

Syllabus and course policy

MA543 Functional Analysis [3-1-0-8]

July – November 2019

Prerequisites: MA541 Real Analysis

Functional Analysis: Normed linear spaces, Banach spaces; Continuity of linear maps, Hahn-Banach theorem, open mapping and closed graph theorems, uniform boundedness principle; Duals and transposes, weak and weak* convergence, reflexivity; Spectra of bounded linear operators, compact operators, and their spectra; Hilbert spaces, bounded linear operators on Hilbert spaces; Adjoint operators, normal, unitary, self-adjoint operators and their spectra, spectral theorem for compact self-adjoint operators.

N.B. Students are advised to revise a bit of basic linear algebra, metric spaces and Lebesgue integration, at least up to L^p spaces. Course-materials of MA224 and MA550, available at <http://www.iitg.ac.in/rksri/Teaching.htm> will be quite helpful.

Instructor: Rajesh Srivastava

For any query/help, you feel free to meet me in my office (E1 208) / call me at 2630/ email me at rksri@iitg.ernet.in

Lectures: B1 slot.

Classroom: 5102.

Attendance: It is expected that you attend all the classes. A student will be debarred from appearing in the end semester examination of MA543 if his/her attendance falls below 75 percent and will be awarded an “F” grade in this course. The maximum of **5% marks** will be given as a bonus to those having full attendances with the exemption of 2 absences.

The mobile phone must be in the switched off mode during the class.

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Grading: Relative grading will be done based on the total marks obtained in the quizzes, mid-semester exam, and end semester. Exams/quizzes will have the following weight-ages:

Quiz I: 10%

Mid-Semester exam: 30%

Quiz II: 10%

End-Semester exam: 45%

Syllabus for exams: Will be declared in the class.

Some Important Points:

- No make-up exam will be held for the students who **miss a quiz** or **mid-semester** exam.
- You are always encouraged to ask the instructor anything regarding this course, anywhere and anytime. However, you are discouraged to meet the instructor to clarify a doubt or to ask for a hint of some problem on the day of any exam.
- Grades of MA543 will be made available to the students only through the Academic Section on the stipulated date. Please do not ask me to let you know the grades.