



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
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A Report on

“Adaptive Control Strategies for Load Frequency and Voltage Stability in Smart Power Grids”

Organized by

Department of Electrical & Electronics Engineering (EEE), MITS Madanapalle
09.12.2022

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

Co-ordinator: Mr. RAJESH K S

Attendees: 19 members

Venue: WB120

Platform: Google Meet

The Department of Electrical & Electronics Engineering (EEE), MITS Madanapalle, successfully organized workshop titled "Adaptive Control Strategies for Load Frequency and Voltage Stability in Smart Power Grids" on 09th Dec 2022.

Workshop Schedule

Time	Session	Resource Person
9:30 AM - 10:00 AM	Inauguration & Welcome Address	Host & Coordinator
10:00 AM - 11:30 AM	Fundamentals of Load Frequency Control (LFC)	Dr. D. Pradeep
11:30 AM - 11:45 AM	Break	-
11:45 AM - 1:15 PM	Voltage Stability Control in Smart Power Grids	Dr. D. Pradeep
1:15 PM - 2:00 PM	Lunch Break	-
2:00 PM - 3:30 PM	Predictive Control for Frequency and Voltage Regulation	Dr. D. Pradeep
3:30 PM - 4:30 PM	Q&A and Discussion	Open Session



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Faculty attended:

1. Dr. A V PAVAN KUMAR
2. Dr. K. ARUL KUMAR
3. Dr. LAKSHMIKHANDAN K
4. Dr. BALAJI DAMODHAR T S
5. Mr. IBRAHIM ZAFAR
6. Dr. V B THURAI RAAJ
7. Dr. SUMAN YADAV
8. Dr. GOURAV KUMAR SUMAN
9. Mr. N SRIDHAR
10. Mr. RAJESH K S
11. Mr. CHODAGAM SRINIVAS
12. Mr. SARAVANAN D
13. Mr. G MALLIKARJUNA
14. Mr. BONDU VIJAYAKUMAR
15. Mr. EJJIROTU RAGHU BABU
16. Mr. VENKATESH M
17. Mr. RAMESH KUMAR R
18. Ms. KODURI REVATHI
19. Ms. REVATHY GOPINATH

The online one-day workshop was inaugurated on 9th Dec 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. D. Pradeep, emphasizing the importance of **Adaptive control strategies for load frequency and voltage stability** in modern power grids. The workshop agenda and the introduction of the resource person were presented by Mr. RAMESH KUMAR R.



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Online Workshop on

**Adaptive Control Strategies for Load Frequency
and Voltage Stability in Smart Power Grids**

Dr. D. Pradeep

Professor & HOD

**Department of Electrical & Electronics Engineering
DVR & Dr. HS MIC College of Technology**

Date: 09th Dec 2022

Chief Patron

Dr. N Vijaya Bhaskar Chowdary
Secretary & Correspondent

Patron

Mrs. N Keerthi
Executive Director

Program Chair

Dr. C Yuvaraj
Principal

Convener

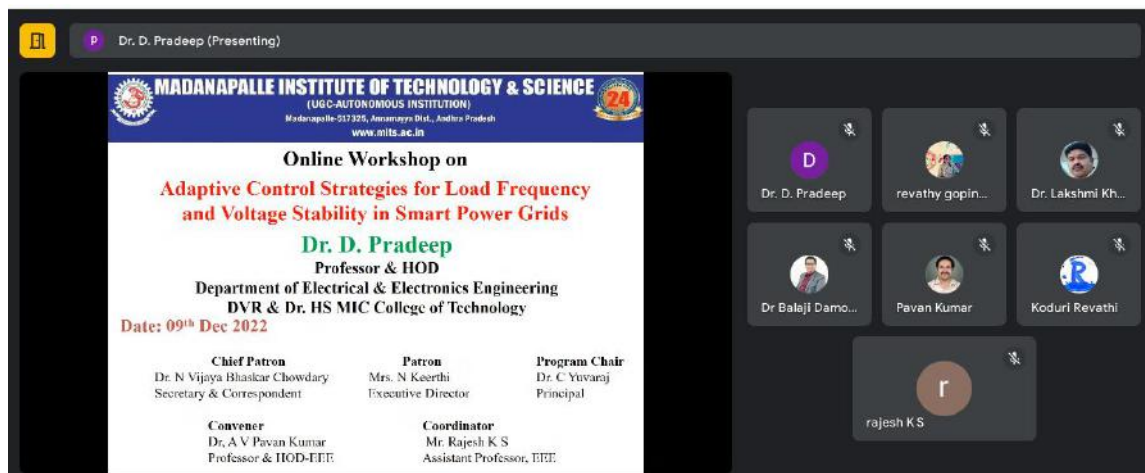
Dr. A V Pavan Kumar
Professor & HOD-EEE

Coordinator

Mr. Rajesh K S
Assistant Professor, EEE

The first session was led by Dr. D. Pradeep on the topic “Fundamentals of Load Frequency Control (LFC)”. He provided a comprehensive overview of how LFC plays a crucial role in maintaining power system stability and ensuring a reliable energy supply. The session covered:

- Primary, secondary, and tertiary control mechanisms for load frequency regulation.
- Impact of renewable energy integration on frequency stability.
- Role of AI and predictive analytics in LFC optimization.





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Dr. D. Pradeep (Presenting)

Recent Optimizations
Machine Learning
Cyber-Attacks
Communication Challenges
LFC in Smart Grids

Participants: Dr. D. Pradeep, revathy gopin..., Dr. Lakshmi Kh..., Dr. Balaji Damo..., Pavan Kumar, Koduri Revathi, rajesh KS

In the second session, the discussion focused on “Voltage Stability Control in Smart Power Grids”, covering:

- Challenges in voltage regulation due to variable energy sources.
- FACTS devices and their role in enhancing voltage stability.
- AI-driven control strategies for real-time voltage regulation.

Participants: b karthick, Koduri Revathi, Dr. Balaji Damo..., rajesh KS, revathy gopinath, saravanakumar..., Pavan Kumar, E. Raghu Babu

After a lunch break, the afternoon session focused on “AI-Based Predictive Control for Frequency and Voltage Regulation”. This session provided practical insights into:

- Using machine learning algorithms to predict frequency deviations and voltage fluctuations.
- Case studies on smart grid implementations of predictive control models.
- Optimization of control parameters for improved power system reliability.

The workshop concluded with a Q&A and discussion session, where participants actively engaged with the resource person on real-world implementations, policy frameworks, and advancements in AI-driven power system control.



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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.

Mr. Rajesh K S
Assistant Professor,
Department of EEE
MITS, Madanapalle.

Signature of HOD-EEE