

Semester	AUG 2022
Open to semester	22
Course code	MT5224
Course title	Analysis - II
Credits	/4
Course Coordinator & participating faculty (if any)	Divyang Bhimani
Nature of Course	Lectures
Pre-requisites	Graduate Analysis I
Objectives (goals, type of students for whom useful, outcome etc)	Useful for PhD students interested in Analysis
Course contents (details of topics /sections with no. of lectures for each)	<p>Signed measures and Radon-Nikodym theorem, functions of bounded variations and absolutely continuous functions, derivatives of measures</p> <ul style="list-style-type: none"> • Uniform boundedness principle, closed graph theorem, open mapping theorem, the weak topology, the second dual and the weak* topology • Test functions and distributions, calculus with distributions, localization, supports of distribution, distributions as derivatives, convolutions, Fourier transform, inversion theorem, Plancherel theorem, tempered distributions, Paley-Wiener theorems • The homotopy version of Cauchy's theorem and existence of primitives on simply connected domains. Conformal mappings, Riemann mapping theorem. Infinite product and Weierstrass factorization theorem. Analytic continuation along a curve, monodromy theorem, analytic covering maps, Picard theorem
Evaluation /assessment	<p>End-Sem Examination-40%</p> <p>Mid-Sem Examination-30%</p> <p>Others-30%</p>
Suggested readings (with full list of authors, publisher, year, edn etc.)	<ul style="list-style-type: none"> • L.V. Ahlfors: Complex Analysis • J.B. Conway: A Course in Functional Analysis • J.B. Conway: Functions of one Complex Variable • G.B. Folland: Real analysis • B.V. Limaye: Functional Analysis • W. Rudin: Functional Analysis

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| | <ul style="list-style-type: none">• W. Rudin: Real and Complex Analysis• E.M. Stein and R. Shakarchi: Real Analysis• E.M. Stein and R. Shakarchi: Complex Analysis |
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