

Syllabus and course policy

MA101S Mathematics-I [3-1-0-8]

May – July 2018

Prerequisites: Nill

Mathematics-I:

Calculus (before midsem): Convergence of sequences and series of real numbers; continuity of functions; differentiability, Rolle's theorem, mean value theorem, Taylor's theorem; power series; Riemann integration, fundamental theorem of calculus, improper integrals; application to length, area, volume and surface area of revolution.

Linear Algebra (after midsem): Systems of linear equations and their solutions; vector space R^n and its subspaces; spanning set and linear independence; matrices, inverse and determinant; range space and rank, null space and nullity, eigenvalues and eigenvectors; diagonalization of matrices; similarity; inner product, Gram-Schmidt process; vector spaces (over the field of real and complex numbers), linear transformations.

Textbooks/ References:

Texts:

1. D. Poole, Linear Algebra: A Modern Introduction, 2nd Edn., Brooks/Cole, 2005.
2. G. B. Thomas, Jr. and R. L. Finney, Calculus and Analytic Geometry, 9th Edn., Pearson Education India, 1996..

References:

1. G. Strang, Linear Algebra and Its Applications, 4th Edn. Brooks/Cole India, 2006.
2. K. Hoffman and R. Kunze, Linear Algebra, 2nd Edn., Prentice Hall India, 2004.
3. R. G. Bartle and D. R. Sherbert, Introduction to Real Analysis, 3rd Edn., Wiley India, 2005.
4. S. R. Ghorpade and B. V. Limaye, An Introduction to Calculus and Real Analysis, Springer India, 2006.

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: Classes will be held on Monday to Thursday in the classroom 2203 (Core-II) with the following schedule.

Mon [10:00-11:30], Tues [11:00 -12:30], Wed [9:30-11:00] and Thu [10:00-11:30]

Attendance: It is expected that you attend all the classes. A student will be debarred from appearing in the end semester examination of MA101 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.

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:

Mid-Semester exam: 40% (during 8th June to 10th June)

End-Semester exam: 55% (during 6th July to 8th July)

Syllabus for exams: Will be declared in the class.

Some Important Points:

- No make-up exam will be held for the students who **miss 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 MA101S 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.
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