Academic Lesson Plan for Engg. Mathematics (SUMMER-2023)

Discipline:Civil, Elect,A.A., ETC,Mech.,I.T.	Semester: 2nd	Name of the teaching faculty: Smt.Smitarani Barik Sri Kishore kumar Adek Miss Sushree Swadhinpriya Mohapatra Sri Niranjan Behera
Subject: Engg. Mathematics	No. of days/per week Class Allotted:6	Semester from: 20/03/2023-27/06/2023
		No. of weeks:16
Week	**Class day**	**Theory Topics**
1st	1st	Ch.1(a)Introduction of vector. Ch1(b).Types of vectors null vector, parallel vector
	2nd	Problems baesd on null vector, parallel vector
	3rd	Problems baesd on parallel vectors ,collinear vectors.
	4th	Ch.1(c).Representation of vector
2nd	1st	ch.1(d). Magnitude and direction of vectors.
	2nd	Problems based on Magnitude and direction of vectors
	3rd	Ch.1(e).Addition and subtraction of vector
	4th	problems based on Addition and subtraction of vectors.
	5th	Ch.1(f).Position vector
	6th	Ch.1(g).Explanation of Scalar. product of two vectors with examples .
3rd	1st	Ch.1(h).Geometrical meaning of dot product. Ch.1(i).Angle between two vectors
	2nd	Ch.1(j).Scalar and vector projection of two vectors. Explanation of Vector product with examples .
	3rd	Ch.1(k).geometrical meaning of vector product
	4th	Area of triangle with examples .
	5th	Area of parallelogram using with examples.
4th	1st	Doubt clear, previous year question discussion.
	2nd	Class test based on vector.
	3rd	Ch.2(a).Definition of function(based on set theory),

	4th	ch.2(b).Types of functions i) Constant function
	5th	ii) Identity function iii) Absolute value function
5th	1st	ch.2(b).Types of functions
	2nd	greatest integer function, trigonometric function,
	3rd	Quiz
	4th	Doubt clear on limit
	5th	exponential function logarithmic function
	6th	ch.2(d).Existence of limit (explanation with solving examples).
6th	1st	Existence of limit (explanation with solving examples).
	2nd	ch.2(e).Methods of evaluation of limit. xn-anx-a =nan-1
	3rd	ax-1x =a ex-1x =1 sinx =1 tanxx =1log (1+x)x =1 1+1nn =e (1+x)x =e
	4th	Doubt clear , previous uear question discussion
7th	1st	Class test based on limit and continuity.
	2nd	Ch.3(a). Introduction of Differentiation.
	3rd	Derivative of a function at a point
	4th	Discussion on above. Solve more examples
	5th	Ch.3(b).algebra of derivative.
8th	1st	Ch.3(c). Derivative of standard functions x^n,a^x,e^x,log
	2nd	Derivative of standard functions sin x, cos x tan x, cot x, sec x, cosec x.
	3rd	Ch.3(a). Introduction of Differentiation.

	4th	Derivative of standard functions sin⁻¹x,cos⁻¹x,tan⁻¹x,cot⁻¹x sec⁻¹x,cosec⁻¹x.
9th	1st	Ch.3(d). Derivative of composite function (Chain Rule)
	2nd	Problems based on chain rule.
	3rd	Discussion on chain rule ,problem solving.
	4th	Ch.3(e)(i). Methods of differentiation of Parametric function.
	5th	Problem solving on above.
10th	1st	Ch.3(e)(ii). Methods of differentiation of Implicit function.
	2nd	Discussion on parametric and implicit function
	3rd	Ch.3(e)(iii). Methods of differentiation of logarithmic function.
	4th	Ch.3(e)(iv). Methods of differentiation of a function with respect to another function.
	5th	Ch.3(f)(i).Applications of Derivative . Ch.3(g).Problems based on above.
11th	1st	Successive Differentiation (up to second order)
	2nd	Ch.3(f)(ii).Partial Differentiation (function of two variables up to second order).
	3rd	Ch.3(g).Problems based on above
	4th	Ch.3(g).Problems based on above
	5th	Doubt clear class .Previous year question discussion .
	6th	Class test based on derivatives
12th	1st	Ch.4(a).Definition of integration as inverse of differentiation.
	2nd	Ch.4(b).Integrals of standard functions.
	3rd	Ch.4(c)(i).Integration by substitution. Integration by substitution.
	4th	Ch.4(c)(ii).Integration by parts method.
	5th	Integration by parts method.
	6th	Integration of parametric function
13th	1st	Integration of explicit function
	2nd	Integration of a function w.r.t. another function.

	3rd	Integration by logarthim.
	4th	Integration of series function.
	5th	Integration by partial fraction.
	6th	Ch.4(e)Definite integral, properties of definite integrals
14th	1st	Definite integral, properties of definite integrals.
	2nd	Ch.4(f).Application of integration (Area enclosed by a curve and X – axis).
	3rd	Application of integration (Area of a circle with centre at origin).
	4th	Doubt clearing class on integration. Previous year question discussion
	5th	Ch.5 (a).Introduction to differential equation, order and degree of differential equation.
	6th	Examples to find the order and degree of a given differential equation.
15th	1st	Solution of 1st order and 1st degree equation by the method of separation of variables.
	2nd	Linear differential equation. Method of separable variable Euler test.
	3rd	Ch.5(b).Solution of 1st order and 1st degree equation by the method of separation of variable.
	4th	Ch.5(b)(i).Solution of 1st order and 1st degree equation by the method of separation of variables. More examples on the above topic
	5th	Ch.5(b)(ii).Solution of Linear equation dy/dx+py =q where P,Q are functions of x.
	6th	Solution of Linear equation, dy/dx+ py =q where P,Q are functions of x.
16th	1st	Discussion on the above chapter and problem solving.
	2nd	Doubt clearing class. Previous year question discussion
	3rd	Class test based on differential equation.
	4th	Revision and previous year question paper discussion.
	6th	Revision and previous year question paper discussion

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Signature of Faculty