MA 223 August 3:0

Functional Analysis

Instructor

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Teaching Assistant

Email:

Department: Mathematics

Course Time:

Lecture venue:

Detailed Course Page:

Announcements

Brief description of the course

This is the first functional analysis course aimed at final year Int. Ph.D. and fourth/fifth year UG students.

Prerequisites

Real Analysis, Complex Analysis, Measure Theory

Syllabus

Basic topological concepts, Metric spaces, Normed linear spaces, Banach spaces, Bounded linear functionals

and dual spaces,Hahn-Banach theorem. Bounded linear operators, open-mapping theorem, closed graph

theorem. The Banach- Steinhaus theorem. Hilbert spaces, Riesz representation theorem, orthogonal

complements, bounded operators on a Hilbert space up to (and including) the spectral theorem for

compact, self-adjoint operators.

Course outcomes

The students will learn everything written in the Syllabus.

Grading policy

50% for the final examination, 30% for the mid-term and 20% for assignments

Assignments

Resources

My favourite book is the one by John B. Conway. It is called A Course in Functional Analysis. This is published by Springer and has an Indian edition. The other books that I like are Rajendra Bhatia, Notes on Functional Analysis, Hindustan Book Agency and Martin Schechter, Principles of Functional Analysis, Second Edition, American Mathematical Society, Indian edition by Universities Press.