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| Semester | JAN 2022 |
| Open to semester | 14,22 |
| Course code | MT5224/MT6244 |
| Course title | Analysis II |
| Credits | 4 /4 |
| Course Coordinator & participating faculty (if any) | Haripada Sau |
| Nature of Course | Lectures |
| Pre-requisites | Analysis I |
| Objectives (goals, type of students for whom useful, outcome etc) | The objective of this course is to prepare our PhD students for the Comprehensive Analysis Exam. |
| 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> <p>Uniform boundedness principle, closed graph theorem, open mapping theorem, the weak topology, the second dual and the weak* topology</p> <p>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</p> <p>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</p> |
| Evaluation /assessment | <p>End-Sem Examination-40%</p> <p>Mid-Sem Examination-60%</p> <p>Others-%</p> |
| Suggested readings (with full list of authors, publisher, year, edn etc.) | <p>W. Rudin's Real and Complex Analysis</p> <p>W. Rudin's Functional Analysis</p> <p>J. B. Conway's Complex Analysis</p> |

