Sardar Vallabhbhai

National Institute of Technology, Surat

TEQIP III Sponsored

Short Term Training Program (STTP) in virtual/online mode

On

"Sustainable Development and Recent Advances in Electrical Engineering (SDRAEE)"

8 – 12 March 2021

Program Coordinators:

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Organized by

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https://www.svnit.ac.in/

Patron

Prof. S. R. Gandhi, Director, SVNIT

About the Institute

The institute, one of the pioneering engineering institutions of the country, was established in 1961 as Sardar Vallabhbhai Regional College of Engineering & Technology and was given the status of National Institute of Technology, in 2002. At present, there are six undergraduate courses, nineteen postgraduate courses and Ph.D. programs in all disciplines of engineering and applied sciences. It has an excellent placement record with a number of top-ranking companies visiting the campus. The institute is located at Surat, about 260 kms North of Mumbai and is very well connected by rail and road links to Mumbai as well as Ahmedabad (250 kms)/Vadodara (150 kms). The institute is approximately 10 kms away from Surat Railway Station and 10 kms from the Surat Airport (STV). Surat is an industrial city with historical importance and is well known for Textile, Jari and Diamond industries. The leading industries like RIL, ONGC, Kribhco, L&T, ESSAR, NTPC, and GAIL are established in Surat Hazira area.

About the Department

The department is one of the pioneering departments of the Institute. Over the years, the department has progressed at a rapid pace with development in both the spheres of infrastructure facilities and academic programs. The department has highly qualified faculty members engaged in teaching and research with the aim of achieving excellence in the field of Electrical Engineering.

The department offers Under Graduate course in Electrical Engineering and Post Graduate programs in Instrumentation and Control, Power Electronics & Electrical Drives, and Power System. The department offers Ph.D. program to promote research activities in the various areas of Electrical Engineering. The department also renders consultancy and testing services.

About the program

The sustainable development has become integral part of electrical network. The technological advancements and modernization has led to the advanced control and programming techniques. In this context, artificial Intelligence based techniques have become popular for solving different problems in power systems such as energy management, planning, scheduling, forecast etc. These techniques can deal with difficult tasks faced by applications in modern large power systems with added interconnections installed to meet increasing load demand. Artificial neural network (ANN) and fuzzy logic controllers (FLC) are very versatile and popular. The latest machine/deep learning tools are giving more flexibilities and freedom of operation. Power systems are living in an era of major changes, pushed forward by the emergence of new technical issues and the availability of innovative technologies, enabling new functions for monitoring and control of transmission network operating and stability. This includes the addition of renewable energy sources and changes in every market.

The finite element method (FEM) is a powerful simulation technique used to solve boundary-value problems in a variety of engineering circumstances. Finite elements, amongst numerical methods, have emerged as suitable techniques for electrical design, performance evaluation, and device optimization in low frequency applications.

This course serves to bring communities together to share knowledge, learn from one another and propose new collaborations in order to further advance the field. This course is aimed at the full spectrum of people involved in electrical engineering/science from model development, validation and all the way through to application. The experts will identify the prioritize areas in the field that require further research. This consist of hands-on intensive modules involving a combination of lecture and demos, providing students and research professionals with the background they need to frame engineering questions in mathematical parlance, embark on analyses of these models, and work with a diverse array of data using advanced computational methods. The basic modelling and simulation techniques for electrical machines/power system will be elaborated to the participants. This course will demonstrate the methodology of incorporating the technological advances and the implementation of sophisticated computing techniques. Upon completion, attendees would be able to perform research analysis, create reproducible workflows, extend understanding through independent study using web-based resources, express hypotheses as mathematical models and utilize for societal benefits. The course will be conducted in virtual/online mode through googlemeet/MS-team/webex.

Major course intentions

Following are the broad objective of the course; however, it is not limited to*.

1. *Exploration of various developments in electrical machines/power electronics/power system engineering with mathematical modelling and implementation of simple case studies/demos.*
2. *Simulation of basic/advanced components of electrical systems.*
3. *Basics of sustainable development and electrical engineering.*
4. *Integration of renewable energy sources into power systems (solar, Wind etc.) The application of advanced converters/power electronics converters to power system. (FACTS/Power filters)*
5. *Advance computational tools for electrical machines and power systems. Modern condition monitoring tools for electrical machines.*
6. *Power system reliability, security, deregulation and restructuring. Optimization in power system engineering and its simulation in MATLAB using optimization tool box. Programming by using MATLAB tool box. (NN tool, Fuzzy, Genetic algorithm etc.)*
7. *The deep learning/machine learning tools etc. will be demonstrated.*

*** The course will cover basics of simulation in MATLAB/ Simulink by using relevant tool boxes in general. Additionally, other simulating tools such as ANN/DL/ML etc. will also be described.***

Speakers

The eminent speakers from IITs/NITs/ and other reputed Institutes will be invited for vast revelation and knowledge enrichment.

Who can apply?

The faculty members/students/industry professionals can apply for the course.

Registration and General Information:

Prospective applicants for the participation in the course should register through the following link: https://bit.ly/3qrWhMw

The payment and identity proof should be uploaded at the time of registration.

The last date of reaching applications is **2nd March 2021.** The candidates will be informed of their selection through-mail by **3rd March 2021.** The candidates will be informed as soon as their completed application form reaches to the coordinator (via email or googleforms).

Important dates:

Last date of reaching applications	2nd March 2021
Confirmation of participation	4th March 2021
STTP dates	8-12 March 2021

Course fee**

Students UG/PG/Ph.D	Rs. 250/-
Academicians/College Teachers	Rs. 500/-
Delegates from industries:	Rs. 3,000/-

*The registration fee should be paid **Online** to:*

A/C name: "Director SVNIT TEQIP IRG"

A/C No: 0277101028663 (Savings account)

Bank Name: Canara Bank, Nanpura Branch Surat,

IFSC: CNRB0000277.

*(**Note: The fee is non-refundable.)*

Address for Communications:

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