Two Week

Faculty Development Programme

on

RENEWABLE ENERGY RESOURCES AND RURAL ELECTRIFICATION: CHALLENGES AND SOULTIONS

10–21 October 2022

ORGANIZED BY

Department of Electrical Engineering

Faculty of Engineering

Dayalbagh Educational Institute Agra

NBA and NAAC A+ Accredited

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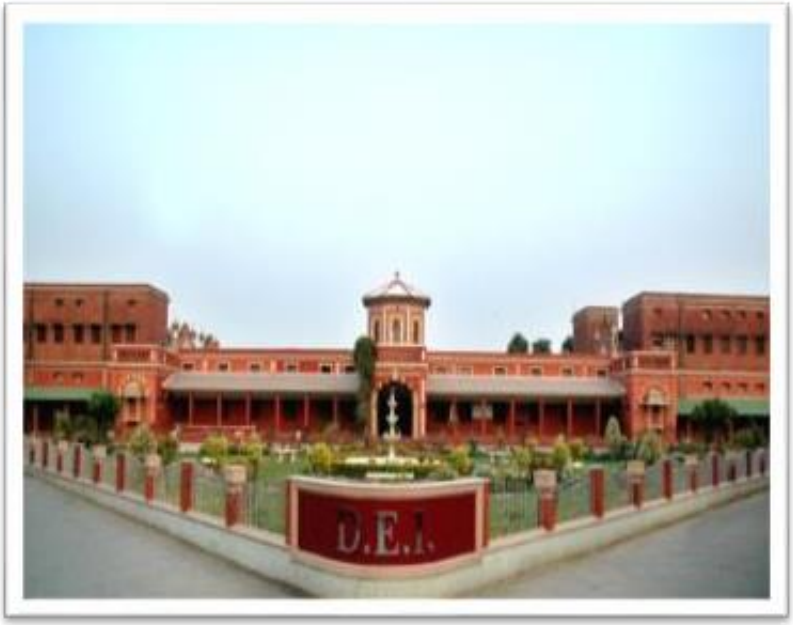
AICTE Training And Learning (ATAL) Academy

ABOUT THE INSTITUTE

Dayalbagh Educational Institute is an educational institution located at Dayalbagh in Agra. The institute has been given deemed to be university status by the University Grants Commission of India in 1981.

A Significant development of far-reaching consequence in the history of education at Dayalbagh was the establishment of the DEI as a Registered Body in 1973, which integrated and brought under one umbrella all the educational institutes of Dayalbagh.



The Dayalbagh Educational Institute(DEI), an A+ graded Deemed to be University by NAAC in Agra, is known for its broad-based comprehensive education, which bridges the dichotomous rural and urban educational compartments by exposing students to both rural and urban environment to harness democratic, inclusive and creative thinking. Thus, Systems Thinking has been the DNA of the dynamic educational framework of DEI which imparts sound academic scholarship, work-based education and moral, ethical and spiritual values. Education at DEI also integrates education from pre-nursery level to D.Sc/D.Lit levels, entrepreneurial educational linkages for connecting nano-enterprises and rural economies to urban and international market, skilling to technical education for promoting frugal practices and innovations and provides 360^0 progression and transition pathways for holistic and connected development of learners and the communities around. With 80% students from socially and economically marginalized sections of the society and 67% women students on the campus, women empowerment and rural problem-solving becomes the major objective. Agriculture, Entrepreneurship and Consciousness are the areas where DEI aims to emerge as national forerunner with international acclaim.

The education system at DEI is based on Sigma Six Q-V (Quality and Values) model for sustainable future and better worldliness. It is synergistic blend of qualities and values innovation, water quality, air quality, education and healthcare, agriculture and dairy and human values with special emphasis on moral and spiritual values, it has successfully implemented Total Quality Management framework which is based on excellence, initiative, creativity, innovation and involvement of stakeholders.

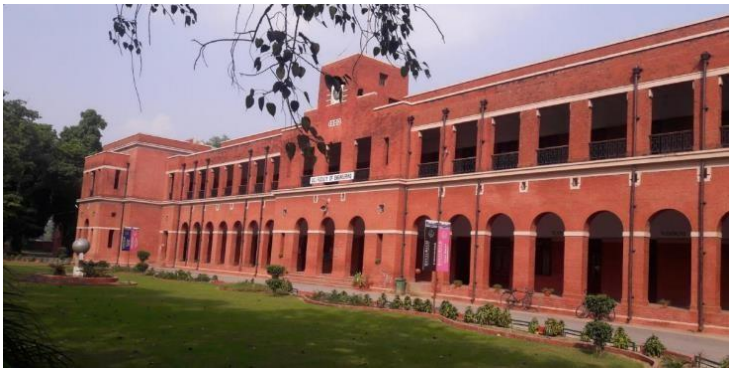
DEI is a national forerunner in meticulously moving through experimenting towards the science of consciousness. The advanced centers of research in the institute like i-c-n-c TALL (Information-Communication-Neuro-Cognitive Technologies Assisted Language Lab) and the Center for Consciousness Studies are the epicenter for research in this field on the campus. Achievements of DEI in this field are recognized internationally.

Harmonizing with the demands of the future DEI has created nine research divisions in transdisciplinary areas like Esoteric Art & Science, Thinkism, Digital Life, Maintenance Networks, Entrepreneurship, Agriculture, Classical Studies, Life and Mathematics, Sustainability. These research divisions cut across all the conventional and vocational programs running on the campus and create a bridge to connect with the communities around.

Dynamic and spontaneously evolving educational framework of D.E.I. shows that the systems-thinking can expand the external and internal experiential learning of students and integration of systems and their interactions through subtle interconnection can lead to dynamically evolving system of systems that will open new vistas for holistic learning.

ABOUT THE DEPARTMENT

The Department supports Under-Graduate, Post- Graduate and Doctoral Programmes. At the UG and PG level a broad-based course structure enables the students to acquire core competence and specialization in the fields of Power Systems, Electrical Machines, Electronics and Computer Science by way of core courses, electives, and focused projects. The effectiveness of the programmes is indicated by the excellent performance of our students in competitive examinations such as GATE, CAT, GRE etc.



(Faculty of Engineering at DEI, Agra

Further, the fact that the students score very high percentile in Electrical Engineering, Electronics and Communications Engineering and Computer Science clearly show the superiority of the broad-based programme followed by the Department.

An innovative and unique M. Tech. Programme in "Engineering Systems" is jointly conducted with the Mechanical Engineering Department. The programme is designed to inculcate in the students the 'Systems' way of thinking. Development of such a systemic viewpoint enriches the mindset of the students to address real life problems in a holistic manner.

At the research level the Department has focused on cutting edge soft computing technologies and their applications in diverse fields of Electrical Engineering. The current research interests can be classified into the following broad disciplines: Systems Engineering, Signal Processing, Power Systems, Soft Computing & Quantum Algorithms, Mobile Telecommunication Networks, Search Based Software Engineering and Electrical Drives.

INTRODUCTION OF FDP ON RENEWABLE ENERGY RESOURCES AND RURAL ELECTRIFICATION: CHALLENGES AND SOULTIONS

Recently there has been growing interest in renewable energy and it has become one of the primary sources to electrification of the rural areas. The biggest concern in the field of renewable energy is power generation depending on natural resources that are uncontrollable by humans. Due to uncontrollable and uncertainty in energy, production in renewable energy technologies is making integration more complex. Also, there are several technical challenges with Renewable Energy Resources (RES), such as availability of power, power quality issues, resource location, information barrier and cost issues. All these challenges with RES can be addressed by microgrid system due to its ability during utility grid disturbances, to separate and isolate itself from utility seamlessly with little or no disruption to the load within the microgrid.

Faculty Development Program on

Renewable Energy Resources and Rural Electrification: Challenges and Solutions

10-21 October, 2022

Week-1: Programme Schedule [10-15 October 2022]

Day/Session	Name	Event	Affiliation	Time (IST)
Day-1 Session-1	Prof. Aswani Kumar	Renewable energy integration issues in deregulated power systems	NIT Kurukshetra	19:00-19:50
Day-1 Session-2	Prof. Aswani Kumar	Renewable energy integration issues in deregulated power systems [Continue]	NIT Kurukshetra	20:00-20:50
Day-1	Prof. Aswani Kumar	Interactions Session 1	NIT Kurukshetra	21:00-21:30
Day-2 Session-1	Dr. Rajeev Kumar Chauhan	Battery Monitoring System and Estimation of Back up period, Efficiency	DEI Agra	19:00-19:50
Day-2 Session-2	Dr. Rajeev Kumar Chauhan	Demand Side Management System for Buildings	NIT Kurukshetra	20:00-20:50
Day-2	Dr. Rajeev Kumar Chauhan	Interactions Session 2	NIT Kurukshetra	21:00-21:30
Day-3 Session-1	Dr. PESN Raju	Control and Energy Management in Microgrids	IIT Guwahati	19:00-19:50
Day-3 Session-2	Dr. PESN Raju	Control and Energy Management in Microgrids Cont….	IIT Guwahati	20:00-20:50
Day-3	Dr. PESN Raju	Interactions Session 3	IIT Guwahati	21:00-21:30
Day-4 Session-1	Dr. Man Mohan Garg	Modeling and Control of Power Electronic Converter for Renewable Energy Systems	MNIT Jaipur	19:00-19:50
Day-4 Session-2	Dr. Man Mohan Garg	Modeling and Control of Power Electronic Converter for Renewable Energy Systems Cont….	MNIT Jaipur	20:00-20:50
Day-4	Dr. Man Mohan Garg	Interactions Session 4	MNIT Jaipur	21:00-21:30
Day-5 Session-1	Prof. Barjeev Tyagi	Robust Adaptive Decentralized Inverter Voltage Control Approach for Solar and Storage-Based Islanded Microgrid	IIT Roorkee	19:00-19:50
Day-5 Session-2	Prof. Barjeev Tyagi	Robust Adaptive Decentralized Inverter Voltage Control Approach for Solar and Storage-Based Islanded Microgrid Cont…….	IIT Roorkee	20:00-20:50
Day-5	Prof. Barjeev Tyagi	Interactions Session 5	IIT Roorkee	21:00-21:30
Day-6 Session-1	Prof. (Dr.) Sathans	Why Clean Energy: A Recent Perspective	NIT Kurukshetra	19:00-19:50
Day-6 Session-2	Prof. (Dr.) Sathans	Why Clean Energy: A Recent Perspective	NIT Kurukshetra	20:00-20:50
Day-6	Prof. (Dr.) Sathans	Interactions Session 5	NIT Kurukshetra	21:00-21:30

Faculty Development Program on

Renewable Energy Resources and Rural Electrification: Challenges and Solutions

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Week-2: Programme Schedule [17-21 October 2022]

Name	Topic	Affiliation	Time (IST)
Day-1 (Monday) 17-10-2022			
Prof. Padhy Narayana Prasad	AC-DC Microgrids: Renewable Energy and Building	IIT Roorkee, India	10:45-12:15
			13:30-15:00
Dr. P E S N Raju	Control and Energy Management in Microgrids	IIT Guwahati	15:00-16:30
Day-2 (Tuesday) 18-10-2022			
Prof. (Dr.) S. N. Singh	Introduction to Renewable Energy Resources in Rural Electrification	IIIT Gwalior	9.00 -10:30
Prof. Barjeev Tyagi	Robust Adaptive Decentralized Inverter Voltage Control Approach for Solar and Storage-Based Islanded Microgrid	IIT Roorkee	10:30-12:00
Dr. Manmohan Garg	Modeling and Control of Power Electronic Converter for Renewable Energy Systems	MNIT Jaipur, India	13:30-15:00
Prof. D. Bhagwan Das	Solar Agriculture Farm	DEI, Agra	15:00-16:30
Day-3 (Wednesday) 19-10-2022			
Prof. (Dr.) Sathans	Why Clean Energy: A Recent Perspective	NIT Kurukshetra	9.00 -10:30
Dr. Souvick Chatterjee	Microgrid System and Renewable Energy Resources Case Study using MATLAB	Mathworks, India	10:30-12:00
Dr. Abhijit R. Abhyankar	Optimization Techniques for Renewable Energy Resources	IIT Delhi, India	13:30-15:00
Prof. Sailesh Babu	Energy Storage and Management	DEI Agra	15:00-16:30
Day-4 (Thursday) 20-10-2022			
Dr. Dipayan Puha	Design and analysis of Resilient Controlled Renewal penetrated hybrid power System	MNNIT Allahabad	9.00 -10:30
Mr. Deepak Khurana	Stress Management	The Art of Living (TAOL)	10:30-12:00
Dr. Kalpana Chauhan	Solar Based Electric Vehicle Charging Station	CUH, Mahendragarh, India	13:30-15:00
Mr. Dilip Kumar Chaudhary	Integration of Renewable Energy Resources with Grid	NTPC	15:00-16:30
Day-5 (Friday) 21-10-2022			
			9.00 -10:30
Dr. Manik Jalhotra	Solutions to power electronics simulations for faster and accurate testing in real time simulation environment	Opal RT	10:30-12:00
Expert-NI	Renewable Energy Resources Management using NI	National Instruments	13:30-15:00
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INFORMATION FOR PARTICIPANTS

ELIGIBILITY

- The FDP is open to faculty members of the AICTE approved institutions, research scholars, PG, Scholars, participants from Government, Industry (Bureaucrats/ Technicians/ Participants from Industry etc.).

REGISTRATION DETAILS

- **Maximum 50 participants** may be allowed to attend online FDP on a first come first serve basis.
- All the participants are requested to register online by visiting **https://www.aicte-india.org/atal** on or before 5 October 2022. (FDP Application No. 1650537542)
- Registration for all the participants is mandatory.

Note: After successful registration, participants are requested to join the official group for communication on "WhatsApp". The link to join the official group would be provided in the confirmation email.

FDP Rules

- The FDP begins on 10th October 2022.
- As the FDP is being organized under the prestigious AICTE Training And Learning (ATAL) Academy, we at Central University of Haryana, give prime importance to willing and serious participants who are eager to learn. In this context, it should be noted that certificates will be awarded to only those participants who will be present online and engaged during each session of the FDP. Therefore, it is compulsory for participants to attend all the online sessions in order to receive certificate of participation.
- The certificates shall be issued to those participants who have attended the program with minimum **80% of attendance** and scored **minimum 60% marks** in the test.
- All participants need to submit an online feedback.
- **For further queries, please mail us at: rajeevnitj@gmail.com /Call – 9411860126**

Patron

Prof. Prem Kumar Kalra
Director, DEI Agra

Coordinator

Prof. Ajay Kumar Saxena
Head, Department of Electrical Engineering
Dayalbagh Educational Institute, Agra

Co-Coordinator

Dr. Rajeev Kumar Chauhan
Department of Electrical Engineering
Dayalbagh Educational Institute, Agra