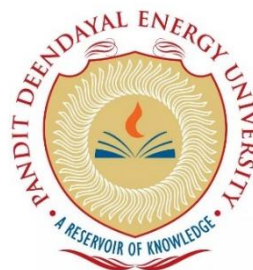## PDEU GANDHINAGAR

Pandit Deendayal Energy University (formerly PDPU) 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 73 in University category, 68 in Engineering category, and 66 in Management category in the NIRF ranking 2021 declared by Ministry of Education, Government of India.

Faculty of Engineering & Technology

One-Week Online Short-Term Training Programme (STTP) On Solutions of Differential Equations using Numerical Methods (SDENM-2022) (May 23-27, 2022) Organized by

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

CHIEF PATRON

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

PATRON

Prof. Sunil Khanna
Director, School of Technology,
Pandit Deendayal Energy University.

ADVISORY COMMITTEE

Prof. T.P. Singh
Director, Academic Affairs,
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. (Retd.) K. Swaminathan
Department of Mathematics,
Indian Institute of Technology Madras.
Prof. Deepanker Sharma
Director, K. N. Modi Institue, India

COORDINATORS

Dr. Manoj Sahni
Dr. Chandra Shekhar Nishad
Department of Mathematics,
SOT, PDEU Gandhinagar.

Contact details
☎ : +91-7874441820, +91-8887518935
✉ : sdenm2022@gmail.com

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
- **Prof. R.C. Mittal**, Department of Mathematics, JIIT Noida
- **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 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/hkaJUc181jY6ZWiG6

The last date of registration is 20th May 2022

STTP will be conducted online through

Microsoft Teams