

About NIT, Jalandhar

Dr B R Ambedkar National Institute of Technology was established in the year 1987 as Regional Engineering College and was given the status of National Institute of Technology (Deemed University) by the Government of India on October 17, 2002 under the aegis of Ministry of Human Resource Development, New Delhi. Now the Ministry of Human Resource Development, Government of India has declared the Institute as "Institute of National Importance" under the act of Parliament-2007. A large number of reputed Industrial houses in the country visit the Institution and select the final year students as Engineers/Management Trainees. As one of the National Institutes of Technology (NIT), the Institute has the responsibility of providing high quality education in Engineering, Technology and Sciences to produce competent technical and scientific manpower for the country. The Institute offers B.Tech, M.Tech, M.Sc, MBA and Ph.D programmes in the several disciplines of Engineering, Technology and Sciences. We are pleased to inform that the institute ranked 52 position amongst top 200 Indian institutes, and 12th among the 31 NITs in NIRF ranking 2020. For more info: <http://www.nitj.ac.in>

Location

The institute is located on G.T Road Amritsar by-pass at a distance of 15 km from Jalandhar Bus Stand, 12 km from Jalandhar City Railway Station, and 18 km from Jalandhar Cantt. Railway Station. Jalandhar is an ancient city in the north Indian state of Punjab. It is connected to New Delhi by Road. The city is surrounded by famous rivers Sutlej and Beas. Jalandhar is internationally famous for sports goods industry and hand tools industry.

Vision

To build a rich intellectual potential embedded with interdisciplinary knowledge, human values and professional ethics among the youth, aspirant of becoming scientists, engineers and technologists so that they contribute to society and create a niche for a successful career.

Mission

To become a leading and a unique institution of higher learning, offering state-of-the art education, research and training in science, engineering and technology to students who are able and eager to become change agents for the industrial and economic progress of the nation. To nurture and sustain an academic ambience conducive to the development and growth of committed professionals for sustainable development of the nation and to accomplish its integration into the global economy.

Who can attend the Faculty Development Programme

The faculty members of the AICTE approved institutions, research scholars (PG and Ph. D), participants from Government, Industry (Bureaucrats / Technicians / Participants from Industry etc.) and staff of host institutions.

Registration

Please register at <https://www.aicte-india.org/atal> on or before 12th October, 2020. No Registration Fee. E-Certificates will be provided after successful completion of FDP.

Organizing Committee

Patron

Professor (Dr) Lalit Kumar Awasthi,
Director, Dr. B. R. Ambedkar National Institute of Technology
Jalandhar

Convener

Dr. D K Shukla, HOD (ME)

Coordinators

Dr. Tangellapalli Srinivas, Associate Professor
Dr. D K Shukla, Associate Professor

5 Day Online Faculty Development Programme Under AICTE Training & Learning (ATAL) Academy on

Challenges and Opportunities in Collection, Storage and Utilization of Solar Thermal Energy (COCSUSTE-20)

19th – 23rd October, 2020

Sponsored by ATAL



Organized by

Department of Mechanical Engineering
Dr. B. R. Ambedkar National Institute of Technology
Jalandhar-144011, Punjab
www.nitj.ac.in

Objectives of the FDP

The main objective of the FDP is to plan and help in imparting quality technical education in the country and to support technical institutions in fostering research, innovation and entrepreneurship through training in various emerging areas.

Solar energy is a safe alternative energy which can replace current fossil fuels like coal and gas for generation of electricity that produce air, water, and land pollution. Use of solar energy will eliminate these unsafe, unclean consequences from using conventional fossil fuels.

But there are many challenges to use the solar thermal energy such as dilute, non-uniformity, costly, awareness etc. In spite of many promising benefits of solar energy, there is a need to overcome these difficulties before the development of the technologies.

The solar thermal energy collectors are very low efficient due to heavy heat transfer losses. There is a challenge to improve the current status by new techniques and devices. There are wide applications of solar thermal engineering i.e. power generation, desalination, process heating, cooling, cogeneration, tri-generation, poly-generation etc. Developing a suitable energy conversion configurations/products meet the human needs at domestic, industrial and commercial levels.

The FDP covers the basics of solar energy, nomenclature, solar geometry, solar radiation, estimation, measurement, flat plate collectors, solar water heaters, solar air heaters, novel solar thermal collectors, tracking improvements, thermal conversion applications viz. power generation, desalination, solar assisted hybrid plants, cogeneration, multi-utility product

The outcomes of this FDP on solar thermal energy are

- Apply the solar geometry and solar radiation to evaluate the solar thermal technologies.
- Study on solar energy storage such as sensible heat storage, latent heat storage, thermo-chemical heat storage.
- Design the solar thermal collectors suitable to the application such as power generation, desalination, air conditioning, drying etc.

About the Department of Mechanical Engineering

Mechanical Engineering is amongst one of the early branch of engineering started in the institute. It came into existence in 1990. Quality teaching is what we aim at so as to stimulate intellectual curiosity, creativity and innovativeness. With a dedicated team consisting of highly qualified and experienced faculty members in all streams of Mechanical Engineering, the department aims at providing education and research of world class level. The department is enriched by 21 faculty members.

The autonomy of the Institute is a privilege to the department in terms of flexibility to modify and revise courses/syllabi at different time intervals to cater contemporary needs of the Industry. The Department has established state-of-the-art facilities in various laboratories. Presently 45 research scholars are registered in the department for pursuing Ph.D. Adequate inputs of practical training, industrial tours, project work and computer applications are given to support core theory courses.

The research facilities in solar energy are well developed and established at laboratories. In the field of solar energy, the focused works in the department are solar air heating system, PCM storage, solar poly-generation, solar PV/T HDH desalination cum air conditioning, Nano-fluids applications in solar collectors, solar passive tracking mechanism etc.

Resource persons

- Dr. K. Srinivas Reddy, Professor, IIT Madras, Chennai, Tamil Nadu.
- Dr. Himanshu Tyagi, Associate Professor, IIT Ropar, Punjab
- Dr. R. Velraj, Professor, Anna University, Chennai, Tamil Nadu.
- Dr Subhash Chander, Professor, NIT Jalandhar, Punjab.
- Dr Eswaremoorthy Muthusamy, Professor, Shri Mata Vaishno Devi University, Katra, Jammu & Kashmir.
- Dr. T. Srinivas, Associate Professor, NIT Jalandhar, Punjab.
- Mr. Madhusudhana Rao, Director, Oorja Energy, Hyderabad, Telangana.
- Dr Ranchan Chauhan, Asst. Professor, NIT Jalandhar, Punjab.
- Dr. Rajpreet Kaur, Asst. Professor, I. K. Gujral Punjab Technical University, Kapurthala, Punjab.

Topics to be Covered

- Sun-Earth Geometry
- Solar Radiation
- Solar Collectors
- Solar Thermal Storage
- Solar Energy Utilization
- Nano Fluids in Solar Applications
- Solar Radiative Cooling Technologies
- Solar Desalination
- Solar Thermal Power Generation
- Solar Poly-generation
- Modeling and Simulation of Solar Thermal Systems
- Optimization of Solar Thermal Units

Contact

Dr. Tangellapalli Srinivas
Associate Professor
Mo: +91-8056300923, 7814506833
Email: srinivast@nitj.ac.in
Department of Mechanical Engineering,
NIT Jalandhar, Punjab.



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