

Registration Form

A

Five-Day Short Term Course

on

Modeling and Simulation of Energy Transition Systems (MSETS-2023)

24-28 July 2023

Target Participants

The course will be useful for engineers from industries, faculty members, and research scholars from engineering colleges, universities, and research institutes. Selected candidates will be informed by email. Successful participants will be given a participation certificate. TA may be provided to the selected participants based on the availability of funds received from a funding agency. The course will be conducted in physical mode

Course Fee (Including GST)

Faculties from academic institutions	Rs: 1500
Participants from industries	Rs: 2000
Research Scholars/Students	Rs: 1000

Important Dates

Last date for receipt of application	10-07-2023
Notification about selection	12-07-2023
Confirmation by participants	15-07-2023

Payment

All payments should be made through the A/C payee demand draft in favor of "Continuing Education, NIT Rourkela", payable at SBI NIT Campus branch, Rourkela (Code:2109). Send the DD along with the duly-signed and filled-in Registration form to the address given below;

Course Coordinators

Dr. S. Murugan

Department of Mechanical Engineering
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Dr. Mahendra Chinthala

Department of Chemical Engineering
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Patron

Prof. K. Umamaheshwar Rao

Director
NIT Rourkela

Chairpersons

Head

Department of Mechanical Engineering
&

Head

Department of Chemical Engineering



Course Coordinators

Dr. S. Murugan

Department of Mechanical Engineering
&

Dr. Mahendra Chinthala

Department of Chemical Engineering

Organized by

Department of Chemical Engineering
&

Department of Mechanical Engineering
NIT Rourkela
Odisha State-769008

Name: _____

Designation: _____

Institute/Organization: _____

Mailing Address: _____

Phone No. (R) _____ (O) _____

Mobile: _____ Fax: _____

Email: _____

DD No: _____ Date: _____

Date: _____ Signature: _____

Signature

Head of the Institution with Seal

About The Institution

National Institute of Technology Rourkela is an institute of national importance created under the act of parliament. QS-World University-Asia Rankings has ranked NIT Rourkela on the list of 271-280 in 2022. NIT Rourkela is the only NIT to appear in the top 980 universities in the world. THE (The Higher Education) World University Rankings has listed NIT Rourkela between 801-1000 for the year 2022. NIT Rourkela provides quality education in a diverse and multi-cultural environment. The mission of the institute is to become an internationally acclaimed institution of higher learning that will serve as a source of knowledge and expertise for society and be a preferred destination for undergraduate and graduate studies. It offers Ph.D. and M.Tech by Research programmes in 21 engineering fields. The institute's research centers are engaged in consultancy and research activities for several bodies such as DST, DAE, CSIR, DRDO, BARC, ISRO. and private industries. NIT Rourkela ranked 39th position in the overall category in the NIRF, 15th position in Engineering category in India.



Department of Mechanical Engineering

The Mechanical Engineering Department of NIT Rourkela is known for research in most of these fields. The main foci of research are on mechanical vibration, robotics, CAD/CAM, precision engineering, Metal forming, manufacturing, CFD, Industrial refrigeration and Cryogenics. The academic program of the department reflects not only the core areas of Mechanical Engineer but also the research specialization of the faculty. The department at present has over one hundred research scholars pursuing projects in diverse fields. Many Research and Development projects are being pursued by the faculty sponsored by many government funding agencies and industries.

Department of Chemical Engineering

The Chemical Engineering department at NIT Rourkela specializes in most of the modern broad areas such as modeling and simulation, computational fluid dynamics, process control, reaction engineering, transfer operations, thermodynamics, environmental engineering, biochemical engineering, nanotechnology, renewable energy and so on. The department is well equipped with sophisticated instruments such as TGA, HPLC, GC, nanoparticle size analyzer, surface tensiometer, contact angle meter, fluorescence spectrophotometer, etc in addition to the traditional basic equipment and software to boost up high quality research activity. The department is also delighted with sponsored projects funded by different sponsoring agencies such as DST, CSIR, MOEF, MNRE, etc.



About The Short Term Course

Despite several efforts being taken by governments to tackle the causes of global warming carbon dioxide (CO₂) emissions from different sectors have increased by 60% in the last three decades. A significant change in the climate has been observed as a result of continual CO₂ accumulation in the atmosphere. Problems associated with climate change cannot be solved without substantial advancements in technology. Energy transition is the process of reducing greenhouse gas (GHG) emissions to 'net zero'. This is also known as 'decarbonisation' of the energy system. Energy transition can be achieved by adopting emission reduction technologies in conventional power plants, cost effective renewable energy technologies, moving toward net zero gas power with hydrogen and carbon capture technologies, modernization of grid technologies, advancing nuclear power generation, and hybrid and electric vehicles. This will reduce climate change problems. Before implementation of such technologies or methods on large scales, modeling and simulation are required. This short term course will focus on creating awareness for academics, scientists and engineers about the recent development of decarbonization technologies. It will also focus on the application of modeling and simulation tools used to develop such technologies.

Course Contents

The short term course will provide lectures related to modeling and simulation of systems used in the following areas;

Biofuels and their utilization, Carbon capture, storage and utilization, Clean combustion technologies, Energy-water nexus, Hydrogen and hydrogen based fuels, Power generation through renewable sources, Nuclear power generation.