

Event title	FDP on Engineering Mathematics		
Event Category	Teaching-Learning Practices		
Date and Duration	January 23-25, 2025		
Department	College Event		
CTLP Coordinators	Dr Chitra V, Associate Professor, Mathematics Dr Jothibasu M, Assistant Professor (Sl.Gr), ECE Department		
Chief Guest/ Experts	Dr. Thirupathi Gudi Professor Department of Mathematics Indian Institute of Science Bangalore.	Dr. R. Venkatesh Associate Professor Department of Mathematics Indian Institute of Science, Bangalore.	Dr. G.Arunkumar Assistant Professor Department of Mathematics Indian Institute of Technology Madras Chennai, Tamilnadu.
No. of Participants	11 (Mathematics department Faculty members)		

The Faculty Development Program (FDP) titled "Engineering Mathematics" was organized by the Centre for Teaching Learning Practices (CTLP) at PSG Institute of Technology and Applied Research from January 23-25, 2025. The FDP was aimed at enriching faculty members' knowledge and teaching capabilities in the domain of applied mathematics for engineering disciplines. It provided an invaluable opportunity for participants to deepen their understanding of engineering mathematics and explore advanced methods that can enhance their teaching approach.

The FDP began with a welcome address by Dr. N. Saravanakumar, Principal of PSGitech. In his address, Dr. Saravanakumar emphasized the importance of bridging the gap between advanced mathematical theories and their practical applications in engineering. He outlined how engineering mathematics forms the backbone of various technological advancements and stressed the need for faculty members to stay updated on the latest mathematical tools to better serve their students and the engineering community. The Principal also highlighted the significance of platforms like the FDP, which allow faculty to engage with experts and collaborate on new pedagogical strategies.

Dr. Thirupathi Gudi commenced the program with an in-depth discussion on numerical methods and their importance in engineering mathematics. He covered essential techniques used to solve complex engineering problems where analytical solutions are difficult or impossible to obtain. The session included topics such as numerical integration, root-finding algorithms, and solutions to ordinary differential equations (ODEs). Dr. Gudi emphasized how these methods are integral to simulations and real-world engineering applications where precision and computational efficiency are crucial.



Dr. Thirupathi Gudi, Professor, IISc Bangalore - lecture session in FDP

Dr. G. Arunkumar's session explored the fundamental concepts of functions, limit, and continuity. He discussed the importance of understanding these concepts as they form the backbone of many advanced mathematical topics used in engineering. Dr. Arunkumar explained how limits and continuity are critical in analyzing the behavior of functions in various engineering problems.



Dr.G.Arunkumar,Assistant Professor- IIT Madras - lecture in FDP

Dr. R. Venkatesh led a detailed session on matrices and their role in image processing. He explained how matrices are used to represent and manipulate images, emphasizing the importance of matrix operations such as transformations, filters, and compression algorithms in digital image processing. Dr. Venkatesh illustrated how linear algebra and matrix theory are crucial for tasks like image enhancement, object recognition, and computer vision, which are pivotal in modern engineering applications.

Dr. Venkatesh also introduced SageMath, an open-source mathematics software system that integrates many mathematical tools and allows for symbolic computation, numerical analysis, and visualization. He highlighted how SageMath can be a powerful tool for both research and teaching, offering a collaborative platform for solving complex mathematical problems. Additionally, Dr. Venkatesh spoke about the National Centre for Mathematics (NCM), discussing its role in advancing mathematical research and fostering collaboration across academic and research institutions. He highlighted several NCM programs that support faculty development, promote research in mathematics, and provide resources for mathematical learning and innovation.



Dr.R.Venkatesh, Associate Professor, IISc Bangalore- lecture in FDP

On the final day, faculty members from the Department of Mathematics at PSGitech had the opportunity to present their teaching styles and strategies to the resource persons. Each faculty member shared their approach to teaching engineering mathematics, including methodologies they use to engage students, incorporate technology, and address challenges in the classroom. The resource persons provided valuable feedback and suggestions for improvement, focusing on enhancing student interaction, adopting active learning techniques, and integrating more real-world applications of mathematical concepts. Dr. Thirupathi Gudi, Dr. R. Venkatesh, and Dr. G. Arunkumar emphasized the importance of creating an interactive and collaborative learning environment, using visual aids, and leveraging technology to foster deeper understanding. They also encouraged faculty to continuously innovate and adapt their teaching approaches to meet the evolving needs of students.



Vote of Thanks by Dr.V.Jailaxmi, Professor & Head, Department of Mathematics-PSGiTech

The FDP concluded with a vote of thanks delivered by Dr. V. Jailaxmi, Head of the Department of Mathematics at PSGitech. Dr. Jailaxmi expressed her heartfelt gratitude to the resource persons, Dr. Thirupathi Gudi, Dr. R. Venkatesh, and Dr. G. Arunkumar, for their insightful and engaging sessions throughout the program. She acknowledged their valuable contributions to the academic growth of the participants and the overall success of the FDP. Dr. Jailaxmi also thanked the faculty members for their active participation and, thanked the management of PSGitech for their continuous support and commitment to fostering academic development and creating opportunities for such professional development programs. She concluded by highlighting the significance of continuous learning and the importance of applying the knowledge gained during the FDP in the classroom and research.



Group Photo - FDP on Engineering Mathematics, Jan23-25,2025