SYNERGY SCHOOL OF ENGINEERING, DHENKANAL

Department- CE	Semester- 2nd	Name Of the Teaching Faculty- Biswajit Mishra No. of weeks- 15 Session- 2023-24
Subject- Engineering Mathematics-II	No. of days per week- 05	
Week	Class	Topic to be taught
1.	1.	Introduction, Types of vectors (null vector, parallel vector , collinear vectors)
	2.	Representation of vector, Position vector, Magnitude and direction of vectors
	3.	Addition and subtraction of vectors, Scalar multiplication of vector
	4.	Exercise Questions
2.	5.	Scalar product of two vectors and its properties
	6.	Angle between two vectors, problems on dot product
	7.	Exercise of dot product
	8.	Vector product and its properties
3.	9.	Geometrical meaning (Area of triangle and parallelogram)
	10.	Questions on area of triangle and parallelogram
	11.	**Exercise Questions and Doubt Clear**
	12.	Introduction to Functions
4.	13.	Types of Functions
	14.	Concept of Limits
	15.	Factorization & rationalization method
	16.	Limit of trigonometric functions
5.	17.	Limit of exponential functions
	18.	Limit of logarithmic functions
	19.	Introduction to Continuity
	20.	Problems on continuity
6.	21.	Introduction to Derivatives
	22.	Standard Derivative Formulae and its examples
	23.	Differentiation of sum, product and quotient of a function
	24.	Derivative of composite functions/ Chain Rule
7.	25.	More questions on chain rule
	26.	Derivative of trigonometric & inverse trigonometric functions
	27.	Logarithmic Differentiation
	28.	Exponential Differentiation
8.	29.	Some more questions on previously taught topics
	30.	**Exercise question and Doubt clear**
	31.	**Exercise question and Doubt Clear**
	32.	**Monthly Test-I**
9.	33.	Applications of Derivative i) Successive Differentiation (up to second order)
	34.	ii) Partial Differentiation (function of two variables up to second order)
	35.	Introduction to integration and simple problems

	10.	36.	Standard Formulae and Problems on integration
		37.	Integration using substitution
		38.	Integration of fractions
		39.	Integration by partial fractions
		40.	Integration by parts
	11.	41.	Overall discussion and exercise questions
		42.	Use of $\int_0^{\frac{\pi}{2}} \sin^n x$, $\int_0^{\frac{\pi}{2}} \cos^n x$, $\int_0^{\frac{\pi}{2}} \sin^m x \cos^n x$
		43.	Some more problems on previously discussed topics
		44.	Evaluation of area under plane curves using integration
	12.	45.	Evaluation of volume of solids using integration
		46.	Questions on area and volume
		47.	**Exercise Questions and Doubt Clear**
		48.	Introduction to differential equations
	13.	49.	Order and degree of DE
		50.	Solution of DE (Variable Separable Method)
		51.	Variable Separable Method questions
		52.	More questions on variable separable method
	14.	53.	Order more than 1
		54.	Linear equation , $\frac{dy}{dx} + Px = Q$, where P,Q are functions of x
		55.	Some more questions on LDE
		56.	**Exercise Questions and Doubt Clear**
	15.	57.	**Monthly Test-II**
		58.	**Previous Year Question Discussion**
		59.	**Selective questions practice**
		60.	**Doubt Clear Class & Quiz Test**

No. of Assignments to be given- 04

No. of Monthly Tests to be done- 02

No. of Quiz Tests to be done- 01

Prepared By

Biswajit Mishra

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(Lect. In Math)