraction of Matrices. (upto 2nd order).
18	Multiplication of Matrices (upto 2nd order).
19	Determinants: Evaluation of determinants (up to 2 orders).(L1)
20	Determinants: Evaluation of determinants (up to 2 orders).(L2)
21	Solution of equations (up to 2 unknowns) by Cramer's Rule.
22	Concept of angle: measurement of angle in degrees, grades, radians.
23	Conversions of angles.
24	T-Ratios of standard angle (0°, 30°, 45° etc.) and fundamental Identities.
25	Allied angles (without proof) Sum, Difference formulae and their applications (without proof). **(L-1)**
26	Allied angles (without proof) Sum, Difference formulae and their applications (without proof). **(L-2)**
27	Product formulae (Transformation of product to sum, difference and vice versa). (L1)
28	Product formulae (Transformation of product to sum, difference and vice versa). (L2)
29	Applications of Trigonometric terms in engineering problems such as to find an angle of elevation, height, distance etc.
30	Applications of Trigonometric terms in engineering problems. (L1)

31	Applications of Trigonometric terms in engineering problems. (L2)
32	Distance Formula, Mid Point formula, centroid of triangle.
33	Straight line: Slope of a line, equation of straight line in various standards forms (without proof).(L1)
34	Straight line: Slope of a line, equation of straight line in various standards forms (without proof).(L2)
35	Examples based on slope intercept form, intercept form and one-point form of straight line.
36	Examples based on two-point form, normal form and general form of straight line.(L1)
37	Examples based on two-point form, normal form and general form of straight line.(L2)
38	Angle between two straight lines.
39	Intersection of two straight lines, concurrency of lines.
40	Parallel and perpendicular lines, perpendicular distance formula.
41	Conversion of general form of equation to the various forms. (L1)
42	Conversion of general form of equation to the various forms. (L2)
43	Circle: General equation of a circle and identification of centre and radius of circle.(L1)
44	Circle: General equation of a circle and identification of centre and radius of circle.(L2)
45	To find the equation of a circle when centre and radius are given and when coordinates of end points of a diameter are given. (L1)
46	To find the equation of a circle when centre and radius are given and when coordinates of end points of a diameter are given (L2)
47	To find the equation of a circle when centre and radius are given and when coordinates of end points of a diameter are given
48	To find the equation of a circle when three points lying on its.
49	Theoretical introduction of MATLAB (L1).
50	Theoretical introduction of MATLAB(L2).
51	Theoretical introduction of MATLAB(L3).
52	MATLAB or Scilab as simple calculator (addition and subtraction values).

Note: There will be Class Tests; Assignment work and Assessment Exam; Quizzes etc. will be given as per Academic Calendar.

21/7/25
Naveen Rana
(Lect in maths)

28/7/25
PAC Committee
Member I
(Mr Naveen Rana)

29/7/25
Member II
(Smt Sonia)

Member III
(Smt Jyoti Gupta)