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A Report on

"Next-Generation Power Electronic Converters for Renewable Energy and Electric Vehicle Applications"

Organized by
Department of Electrical & Electronics Engineering (EEE), MITS Madanapalle
22.08.2022

Convener: Dr. AV Pavan Kumar, Professor and Head, Department of EEE, MITS.
Co-ordinator: Mr. Bondu Vijayakumar
Attendees: 15 members
Venue: WB120
Platform: **Google Meet**

The Department of Electrical & Electronics Engineering (EEE), MITS Madanapalle, successfully organized workshop titled "**Next-Generation Power Electronic Converters for Renewable Energy and Electric Vehicle Applications**" on 22nd Aug 2022.

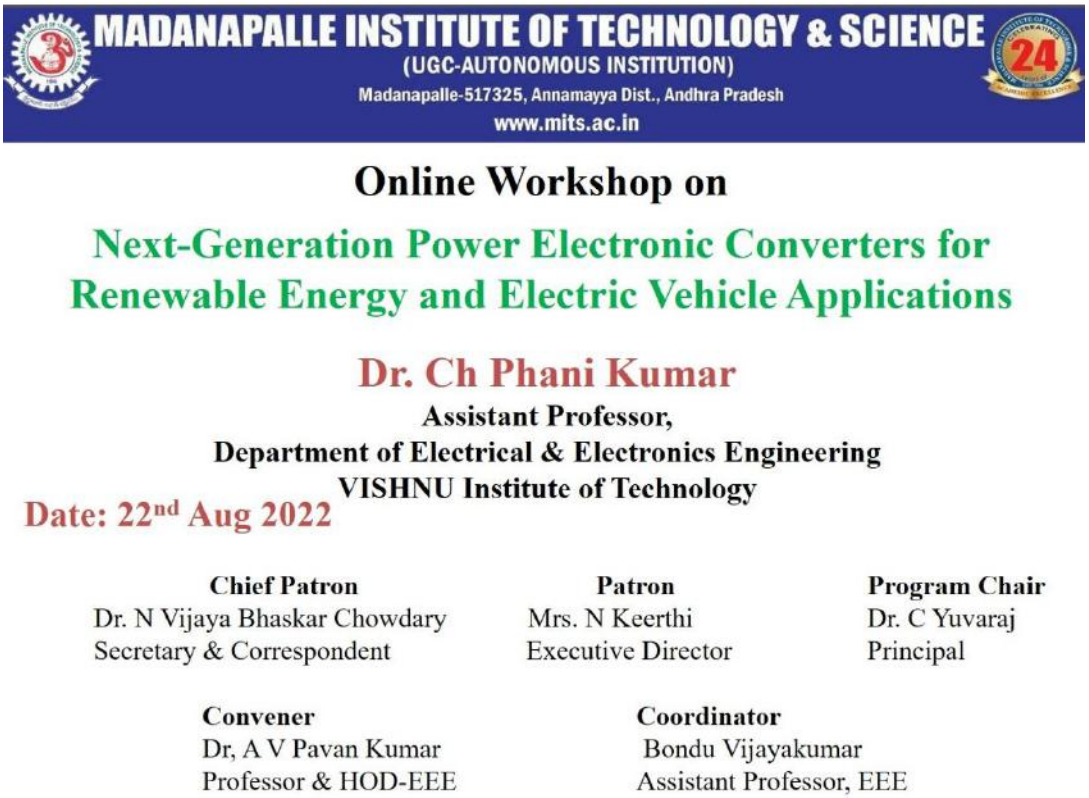
Workshop Schedule

Time	Session	Resource Person
9:30 AM - 10:00 AM	Inauguration & Welcome Address	Host & Coordinator
10:00 AM - 11:30 AM	Design and operation of modern power electronic converters.	Dr. Ch Phani Kumar
11:30 AM - 11:45 AM	Break	-
11:45 AM - 1:15 PM	Bidirectional DC-DC converters for EV and battery applications	Dr. Ch Phani Kumar
1:15 PM - 2:00 PM	Lunch Break	-
2:00 PM - 3:30 PM	Harmonics reduction and power quality improvement techniques	Dr. Ch Phani Kumar
3:30 PM - 4:30 PM	Q&A and Discussion	Open Session

Faculty attended:

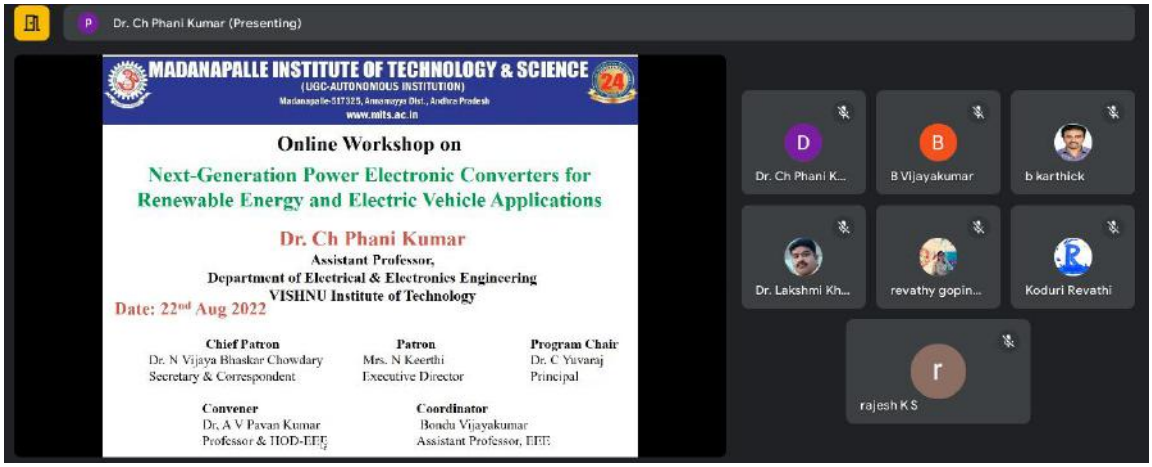
1. Dr. A V PAVAN KUMAR
2. Dr. K. ARUL KUMAR
3. Dr. LAKSHMIKHANDAN K
4. Dr. BALAJI DAMODHAR T S
5. Dr. JAWAHAR BABU
6. Dr. V B THURAI RAAJ
7. Dr. SUMAN YADAV
8. Dr. GUMPU SREENIVASULU
9. Dr. J. JAWAHAR BABU
10. Mr. SHYAMSUNDAR N
11. Mr. N SRIDHAR
12. Mrs. K REVATHI
13. Ms. REVATHY GOPINATH
14. Mr. RAJESH K S
15. Mr. BONDU VIJAYAKUMAR

The online one-day workshop was inaugurated on 22nd Aug 2022 at 9:30 AM with a welcome address to all attendees by**,** Dr. A V Pavan Kumar Head of the Department, EEE. This was followed by an inaugural address delivered by Dr. Ch Phani Kumar, emphasizing the importance of **Next-Generation Power Electronic Converters for Renewable Energy and Electric Vehicle Applications** in electric vehicle (EV) charging networks. The workshop agenda and the introduction of the resource person were presented by Mr. Rajesh K S.



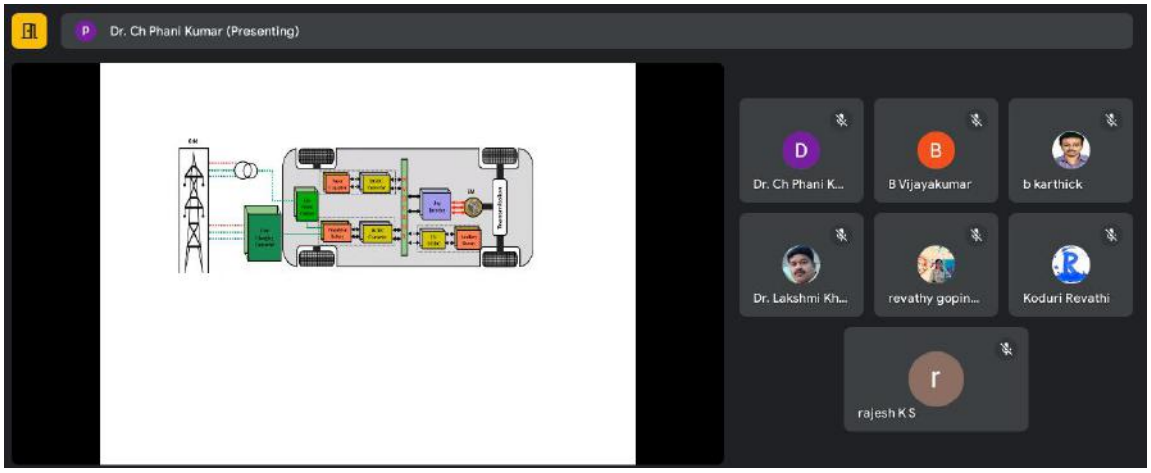
The first session was led by Dr. Ch Phani Kumar on the topic “Fundamentals of Power Electronic Converters”. He provided a comprehensive overview of different types of power converters and their significance in modern energy systems. The session covered:

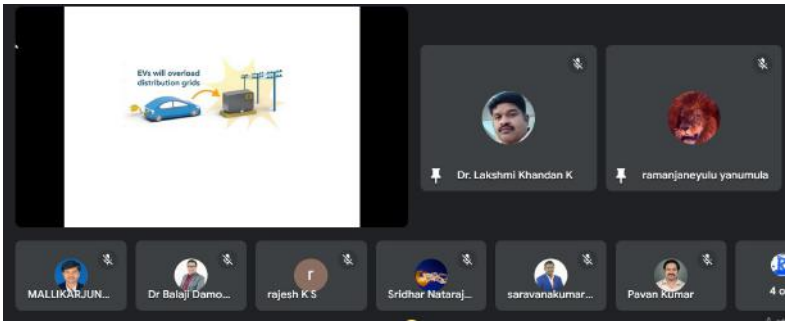
- Overview of AC-DC, DC-DC, and DC-AC converters.
- Role of power electronics in energy conversion and management.
- Application of semiconductor devices in power converters.



In the second session, the discussion focused on “Power Converters for Renewable Energy Integration”, covering:

- Design of grid-tied inverters for solar and wind energy systems.
- Maximum Power Point Tracking (MPPT) techniques for improved efficiency.
- Impact of power converters on grid stability and power quality.





After a lunch break, the afternoon session focused on "Advanced DC-DC Converters for Electric Vehicles". This session provided practical insights into:

- Bidirectional DC-DC converters for EV battery management.
- Fast charging technologies and efficiency improvement.
- Energy storage integration and vehicle-to-grid (V2G) applications.

The workshop concluded with a Q&A and discussion session, where participants actively engaged with the resource person on real-world challenges, emerging technologies, and future research directions in power electronic converters.

A vote of thanks was delivered by Mr. G Mallikarjuna, expressing gratitude to the Principal of MITS for fostering a culture that encourages such events, the Head of the EEE Department, Dr. A.V. Pavan Kumar, for his unwavering support and guidance in organizing the event, as well as to the faculty members, guest speakers, and student volunteers for their valuable contributions in making the event a grand success.

B. Vijayakumar

Mr. Bondu Vijayakumar
Assistant Professor,
Department of EEE
MITS, Madanapalle.

Pavan

Signature of HOD-EEE