



# Koneru Lakshmaiah Education Foundation

(Category -1, Deemed to be University estd. u/s. 3 of the UGC Act, 1956)

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Campus: Green Fields, Vaddeswaram - 522 302, Guntur District, Andhra Pradesh, INDIA.

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30-07-2021

## Webinar on Solar Power – the Ultimate Source of Energy

### Circular:

Industrial Guest lecture entitled "Solar Power – The Ultimate Source of Energy" by Department of ECE, KLEF – Reg.

Registrar <registrar@kluniversity.in>

Fri 7/30/2021 3:41 PM

To: PRESIDENT <president@kluniversity.in>; Havish <havish@kluniversity.in>; Raja H Koneru <krh@kluniversity.in>; Dr. S S Mantha <ssmantha@kluniversity.in>; N Venkat Ram <venkatram@kluniversity.in>; gpsvarma@gmail.com <gpsvarma@gmail.com>; Prof. Chandra Prakash <vchandrap@kluniversity.in>; PRINCIPAL - COE <principal.coe@kluniversity.in>; Lalitha <lalitha@kluniversity.in>; Dr. Y V Hanumantha Rao <drvvhrao@kluniversity.in>; Prof. V.Srikanth <vsrikanth@kluniversity.in>; Dean - Placements & Internships (International)-K L University <nbvprasaad@kluniversity.in>; Dean(Student Affairs) <krsprasad\_fed@kluniversity.in>; Slavanya <slavanya\_css@kluniversity.in>; SHANMUKH <shanmukh\_fed@kluniversity.in>; Dr.MVN <mvn@kluniversity.in>; prasanth <prasanthalla@kluniversity.in>; Suman Maloji <suman.maloji@kluniversity.in>; Dr.J.Govardhani <govardhaneec@kluniversity.in>; Dinesh <dinesh@kluniversity.in>

1 attachments (8 MB)

ECE Guest Lecture\_Solar Power.jpg

Ref: KLEF/RO/HOD-ECE/2021-22

Date: 30-07-2021

Orders of the Vice-Chancellor In-charge dt:30-07-2021

### CIRCULAR

Sub: Industrial Guest lecture entitled "Solar Power – The Ultimate Source of Energy" by Department of ECE, KLEF – Reg.

Ref: Letter dated 29.07.2021 from Dr.P. Lakshman, Dy.HoD-ECE.

\*\*\*

This is to inform that Department of ECE, KLEF, is organizing an Industrial Guest lecture entitled "Solar Power – The Ultimate Source of Energy" by Er.Soubhagya Ranjan Swain, Manager-Customer Service, M/s.Roinet Solutions Pvt.Ltd., Gurgaon, Haryana, as the Speaker at 3.30 p.m. on 31<sup>st</sup> July 2021 (Saturday) for all the faculty members of both KLEF Vaddeswaram and KLH campuses as per the details given below.

Registration link: <https://forms.office.com/r/P3dP69Cfiu>

Online link:

<https://kluniversity.webex.com/kluniversity/j.php?MTID=m2e8ec6020b20292d039a4a898bd61d25>

Poster of the Guest lecture is attached herewith.

For further details on the Guest lecture Dr.Arjuna Muduli, Associate Professor, ECE, Mobile No.7017151266 and E-mail Id: arjuna@kluniversity.in can be contacted.

REGISTRAR

Encl: Poster

Mail & Hard copy to: Hon'ble President, KLEF

Mail to: Hon'ble Vice-Presidents, KLEF

Mail & Hard copy to: Hon'ble Chancellor

Mail & Hard copy to: Vice Chancellor In-charge – Dr. N. Venkatram

Mail & Hard copy to: Pro Vice Chancellor (Academics) – Dr.G.P.S. Varma

Mail & Hard copy to: OSD to Hon'ble Chancellor-Dr.K. Subrahmanyam

Mail to: Chief Coordinating Officer-Dr.A. Jagadeesh / Chief Coordinating Officer of Examinations-Dr.K.J.Babu



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### Poster:

KL University  
Electronics & Communication Engineering

Online Guest Lecture on  
**Solar Power -  
The Ultimate  
Source of Energy**

31<sup>st</sup>  
JULY 2021  
@ 3.30 PM

Speaker  
**Er. Soubhagya Ranjan Swain**  
Manager - Customer Service,  
ROINET SOLUTIONS PVT.LTD, Gurgaon, Haryana

Online Registration link:  
<https://forms.office.com/r/P3dP69Cfiu>

Chairpersons  
**Dr. M. Suman**  
Professor and Head, ECE, KLUNU  
**Dr. M. Goutham**  
Professor and Head, ECE, KLH

Convener  
**Dr. Arjuna Muduli**  
Associate Professor, ECE  
Contact no: 497 70776266  
E-Mail: arjunaj@kluniversity.in

Fig. Poster of webinar

### 1. Objective and discussions:

1: Promote Sustainability

Encourage the adoption of solar power as a primary energy source to reduce reliance on finite fossil fuels.

Mitigate environmental degradation associated with traditional energy sources by harnessing clean, renewable solar energy.

2: Energy Independence



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Foster energy independence by decreasing reliance on imported fossil fuels and volatile global energy markets.

Strengthen national security by diversifying energy sources and reducing vulnerability to geopolitical tensions.

### **3: Economic Growth and Job Creation**

Stimulate economic growth by investing in solar infrastructure, manufacturing, and research and development.

Create job opportunities across various sectors including installation, maintenance, manufacturing, and research in the solar energy industry.

### **4: Energy Access and Equity**

Improve energy access in remote and underserved communities by deploying off-grid and decentralized solar solutions.

Address energy poverty by making solar technology affordable and accessible to all socio-economic groups.

### **5: Climate Change Mitigation**

Contribute to global efforts to combat climate change by reducing greenhouse gas emissions associated with energy production.

Facilitate the transition to a low-carbon economy by scaling up solar energy deployment and reducing carbon footprints.

### **6: Resilience and Disaster Preparedness**

Enhance resilience to natural disasters and grid failures by integrating solar power with energy storage systems.

Provide reliable and decentralized energy solutions that can operate independently during emergencies.

### **7: Technological Innovation and Research**



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Foster innovation in solar technology to improve efficiency, affordability, and scalability.

Support research initiatives aimed at overcoming technological barriers and maximizing the potential of solar energy.

### 8: Public Awareness and Education

Raise awareness about the benefits of solar power and dispel myths or misconceptions surrounding its reliability and effectiveness.

Promote education and training programs to empower individuals and communities to embrace solar energy solutions.

### 9: Regulatory and Policy Support

Advocate for supportive policies, incentives, and regulations at local, national, and international levels to accelerate the adoption of solar energy.

Remove barriers and streamline permitting processes to facilitate the widespread deployment of solar infrastructure.

### 10: Collaboration and Partnerships

Foster collaboration among governments, industries, academia, and civil society to drive innovation and scale up solar energy deployment.

Establish partnerships to leverage expertise, resources, and best practices for advancing the solar energy agenda globally.

## 2. Key Technologies:

### Photovoltaic (PV) Cells:

PV cells directly convert sunlight into electricity using semiconductor materials like silicon.

Advancements in PV cell technology include thin-film solar cells, multi-junction cells, and perovskite solar cells, which offer improved efficiency and lower production costs.

### Concentrated Solar Power (CSP) Systems:



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CSP systems use mirrors or lenses to concentrate sunlight onto a small area, generating heat to produce steam that drives turbines to generate electricity.

Variants of CSP include parabolic troughs, solar power towers, and dish/engine systems, each with unique advantages in different geographic and economic contexts.

### Solar Thermal Collectors:

Solar thermal collectors absorb sunlight to heat a fluid (such as water or oil), which can then be used for space heating, water heating, or industrial processes.

Evacuated tube collectors, flat-plate collectors, and concentrating collectors are common types of solar thermal technologies.

### Solar Tracking Systems:

Solar tracking systems orient solar panels or mirrors to track the sun's position throughout the day, maximizing solar energy capture and enhancing efficiency.

Single-axis and dual-axis tracking systems adjust panels or mirrors along one or two axes, respectively, to optimize solar exposure.

### Energy Storage Technologies:

Energy storage solutions such as batteries, pumped hydro storage, and thermal energy storage enable the storage of excess solar energy for use during periods of low sunlight or high demand.

Advancements in battery technology, particularly lithium-ion batteries, are crucial for improving the reliability and flexibility of solar power systems.

### Solar Panels with Built-in Electronics:



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Innovative solar panels incorporating built-in electronics, such as microinverters or power optimizers, optimize energy production, improve system monitoring, and enhance overall performance.

These technologies help maximize the energy yield of solar installations and simplify system maintenance and troubleshooting.

### Building-Integrated Photovoltaics (BIPV):

BIPV systems integrate solar panels directly into building materials such as roofs, facades, or windows, seamlessly blending aesthetics with functionality.

BIPV technologies offer opportunities for widespread solar adoption in urban environments and contribute to architectural sustainability.

### Solar Hydrogen Production:

Solar-powered electrolysis systems split water into hydrogen and oxygen using electricity generated from sunlight.

Hydrogen produced through solar electrolysis can serve as a versatile, carbon-free energy carrier for fuel cells, transportation, and industrial applications.

### Floating Solar Arrays:

Floating solar arrays installed on water bodies such as reservoirs, lakes, and ponds utilize underutilized surface areas to generate electricity.

These systems offer advantages such as reduced land requirements, minimized water evaporation, and enhanced cooling for solar panels, improving overall efficiency.

### Hybrid Solar Systems:



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Hybrid solar systems integrate solar power with other renewable energy sources (e.g., wind, hydro) or conventional energy sources (e.g., diesel generators) to enhance reliability and stability.

Hybridization strategies optimize energy production, reduce intermittency, and ensure uninterrupted power supply, particularly in off-grid or remote locations.

### 3. Applications:

Solar power, as an ultimate source of energy, finds a wide range of applications across various sectors. Here are some key applications:

#### Residential Solar Power Systems:

Homeowners can install rooftop solar panels to generate electricity for their household needs.

Solar power can offset electricity bills and provide energy independence.

#### Commercial and Industrial Solar Installations:

Businesses and industries can deploy large-scale solar arrays on rooftops or open land to meet their energy demands. Solar power can reduce operational costs and enhance sustainability.

#### Utility-Scale Solar Power Plants:

Large utility-scale solar power plants generate electricity for distribution through the grid.

These facilities contribute significantly to the renewable energy mix and help meet the growing demand for electricity.

#### Off-Grid and Remote Power Systems:

Solar power is ideal for providing electricity in off-grid or remote areas where traditional grid infrastructure is unavailable or impractical. It powers remote communities, telecommunications infrastructure, and off-grid homes or cabins.



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### Water Pumping and Irrigation:

Solar-powered water pumping systems are used for agricultural irrigation, livestock watering, and water supply in rural areas. Solar pumps provide a sustainable solution, particularly in regions with ample sunlight and limited access to grid electricity.

### Solar-Powered Desalination:

Solar desalination plants use solar energy to power the desalination process, converting seawater or brackish water into freshwater. This technology addresses water scarcity challenges in coastal regions and arid areas.

### Solar Heating and Cooling:

Solar thermal systems can provide space heating, water heating, and air conditioning using solar energy. Solar water heaters, solar air heaters, and solar thermal cooling systems offer efficient and sustainable alternatives to conventional heating and cooling technologies.

### Solar-Powered Transportation:

Solar energy can be used to power electric vehicles (EVs) and charging stations. Solar-powered boats, bicycles, and even airplanes demonstrate the potential of solar energy in transportation, reducing reliance on fossil fuels and lowering emissions.

### Solar-Powered Appliances and Gadgets:

Solar energy powers a variety of portable devices and appliances, including solar-powered lights, chargers, radios, and camping gear. These gadgets provide convenient, off-grid solutions for outdoor activities and emergency situations.

### Space Exploration and Satellites:





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Solar panels are integral to spacecraft and satellites, providing power for communication, navigation, scientific research, and other functions in outer space. Solar energy is essential for extending the reach of human exploration and observation beyond Earth's atmosphere.

These applications demonstrate the versatility and potential of solar power as a sustainable and renewable energy source for meeting diverse energy needs across different sectors and environments.

## Online Link

<https://kluniversity.webex.com/kluniversity/j.php?MTID=m6d995ebf7a19d7f23a0961ef389ec0e1>

## Number of participants: 45

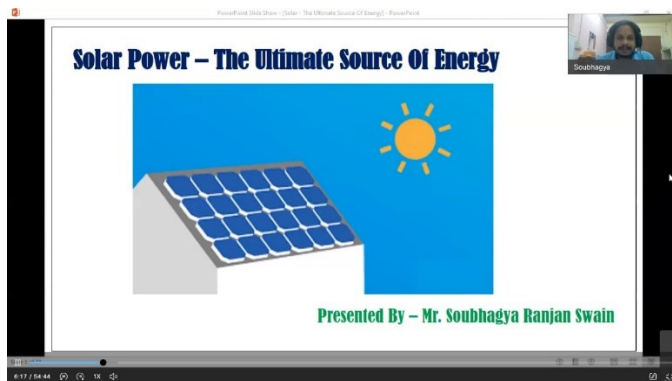
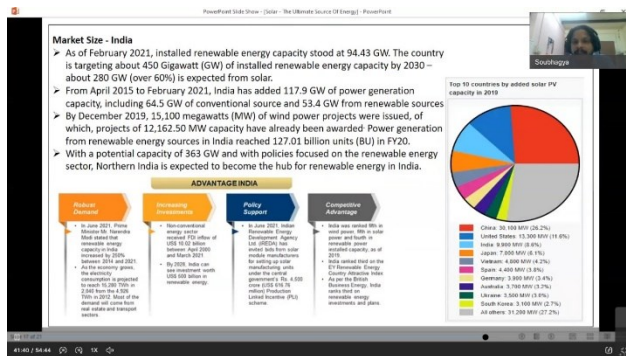


Fig. List of students



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### List of the Participated Students:

S. No.	Roll No	Name
1	190040593	AISWARYA S T P
2	190040109	DARSHAN SURANA
3	190049004	PENTYALA KISHAN
4	190040098	CHINTHAMANU BAPU REVANTH
5	190040618	VASIREDDY SAI KUMAR
6	190040468	SHAIK GOUSE RABBANI
7	190040497	SUGGULA LAKSHMI SATYANARAYANA
8	190040040	BANDI HARSHITHA
9	190040293	MAGANTI LAKSHMI SARVANI
10	190040608	NARRA KARTHIKEYA
11	190040677	MATURU JAYANTH
12	190040329	MEKALA SAI LAKSHMI PRIYA
13	190040097	VENKATA GOWREE SANKAR CHINTADA
14	190040363	NARRA CHAITANYA
15	190049013	KOLA REVATHI
16	190040140	GAVINI RUPA RANI
17	190040373	NUNE BHAVYASRI
18	190040079	CHANDANA SAI NIKHITHA
19	190040310	MANNE MADHURI
20	190040089	CHIKKARAJU ARUN
21	190040182	JAGATA PALLAVI
22	190040334	MOHAMMAD IRFANULLAH
23	190040489	SRAVYA NAGA VENKATA SAI LAKSHMI CHIRUVOLU
24	190040354	MUTNURU VENKATA ABHISHEK
25	190040338	MONINGI PRIYANKA
26	190040054	JOGI REDDY BETHI
27	190040377	P AKHIL REDDY
28	190040416	PRATAP DOLLY LAKSHMI BHAVANI
29	190040104	DANDA SAI VIJAY
30	190040340	MORA ASHA DEEPTHI
31	190040415	PARASARAM SUSEEL KOUSIC
32	190040449	SAMIRAJU SAI BHANUTEJA
33	190040551	VEERANKI RADHIKA DEVI
34	190040550	VEERANKI LAVANYA
35	190040026	ANKARAJU SRI KRISHNA HEMANTH
36	190040027	ANNA BHARGAV PRASANNA KUMAR
37	190049007	YERRAMSETTI VENKATA KISHORE
38	190040047	BATTINA ROOP TARUN
39	190040522	TORATI AJAY CHANDRA
40	190040548	VEDALA RAMA LAHARI



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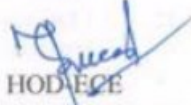
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41	190040548	VEDALA RAMA LAHARI
42	190040187	JASHTI GOPI NATH
43	190040574	VULLI RAMANI LASYA
44	190040576	Y OMKAR VENKATA SAI ABHINAV
45	190040285	M NIKHITHA

  
HOD/ECE  
Dr. M. Suman  
**Dr. M. SUMAN**  
Professor & Head  
Department of ECE  
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