Report

Compact Courses in Foundations of Mathematics

Professor R. Balakrishanan Endowment Trust (RBET), Tiruchirappalli and The (Indian) Mathematics Consortium (TMC)

Topic: Differential Equations and their Applications in Science and Engineering

Date: 10-12th February, 2025

Regional Coordinator: Dr. Deepti Jain, Associate Professor

Department of Mathematics

Sri Venkateswara College, University of Delhi, Delhi

Organizing University: Shri Vishwakarma Skill University, Palwal, Haryana

Resource Person: Dr. Sachin Sharma,

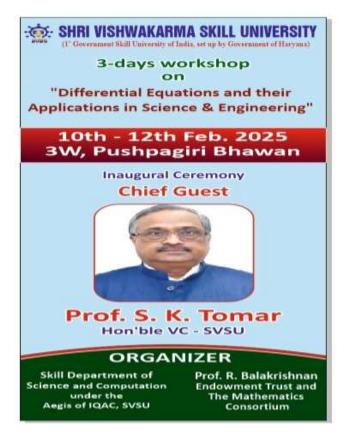
Assistant Professor (Mathematics)

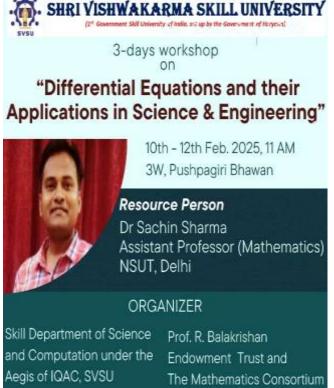
Netaji Subhas University of Technology, Delhi

Local Organizer: Dr. Mohit Kumar Srivastav

Skill Assistant Professor (Mathematics)

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Syllabus of Compact Course funded by RBET and TMC

Topic: Differential Equations and Their Applications in Science and Engineering

S.No.	Date	Topic	Details
1	10.02.2025	First order ordinary differential equations (ODE)	 Definition of ordinary and partial differential equations Formation of ODE, order and degree Solutions of first order differential equations: separation of variables, homogeneous and linear ODE. Application of first order ODE in engineering Tutorial: Several examples based on above topics will be discussed
2	11.02.2025	Higher order linear differential equations	Linear differential equations with constant coefficients and its applications Euler-Cauchy differential equations Tutorial: Several examples based on above topics will be discussed
3	12.02.2025	Numerical Solutions of ordinary differential equations	Euler methods, Euler Modified method Runge-Kutta method Tutorial: MATLAB program based on the above topic