

Lesson Plan

Name : Ravi Bansal
Discipline : Common for all branches
Year : 1st
Subject : Applied Mathematics
Duration : 39 weeks (30/7/2018 to 30/04/2019)
Work Load : 3 Lectures and 2 Tutorials per week

Week	Theory	
	Lecture/ Tutorial day	Topic
1 st	1 st	Law of Indices and basics
	2 nd	Tutorial/ Problem Solving
	3 rd	Formula of Factorisation and expansion with some solved problems.
	4 th	Tutorial/Problem Solving
2 nd	1 st	Partial fraction:- Definition of Polynomial fraction proper & improper fractions and definition of partial fractions with examples.
	2 nd	Tutorial/ Problem Solving
	3 rd	To resolve proper fraction into partial fraction with denominator containing non-repeated linear factors, only. (L-1)
	4 th	To resolve proper fraction into partial fraction with denominator containing non-repeated linear factors, only. (L-2)
	5 th	Tutorial/ Problem Solving
3 rd	1 st	Complex numbers: definition of complex number, real and imaginary parts of a complex number.
	2 nd	Tutorial/ Problem Solving
	3 rd	Addition, subtraction, multiplication and division of complex numbers.
	4 th	Tutorial/ Problem Solving
4 th	1 st	Conjugate of a complex number, modulus and amplitude of complex numbers.
	2 nd	Tutorial/ Problem Solving
	3 rd	Polar and Cartesian Form and their inter conversion.
	4 th	Tutorial/ Problem Solving
5 th	1 st	Logarithm and its basic properties (L-1)
	2 nd	Tutorial/ Problem Solving
	3 rd	Logarithm and its basic properties (L-2)
	4 th	Definition of Matrix and its types with examples.
	5 th	Tutorial/ Problem Solving
6 th	1 st	Addition and subtraction of Matrices, Multiplication of Matrices (upto 2 nd order).
	2 nd	Tutorial/ Problem Solving
	3 rd	Determinants : Evaluation of determinants (up to 3 order) by Laplace method.
	4 th	Tutorial/ Problem Solving
7 th	1 st	Solution of equations (upto 3 unknowns) by Cramer's Rule.
	2 nd	Tutorial/ Problem Solving
	3 rd	Permutation and value of ${}^n P_r$ with solved examples.
	4 th	Combination and value of ${}^n C_r$ with solved examples.
	5 th	Tutorial/ Problem Solving
8 th	1 st	Binomial theorem for positive integral index with simple problems.
	2 nd	Tutorial/ Problem Solving
	3 rd	General term from binomial expansion and related problems.
	4 th	Some solved problems on Binomial theorem.
	5 th	Tutorial/ Problem Solving
9 th	1 st	Concept of angle: measurement of angle in degrees, grades, radians.
	2 nd	Tutorial/ Problem Solving
	3 rd	Conversions of angles.
	4 th	T-Ratios of standard angle (0° , 30° , 45° etc.) and fundamental Identities.
	5 th	Tutorial/ Problem Solving
10 th	1 st	Allied angles (without proof) Sum, Difference formulae and their applications (without proof). (L-1)
	2 nd	Tutorial/ Problem Solving
	3 rd	Sessional test as mentioned in Academic Calander/Revision
	4 th	Sessional test as mentioned in Academic Calander/Revision
11 th	1 st	Sessional test as mentioned in Academic Calander/Revision
	2 nd	Tutorial/ Problem Solving
	3 rd	Allied angles (without proof) Sum, Difference formulae and their applications (without proof). (L-2)
	4 th	Tutorial/ Problem Solving
12 th	1 st	Product formulae (Transformation of product to sum, difference and vice versa)
	2 nd	Tutorial/ Problem Solving
	3 rd	Applications of Trigonometric terms in engineering problems such as to find an angle of elevation, height, distance etc. (L-1)
	4 th	Tutorial/ Problem Solving
13 th	1 st	Applications of Trigonometric terms in engineering problems (L-2)
	2 nd	Tutorial/ Problem Solving
	3 rd	Point: Distance Formula, Mid Point Formula.
	4 th	Tutorial/ Problem Solving
14 th	1 st	Centroid of triangle and area of triangle.
	2 nd	Tutorial/ Problem Solving
	3 rd	Straight line: Slope of a line, equation of straight line in various standards forms (without proof).
	4 th	Tutorial/ Problem Solving

15 th	1 st	Examples based on slope intercept form, intercept form and one-point form of straight line.
	2 nd	Tutorial/ Problem Solving
	3 rd	Examples based on two-point form, normal form and general form of straight line.
	4 th	Tutorial/ Problem Solving
16 th	1 st	Angle between two straight lines.
	2 nd	Tutorial/ Problem Solving
	3 rd	Circle: General equation of a circle and identification of centre and radius of circle.
	4 th	To find the equation of a circle when centre and radius are given and when coordinates of end points of a diameter are given.
	5 th	Tutorial/ Problem Solving
17 th	1 st	Definition of function and some solved problems.
	2 nd	Tutorial/ Problem Solving
	3 rd	Concept of limits (Introduction only) and some simple problems.
	4 th	Standard limits and related problems. (L-1)
	5 th	Tutorial/ Problem Solving
18 th	1 st	Standard limits and related problems. (L-2)
	2 nd	Tutorial/ Problem Solving
	3 rd	Standard limits and related problems. (L-3)
	4 th	Miscellaneous problems on Limits.
	5 th	Tutorial/ Problem Solving
19 th	1 st	Differentiation of standard function (Only formulas).
	2 nd	Tutorial/ Problem Solving
	3 rd	Differentiation of sum and subtraction of functions and some simple problems.
	4 th	Differentiation of product of functions and some simple problems.
	5 th	Tutorial/ Problem Solving
20 th	1 st	Differentiation of quotient of functions and some simple problems.
	2 nd	Tutorial/ Problem Solving
	3 rd	Differentiation of Algebraic functions.
	4 th	Differentiation of Trigonometric functions. (L-1)
	5 th	Tutorial/ Problem Solving
21 st	1 st	Differentiation of Trigonometric functions. (L-2)
	2 nd	Tutorial/ Problem Solving
	3 rd	Differentiation of Trigonometric functions. (L-3)
	4 th	Sessional test as mentioned in Academic Calander/Revision
	5 th	Sessional test as mentioned in Academic Calander/Revision
22 nd	1 st	Sessional test as mentioned in Academic Calander/Revision
23 rd	1 st	Differentiation of Exponential function. (L-1)
	2 nd	Tutorial/ Problem Solving
	3 rd	Differentiation of Exponential function. (L-2)
24 th	1 st	Differentiation of Logarithmic function. (L-1)
	2 nd	Tutorial/ Problem Solving
	3 rd	Differentiation of Logarithmic function. (L-2)
	4 th	Successive differentiation (up to 2nd order). (L-1)
	5 th	Tutorial/ Problem Solving
25 th	1 st	Successive differentiation (up to 2nd order). (L-2)
	2 nd	Tutorial/ Problem Solving
	3 rd	Successive differentiation (up to 2nd order). (L-3)
	4 th	Tutorial/ Problem Solving
26 th	1 st	Application of differential calculus in: Rate measures. (L-1)
	2 nd	Tutorial/ Problem Solving
	3 rd	Application of differential calculus in: Rate measures. (L-2)
	4 th	Test/ Application of differential calculus in: Rate measures. (L-3)
	5 th	Tutorial/ Problem Solving
27 th	1 st	Application of differential calculus in: Maxima and minima. (L-1)
	2 nd	Tutorial/ Problem Solving
	3 rd	Application of differential calculus in: Maxima and minima. (L-2)
	4 th	Integration as inverse operation of differentiation i.e. Indefinite Integral with simple examples. (L-1)
	5 th	Tutorial/ Problem Solving
28 th	1 st	Indefinite Integral. (L-2)
	2 nd	Tutorial/ Problem Solving
	3 rd	Indefinite Integral. (L-3)
	4 th	Indefinite Integral. (L-4)
	5 th	Tutorial/ Problem Solving
29 th	1 st	Simple standard integrals and related Simple problems. (L-1)
	2 nd	Tutorial/ Problem Solving
	3 rd	Simple standard integrals and related Simple problems. (L-2)
	4 th	Tutorial/ Problem Solving
30 th	1 st	Simple standard integrals and related Simple problems. (L-3)
	2 nd	Tutorial/ Problem Solving
	3 rd	Integrations by parts and related Simple problems. (L-1)
	4 th	Test/ Integrations by parts and related Simple problems. (L-2)
	5 th	Tutorial/ Problem Solving
31 st	1 st	Integrations by parts and related Simple problems. (L-3)
	2 nd	Tutorial/ Problem Solving
	3 rd	Evaluation of definite integrals with given limits.
	4 th	Evaluation of $\int_0^{\pi} \sin^m x dx$ and $\int_0^{\pi} \cos^m x dx$ and related problems.

	5 th	Tutorial/ Problem Solving
32 nd	1 st	Evaluation of $\int_0^{\frac{\pi}{2}} \sin^m x \cos^n x dx$ and related problems.
	2 nd	Tutorial/ Problem Solving
	3 rd	Applications of integration: for evaluation of area under a curve and axes. (L-1)
	4 th	Applications of integration: for evaluation of area under a curve and axes. (L-2)
	5 th	Tutorial/ Problem Solving
33 rd	1 st	Applications of integration: for evaluation of area under a curve and axes. (L-3)
	2 nd	Tutorial/ Problem Solving
	3 rd	Numerical integration by Trapezoidal Rule existing mathematical models. (L-1)
	4 th	Tutorial/ Problem Solving
34 th	1 st	Numerical integration by Trapezoidal Rule existing mathematical models. (L-2)
	2 nd	Tutorial/ Problem Solving
	3 rd	Numerical integration by Simpson's 1/3 rd existing mathematical models. (L-1)
	4 th	Test/ Numerical integration by Simpson's 1/3 rd existing mathematical models. (L-2)
	5 th	Tutorial/ Problem Solving
35 th	1 st	Definition, order, degree and linearity of an ordinary differential equation.
	2 nd	Tutorial/ Problem Solving
	3 rd	Solution of I st order and I st degree differential equation by variable separable method. (L-1)
	4 th	Tutorial/ Problem Solving
36 th	1 st	Solution of I st order and I st degree differential equation by variable separable method. (L-2)
	2 nd	Tutorial/ Problem Solving
	3 rd	Measures of Central Tendency: Mean and related problems.
	4 th	Measures of Central Tendency: Median and related problems.
	5 th	Tutorial/ Problem Solving
37 th	1 st	Measures of Central Tendency: Mode and related problems.
	2 nd	Tutorial/ Problem Solving
	3 rd	Measures of Dispersion: Mean deviation from mean. (L-1)
	4 th	Tutorial/ Problem Solving
38 th	1 st	Measures of Dispersion: Mean deviation from mean. (L-2)
	2 nd	Tutorial/ Problem Solving
	3 rd	Measures of Dispersion: Standard deviation. (L-1)
	4 th	Measures of Dispersion: Standard deviation. (L-2)
	5 th	Tutorial/ Problem Solving
39 th	1 st	Correlation coefficient and Coefficient of rank correlation.
	2 nd	Test/ Statistics revision