MA 106 - Linear Algebra
Information Booklet, Mar-May 2022

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Aim of the course

This core course aims at introducing students to the fundamental concepts of linear algebra with an introduction to abstract vector spaces and linear transformations.

The course starts with systems of linear equations from which we develop basic concepts of the theory of vector spaces in the concrete setting of $\mathbb{R}^n$. We then introduce linear transformations and matrices modelling them, similarity of matrices, eigenvalues and eigenvectors. The concepts naturally lead to *diagonalizability* of linear maps leading to the Spectral Theorem, which is a high point of this course. Finally, we generalise all concepts to the abstract setting of vector spaces. This subject material is foundational and is important for the study of all fields of mathematics.

Course contents

See http://www.math.iitb.ac.in/assets/pdf/btech.pdf and the reference books given there.

Lectures and Tutorials

There will be 3 hours of lectures and 1 hour of tutorial in each week. Divisions 1 and 4 will have their lectures on the zoom channel zoom9@iitb.ac.in while Divisions 2 and 3 will have their lectures on the zoom channel zoom18@iitb.ac.in

Attendance Policy

If you miss an exam for valid medical reasons, submit a medical certificate to Prof. Gopal Srinivasan.

Grading Policy

There will be 1 quiz and one end-semester exam (which will coincide with the mid-semester exam of other courses). The allotted 50 marks will be split as follows:

Common quiz : 10 marks
Endsem exam : 40 marks