Objectives of the Course

Increasing emphasis on delivering the energy demand through green energy sources has led to a quantum development of renewable energy sources like solar and wind. Among these, grid connected solar generation has increased to over 8 GW in India. Government of India has an ambitious target to achieve 100 GW of solar capacity, including 40 GW from rooftop solar, by 2022. The rapid growth in solar generation has incentivized researchers, investors, governments, and policy makers to look for alternate technology and business models to achieve this target.

Power generation and supply systems, in the form of grid connected distribution systems and off-grid microgrids, are evolving as a promising technology option. This technology offers advantages of higher conversion efficiency, and offers quantum future potential with an increasing component of loads in the overall lead portfolio. With the technical developments in energy storage technology and its increasing cost effectiveness, Microgrids at the power distribution level are evolving at a steady pace, comprising of distributed generation, loads and energy storage systems. The uncertain generation from renewable generation based Microgrids is likely to impact power system operation, its security, reliability, load balancing, and other operational parameters. Added to these, large scale deployment of electric vehicles (EV) is likely to pose operational challenges for system protection, control, and stable energy markets. Further, there is interest in noticeable growth of LED lighting, variable speed drives, digital appliances, data centers and telecommunication system.

With these developments happening, it is imperative to explore and understand the underlying changes for the same, and the future it holds. These relate to evolution happening in power electronic semiconductor technology, deployment of various components such as evolving power convertors technologies, wind and PV generation systems, EVs and battery storage. Understanding these changes occurring in the power engineering, IIITDM Kancheepuram offers a short term course that delves on multiple aspects of renewable energy conversion in Smart-grids, both at the component level as well as the system level. The proposed course intends to fulfil the existing knowledge gap, by developing on the fundamentals of wind and PV system, micro-grids, demand response, power converter topologies, control systems and electric vehicles.

The course would touch upon issues relevant to research and industry, while providing a gainful insight into the working and development of renewable power generation worldwide. The proposed course intends to develop on the fundamentals of power engineering and evolving towards smart technologies for renewable power generation.

Course Content

The major contents of the program are:

- Fundamentals of PV and Wind
- Grid Connected and Off-Grid Systems
- Maximum Power Point Tracking Algorithms
- Power Converter Topologies for Renewables
- Digital and Analog Controller Design
- Hardware Implementation and Prototyping Techniques
- Battery Storage and Electric Vehicle Integration
- Power Quality Issues and Analysis
- Microgrids: Challenges and Issues
- Power System Operation and Control
- Electrical Machine Design

Course Coordinators

Dr. Vijayakumar K obtained his B.E. from Coimbatore Institute of Technology, Coimbatore. He obtained his M.Tech.and Ph.D. from National Institute of Technology, Tiruchirappalli, in the year 2009 and 2012 respectively. Subsequently, He was a post-doctoral research fellow in Nanyang Technological University, Singapore and Assistant Professor in Malaviya National Institute of Technology, Jaipur. He was also visiting professor at University of Sasketchewan, Canada.

Dr. Damodharan P received the B.E degree from the Bharathidasan University, Tiruchirapalli, the M.E. Degree in Power Electronics and Drives from the College of Engineering, Anna University, Chennai, India, in 2001, and then Ph.D. degree in Electrical Engineering from Indian Institute of Technology Madras, Chennai, in 2008. From 2008 to 2009, he was an Assistant Chief Engineer with M/s Lucas-TVS Ltd., where he was involved in the development of BLDC motor drive for automotive engine cooling system.

Short Term Training Program (STTP)

on

Microgrid and Renewable Energy Technologies (MRET)

6th–11th June, 2019

Self Sponsored Category

IIITD&M Kancheepuram

https://www.youtube.com/watch?v=ujtUyW30P60

Organized by

Indian Institute of Information Technology

Design and Manufacturing, Kancheepuram

Institute of National Importance

(under Ministry of HRD, Govt. of India)

Chennai– 600127.

About IIITDM Kancheepuram, Chennai

IIITDM Kancheepuram is a Centre of Excellence for technical education and research established in 2007 by the Ministry of Human Resource Development, Government of India to pursue design and manufacturing oriented engineering education and research and to promote the competitive advantage of Indian products in global markets. The institute is located on a 51 acre campus on the outskirts of Chennai, off the Vandalur-Kelambakkam road. The campus houses the academic block, the administrative block, lecture hall complex and laboratory block. The Institute is presently offering B.Tech programmes in Computer Engineering, Electronics and Communication Engineering (Design & Manufacturing) and Mechanical Engineering (Design & Manufacturing), five Dual Degree programmes leading to B.Tech and M.Tech Degrees, M.Des in Electronic Systems Design, Communication Systems Design, Mechanical Systems Design and inter-disciplinary Ph.D programmes in core and applied areas of engineering. From the academic year 2016, the Institute has introduced the B.Tech Mechanical (Smart Manufacturing). The faculty members of the Institute are also involved in sponsored and consultancy research projects from reputed industries and government organizations.

The curricula for all the programs have been framed after extensive deliberations and discussions with IITs, IISc and other reputed Institute faculty members and industry stakeholders. The programmes are aimed at providing solutions to current technological challenges in wide domains like robotics, home entertainment, telecommunication, automotive systems, etc. Design engineers and researchers passing out from IIITDM Kancheepuram will find scope and relevance in IT and IT enabled product companies, in particular analog and digital electronics IC companies, embedded systems players, automotive design, consumer product design and manufacturing and knowledge/service based industries. With mastery of domain specific design, engineering skills and required managerial expertise, our graduates can entrepreneur organizations involved in the design and manufacture of commercially successful electronic or mechanical products.

Tourist Attractions

The institute is located on the outskirts of Chennai, off the Vandalur-Kelambakkamroad. Chennai is very well connected by bus services, suburban train system and Metro rail.

Shopping and Leisure

You might want to enjoy an evening at the beach @ Besant Nagar

Or maybe catch the sunrise along the longest natural beach in India @ Marina

An exquisite collection of Indian arts @ Poompuhar

Explore the world of handicrafts @ Victoria Technical Institute

Want to get lost in the Malls of Chennai heaving with people? Take a cab to:

Marina Mall, Chennai City Center, Spencers

Visit and learn about the many rare, endangered species @ The VandalurZoo

A one of its kind park for the reptiles: Crocodile Park

Culture

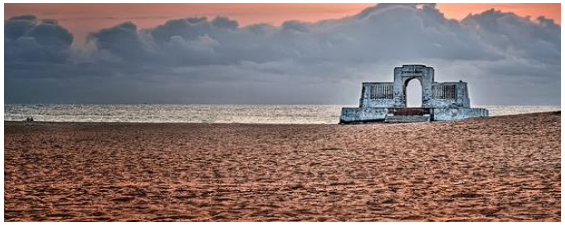
Visit the world famous heritage town on the beach: Mahabalipuram

Like to see a glimpse of the housing, culture in the southern states? Try DakshinaChitra

Religious

Kapaleeswarar Temple is famous for its association with Gnanasambandar, a Hindu saint.

Parthasarathy temple is famous for being one of the holy temples of Vaishavism and also an architectural beauty.



Registration

The participants are requested to register online by using the following link: Online Google Form

Category	Fees
Ph.D scholar/ UG/ PG Students	Rs. 4000
Faculty of Academic Institutes	Rs. 5000
Professionals from Industries	Rs. 6000

Fees inclusive of 18% GST and 15% institute overahead. The nonrefundable registration fee will be accepted through an SBI Collect. The registration fee includes course materials, lunch, certificate, and refreshment. Last date for Registration is extended till **6th June 2019.**

Follow the procedures for payment in SBI Collect:

https://www.onlinesbi.com/sbicollect/icollecthome.htm

1. Click the above link & Tick Check Box --> Proceed
2. State of Corporate/Institution --> Tamil Nadu
3. Type of Corporate/Institution --> Educational Institutions
4. Educational Institutions Name --> IIITDM - EDUCATIONAL EVENTS
5. Select Payment Category --> “Microgrid”
6. Fill The Details --> Make Payment

Accommodation/TA/DA

A few twin shared accommodation is available in the Guest Hostels of the IIITDM for outstation participants with an advance request on a first come first serve basis and nominal chargeable basis (Rs. 250/day). The participant will not be paid any TA/DA.

Target Audience

The program is targeted towards Ph.D. scholars, faculty members and UG/PG students from academic institutes.

Organizing Committee

Patron

Prof. Banshidhar Majhi

Coordinators

Dr. Vijayakumar K; vijayakumar@iiitdm.ac.in; 9549659069

Dr. Damodharan P; damodharan@iiitdm.ac.in; 9444467897

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