

Syllabus and course policy

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

July – November 2020

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 a basic minimum facts about Lebesgue integration, upto L^p spaces. Course-materials of MA224 and MA550, available at <http://www.iitg.ac.in/rksri/Teaching.htm> will be 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 or message at my WhatsApp (9415290070). **Avoid calling me at my mobile number, unless it is very urgent.**

Lectures: B1 slot. Monday (3:00 - 3:55), Wednesday (7:55 - 8:50), Thursday (2:00 - 2:55), Friday (2:00 - 2:55). For Saturday, look at the calendar for date wise specific slot at [http://www.iitg.ac.in/acad/Notice/Notice_Regarding_Day_wise_Calendar\(revised\).pdf](http://www.iitg.ac.in/acad/Notice/Notice_Regarding_Day_wise_Calendar(revised).pdf)

Classroom: MS team; Grp_MA543_FA_2020

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 her/his attendance falls below 75 percent and will be awarded an “F” grade in this course.

Grading: Relative grading will be done based on the total marks. Your performance assessment will contain quizzes, viva-voce, endsem etc. **This is liable to change as per guidelines will be issued from the Academic section from time to time.**

Syllabus for exams: Will be declared in the class.

Course webpage: http://www.iitg.ac.in/rksri/MA543_2020.htm

Some Important Points:

- 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.