Faculty Development Programme (Online)

on

Microgrid An Opportunity: Electric Vehicles and Renewable Energy Resources

05–09 July, 2021

ORGANIZED BY

Department of Electrical Engineering (NBA Accredited)
Dayalbagh Educational Institute
(Deemed to be University)
NAAC A+ Accredited
Dayalbagh, Agra-282005

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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.

AICTE Training and Learning (ATAL) Academy

AICTE Training and Learning (ATAL) Academy is committed for the development of quality technical education in the country by initiating various schemes launched by Government of India, Ministry of Human Resource Development, now Ministry of Education. The vision of AICTE is to empower faculty to achieve goals of Higher Education such as access, equity and quality. Council understands that there is a need of the day to train the young generation in skill sector and having faculty and technicians to be trained in their respective disciplines. The main objective of ATAL Academy 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. It is pertinent to mention that World Book of Records London has appreciated and included AICTE Training and Learning (ATAL) Academy for conducting 1000 Online FDP's in Nine thrust areas being conducted in year 2020-21 providing training to about One Lakh Participants.

Visit the ATAL Academy online at: https://www.aicte-india.org/atal

Introduction of Faculty Development Programme (FDP)

Recently there has been growing interest in renewable energy and it has become one of the primary sources of energy generation. 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. Due to the recent developments in power electronics, the proliferation of DC nature electrical loads, renewable energy sources and energy storage devices, research focused on both the system and component levels of modelling, control and stability of structured

microgrids. New high-efficiency topologies and protections are also key nontrivial issues when developing practical microgrids.

Electric Vehicles (EV) are emerging as the option for clean mobility across the world. The EV ecosystem brings together three industry verticals who traditionally have not worked together. EVs need Automobile industry to modify the vehicles to use Batteries and new connected vehicle technologies. Power industry needs to gear up to fueling these EVs with electricity and they need to build Charging infrastructure across the highways, malls and workplaces. All these equipment are IOT enabled and connected so both telecom connectivity (4G/5G) along with Digital tech like Cloud, Data and analytics become essential for accelerating EV adoption.

For this reason, the objective of this course is to disseminate the recent technological advancement in microgrids and distribution systems from both academia and industry. The solutions using advanced technologies/ methodologies will also be discussed.

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 200 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 3 July, 2021 (FDP application no. **1614844933**).
- 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 5th July, 2021.
- As the FDP is being organized under the prestigious AICTE Training And Learning (ATAL) Academy, we at Dayalbagh Educational Institute (Deemed to be University) 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 programme 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: rkchauhan@dei.ac.in /Call – 9411860126**

ORGANISING COMMITTEE

Prof. Prem Kumar Kalra

Chief Patron
Director, Dayalbagh Educational Institute, Agra

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Dean, Faculty of Engineering

Prof. Ajay Kumar Saxena
HoD, Department of Electrical Engineering

Coordinator
Dr. Rajeev Kumar Chauhan
Assistant Professor, Department of Electrical Engineering

Organizing Committee

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Dr. Subho Upadhyay, Assistant Professor, Department of Electrical Engineering

Student Committee

Ms. Arpita Bharti, Ph.D. Scholar, Department of Electrical Engineering
Ms. Drishti Goel, B.Tech, Student, Department of Electrical Engineering

Contact for further information

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Microgrid An Opportunity: Renewable Energy Resources and Electric Vehicles

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Programme Schedule [Time is in IST (GMT +5:30)]

S. N.	Name	Event	Affiliation	Time
1.	Dr. Gufran Ahmad	Introduction to the program	Coordinator, FDP DEI, Agra	10:00-10:05
2.	Dr. Rajeev Kumar Chauhan	Welcoming the Invited Guests and participants	Coordinator, FDP DEI, Agra	10:05-10:10
3.	Prof. Prem Kumar Kalra	Welcome Address	Director, DEI, Agra	10:10-10:15
4.	Prof. Ajay Kumar Saxena	Addressing by the Head of Department	Head of Department, Electrical Engineering, DEI, Agra	10:15-10:20
5.	Dr. Manoj Kumar Tiwari	Chief Guest	Regional Officer & Assistant Director	10:20-10:30
6.	Dr. Subho Upadhay	Vote of Thanks	Faculty, EE, DEI, Agra	10:30-10:40

Keynote Speakers and Topics

Name	Topic	Affiliation	Time
Day-1 (Monday), 05-07-2021			
Prof. (Dr.) Padhy Narayana Prasad	AC-DC Microgrids	IIT Roorkee, India	10:45-12:15
Dr. Priyesh Chauhan	Mode Transitions in AC Microgrid	IITRAM Ahmedabad, India	13:30-15:00
Prof. (Dr.) Asheesh Kumar Singh	Emerging Trends in Microgrid	MNNIT Allahabad, India	15:30-17:00
Day-2 (Tuesday), 06-07-2021			
Dr. Robert E. Hebner	Learning to Love Microgrids	University of Texas at Austin, USA	08.00 -9:30
Prof. (Dr.) Behnam Mohammadi-Ivatloo	Energy Storage Systems for Renewable Energy based Microgrids	University of Tabriz, Iran	10:15-11:45
Dr. Manmohan Garg	Modeling and control of DC-DC converters for DC microgrid application	MNIT Jaipur, India	16:00-17:30
Prof. (Dr.) Saifur Rahman	The Smart City Building Blocks and Their Synergy with Smart Villages	Virginia Tech Advanced Research Institute, USA	18:00-19:00
Day-3 (Wednesday), 07-07-2021			
Prof. (Dr.) Sathans	Why Clean Energy: A Recent Perspective	NIT Kurukshetra	9:00-10:30
Mr. Akhilesh Kumar	Modeling and optimization of renewable energy management system using MATLAB	Design tech Systems, India	11:00-12:30
Dr. Altaf Bradar	Optimization Techniques in Power System	NIT Warangal, India	15:00-16:30
John D. McDonald, P.E.	Grid Modernization: Technological Advancements Beyond Smart Grid	GE Renewable Energy, USA	17:00-18:00
Day-4 (Thursday), 08-07-2021			
Prof. (Dr.) Ross Baldick	Adapting demand to supply for high renewable penetrations	University of Texas at Austin, USA	10:00-11:30
Mr. Varun Upadhay	Stress Management	The Art of Living (TAOL)	12:00-13:30
Dr. Kalpana Chauhan	Role of Electric Vehicles for Rural and Urban Development	CUH, Mahendragarh, India	16:00-17:30
Mr. Dilip Kumar Chaudhary	Smart Microgrid and Utility Optimization	NTPC	18:00-19:00
Day-5 (Friday), 09-07-2021			
Dr. Ajay Kumar Bansal	Hybrid Energy System and its optimization	CUH, Mahendragarh, India	09:30-11:00
Dr. Manik Jalhotra	Solutions to power electronics simulations for faster and accurate testing in real time simulation environment	Opal RT	11:30-13:00
Prof. (Dr.) S.N. Singh	Estimation of Grid Harmonics in the Presence of Renewable Energy Sources	IIT Kanpur, India	14:30-16:00
Valedictory			16:00-16:45