AICTE Training and learning program (ATAL) sponsored Faculty Development Programme

On

Emerging Technologies in Sustainable Energy System

29th January to 3rd February 2024

Organized by

Department of Electrical & Electronics Engineering
B.M.S. College of Engineering
(Autonomous College under VTU)
Bangalore-560019

About the college

B.M.S. College of Engineering (BMSCE) was Founded in the year 1946 by **Late Sri. B. M. Sreenivasaiah,** a great visionary and philanthropist and nurtured by his illustrious son **Late Sri. B. S. Narayan.**BMSCE is the first private sector initiative in engineering education in India. Over the past 74 years of its illustrious existence, the institution has produced more than 40,000 engineers/leaders who have enriched the world through their immense contributions to mankind. It was started with only 03 undergraduate courses, BMSCE today offers 18 Undergraduate & 15 Postgraduate courses both in conventional and emerging areas. 14 of its Departments are recognized as Research Centres offering PhD/M.Sc. (Engineering by Research) degrees in Science, Engineering, and Management. The College has been effectively practicing outcome-based education. The College has one of the largest student populations among engineering colleges in Karnataka. Currently, about 5000 students are pursuing their higher studies in BMSCE. More than 350 research scholars are pursuing their Ph.D. Degree in BMSCE Research Centres. BMSCE is one of the most preferred destinations for students from across the country which could be attributed to the quality education, infrastructure, healthy teaching-learning practices as well as production industry-ready students. The institution has strong linkages and collaborations with reputed national and international institutes/organizations to nourish academic, research and innovation. The institution has an excellent Placement and Training Centre. More than 200 reputed Core/IT/MNC companies visit the campus every year recruiting students from various branches. More than 90% of the eligible students get placed every year. The institution is consistently ranked amongst the best engineering institutes in the country.

About the Department

The Department of Electrical Engineering was established in 1946 and subsequently emerged as the Department of Electrical and Electronics Engineering. The department receives grants from Govt. of Karnataka and offers an undergraduate program in B.E, Electrical and Electronics, with a sanctioned intake of 60. The department is NBA Accredited under Tier I of the Washington Accord. The department offers an M.Tech program in Power Electronics which started in 1991 with a sanctioned intake of 18 which is also NBA Accredited. It has a research Centre under VTU since 2003. It is a recognized AICTE QIP Research Centre since 2012 and AICTE NDF (National Doctoral Fellowship Scheme) Research centre since 2018. The number of awarded Ph.Ds till date is 13 and currently 26 research scholars are pursuing their research in various domains. The department has dedicated faculty with a wide spectrum of specializations such as Power Systems, Power Electronics and Drives, Renewable Energy, HVDC, Power Quality, Nano Technology, High Voltage and Insulation Diagnostics and Phase Change Memory Materials.

About the FDP

Over the past few years, there is fast-changing technological advancements in the area of Renewable energy, Electric vehicles and protection techniques in Power engineering. Renewable energy systems that comprise of Solar, Wind, Biomass and small Hydro contributes to around **109885.38 MW of installation capacity** of total power generation in India as on March 2022 (https://mnre.gov.in/the-ministry/physical-progress). It finds numerous applications such as grid integration, microgrid, electric drives, etc. All these systems work efficiently with various accurate controllers. In the recent past, the application of solar energy to electric vehicles is being explored. Renewable energy systems, as well as Electric vehicles are sustainable and emerging technologies that lead to lesser pollution and better environmental conditions. Like any other systems, these two systems also need to be protected against variations in voltages and currents. The knowledge about the latest trends in Renewable energy and protection techniques needs to be disseminated amongst faculty, students, and research scholars and hence there is a need to understand the fundamentals and recent trends in the proposed topic of FDP. The FDP would also provide an opportunity to all the stake holders to get practical exposure and explore the system components.

Objectives of the FDP

- To explore and enhance the design and analytical skills about renewable energy systems, applications and protection techniques
- To acquire in depth knowledge about Electric vehicles
- To design, simulate and analyze the Solar /Wind energy system
- To design and implement converters for EV applications

Topics to be covered in the proposed FDP

- Introduction to the sustainable energy system
- Modern Power System Stability
- Microgrid protection and control
- Energy Cooperatives and Blockchain-based trading
- Power Electronics for Space Applications
- Power Electronics for Electric Vehicles: Upcoming Technologies & Challenges
- Stress management
- Electronic Power Conditioners and Efficient Power Management Techniques
- Design of Electric vehicles
- Role of Batteries and Fuel Cells in the Energy Storage Domain: An Engineering Perspective
- BLDC drives for EV
- Energy management in Electric Vehicles
- PMU measurements in Power Systems

Chief Patrons

Dr. B S Ragini Narayan, Donor Trustee, B.M.S.E.T.
Dr. Dayanand Pai, Chairman, B.M.S.C.E.
Sri. Aviram Sharma, Trustee, B.M.S.E.T.
Sri. Ravi Venkatesam, Trustee, B.M.S.E.T.

Patrons

Dr. S Muralidhara, Principal, B.M.S.C.E.
Dr. Suresh Ramaswwamyreddy, Vice-Principal (Academic), B.M.S.C.E
Dr. Bheemsha Arya, Vice-Principal (Admin), B.M.S.C.E.

Advisor

Dr. A N Nagashree, Head, Dept. of EEE., B.M.S.C.E.

Coordinator of FDP

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Co-Coordinator of FDP

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Mobile number: +91 8951606016
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Target audience:

Faculty from other institutions, host institution, PG students and research scholars.

Resource Persons:

Dr. Gurunath Gurrala, Dept. of Electrical Engineering, IISC, Bangalore
Dr. Sarasij Das, Dept. of Electrical Engineering, IISc, Bangalore
Dr. S. Arul Daniel, Professor, NIT, Tiruchirappalli
Mr. Krishna Mohan, Centum Electronics Ltd, Bangalore
Dr. Sandeep Anand, Dept. of Electrical Engineering, IIT Bombay
Dr. Rajeshwari Hegde, Department of ETE, BMSCE
Dr. Lakshmi N, Dept. of Electrical Engineering, IIT, Madras
Dr. B Dastagiri Reddy, Dept of EEE, NITK, Surathkal
Dr. Srinivas Jayanthi, Department of Chemical Engineering, IIT Madras
Dr. Sanjeev K Nayak, Engineering Department unit, ALSTOM, Bangalore
Dr. Sridevi, Power Systems Division, CPRI, Bangalore

Registration:

https://atalacademy.aicte-india.org/signup
No registration fee. The number of participants is limited to 50. The selection is based on first come first serve basis.
Last date to register is 10/01/2024.
The selected participants will be intimated by 12/01/2024

Faculty Development Program on "Emerging Technologies in Sustainable Energy System"

29th Jan 2024 -3rd Feb 2024

SCHEDULE

	Time	Program Schedule
29-01-2024 MONDAY	9:00 AM – 9.30 AM	Registration
	9:30 AM – 10:00 AM	Inauguration
	10:00 AM – 11.30 AM	Inaugural address "Introduction to the sustainable energy system" Keynote address "Modern Power System Stability" Dr. Gurunath Gurrala, Associate Professor, Dept. of Electrical Engineering, IISC, Bangalore
	11:30 AM – 11:45 AM	Tea Break
	11:45 AM – 1:15 PM	"Microgrid protection and control" Dr. Sarasij Das, Associate Professor, Dept. of Electrical Engineering, IISc, Bangalore
	1:15 PM – 2:00 PM	Lunch break
	2:00 PM - 3:30 PM	"Energy Cooperatives and Blockchain-based trading" Dr. S. Arul Daniel, Professor, HAG,NIT, Tiruchirappalli
	3:30 PM –3:45 PM	High Tea
	3:45 PM-5:15 PM	Journal article discussion
30-01-2024 TUESDAY	9:.30 AM – 11:30 AM	"Power Electronics for Space Applications" Mr. Krishna Mohan, Director-Design, Centum Electronics Ltd, Bangalore
	11:30 AM – 11:45 AM	Tea Break
	11:45 AM – 1:15 PM	Journal article discussion
	1:15 PM – 2:00 PM	Lunch Break
	2:00 PM – 3:30 PM	"Power Electronics for Electric Vehicles: Upcoming Technologies & Challenges". Dr. Sandeep Anand, Associate Professor, Dept. of Electrical Engineering, IIT Bombay
	3:30 PM– 3:45 PM	Tea Break
	3:45 PM– 5:15 PM	Hands-on session
31-01-2024 WEDNESDAY	9:30 AM – 11:30 AM	"Stress management" Dr. Rajeshwari Hegde, Professor & HOD, Dept. of ETE, BMSCE
	11:30 AM – 11:45 AM	Tea Break
	11:45 AM – 01:15 PM	Journal article discussion

	01:15 PM – 02:00 PM	Lunch Break
	2:00 PM – 3:30 PM	“Electronic Power Conditioners and Efficient Power Management Techniques" Dr. Lakshmi N, Professor, Dept. of Electrical Engineering, IIT, Madras
	3:30 PM – 3:45 PM	Tea Break
	3:45PM – 5:15 PM	Hands-on session
1/02/2024 THURSDAY	9:30 AM – 11:30 AM	“Design of Electric vehicles” Dr. B Dastagiri Reddy, Assistant Prof., Dept of EEE, NITK, Surathkal
	11:30 AM – 11:45 PM	Tea break
	11:45 PM – 01:15 PM	"Role of Batteries and Fuel Cells in the Energy Storage Domain: An Engineering Perspective" Dr. Srinivas Jayanthi, Professor, Dept. of Chemical Engineering, IIT Madras
	1:15 PM – 2:00 PM	Lunch Break
	2:00 PM – 3:30 PM	“BLDC drives for EV” Dr. B Dastagiri Reddy, Assistant Prof., Dept. of EEE, NITK, Surathkal
	3:30 PM – 3:45 PM	Tea Break
	3:45 PM – 5:15 PM	Hands on session
2/02/2024 FRIDAY	9:30 AM – 11:00 AM	Hands on session
	11:00 AM – 11:15 PM	Tea Break
	11:15 AM – 5:15 PM	Industrial visit to CPRI Labs / KPCL/ Schneider Electric /KAVIKA
3/02/2024 SATURDAY	9:30 AM – 11:30 AM	“Energy management in Electric Vehicles” Dr. Sanjeev K Nayak, Manager, Engineering Department unit, ALSTOM, Bangalore.
	11:30 AM – 11:45 PM	Tea Break
	11:45 AM – 1:15 PM	“PMU measurements in Power Systems” Dr. Sridevi, Joint Director, Power Systems Division, CPRI, Bangalore
	1:15 PM – 2:00 PM	Lunch Break
	2:00 PM – 4:00 PM	Presentation by participants
	4:00 AM – 4:45 PM	Valedictory and feedback
	4.45 PM – 5:15 PM	High Tea