



THE ELECOMM

A Quarterly Newsletter

Department of Electronics & Communication Engg, Echelon Institute of Technology,
Faridabad

VOLUME-XVII ISSUE-IV

APR- JUL -2024

I would like to encourage all the students to participate in co- curricular activities and enhance.

Dr. Jaspal Jindal

Editor

Highlights

- ❖ **Article on Smart Grids**
- ❖ **Activities in the department**
- ❖ **Mega Job Fair**

SMART GRIDS: TRANSFORMING THE FUTURE OF ENERGY DISTRIBUTIONS

As the world moves towards a more sustainable and efficient future, the energy sector is undergoing significant changes. One of the most transformative developments in this field is the advent of smart grids. These advanced electrical grids leverage cutting-edge technologies to optimize the production, distribution, and consumption of electricity. Smart grids are not just about providing power; they are about providing power intelligently.

This article explores the key features of smart grids, their benefits, and their potential to revolutionize energy distribution.

What Are Smart Grids?

A smart grid is an electricity network that uses digital technology to monitor and manage the flow of electricity from all generation sources to meet the varying electricity demands of end-users. Unlike traditional power grids, which are largely one-way systems where electricity flows from the power plant to the consumer, smart grids are bidirectional, allowing for two-way communication between the utility and its customers. This enables better integration of renewable energy sources, real-time monitoring, and automated control systems.

Key Features of Smart Grids

1. **Advanced Metering Infrastructure (AMI)** Smart grids incorporate AMI, which includes smart meters that provide real-time data on electricity usage to both consumers and utilities. This data enables better demand management, allowing utilities to optimize the distribution of electricity and reduce waste.

2. **Integration of Renewable Energy** Smart grids are designed to integrate renewable energy sources such as solar and wind power more effectively. By managing the variability and intermittency of these sources, smart grids can ensure a more stable and reliable energy supply.
3. **Real-Time Monitoring and Control** Smart grids use sensors and communication technologies to monitor the grid's performance in real-time. This allows for quick detection and response to issues such as outages or equipment failures, improving the reliability of the electricity supply.
4. **Demand Response** One of the key benefits of smart grids is their ability to manage demand more effectively. Through demand response programs, utilities can incentivize consumers to reduce their electricity usage during peak times, thus reducing the strain on the grid and preventing blackouts.
5. **Enhanced Cybersecurity** As smart grids rely heavily on digital technologies, cybersecurity is a critical component. Advanced encryption and security protocols are implemented to protect the grid from cyber threats, ensuring the safety and stability of the energy supply.

Benefits of Smart Grids

1. **Increased Efficiency** Smart grids improve the efficiency of energy distribution by reducing transmission losses and optimizing the flow of electricity. This leads to lower

operational costs for utilities and potentially lower energy bills for consumers.

2. **Improved Reliability** With real-time monitoring and automated controls, smart grids can quickly identify and address issues, reducing the frequency and duration of power outages. This enhances the overall reliability of the electricity supply.
3. **Environmental Benefits** By facilitating the integration of renewable energy sources and optimizing energy usage, smart grids contribute to the reduction of greenhouse gas emissions. This supports global efforts to combat climate change and promotes sustainability.
4. **Empowered Consumers** Smart grids provide consumers with detailed information about their energy usage, enabling them to make more informed decisions about how and when they use electricity. This can lead to energy savings and greater control over energy costs.
- 5.

Challenges and the Road Ahead

While smart grids offer numerous benefits, their implementation is not without challenges. The transition to smart grids requires significant investment in infrastructure, technology, and cybersecurity. Additionally, there are regulatory and policy hurdles that need to be addressed to ensure a smooth transition. Public awareness and acceptance of smart grid technologies are also crucial for their success.

Conclusion

Smart grids represent the future of energy distribution, offering a more efficient, reliable, and sustainable way to manage electricity. As the demand for energy continues to grow, and the push for renewable energy sources intensifies, smart grids will play a vital role in meeting these challenges. For those in the electronics and electrical technology sectors, smart grids offer exciting opportunities for innovation and development. Whether through advanced metering, cybersecurity solutions, or renewable energy integration, the smart grid revolution is set to transform the way we think about energy.

*- Diksha Kushwahae
Assistant Professor (ECE)*

Activities in the department

Paper presentation by students on drone technologies and its application and recent advancements

The Department of Electronics and Electrical Engineering recently organized a paper presentation event for students, focusing on the exciting and rapidly evolving field of drone technologies. The topic, "Drone Technologies: Applications and Recent Advancements," provided students with an opportunity to explore the vast potential of drones across various industries. During the event, participants presented on the diverse

applications of drones, ranging from agriculture and logistics to environmental monitoring and disaster management. They also highlighted the latest technological advancements, such as AI integration, improved battery life, and enhanced sensor capabilities, which are driving innovation in the field. The event fostered a spirit of inquiry and innovation, allowing students to showcase their research and contribute to the growing body of knowledge in this cutting-edge area.

All faculty members of ECE Dept. And students of ECE were present during the presentation.



Haryana State and District Carrom Championship

Echelon Institute of Technology, in association with the Haryana Carrom Association, proudly hosted a dynamic Carrom Championship on 22nd and 23rd June 2024 that drew in students and carrom enthusiasts from across the region. The event, filled with fierce competition and

outstanding talent, highlighted the strategic depth and excitement of the game. Participants from various institutions showcased their skills, making the championship a memorable occasion. Players connected, shared strategies, and celebrated each other's successes, reflecting the true spirit of the event. Echelon Institute of Technology remains committed to promoting such activities, contributing to the overall development of its students, and fostering a strong sense of community.



International Yoga Day Celebration

Echelon Institute of Technology celebrated International Yoga Day on 21st June 2024 with an energizing morning yoga session that united students, faculty, and staff. Led by experienced instructors, participants engaged in a series of asanas, pranayama, and meditation, promoting physical and mental well-being. The event highlighted the holistic benefits of yoga, emphasizing its role in reducing stress and enhancing mindfulness. The successful event reinforced the institute's commitment to fostering wellness and balanced living within its community, making it a memorable and rejuvenating celebration.



Virtual Internship Program 2024 by CISCO



Echelon Institute of Technology is excited to collaborate with CISCO for the Virtual Internship Program 2024 on 10th July, 2024 Time: 3:00 PM in online mode, a forward-thinking initiative designed to equip students with the essential skillsets needed for the future. This program offers an invaluable opportunity for students to gain hands-on experience in key technological areas such as networking, cybersecurity, and cloud computing.

Participants will engage in real-world projects, guided by CISCO’s industry experts, allowing them to apply theoretical knowledge in practical scenarios. The internship is structured to enhance both technical and soft skills, including problem-solving, communication, and teamwork, which are critical for success in today’s dynamic job market.

This partnership underscores Echelon Institute’s commitment to bridging the gap between academia and industry, ensuring that students are well-prepared to meet future

challenges. The Virtual Internship Program 2024 is a significant step in empowering the next generation of professionals with the tools and knowledge necessary to excel in the digital age.

This internship program is your chance to gain valuable insights and practical experience in the most in-demand skills for the future workforce.

Workshop on NIRF (National Institutional Ranking Framework)





NIRF (National Institutional Ranking Framework). organized by the Echelon Institute of Technology on 13 July 2024, supported by J.C. Bose University of Science and Technology, YMCA Faridabad.

The event was graced by the presence of Prof. (Dr.) Sandeep Grover from JCBUST, YMCA Faridabad, who served as the Resource Person. Prof. Grover delivered an insightful presentation, emphasizing the importance of NIRF in assessing and improving the quality of higher education institutions across India. He provided a detailed explanation of the ranking parameters and the impact of NIRF rankings on institutional growth and reputation. The session was well-received by faculty members and students, who gained valuable knowledge about the significance of participating in the NIRF rankings. The event concluded with an engaging Q&A session, leaving participants with a deeper understanding of the NIRF process.

Faculty Achievements:

Following faculty members of the department participated in several faculty development programs and workshops:

Ms. Mrinal Manjari

- Participated in the 5-day online FDP on Outcome Based “Curriculum and Accreditation Criteria“ conducted by NITTR Chandigarh from 03rd July 2023 to 07th July 2023.
- Participated in the 2-day online FDP on Outcome Based “National Education policy 2020 for sustainable quality education“ conducted by Indraprastha Engineering College Ghaziabad from 21st July 2023 to 22nd July 2023
- Participated in the 5-day online Workshop on “VLSI to system design – Silicon to end application approach“ organized by AICTE, Arm Education and ST Microelectronics from 31st July 2023 to 4th August 2023.

Ms. Nitu Chauhan

- Participated in the 5-day online FDP on Outcome Based “Curriculum and Accreditation Criteria“ conducted by NITTR Chandigarh from 03rd July 2023 to 07th July 2023.
- Participated in the 2-day online Workshop on Outcome Based “National Education

policy 2020 for sustainable quality education“ conducted by indraprashta engineering college ghaziabad from 21st july 2023 to 22nd july 2023

Mr. Diksha Kushwahae

- Participated in the 5-day online FDP on Outcome Based “Curriculum and Accreditation Criteria“ conducted by NITTR Chandigarh from 03rd july 2023 to 07th july 2023.
- Participated in the 2-day online Workshop on Outcome Based “National Education policy 2020 for sustainable quality education“ conducted by indraprashta engineering college ghaziabad from 21st july 2023 to 22nd july 2023

Mr Neeraj

- Participated in the 5-day online Workshop on “VLSI to system design – Silicon to end application approach“ organized by AICTE, Arm education and ST Microelectronics from 31st july 2023 to 4th August 2023.

the ECE department for their valuable contribution.

Editorial Board:

Faculty coordinators:

Dr. Jaspal Jindal

Diksha Kushwahae

(Editor -The Elecomm)

For any queries and suggestions contact:

jaspaljindal@eitfaridabad.co.in

dikshakushwahae@eitfaridabad.co.in

Acknowledgment

For the publication of “THE ELECOMM” I would like to thank the members of faculty of