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**Convener**

Dr. Khadar Babu SK ,
Head, Department of Mathematics

**Coordinators**

Dr. Raja Das
Dr. Nageshwar Rao Ragi

**Registration link**

https ://events.vit.ac.in/

**Last** date **for Registration**

5th February 2026

**Course Fee**

Course Fee: Rs.150/- (Inclusive of GST)

Number of participants: 70

**Schedule of Instructions**

The workshop is conducted in four sessions on 11, February 2026.

Venue: Online only

**Contact Us:**

**Dr. Raja Das[1]**

**Dr. Nageshwar Rao Ragi[2]**

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VIT®

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

# One-day Workshop

# (online only)

# on

# Learning Calculus with GNU Octave

## 11, February 2026

Department of Mathematics
School of Advanced Sciences
VIT, Vellore-632014

## VIT

VIT has made a mark in the field of higher education in India imparting quality education in a multi-cultural ambience, intertwined with extensive application-oriented research. VIT was established with the aim of providing quality higher education at par with institutions of international standards. It persistently seeks and adopts innovative methods to improve the quality of higher education in all fields of science and technology. VIT was established by the well-known educationalist and former parliamentarian, honourable Dr. G. Viswanathan, the Founder and Chancellor, a visionary who transformed VIT into a Centre of excellence in higher technical education. In Engineering and Technology, VIT stands 212th best in the World and the 9th best in India (as QS World University Ranking 2023). Also based on the same survey, eight subjects of VIT are within the top 500 in the world. It is ranked the 8th best university and 11th best research institution and the 11th best engineering institution in India (NIRF ranking, Govt. of India 2022). It is ranked within the top 200 universities in Asia (QS – Asia University rankings 2022) and has got A++ in the 4th cycle of NAAC accreditation.

## School of Advanced Sciences

School of Advanced Sciences (SAS), a platform for intellectuals in VIT, is pledged to internationally acclaimed research and inventive instruction with a priority on disciplinary rigor and establishing academic achievement. SAS comprises three academic departments spanning Mathematics, Physics, and Chemistry. The school offers Ph.D. research programs in all these disciplines and Master's Programmes in Mathematics, Physics, and Chemistry.

## Deparatment of Mathematics

The subject of Mathematics in VIT is ranked within the top 7-8 ranks in India and top 201-250 in the world as per QS World University Rankings by Subject 2024. The department of mathematics has 133 faculty members who are actively involved in teaching and mathematical and interdisciplinary research. The department offers Masters Programs in Data Science, Business Statistics, Integrated M. Sc. Computational Statistics and Data Analytics, Integrated M. Sc. Mathematics and Ph. D. with a plethora of field expertise. Several departmental research projects are financially supported by the leading funding agencies such as CSIR, DRDO, DST, NBHM and MHRD. Recently, the department was also recognized by DST-FIST which aided in establishing Advanced Computing Research Lab facilities.

## About the Course

Learning Calculus with GNU Octave provides a modern, computational approach to understanding fundamental calculus concepts through visualization and hands-on experimentation. GNU Octave, an open-source numerical computing environment, allows students to explore topics such as limits, continuity, differentiation, integration, and differential equations in an interactive and intuitive manner. The course emphasizes practical understanding alongside analytical techniques, enabling students to verify theoretical results, experiment with real-world examples, and develop problem-solving skills essential for science and engineering applications. GNU Octave's MATLAB-compatible syntax, powerful plotting capabilities, and extensive numerical libraries make it an ideal platform for learning and applying calculus concepts efficiently. This course is designed for undergraduate and postgraduate students seeking to strengthen their mathematical foundations while gaining valuable computational skills applicable across engineering, science, and data-driven disciplines.

## Course contents

1. Introduction to GNU Octave Programming
2. Functions, Graphs, and Visualization Techniques
3. Limits, Continuity, and Computational Evaluation
4. Differentiation and Applications of Derivatives
5. Integration and Area under Curves
6. Taylor Series and Function Approximation
7. Applications of Calculus using GNU Octave

## Course Outcomes

After completion, a participant will be able to

1. install and configure GNU Octave and use its basic programming environment for numerical computation
2. define and visualize mathematical functions using plotting and graphical tools in GNU Octave
3. compute limits, derivatives, and integrals using both analytical understanding and numerical methods
4. analyze and interpret applications of derivatives such as rate of change, maxima, and minima
5. evaluate definite integrals and areas under curves using numerical integration techniques
6. use GNU Octave to solve and visualize real-world problems involving calculus concepts

## Who Can Attend?

The workshop is open to all under-graduates, postgraduates, research scholars, faculty members and representatives from industry.