

رياضيات هندسية 1

بنية المقرر					
طريقة التقييم	طريقة التعليم	اسم الوحدة / المساق أو الموضوع	مخرجات التعلم المطلوبة	الساعات	الأسبوع
	Refrence Book : Thomas Calculus	Ordinary linear differential equations - 1 st order differential equations		4	1
		- Seperable - homogeneous		4	2
		- exact - linear		4	3
		- Bernoulli		4	4
		- 2 nd order differential equations - Reducible to 1 st order		4	5
		- Homogeneous - Non homogeneous		4	6
		- Higher order differential equations - Homogeneous - Non homogeneous - applications		4	7
		Partial Differentiation - definition - mechanism of diffrentiation		4	8
		- functions of two variables - functions of higher variables		4	9
		- Transformation - Chain rule		4	10
		- Total differential - Gradient		4	11
		- Divergence - Curl of vector		4	12
		- Equation of normal line and tangent plane		4	13
		- Directional derivative		4	14
		- Maxima , Minima and Saddle points - Lagrange Theorem		4	15

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	Refrence Book : Thomas Calculus	Sequences and Series - Sequence - Series - Geometric Series - Tests of Convergence - Definition		4	1
		The General Term Test - The Integral Test - The Comparison Test - The Limit Comparison Test - The Ratio Test - The Root Test		4	2
		Alternating Series - Power Series - Interval of Convergence - Taylor Series		4	3
		Maclaurin Series - Applications		4	4
		Fourier Series - Periodic Function - Even and Odd Functions - Half Range Expansion Function		4	5
		Vector Vector in Space - Parallel Vectors - - Triple Product		4	6
		Volume of Box - Projection of Two Vectors - Applications		4	7
		Equation of Line in Space Equation of Plane in - space - Applications		4	8
		Vector Valued Functions - Curvature - Motion of Particle		4	9
		Applications of		4	10

		Double and Triple Integrals - Sketching of Geometric Shapes - Double Integrals			
		Triple Integrals - Applications		4	11
		Jacobian Transformation - Area in Polar Curve - Surface Area		4	12
		Polar Coordinates - Polar Curve Representation Sketching of Polar Curve - General Curve		4	13
		Special Curve (Line, Circle, Conic Section) Rotation of Axis The Arc Length of Polar Curve - Surface Area of Rotation		4	14
		The Angle Between The Tangent Line and Radius Vector For a Polar Curve - Slope of Tangent - Asymptotes - Plane Area		4	15