



DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
ACADEMIC YEAR 2023-2024(ODD)

REPORT - BRIDGE COURSE

The Department of Electrical & Electronics Engineering conducted a bridge course covering EE3501 - POWER SYSTEM ANALYSIS for third-year EEE students and EE8703 RENEWABLE ENERGY SYSTEMS for final-year students, spanning from July 27, 2023 (AN) to July 28, 2023 (FN & AN). The primary aim of this bridge course was to offer students an introductory overview of the respective courses, setting the foundation for their upcoming studies in these vital fields.

PROGRAMME SCHEDULE - III EEE

DATE & SESSION: 27.07.2023 & AN

SUB: EE3501 - POWER SYSTEM ANALYSIS

TIME	TOPICS	FACULTY INCHARGE
01.10 P.M-02.40 P.M	POWER SCENARIO IN INDIA POWER SYSTEM COMPONENTS	DR.S.SIVAKUMAR VP & HEAD (T & P)
02.50 P.M- 04.20P.M	RECENT TRENDS IN POWER SYSTEMS	MRS.A.PRABHA,AP/EEE

DATE & SESSION: 28.07.2023 (FN & AN)

TIME	TOPICS	FACULTY INCHARGE
09.15 A.M – 10.45 A.M	POWER FLOW ANALYSIS	DR.S.SIVAKUMAR VP & HEAD (T & P)
11.00 A.M – 12.30 P.M	SYMMETRICAL FAULT ANALYSIS	Mr. S. NAVEEN PRAKASH, AP/EEE
01.10 P.M-02.40 P.M	UNSYMMETRICAL FAULT ANALYSIS	MRS.A.PRABHA,AP/EEE
02.50 P.M- 04.20P.M	STABILITY ANALYSIS	Mr. S. NAVEEN PRAKASH, AP/EEE

PROGRAMME CONTENT:

Power Scenario in India Power System Components

In the first session of the bridge course seminar, Dr. S. Sivakumar, Vice Principal and Head of Training and Placement, offered a comprehensive exploration of India's power scenario. He elucidated the essential role that power system components play in the functioning of the broader power grid, detailing how generation, transmission, and distribution systems collaboratively ensure a consistent power supply. Dr. S. Sivakumar also discussed the challenges facing the Indian power sector, such as infrastructure modernization, and highlighted the potential presented by innovative solutions and advancements in renewable energy integration and smart grid technologies. His extensive expertise in

power systems, coupled with his role as VP & Head, underscored the significance of this informative session in fostering a deeper understanding of the power sector's complexities and opportunities for progress.

Recent Trends in Power Systems

The second session of the bridge course seminar, led by Mrs. A. Prabha, Assistant Professor in the Electrical and Electronics Engineering (EEE) department, concentrated on illuminating recent trends in power systems. This session effectively outlined the remarkable progressions and innovations witnessed in power generation, transmission, and distribution domains. Mrs. Prabha underscored the significance of remaining well-informed about these trends, highlighting their pivotal role in ensuring efficient power management and sustainability. With her expert guidance, participants gained invaluable insights into the transformative potential of renewable energy integration, smart grids, and energy-efficient technologies, solidifying their understanding of the evolving landscape of power systems.

Power Flow Analysis

In the 9:15 AM - 10:45 AM session, led by Dr. S. Sivakumar, VP & Head of Training and Placement, participants delved into "Power Flow Analysis." This discussion encompassed the complexities of energy distribution within networks. Challenges like nonlinear equations, voltage drops, and system constraints were addressed, along with practical solutions including Gauss-Seidel and Newton-Raphson methods. This session equipped participants with both theoretical understanding and practical tools for effective power flow management.

Symmetrical Fault Analysis

From 11:00 AM to 12:30 PM, Mr. S. Naveen Prakash, Assistant Professor in the EEE department, led an insightful session on "Symmetrical Fault Analysis." Attendees delved into the intricacies of analyzing symmetrical faults within power systems. The session spotlighted challenges arising from short-circuits and symmetrical fault conditions, which can lead to disruptions and system failures. Mr. S. Naveen Prakash expertly navigated through these challenges, presenting effective solutions such as fault impedance calculations and protective relays. Participants gained a comprehensive understanding of how to identify and mitigate symmetrical faults, ensuring the reliability and stability of power systems.

Unsymmetrical Fault Analysis

During the session from 01:10 PM to 02:40 PM, Mrs. A. Prabha, Assistant Professor in the EEE department, led an insightful discussion on "Unsymmetrical Fault Analysis." The session delved into

the complexities of analyzing faults that deviate from symmetrical conditions. Participants gained insights into challenges posed by unsymmetrical faults, which can lead to imbalances and disruptions in power systems. Mrs. Prabha adeptly presented solutions, including sequence component analysis and fault location techniques, enabling attendees to effectively address unsymmetrical faults and ensure the stability and reliability of power networks.

Stability Analysis

From 02:50 PM to 04:20 PM, Mr. S. Naveen Prakash, Assistant Professor in the EEE department, led an engaging session on "Stability Analysis." Participants delved into the critical realm of assessing power system stability. The session illuminated challenges arising from dynamic fluctuations and disturbances, which can compromise system stability. Mr. Prakash expertly introduced solutions such as transient stability analysis and control mechanisms, enabling attendees to effectively assess and enhance power system stability. Through this session, participants gained valuable insights into maintaining a resilient power network even under challenging conditions.

PROGRAMME SCHEDULE - IV EEE

DATE & SESSION: 27.07.2023 & AN SUB: EE8703 RENEWABLE ENERGY SYSTEMS (RES)

TIME	TITLE	FACULTY INCHARGE
01.10 P.M-02.40 P.M	RESOURCE AVAILABILITY IN INDIA	DR.A.ALBERT MARTIN RUBAN, HOD/EEE
02.50 P.M– 04.20P.M	PRESENT INDIAN AND INTERNATIONAL ENERGY SCENARIO OF CONVENTIONAL AND RE SOURCES.	MRS.P.THIRUMAGAL, AP/EEE

DATE & SESSION: 28.07.2023 (FN & AN)

TIME	TITLE	FACULTY INCHARGE
09.15 A.M – 10.45 A.M	SOLAR ENERGY CONVERSION SYSTEMS	MR.J.AROKIARAJ, AP/EEE
11.00 A.M – 12.30 P.M	WIND ENERGY CONVERSION SYSTEMS	MR,S.R.KARTHIKEYAN, AP/EEE
01.10 P.M-02.40 P.M	CHALLENGES AND HARVESTING POSSIBILITIES IN RES	MR.J.AROKIARAJ, AP/EEE
02.50 P.M– 04.20P.M	RECENT TRENDS IN RES	MR,S.R.KARTHIKEYAN, AP/EEE

PROGRAMME CONTENT:

Resource Availability in India

The session on "Resource Availability in India," conducted from 01:10 PM to 02:40 PM and led by Dr. A. Albert Martin Ruban, Head of the Electrical and Electronics Engineering (EEE) department, addressed the critical topic of resource availability in the Indian context. Dr. Ruban discussed

challenges like resource scarcity and uneven distribution, emphasizing the importance of sustainable practices to manage resources effectively. The session covered energy resources, water management, mineral extraction, and government initiatives, providing attendees with insights into the complexities of resource management and the need for responsible utilization to ensure a sustainable future for India.

Present Indian and International Energy Scenario of Conventional and Resources

The session on "Present Indian and International Energy Scenario of Conventional and Renewable Sources," conducted from 02:50 PM to 04:20 PM and led by Mrs. P. Thirumagal, Assistant Professor in the Electrical and Electronics Engineering (EEE) department, offered a comprehensive insight into the current global and Indian energy landscape. The discussion encompassed both conventional sources like fossil fuels and the expanding influence of renewable resources such as solar and wind energy. Mrs. Thirumagal highlighted the challenges of conventional energy reliance, the rapid growth of renewables, and the global push for sustainability. The session illuminated the potential of renewable energy sources to reshape the energy sector and fostered a deeper understanding of the ongoing energy transition's significance for a greener future.

Solar Energy Conversion Systems

In the morning session, Mr. J. Arokiaraj delved into the fascinating realm of Solar Energy Conversion Systems. He began by elucidating the fundamental principles of photovoltaic technology, which involves the use of solar cells to convert sunlight directly into electricity. Attendees learned about the various types of solar cells, including monocrystalline and polycrystalline, and how they function. Additionally, Mr. J. Arokiaraj discussed solar thermal systems, which harness the sun's energy to produce heat for applications like electricity generation and water heating. An essential aspect of this session was the emphasis on the environmental benefits of solar energy, such as reducing greenhouse gas emissions and contributing to a more sustainable future.

Wind Energy Conversion Systems

During the 2nd session, Mr. S.R. Karthikeyan provided a comprehensive overview of Wind Energy Conversion Systems. He began by explaining the key components of wind turbines, including rotor blades and generators, and how they work together to capture and convert wind energy into electricity. The importance of wind resource assessment was highlighted, as it helps identify suitable locations for wind farms by analyzing wind speed, consistency, and other factors. Challenges related to grid integration, such as managing intermittent wind power generation, were also discussed. The session concluded with insights into the global growth of wind energy, showcasing how many countries are increasingly adopting wind power as a clean and sustainable energy source.

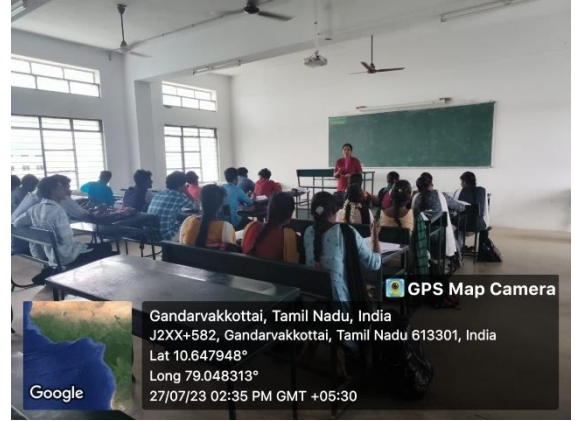
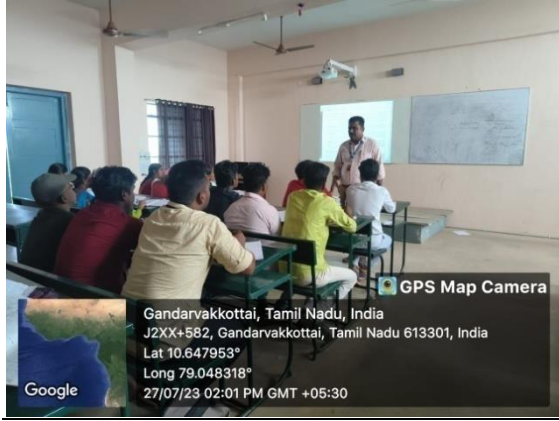
Challenges and Harvesting Possibilities In Renewable Energy Systems

In the early afternoon session, Mr. J. Arokiaraj returned to shed light on the Challenges and Harvesting Possibilities in Renewable Energy Systems (RES). He addressed the various obstacles that the renewable energy sector faces, including intermittency issues, the need for efficient energy storage solutions, and regulatory barriers. However, the session also provided a hopeful perspective by highlighting the vast potential for harvesting renewable energy. Attendees gained insights into how technological advancements and growing global awareness of the importance of clean energy are driving solutions to these challenges. The overarching message was the crucial role that sustainable energy practices play in mitigating climate change and building a greener future.

Recent Trends In Renewable Energy Systems

In the final session of the day, Mr. S.R. Karthikeyan explored the cutting-edge developments and trends in Renewable Energy Systems (RES). The presentation covered recent technological advancements in renewable energy, such as innovations in energy storage systems, the implementation of smart grids, and breakthroughs in materials science that enhance the efficiency and affordability of renewable technologies. Attendees were also informed about emerging markets for renewable energy worldwide, with a focus on regions like Asia, Europe, and North America. Additionally, the session underscored the influential role of government policies and private sector investments in accelerating the growth and adoption of renewable energy sources, marking a compelling conclusion to a day of enlightening discussions on the future of clean and sustainable energy solutions.

Captured Moments: Highlights of Bridge Course Program

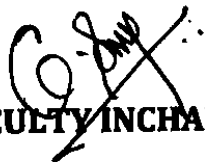


"Exploring India's Resource Potential" - Dr. A. Albert Martin Ruban, HOD/EEE

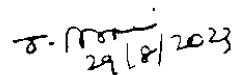
"Unveiling the Power System Trends" - Mrs. A. Prabha, AP/EEE



"Analyzing Symmetrical Faults" - Mr. S. Naveen Prakash, AP/EEE


FACULTY INCHARGE


HOD/EEE


PRINCIPAL