



**MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE
(UGC-AUTONOMOUS)**

Affiliated to JNTUA, Anantapuramu & Approved by AICTE, New Delhi
Recognised Research Center, Accredited by NBA for CE, CSE, ECE, EEE, ME, MBA
& MCA, Recognised by UGC under the sections 2(f) and 12(B) of the UGC act 1956



A Report on

“Emerging Trends in Power Electronics for Smart Grid and Electric Vehicle Applications”

Organized by

**Department of Electrical & Electronics Engineering (EEE), MITS Madanapalle
17.09.2022**

Convener: Dr. AV Pavan Kumar, Professor and Head, Department of EEE, MITS.

Co-ordinator: Ms. Revathy Gopinath

Attendees: 15 members

Venue: WB120

Platform: Google Meet

The Department of Electrical & Electronics Engineering (EEE), MITS Madanapalle, successfully organized workshop titled "Emerging Trends in Power Electronics for Smart Grid and Electric Vehicle Applications" on 17th Sep 2022.

Workshop Schedule

Time	Session	Resource Person
9:30 AM - 10:00 AM	Inauguration & Welcome Address	Host & Coordinator
10:00 AM - 11:30 AM	Role of Power Electronics in Smart Grid and EV Integration	Dr. Akula Venkata Naresh Babu
11:30 AM - 11:45 AM	Break	-
11:45 AM - 1:15 PM	Advanced DC-DC Converters for EV Charging Infrastructure	Dr. Akula Venkata Naresh Babu
1:15 PM - 2:00 PM	Lunch Break	-
2:00 PM - 3:30 PM	Power Quality Improvement and Harmonics Mitigation	Dr. Akula Venkata Naresh Babu
3:30 PM - 4:30 PM	Q&A and Discussion	Open Session



MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE
(UGC-AUTONOMOUS)

Affiliated to JNTUA, Anantapuramu & Approved by AICTE, New Delhi
Recognised Research Center, Accredited by NBA for CE, CSE, ECE, EEE, ME, MBA
& MCA, Recognised by UGC under the sections 2(f) and 12(B) of the UGC act 1956



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 28th Oct 2023 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. Akula Venkata Naresh Babu, emphasizing the **role of power electronics in smart grid and electric vehicle (EV) applications**. The workshop agenda and the introduction of the resource person were presented by Dr. J. Jawahar Babu.

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE
(UGC-AUTONOMOUS INSTITUTION)
Madanapalle-517325, Annamayya Dist., Andhra Pradesh
www.mits.ac.in

Online Workshop on

**Emerging Trends in Power Electronics for
Smart Grid and Electric Vehicle Applications**

Dr. A.V. Naresh Babu
Professor & HOD
Department of Electrical & Electronics Engineering
VVIT, Nambur

Date: 17th Sep 2022

Chief Patron Dr. N Vijaya Bhaskar Chowdary Secretary & Correspondent	Patron Mrs. N Keerthi Executive Director	Program Chair Dr. C Yuvaraj Principal
Convener Dr. A V Pavan Kumar Professor & HOD-EEE	Coordinator Ms. Revathy Gopinath Assistant Professor, EEE	



MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE (UGC-AUTONOMOUS)

Affiliated to JNTUA, Anantapuramu & Approved by AICTE, New Delhi
Recognised Research Center, Accredited by NBA for CE, CSE, ECE, EEE, ME, MBA
& MCA, Recognised by UGC under the sections 2(f) and 12(B) of the UGC act 1956



The first session was led by Dr. Akula Venkata Naresh Babu on the topic “Role of Power Electronics in Smart Grid and EV Integration”. He provided a comprehensive overview of how power electronics facilitates grid modernization and electric vehicle charging. The session covered:

- Overview of power electronics in modern power systems.
- Challenges in integrating renewable energy and electric vehicles into the grid.
- Power conversion and energy management techniques for smart grids.

The screenshot shows a Zoom meeting interface. On the left, a presentation slide is displayed with the following text:

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE
(UGC-AUTONOMOUS INSTITUTION)
Madanapalle-517225, Anantapuram Dist., Andhra Pradesh
www.mits.ac.in

Online Workshop on
Emerging Trends in Power Electronics for Smart Grid and Electric Vehicle Applications
Dr. A.V. Naresh Babu
Professor & HOD
Department of Electrical & Electronics Engineering
VVIT, Nambur
Date: 17th Sep 2022

Chief Patron
Dr. N Vijaya Bhaskar Chowdary
Secretary & Correspondent

Patron
Mrs. N Keerthi
Executive Director

Program Chair
Dr. C Yuvaraj
Principal

Convener
Dr. A V Pavan Kumar
Professor & HOD-EEE

Coordinator
Ms. Revathy Gopinath
Assistant Professor, EEE

On the right, a gallery view of participants is shown, including Dr. Lakshmi Khandan K, MALLIKARJUNA, rajesh K S, b karthick, and 6 others.

The screenshot shows a Zoom meeting interface. On the left, a presentation slide is displayed with the following text:

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE
(UGC-AUTONOMOUS INSTITUTION)
Madanapalle-517225, Anantapuram Dist., Andhra Pradesh
www.mits.ac.in

Online Workshop on
Emerging Trends in Power Electronics for Smart Grid and Electric Vehicle Applications
Dr. A.V. Naresh Babu
Professor & HOD
Department of Electrical & Electronics Engineering
VVIT, Nambur
Date: 17th Sep 2022

Chief Patron
Dr. N Vijaya Bhaskar Chowdary
Secretary & Correspondent

Patron
Mrs. N Keerthi
Executive Director

Program Chair
Dr. C Yuvaraj
Principal

Convener
Dr. A V Pavan Kumar
Professor & HOD-EEE

Coordinator
Ms. Revathy Gopinath
Assistant Professor, EEE

On the right, a gallery view of participants is shown, including Dr. A.V. Naresh Babu, revathy gopinath, Koduri Revathi, Dr. Lakshmi Khandan K, and rajesh K S.

In the second session, the discussion focused on “Multilevel Inverters for High-Efficiency Power Conversion”, covering:

- Types and configurations of multilevel inverters.
- Application of inverters in renewable energy systems and EV charging.
- Harmonics reduction and power quality improvement using multilevel inverters.



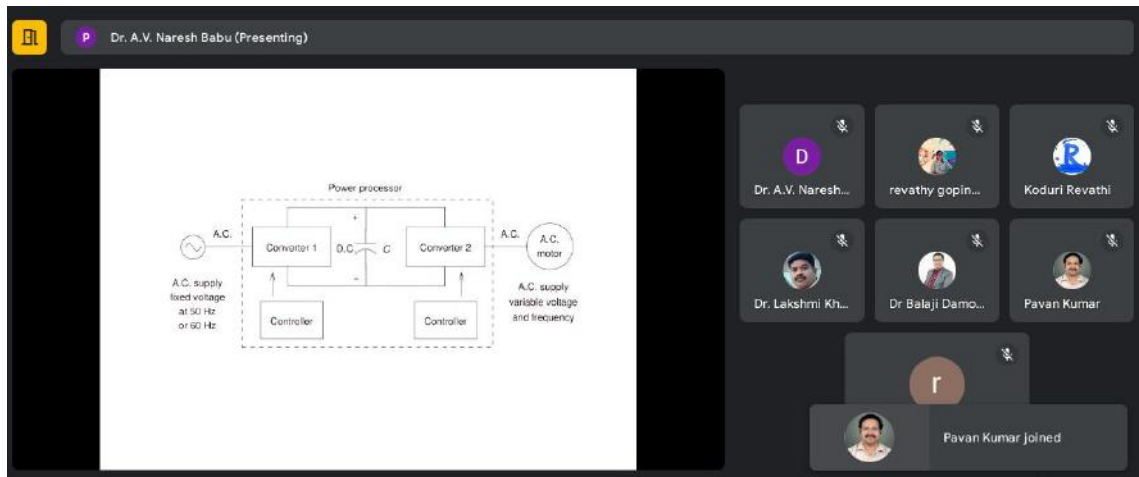
**MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE
(UGC-AUTONOMOUS)**

Affiliated to JNTUA, Anantapuramu & Approved by AICTE, New Delhi
Recognised Research Center, Accredited by NBA for CE, CSE, ECE, EEE, ME, MBA
& MCA, Recognised by UGC under the sections 2(f) and 12(B) of the UGC act 1956



After a lunch break, the afternoon session focused on “Advanced DC-DC Converters for EV Charging Infrastructure”. This session provided practical insights into:

- Topologies of DC-DC converters for EV fast charging.
- Bidirectional converters for vehicle-to-grid (V2G) and grid-to-vehicle (G2V) operations.
- Efficiency optimization techniques for power converters.



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 electronics for smart grid and EV applications.

A vote of thanks was delivered by Dr. Gumpu Sreenivasulu, 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.

Ms. Revathy Gopinath
Assistant Professor,
Department of EEE
MITS, Madanapalle

Signature of HOD-EEE