

## PDEU GANDHINAGAR

Pandit Deendayal Energy University (formerly PDEU) 100-acre campus is located in Gandhinagar, which is the capital city of Gujarat. PDEU offers multiple courses ranging from engineering, science, arts, and management along with maximum exposure and opportunities to its students through various national and international exchange programs with the Best Universities worldwide. For the development of its faculties and staff, the University endeavours for various collaborative programs.

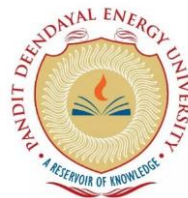
PDEU has been established by GERMI as a Private University through the State Act enacted on 4th April 2007. Since its establishment in 2007, the University has enlarged its scope by offering diversified courses in a very short period through various schools SOT, SPT, SPM, and SLS to provide excellent academic programs in Technology, Management, Petroleum Engineering, Solar and Nuclear Energy and Liberal Education. It intends to broaden the opportunities for students and professionals to develop core subject knowledge which is duly complemented by leadership training interventions, thereby helping the students to make a mark in the global arena. This objective is being further addressed through several specialized and well-planned undergraduate, post-graduate, and doctoral programs as well as intensive research projects. PDEU has ranked in band 101-151 in University category, 106 in Engineering category, and 89 in Management category in the NIRF ranking 2022 declared by Ministry of Education, Government of India.



### GUJCOST sponsored One-Week Online Short-Term Training Programme (STTP) On

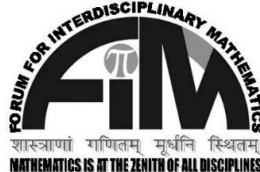
### Solutions of Differential Equations using Numerical Methods (SDENM-2022) (Dec 19-23, 2022)

Organized by



Department of Mathematics,  
School of Technology,  
Pandit Deendayal Energy University,  
Gandhinagar-382426, Gujarat, India

In Association with



### CHIEF PATRON

**Prof. S. Sundar Manoharan**  
Director-General,  
Pandit Deendayal Energy University.

### PATRON

**Prof. Dhaval Pujara**  
Director, School of Technology,  
Pandit Deendayal Energy University.

### ADVISORY COMMITTEE

**Prof. Narottam Sahoo**  
Advisor & Member Secretary, Gujarat Council on  
Science & Technology.

**Prof. T.P. Singh**  
Dean, Student Welfare,  
Pandit Deendayal Energy University.



**Prof. G.P. Raja Sekhar**  
Dean, Faculty of Sciences,  
Indian Institute of Technology Kharagpur.

**Prof. S. Sundar**  
Director, NIT Mizoram.  
**Prof. Deepanker Sharma**  
Director, K. N. Modi Institute, India

### COORDINATORS

**Dr. Manoj Sahni**  
**Dr. Chandra Shekhar Nishad**  
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SOT, PDEU Gandhinagar.

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## SCHOOL OF TECHNOLOGY

The school emphasizes sound theoretical and practical knowledge of the chosen engineering discipline along with a broad overview of other disciplines. It is expected that engineering graduates from the School of Technology will care about issues that technology can make difference whether these issues are of health, security, economic well-being, or sustainability of world and values. The pedagogy involves industrial orientation, industry internships, civic and social internships, international exposure, workshops, and presentations, all geared to give the right learning ecosystem for industry-ready talent. SOT offers 4 years B. Tech., 2 years M. Tech., 2 years M.Sc., 4 years B.Sc. (Hons.), and Doctoral programs in various branches of engineering and sciences.

## DEPARTMENT OF MATHEMATICS

The Department of Mathematics was established in the year 2011. The major research thrust areas are Continuum Mechanics, Non-Newtonian fluid flows, Boundary Element Method, Dual BEM, Wave Hydrodynamics, Coastal Engineering, Computational Fluid Dynamics, Computational Neuroscience, Computational Seismology, Software Reliability, Theory of Relativity, Oceanography, Optimization, etc. The Department also offers B.Sc. (Hons.), M.Sc, and Ph.D. programs to deserving candidates. The Department has fourteen doctoral faculty members.

## COURSE OBJECTIVES

Differential equations have wide range of applications in engineering sciences. The mathematical modelling of physical problems arising in engineering sciences using various physical laws (such as conservation of mass, momentum, and energy, Newton's law of cooling, Kirchhoff's law etc.) boils down to differential equations. The differential equations which we can exactly solve are very limited. The large class of differential equations have to be solved using numerical

methods. A variety of numerical methods such as finite difference methods (FDM), finite element methods (FEM), finite volume methods (FVM), and boundary element methods (BEM) are available in the literature. Every methods have their own merits and demerits. Depending on the context, we apply particular methods to solve differential equations. In this online STTP, major focus will be on explaining mathematical concepts with theory and solving differential equations along with the applications.

## COURSE CONTENT

- ✚ Finite Difference Method (FDM)
- ✚ Finite Element Method (FEM)
- ✚ Finite Volume Method (FVM)
- ✚ Boundary Element Method (BEM)
- ✚ Applications of FDM, FEM, FVM, and BEM to Physical Problems arising in Engineering Sciences.

## WHO CAN ATTEND?

Final year undergraduate students, Postgraduate students, Research scholars, Faculty members, and Industry professionals from science and engineering backgrounds are eligible to attend the course.



## RESOURCE PERSONS

- **Prof. T.P. Singh**, Department of Mathematics, PDEU Gandhinagar
- **Dr. Manoj Sahni**, Department of Mathematics, PDEU Gandhinagar
- **Dr. Bhairav Thakkar**, Imagine Communications, Canada
- **Dr. Brajesh Jha**, Department of Mathematics, PDEU
- **Dr. Abhishek K Singh**, School of Advanced Sciences (SAS), VIT Chennai
- **Dr. Atendra Kumar**, Department of Mathematics, NIT Srinagar
- **Dr Anirudh Kulkarni**, Department of Mechanical Engineering, PDEU Gandhinagar
- **Dr. Chandra Shekhar Nishad**, Department of Mathematics, PDEU Gandhinagar

**Registration fee: NIL**

#Registration link:

<https://forms.gle/iN6nToeRw1bw4wPk8>

**The last date of registration is 15<sup>th</sup> Dec 2022**

**STTP will be conducted online through**

