



Department of Mathematics, School of Advanced Sciences (SAS),
VIT-AP University Organizes

5-DAY FACULTY DEVELOPMENT PROGRAM (FDP) ON

**RECENT ADVANCES IN DYNAMICAL SYSTEMS:
APPLICATIONS TO COMPUTATIONAL TECHNOLOGIES IN SCIENCE AND ENGINEERING**

RADS 2026

22nd to 26th of January, 2026, Mode: Online (Google Meet)

About the FDP

The Faculty Development Program (FDP) on Recent Advances in Dynamical Systems: Applications to Computational Technologies in Science and Engineering is a comprehensive and interdisciplinary training initiative designed for academics, researchers, and industry professionals. This program will delve into the critical roles of Fixed Point Theory, Control Theory, Fractal Geometry, and Nonlinear Dynamics in shaping modern technological landscapes. Participants will explore how these foundational mathematical concepts provide the analytical tools necessary for developing robust, efficient, and intelligent systems across diverse fields, including artificial intelligence, autonomous systems, data science, and quantum computing. The FDP aims to bridge the gap between abstract mathematical theory and its practical application, fostering a deeper understanding of the principles that underpin cutting-edge technological innovation.

The FDP brings together leading academicians, researchers, and industry experts to discuss modern mathematical tools, methodologies, and problem-solving techniques that are shaping the future of science and technology. Through a blend of theoretical lectures, problem-solving sessions, and interactive discussions, participants will gain exposure to both pure and applied aspects of mathematics, empowering them to pursue advanced research and enhance their teaching practices.

This program serves as a platform for faculty members, research scholars, and postgraduate students to enhance their expertise, explore interdisciplinary connections, and stay updated with the latest developments in the mathematical sciences.



rads.math@vitap.ac.in



<https://vitap.ac.in/RADS-2026.html>

Objectives

The major objectives of the FDP is to encourage interdisciplinary research in the areas as listed below:

- **Fixed Point Theory in Computational Intelligence**
Exploring the role of fixed-point theorems in iterative algorithms, optimization, and convergence analysis in AI and machine learning models.
- **Control Theory for Intelligent and Autonomous Systems**
Applying modern control strategies to robotics, autonomous vehicles, and adaptive systems, integrating AI-driven decision-making.
- **Fractal Geometry and Complex Systems Modeling**
Utilizing fractal theory for pattern recognition, image compression, and modeling natural and engineered systems with complex geometries.
- **Nonlinear Dynamics in Machine Learning and Data Science**
Leveraging nonlinear analysis to improve deep learning architectures, stability, and performance in large-scale data-driven applications.
- **Interdisciplinary Applications of Fixed Point and Control Theories**
Connecting mathematical theory to real-world problems in optimization, network analysis, and cyber-physical systems.
- **Emerging Trends: From Theoretical Analysis to Technological Innovation**
Showcasing how advancements in fixed point theory, control theory, and fractal analysis intersect with AI, quantum technologies, and predictive modeling for future-ready solutions.

Primary Themes

The expert-led sessions of the FDP is focused more on the topics including but not limited to the following:

- ✔ **Fixed Point Theory in Computational Intelligence**
This theme explores the foundational role of fixed-point theorems as a powerful tool for analyzing the convergence and stability of iterative algorithms. Participants will learn how these theorems are applied in areas such as optimization, machine learning models, and neural network training, providing a theoretical guarantee for a solution's existence and the algorithm's convergence.
- ✔ **Control Theory for Intelligent and Autonomous Systems**
Focusing on the application of modern control strategies, this theme addresses the challenges of creating reliable and autonomous systems. It will cover topics like adaptive control, optimal control, and robust control as they apply to robotics, autonomous vehicles, and AI-driven decision-making systems. The emphasis will be on integrating mathematical control principles with AI algorithms to enhance system performance and safety.

✔ **Nonlinear Dynamics in Data Science and Machine Learning**

This theme investigates how nonlinear analysis can be leveraged to improve the performance and understanding of deep learning architectures. Participants will explore concepts such as chaos theory, bifurcations, and attractors to gain insights into the complex behavior of neural networks and large-scale data systems. The focus will be on using these principles to address challenges related to model stability, generalization, and training dynamics.

✔ **Interdisciplinary Applications and Emerging Trends**

This concluding theme serves as a synthesis of the program's content, highlighting the interdisciplinary applications of the mathematical theories explored. It will showcase how concepts from fixed point theory, control theory, and fractal analysis intersect with AI, cyber-physical systems, and predictive modeling. The objective is to demonstrate how these theoretical advancements translate into tangible technological innovations and future-ready solutions for complex real-world problems.

■ **About the University**

Established under the guidance of our founder and Chancellor, Dr. G. Viswanathan, VIT-AP University stands as a premier institution dedicated to learning, teaching, and research excellence. Globally recognized for its significant contributions, the university has earned the top position among emerging state private universities in India, according to the Outlook University Ranking 2022, 2023 and 2024. VIT-AP University encompasses seven schools, including the School of Computer Science and Engineering (SCOPE), the School of Electronics Engineering (SENSE), the School of Mechanical Engineering (SMEC), the School of Advanced Sciences (SAS), the School of Social Sciences and Humanities (VISH), the School of Business (VSB), and the School of Law (VSL). Our esteemed faculty members, drawn from the best institutions nationally and internationally, employ innovative curriculum designs. Building on VIT's 41-year legacy of educational and research innovation, VIT-AP University aligns with the tradition of excellence, blending academic rigor with industry partnerships. With a vision of establishing itself as one of the world's premier academic hubs, the university offers a dynamic campus environment conducive to holistic education and personal growth. For more details, please visit: <https://vitap.ac.in/>

■ **About the School**

The School of Advanced Sciences (SAS) at VIT-AP University comprises the Departments of Mathematics, Physics, and Chemistry. Our teaching methodology prioritizes critical thinking through Project-Based Learning (PBL), cultivating an atmosphere where students are urged to question, investigate, and engage in research across various scientific domains. Concentrating on the natural sciences, SAS strives to furnish a strong groundwork for undergraduate, graduate, and doctoral students, integrating recent scientific and technological progress. The school provides a range of programs including a Dual degree B.Sc.-M.Sc. in Data Science, MSc programs in Data Science, Physics, and Chemistry, as well as Ph.D. opportunities in Mathematics, Data Science, Statistics, Physics, and Chemistry. For further information, please visit: <https://vitap.ac.in/allschools/SAS>





About the Department

The Department of Mathematics at our university stands as a beacon of academic excellence, boasting a distinguished faculty body of over 80 members hailing from diverse regions across the country. These esteemed professors bring with them a wealth of expertise and research interests that span a wide array of fields including Nonlinear Dynamical Systems, Fixed Point Theory, Control Theory, Fractal Theory, Mathematical Modelling, Integral Transformations, Operator Theory, Hydrodynamics Stability, Thermal Convection, Algebraic Coding Theory, Cryptography, MHD Boundary Layers, Perturbation Methods, Stochastic Differential Equations, Approximation Using Linear Positive Operators, Fluid Dynamics, Nonlinear Mathematical Programming Problems, Mathematical Biology, Graph B-Coloring, Cosmology, and beyond. Furthermore, the department is committed to fostering academic growth and offers a comprehensive range of mathematical courses tailored to meet the needs of various programs offered by the university. Among its offerings are two prominent programs: the Dual Degree Programme in B.Sc.-M.Sc. Data Science, M.Sc. Data Science program, Ph.D. program in Mathematics, Statistics and Data Science, all of which provide students with a robust foundation in mathematical theory and its practical applications. Through its dedicated faculty, diverse research interests, and extensive course offerings, the Department of Mathematics continues to be a cornerstone of academic excellence within our institution.

Our Speakers



Prof. James Yorke
University of Maryland,
United States



Prof. Rajendra Pant
University of Johannesburg,
South Africa



Prof. A. K. B. Chand
IIT Madras,
Tamil Nadu, India



Prof. Dhananjay Gopal
GGV Central University of
Chhattisgarh, India



Prof. Muslim Malik
IIT Mandi,
Himachal Pradesh, India



Dr. Debdas Ghosh
IIT (BHU),
Uttar Pradesh, India



Dr. Viswanathan P.
IIT Delhi,
Delhi, India



Dr. Geetika Verma
RMIT University,
Australia



Dr. Vijender Nallapu
NIT Warangal,
Telangana, India



Dr. Anurag Shukla
REC Kannauj,
Uttar Pradesh, India





Who can Register?

- Professionals from Academia and Industry
- Research Scholars and PG Students

Registration Fee

Indian Faculty Members and Industry Professionals	INR. 600/-
Indian Research Scholars and PG Students	INR. 300/-
Foreign Participants	\$10

Registration Link



Last Date of Registration: 20.01.2026

Scan the QR Code
or go to the following link

forms.gle/kTqKTb64TtxNo5Vi6

Step 1: Fee payment. Instructions are given in the registration form.

Step 2: Note down the Receipt ID and download the Fee Payment Receipt.

Step 3: Enter your details and submit the registration form.

Important Dates

- Opening Date of Registration: 25/09/2025
- Closing Date of Registration: 20/01/2026
- FDP Dates: 22/01/2026 to 26/01/2026



Organizing Committee

Chief Patron:

Dr. G. Viswanathan, Chancellor, VIT-AP University, India

Patrons:

Sri. Sankar Viswanathan, Vice-President, VIT-AP University

Dr. Sekar Viswanathan, Vice-President, VIT-AP University

Dr. G. V. Selvam, Vice-President, VIT-AP University

Dr. P. Arulmozhivarman, Vice-Chancellor (I/C), VIT-AP University

Dr. Jagadish C. Mudiganti, Registrar, VIT-AP University

Chair Person:

Prof. S. Srinivas, Dean, SAS, VIT-AP University

Convenors:

Dr. Prashant Patel & Dr. Aswathy R. K., VIT-AP University

Organising Secretaries:

Dr. V. Ramakrishna Reddy, VIT-AP University

Dr. Ravi Kumar Bandaru, VIT-AP University

Dr. Sukanta Nayak, VIT-AP University

Dr. Ramesh Prasad Panda, VIT-AP University

Joint Organizing Secretaries:

Dr. Yada Nandukumar, VIT-AP University

Dr. Pradip R. Patle, VIT-AP University

Dr. Shobhit Kumar Srivastava, VIT-AP University

Dr. Arun Kumar Yadav, VIT-AP University

Advisory Committee:

Prof. K. Vajravelu, University of Central Florida

Prof. B. S. Kushvah, IIT (ISM) Dhanbad

Dr. Santanu Koley, BITS Pilani, Hyderabad

Dr. Deepesh Kumar Patel, VNIT Nagpur

Dr. Rahul Shukla, Walter Sisulu University, SA

Dr. B. S. R. V. Prasad, VIT Vellore

Dr. Santanu Mandal, VIT-AP University

Dr. Phani Kumar M, VIT-AP University

Dr. Prashanth Maroju, VIT-AP University

Dr. Manoj Kumar Mishra, VIT-AP University

Dr. K. Mahipal Reddy, VIT-AP University