LESSON PLAN

Name of Faculty : Nirmala Rani

Discipline : Applied Science

Year : 1st

Subject : Applied Mathematics

Lesson Plan Duration : October 2021 to June 2022

Work load : (Lecture /Tutorial) per week (in hours): Lectures—03, Tutorial—01

APPLIED MATHEMATICS (180012)		
week	**Lecture day**	**Theory**
1st	**1**	**Law of Indices, Formula of Factorisation and expansion i.e. (a+b)2, (a3+b3) etc.**
	2	**Law of Indices, Formula of Factorisation and expansion i.e. (a+b)2, (a3+b3) etc.**
	3	**Partial fraction: - Definition of Polynomial fraction proper & improper fractions definition of partial fractions.**
	4	**Students will discuss mutually last three days class work**
2nd	**5**	**To resolve proper fraction into partial fraction with denominator containing non-repeated linear factors**
	6	**Complex numbers: definition of complex number, real and imaginary parts of a complex number**
	7	**Polar and Cartesian Form and their inter conversion**
	8	**Students will discuss mutually last three days class work**
3rd	**9**	**Conjugate of a complex number, modulus and amplitude Multiplication and division of complex number**
	10	**Addition, subtraction of complex number**
	11	**Multiplication and division of complex number**
	12	**Students will discuss mutually last three days class work**
4th	**13**	**Logarithms and its basic properties**
	14	**Logarithms and its basic properties**

	15	Determinants and Matrices – Evaluation of determinants (up to 3 order) by Laplace method
	16	Students will discuss mutually last three days class work
5th	17	Assignment 1
	18	Solution of equations (up to 3 unknowns) by Cramer's Rule
	19	Definition of Matrices and types
	20	Students will discuss mutually last three days class work
6th	21	Addition and subtraction of Matrices (up to 2 order)
	22	Multiplication of matrices (up to 2 order)
	23	Permutation, combination formula and definition.
	24	Students will discuss mutually last three days class work
7th	25	Values of ${}^{n}P_{r}$ and ${}^{n}C_{r}$ and simple problems.
	26	Binomial theorem for positive integral index , General term, simple problems
	27	Binomial theorem for positive integral index , General term, simple problems
	28	Students will discuss mutually last three days class work
8th	29	Concept of angle: measurement of angle in degrees, grades, radians and their conversions
	30	Concept of angle: measurement of angle in degrees, grades, radians and their conversions
	31	T-Ratios of standard angle (00,300,450 etc) and fundamental Identities, Allied angles(without proof)
	32	Students will discuss mutually last three days class work
9th	33	Sum, Difference formulae and their applications (without proof).
	34	Product formulae (Transformation of product to sum, difference and vice versa)
	35	Product formulae (Transformation of product to sum, difference and vice versa)
	36	Students will discuss mutually last three days class work

10th	**37**	**Sessional test 1**
	38	**Applications of Trigonometric terms in engineering problems such as to find an angle of elevation, height, distance etc.**
	39	**Applications of Trigonometric terms in engineering problems such as to find an angle of elevation, height, distance etc.**
	40	**Students will discuss mutually last three days class work**
11th	**41**	**Point: Distance Formula, Mid-Point Formula**
	42	**Centroid of triangle and area of triangle**
	43	**Straight line: Slope of a line, equation of straight line in various standards forms (without proof)**
	44	**Students will discuss mutually last three days class work**
12th	**45**	**Straight line: Slope of a line, equation of straight line in various standards forms (without proof)**
	46	**Angle between two straight lines.**
	47	**Circle: General equation of a circle and identification of centre and radius of circle.**
	48	**Students will discuss mutually last three days class work**
13th	**49**	**To find the equation of a circle, given: Centre and radius.**
	50	**To find the equation of a circle, given: Centre and radius.**
	51	**Coordinates of end points of a diameter.**
	52	**Students will discuss mutually last three days class work**
14th	**53**	**Definition of function**
	54	**Assignment 2**
	55	**Concept of limits**
	56	**Students will discuss mutually last three days class work**
15th	**57**	**1st standard limits**
	58	**2nd standard limits**
	59	**3rd standard limits**
	60	**Students will discuss mutually last three days class work**

16th	**61**	**4th standard limits**
	62	**Differentiation of standard function (Only formulas)**
	63	**Differentiation of Algebraic function.**
	64	**Students will discuss mutually last three days class work**
17th	**65**	**Differentiation of Algebraic function.**
	66	**Trigonometric functions**
	67	**Differentiation of Algebraic function**
	68	**Students will discuss mutually last three days class work**
18th	**69**	**Differentiation of Algebraic function**
	70	**Trigonometric functions**
	71	**Sessional test 2**
	72	**Students will discuss mutually last three days class work**
19th	**73**	**Exponential function**
	74	**Exponential function**
	75	**Logarithmic function**
	76	**Students will discuss mutually last three days class work**
20th	**77**	**Differentiation of sum**
	78	**Differentiation of product**
	79	**Differentiation of quotient**
	80	**Students will discuss mutually last three days class work**
21st	**81**	**Differentiation of quotient**
	82	**Differentiation of quotient**
	83	**Application of differential calculus in : (a) Rate measures**
	84	**Students will discuss mutually last three days class work**
22nd	**85**	**Application of differential calculus in: (b) maxima and minima**
	86	**Application of differential calculus in: (b) maxima and minima**
	87	**Integration as inverse operation of differentiation with simple examples**
	88	**Students will discuss mutually last three days class work**
23rd	**89**	**Assignment 3**

	90	**Simple standard integrals**
	91	**Simple standard integrals**
	92	**Students will discuss mutually last three days class work**
24th	**93**	**Integrations by parts and related Simple problems**
	94	**Integrations by parts and related Simple problems**
	95	
	96	**Students will discuss mutually last three days class work**
25th	**97**	**Evaluation of** $\int_0^{\frac{\pi}{2}} sin\ nx\ dx$, $\int_0^{\frac{\pi}{2}} cos\ nx\ dx$, $\int_0^{\frac{\pi}{2}} sin\ mx\ cos\ nx\ dx$
	98	**Applications of integration: for evaluation of area under a curve and axes (Simple problems where the limits are given).**
	99	**Applications of integration: for evaluation of area under a curve and axes (Simple problems where the limits are given).**
	100	**Students will discuss mutually last three days class work**
25th	**101**	**Numerical integration by Trapezoidal Rule and Simpson's 1/3rd Rule using pre-existing mathematical models**
	102	**Numerical integration by Trapezoidal Rule and Simpson's 1/3rd Rule using pre-existing mathematical models**
	103	**Definition, order, degree and linearity, of an ordinary differential equation**
	104	**Students will discuss mutually last three days class work**
27th	**105**	**Solution of 1st order and 1st degree differential equation by variable separable method (Simple problems)**
	106	**Solution of 1st order and 1st degree differential equation by variable separable method (Simple problems)**
	107	**Measures of Central Tendency: Mean, Median, Mode**
	108	**Students will discuss mutually last three days class work**
28th	**109**	**Measures of Central Tendency: Mean, Median, Mode**
	110	**Measures of Dispersion: Mean deviation from mean**
	111	**Measures of Dispersion: Mean deviation from mean**
	112	**Students will discuss mutually last three days class work**
29th	**113**	**Standard deviation**

	114	**Standard deviation**
	115	**Assignment 4**
	116	**Students will discuss mutually last three days class work**
30th	**117**	**Problems related to mean, median mode.**
	118	**Correlation coefficient and Coefficient of rank correlation (Simple problems)**
	119	**Correlation coefficient and Coefficient of rank correlation (Simple problems)**
	120	**Students will discuss mutually last three days class work**