K.L.E. Society's

KLE College of Engineering& Technology, Chikodi

Entrepreneurship Development Cell (EDC)

Introduction

As a part of the induction program for B.E First year, the Entrepreneurship Development Cell (EDC) conducted a session on **"Renewable Energy Sources"**. This report summarizes the content, objectives, outcomes, and significance of the session for students, faculty, and the academic community in the context of the rapidly evolving energy sector. The session aimed to deepen the understanding of renewable energy technologies, their applications, and their potential to address current global energy challenges.

Session Details

- **Program Type: Self Driven**
- **Program/Activity: "Renewable Energy Sources"**
- **Date: 21.09.2024**
- **Duration: 2 Hrs**
- **Location: Civil Auditorium, KLECET Campus, Chikodi**
- **Organizer: Entrepreneurship Development Cell (EDC)**
- **Speaker/Expert: Mr. Natesh S.**
- **Target Audience: Students and Faculty Members**
- **Mode of Session Delivery: Offline**

Objectives of the Session

The primary objectives of the session were to:

1. **Provide an Overview of Renewable Energy Sources:** Understand the various types of renewable energy, such as solar, wind, hydro, biomass, and geothermal.
2. **Discuss the Importance of Renewable Energy:** Highlight the global shift towards sustainable energy and its role in mitigating climate change.
3. **Explore Technological Advancements:** Present the latest innovations in renewable energy technologies and their future potential.
4. **Encourage Research and Innovation:** Motivate students and faculty to engage in research related to renewable energy.
5. **Industry Linkages:** Foster collaborations with industry leaders in renewable energy technologies.

Key Topics Covered

The session was divided into several key sections, each addressing a critical aspect of renewable energy sources:

1. **Introduction to Renewable Energy:**
   - Definition and types of renewable energy sources: Solar, Wind, Hydro, Biomass, Geothermal, and Ocean energy.
   - Importance of transitioning from conventional fossil fuels to cleaner, sustainable energy sources.
2. **Solar Energy:**
   - Photovoltaic (PV) technology and Solar Thermal Systems.
   - Current trends in solar panel efficiency and the role of solar in meeting global energy demand.
   - Examples of large-scale solar power plants (e.g., solar parks).
3. **Wind Energy:**
   - Wind turbine technology and offshore/onshore wind farms.
   - Challenges of wind energy such as intermittency and storage solutions.
   - Case studies of successful wind energy projects globally.
4. **Hydroelectric Power:**
   - Types of hydroelectric power plants: Conventional, pumped storage, and micro-hydro.
   - Environmental considerations and the impact on aquatic ecosystems.
   - Small-scale hydropower solutions for local communities.
5. **Biomass and Bio-energy:**
   - Conversion of biomass to bio-fuels (e.g., ethanol, bio-diesel) and its application in the transportation sector.
   - The potential of waste-to-energy technologies.
   - Challenges of scaling biomass projects and issues related to food versus fuel debates.
6. **Geothermal Energy:**
   - Working principle of geothermal power plants.
   - The potential for geothermal energy in specific regions with high volcanic activity.
   - Environmental impact and sustainability of geothermal energy.
7. **Emerging Technologies and Innovations:**
   - Energy storage solutions such as batteries and pumped hydro storage to complement renewable energy production.
   - Smart grids and their role in integrating renewable energy sources into the existing grid infrastructure.
   - Future trends: Artificial photosynthesis, ocean energy, and algae bio-fuel.

8. **Policy and Regulatory Framework:**
    - Government initiatives, subsidies, and policies supporting renewable energy adoption globally.
    - India's Renewable Energy Policy and targets (e.g., 500 GW by 2030 from non-fossil fuel sources).
    - Role of international agreements (e.g., Paris Agreement) in shaping energy transition policies.

Outcomes of the Session

The session achieved the following outcomes:

1. **Enhanced Awareness:**

   Students and faculty members gained a deeper understanding of renewable energy technologies, their potential, and their challenges.
2. **Student Engagement:**

   The session sparked interest among students in pursuing careers and research opportunities in renewable energy fields.
3. **Industry Collaboration:**

   Links were established with industry partners working on renewable energy technologies, which could lead to internships, research collaboration, and future projects.
4. **Sustainability Mindset:**

   A strong emphasis was placed on the importance of sustainability and the critical role of renewable energy in addressing global environmental issues such as climate change, energy security, and resource depletion.
5. **Research Opportunities:**

   Faculty and students were encouraged to explore the interdisciplinary nature of renewable energy research, with a focus on innovative solutions for energy storage, efficiency, and grid integration.

Feedback from Participants

The feedback collected from the session attendees was overwhelmingly positive:

- Students appreciated the real-world applications of renewable energy and were inspired to pursue projects on solar and wind energy systems.
- Faculty members found the session useful for integrating renewable energy concepts into the curriculum and research initiatives.
- Industry professionals highlighted the importance of academic institutions in fostering innovation in renewable energy and voiced interest in collaborating on future research projects.

Conclusion

The Renewable Energy Sources session was a significant step towards educating the academic community on the vital importance of sustainable energy practices. It provided students and faculty with the necessary tools to understand the complexities and opportunities in the field of renewable energy. Through this session, the department has taken a crucial step towards fulfilling NBA accreditation criteria related to curriculum, research, and industry linkage, while also contributing to the global shift towards renewable and clean energy solutions.

Pictures:

Session by Mr. Natesh S. on Renewable Energy Sources

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