Semester Lecture Plan

Name of the college: Government College of Arts, Science & Commerce Sanquelim – Goa.

Name of Faculty: Rohit R. Redkar | **Subject: Calculus of 2 and 3 variables**

Paper code: MTC 107 | **Program/Course: TY BSc** | **Division: -**

Academic year: 2024-25 | **Semester: V** | **Total Lectures: 60**

Course Objectives:

1.Distinguish between scalar & vector fields and prove results based on gradient, divergence & curl.
2.Point out inter relationship between double, line, surface & volume integrals.
3.Sharpen problem solving skills through geometric visualizations & use of Transformations from Cartesian / to polar /to cylindrical /to spherical coordinate systems.

Course Learning Outcome: On completion of the course, the students will be able to

1.Distinguish between scalar & vector fields and prove results based on gradient, divergence & curl.
2.Point out inter relationship between double, line, surface & volume integrals.
3.Sharpen problem solving skills through geometric visualizations & use of Transformations from Cartesian / to polar /to cylindrical /to spherical coordinate systems.

	Lectures From:	To:	No. of lectures allotted	Topic, Subtopic to be covered	Learning outcome	ICT Tools	Reference books
July	02/07/2024	06/07/2024	4	Volume and Cavalier's Principle. Double integral over a Rectangle		Chalk Board, whiteboard	Basic multivariable Calculus by J.E. Marsden
July	08/07/2024	13/07/2024	4	Double integral over elementary regions, change in order of		Chalk Board, whiteboard	Basic multivariable Calculus by J.E. Marsden

				integration			
July	15/07/2024	20/07/2024	4	Volume and area using double integrals, Triple integration over elementary regions		Chalk Board, whiteboard	Basic multivariable Calculus by J.E. Marsden
July	22/07/2024	27/07/2024	4	Change of variables, Cylindrical and spherical coordinates.		Chalk Board, whiteboard	Basic multivariable Calculus by J.E. Marsden
July-August	29/07/2024	03/08/2024	4	Average value, Center of mass, Moments of inertia, scalar line integrals		Chalk Board, whiteboard	Basic multivariable Calculus by J.E. Marsden
August	05/08/2024	10/08/2024	4	Vector line integrals, reparametrization of curves and its effect on line integrals		Chalk Board, whiteboard	Basic multivariable Calculus by J.E. Marsden
August	12/08/2024	17/08/2024	4	Parametrized surfaces and related concepts		Chalk Board, whiteboard	Basic multivariable Calculus by J.E. Marsden
August	19/08/2024	24/08/2024	4	Area of a surface, Scalar surface integrals.		Chalk Board, whiteboard	Basic multivariable Calculus by J.E. Marsden
August	26/08/2024	31/08/2024	4	Vector surface integrals		Chalk Board, whiteboard	Basic multivariable Calculus by J.E. Marsden
September	02/09/2024	05/09/2024	2	Gradient and properties		Chalk Board, whiteboard	Basic multivariable Calculus by J.E. Marsden
September	16/09/2024	21/09/2024	4	Divergence, curl and properties		Chalk Board, whiteboard	Basic multivariable Calculus by J.E. Marsden
September	23/09/2024	28/09/2024	4	Acceleration, Arc length, Green’s theorem		Chalk Board, whiteboard	Basic multivariable Calculus by J.E. Marsden

October	01/10/2024	05/10/2024	4	Stokes' Theorem, Gauss' Divergence Theorem		Chalk Board, whiteboard	Basic multivariable Calculus by J.E. Marsden
October	07/10/2024	12/10/2024	4	Path independence. Fundamental theorem of Calculus.		Chalk Board, whiteboard	Basic multivariable Calculus by J.E. Marsden
October	14/10/2024	19/10/2024	4	Revision		Chalk Board, whiteboard	Basic multivariable Calculus by J.E. Marsden
October	21/10/2024	23/10/2024	2	Revision		Chalk Board, whiteboard	Basic multivariable Calculus by J.E. Marsden

*** Assessment Rubrics**

Component	Max Marks
ISA 1	15
ISA 2	15
Practical	-
Project	-
Semester End Exam	120