



ಬಿ.ಎಂ.ಎಸ್. ತಾಂತ್ರಿಕ ಮತ್ತು ವ್ಯವಸ್ಥಾಪನಾ ಮಹಾವಿದ್ಯಾಲಯ

( ವಿ.ಟಿ.ಯು. ಅಡಿಯಲ್ಲಿನ ಸ್ವಾಯತ್ತ ಸಂಸ್ಥೆ )

**BMS** INSTITUTE OF TECHNOLOGY & MANAGEMENT

(Autonomous Under VTU)

## DEPARTMENT OF MATHEMATICS

Brace yourself for an incredible Open Course:

### MATHEMATICAL METHODS FOR HIGHER STUDIES

This Open Course explores key mathematical concepts utilized in higher studies. It covers topics such as Modern Algebra, Partial Differential Equations, Statistical Methods, Mathematical Models in Machine Learning and Optimization. These mathematical concepts serve as the foundation for advanced coursework and research in diverse disciplines.

**Date: 12.06.23 - 16.06.23**

**Venue : A-201, Academic Block**

Convener : Dr. Karabi Sikdar [Prof. & HOD]

Contact For Registration:

- Dr. Arnab Bhattacharyya (7631057464)
- Dr. Priyanka Pal (9031355922)

Course registration at <https://projects.bmsit.ac.in>

Online Fee Payment Details:

1. Login into: <https://bmsitm.gnums.in>
2. Go to Menu Fee->other Fee

Select the Fee Head as Open Course fee and pay Rs. 400/-

## Department of Mathematics

### Course Schedule: “Mathematical Methods for Higher Studies”

12<sup>th</sup> June 2023 to 16<sup>th</sup> June 2023

Sl No.	Date	Topics covered	Break	Topics covered	Break	Topics covered	Assessment/feedback
		8:30 to 10:30 am	10:30 to 10:50 am	10:50 to 12:50 pm	12:50 to 1:50 pm	2:00 to 4:00 pm	4:00 pm to 4:30 pm
1	12.06.2023	Inauguration and Expert Talk on Mathematical Methods for Higher Studies (GATE & CAT Exams)	TEA BREAK	Vector Space: Examples and Properties	LUNCH BREAK	Linear Transformation, Orthogonalization by Gram-Schmidt Method, QR Decomposition	Overall Feedback & Assessment
2	13.06.2023	An Overview of Principal Component Analysis		Mathematical Aptitude for Competitive Exams		Group Theory: Properties and Applications	Overall Feedback & Assessment
3	14.06.2023	Statistical Data Analysis using R- Software		Applications of Linear Algebra in Machine Learning		Optimization Methods, Advantages and Limitations, Shortest Path	Overall Feedback & Assessment
4	15.06.2023	Mathematical Models in Machine Learning		Introduction to Fuzzy Set Theory		Number Theory	Overall Feedback & Assessment
5	16.06.2023	PDE and its Applications		Assessment of Students		Valedictory	Overall Feedback & Assessment

#### Instructions to the Participants:

1. For Hands-on sessions the student needs to carry the following to the lab:
  - a. Laptop with the following configuration (i3, 16 Mb Ram, SSD 128 GB)
  - b. Software installation in the laptop: (Window 11/ Ubuntu 20.04, Anaconda3, ...)