Lecture Plan

Name of the College: Government College of Arts, Science and Commerce, Sanquelim-Goa

Name of Faculty: Deepak G Bandiwadekar	**Subject:** Mathematics	
Paper code: MAT-202	**Program:** B.Sc.	**Division: -**
Academic year: 2025-26	**Semester: IV**	**Total Lectures:** 60

Course Objectives:

1. To develop mathematical thinking to understand concepts in Analysis.

Expected Course Outcome:

1) Students will be able to understand the concepts of Sequence & series of real numbers & functions & their convergence;

Student Learning Outcome: Student will be able to

1) Determine convergence & divergence of sequence & series
2) Improve problem solving skills & techniques.

Month	Lecture From	Lecture To	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
December	01/12/2025	06/12/2025	St. Francis Xaviers	Introduction, syllabus sharing Infinite series convergence examples Properties		Chalk &	Elements of Real Analysis by S. Narayan & Dr. M.D.

			Feast 04			board	Raisinghania S. Chand Publications
	08/12/2025	13/12/2025	04	Necessary condition, , Cauchy's nonconvergence test, Geometric & harmonic series, comparison test & examples			
	15/12/2025	20/12/2025	Liberation Day 04	Examples contd, ratio test with examples, Root test, integral test Alternating series, Leibnitz test			
	22/12/2025	23/12/2025	03	Condensation & Dirichlet test, Alternating series Rearrangement			
January	02/01/2026	03/01/2026	01	Real sequence & its convergence, uniqueness			
	05/01/2026	10/01/2026	04	Algebra of sequences, Cauchy sequences, Monotonic sequences			
	12/01/2026	17/01/2026	04	Sandwich lemma, important limits			
	19/01/2026	24/01/2026	04	Subsequence's, sequences defined recursively			
	26/01/2026	31/01/2026	03 Republic Holiday	Sequences diverging to +_ infinity Examples of sequences of real valued functions			
February	02/02/2026	07/02/2026	04	Pointwise & uniform convergence, Cauchy's condition			
	09/02/2026	14/02/2026	04	Consequences of uniform convergence: Boundedness,			

				Continuity			
	16/02/2026	21/02/2026	04	Integrability, Differentiability of the limit function			
	23/02/2026	28/02/2026	04	Convergence & uniform Convergence of series of functions Cauchy's condition			
March	02/03/2026	07/03/2026	04 Holi	Comparison test, Weierstrass M-test & examples of series of functions			
	09/03/2026	14/03/2026	04	Dirichlet's & Abel's test for uniform convergence			
	16/03/2026	21/03/2026	04 Gudi Padva / Id-Ul Fitr	Power series- term by term Integration & differentiation Taylor's series, Binomial series, Weierstrass Approximation theorem			
	23/03/2026	28/03/2026	04 Ram Navami	Revision			
	30/03/2026	31/03/2026	03	Revision			

*** Assessment Rubrics**

Component	Max Marks

ISA 1	10
ISA 2	10
Practical	Nil
Project	Nil
Semester End Exam	80