KONERU LAKSHMAIAH EDUCATION FOUNDATION
(Deemed to be University estd, u/s, 3 of the UGC Act, 1956)
(NAAC Accredited "A++" Grade University)
Green Fields, Guntur District, A.P., India – 522502
Department of Electronics and Communication Engineering
(DST - FIST Sponsored Department)

FACULTY DEVELOPMENT PROGRAMME - REPORT

Ref. No: KLEF/RO/HOD-ECE/2020-21 Date: 01.06.2021

Name of the department : Electronics and Communication Engineering

Title of the FDP : "INTEGRATION OF RENEWABLE ENERGY AND SMART GRIDS FOR SMART CITIES"

Organized dates : From **14.06.2021** To **19.06.2021**

Mode : Virtual mode (Online)
Level National/International : International
Name of the Coordinator(s) :

Chair Persons	**Conveners**	**Co-conveners**
Dr. V. K. Mittal, Department Chair Dr. M. Suman, HoD, ECE, KLEF Dr. L. Koteswararao, Principal, College of Engineering, KLH Dr. M. Goutham, HoD, ECE, KLH Dr.D.Venkata Ratnam, HoD (Research), ECE, KLEF Dr. K. Srinivasarao, MERG Group Head Dr. P. Satyanarayana, IoT stream Head, ECE, KLEF	Dr. Arunmetha S **Co-conveners** DR.Lakshman Pappula Dr.Sai Krishna Santosh G Dr. C. Santhosh	Dr. S. Sunithamani Dr. Bhanu Chandra Dr.Sd.Inthiyaz Dr. Biswajit Jena Dr. Atul Kumar Ms.Lakshmi Prasanna

No. of Participants : In-house: **61** Outside: **51** (3 Abroad)
No. of faculty members benefited by the FDP
Within the department : **46**
Other department : **15**

Total amount allotted for FDP : 70,000/-

Total Income from external participants : 29,200/-

Total expenditure incurred for the FDP : 83,000/-

Amount generated for Corpus fund (if any) : Nil
Recorded Session and Details :
https://drive.google.com/drive/folders/1mayo5TZRRbHu6p0SqIud_-Hg6cgsyHG0?usp=sharing

Signature of the Convener Signature of the department

Forwarded by

HOD

Encl: a/a

SUMMARY OF TECHNICAL REPORT

A One-week Faculty Development Program (FDP) on "Integration of Renewable Energy and Smart Grids for Smart Cities" Organized by IoT and Renewable Energy & Smart Cities Sub Stream under Micro Electronics Research Group (MERG), Department of ECE, KLEF along with ECE, KL Hyderabad in association with IETE Vijayawada Chapter.

As per the calendar of events for this Academic year, an international level FDP program has been organized during 14th to 19th June 2021 under MERG.

OBJECTIVE:

This FDP aims to provide a platform for academicians, engineers, and researchers to learn present technologies in the areas of renewable energy, solar power systems, wind energy, the integration of distributed generation, smart grids and energy storage form the model of a smart grid to ensure high-efficiency and high-performance operation in smart cities. To make aware the participants in power sector about the concepts of smart city. This FDP aims to put together the speakers from these areas to disseminate their knowledge and experience for the listeners to work in years to come, which will also be useful for the development of the country. The ideas on operation of centralized and decentralized control, forecasting, and evaluation of different market policies may be highlighted through case study. It is expected that this course will be suitable for engineering professionals from academia, R&D organizations as well as industries.

CONTENT COVERED

- Importance and Recent Challenges in Renewable Energy Sources
- Solar Photovoltaic cells and solar power system
- Wind energy and other renewable energy
- Grid Integration, Renewable energy sources, and storage
- Introduction to Smart Grid
- Challenges in implementing Smart Grid Technologies in India
- Role of IoT in smart grids and smart cities

- Importance of the emerging role of Smart Grids for smart cities.
- Hands-on Sessions in relevant topics

SCOPE OF THE PROGRAM

The modern society is heavily dependent on the electric power supply. The quality and continuity of the electric power supplied is also very important for deployment of resilient and efficient energy systems. Advanced power electronic systems, affordable high-performance devices and smart energy management principles are deemed to be an integral part of renewable, green, and efficient energy systems. The Initiative to make the future grid intelligent has redefined the way the energy is distributed and consumed. At the heart of this revolution, energy suppliers and retailers are investing in wireless Internet of Things (IoT) technologies to re-imagine the power grid into smart grids. The Smart Grid is confluence of information, communications & electrical technologies for efficient grid operations. The Smart Grid training programs will help the participant to understand the fundamentals of main components, operation, management, security, planning and different hierarchical control levels. The evolution of the Smart Grid has now become critical to the development of sustainable energy provision. The uptake of Smart Grid requires the complex integration of communications and information systems with the conventional power grids and networks.

RESOURCE PERSONS

The sessions are delivered by eminent professors from IIT, NIT, NIWE, NISE, Foreign Universities, Central Universities, and Industrialists.

Brochure

Electronics & Communication Engineering

One Week Faculty Development Program

INTEGRATION OF RENEWABLE ENERGY AND SMART GRIDS FOR SMART CITIES

June 14th - 19th, 2021

Organized by
Department of ECE
(DST - FIST Sponsored Department)

In Association with
The Institution of Electronics and Telecommunication Engineers (IETE)
Vijayawada Chapter

Registrations Link

https://forms.gle/f6uiSFad3xepkduH9

E-Certificate will be provided to all the participants

www.kluniversity.in

OBJECTIVE OF THE PROGRAM

This FDP aims to provide a platform for the academicians, engineers, and researchers to learn present technologies in the areas of renewable energy, solar power systems, wind energy, the integration of distributed generation, smart grids and energy storage form the model of a smart grid to ensure high-efficiency and high-performance operation in smart cities. This FDP create the opportunity to put together the speakers from these areas to disseminate their knowledge and experience for the listeners to work in years to come, which will also be useful for the development of the country. The ideas on operation of centralized and decentralized control, forecasting, and evaluation of different market policies may be highlighted through case study.

ABOUT THE INSTITUTION

The Koneru Lakshmaiah Charities was established as a trust in the year 1980 with its official address at Museum road, Governerpet, Vijayawada and started KL College of Engineering in the Academic year 1980-81. KLEF was established in 1980-81, as KL College of Engineering, which was upgraded to KL College of Engineering Autonomous in 2006 by UGC, and was declared as a Deemed to be University in 2009 by UGC, MHRD Govt. of India. In 2012 as a Deemed to be University the institution was accredited by NAAC with A Grade and later in 2018, was re-accredited by NAAC with A++ grade. In 2019 UGC, MHRD declared this intuition as Category I. The university was also ranked 41 under NIRF 2020.

ABOUT THE DEPARTMENT

Department of ECE was established in 1983. The department has strong back-up of 234 faculty members, specialized in core areas of ECE. Among 87 faculty members are PhD holders and 121 faculty members are pursuing PhD. Department houses several rich industry experience faculties to cater the industry needs into academics. The Department has a total of 7 State of the Art laboratories, 2 Centers of Excellence and 8 Research Centers which are well equipped to the highest level of sophistication and cater to the needs of UG, PG and PhD students. These labs have specific emphasis on Research and Development activities. The Department has 12 Crores worth of Sponsored projects from DST, DLRL, ISRO, DEAL etc. 2000+ International Journal papers, 600+ International Conference papers and 150+ National Conference papers by the faculty. Faculties from Foreign universities are involved in regular teaching activity. Department's academic calendar is highlighted by regular seminars, group discussions, student paper contests,Industry Alliance and Student Personality Development programs for all round development of students in National & International events. Student associations namely 'Pulse' to conduct technical events and 'Hope' to conduct social service activities. Placement in leading core communication companies like Amphenol Antennas, BSNL, MTNL, Reliance Communications, Tata Telecom, Hutch, Bharti Telecom, Nokia, CISCO, IBM, Intel, Agilent, Alcatel, AT & T Ericsson, Honeywell, Bosch, National Instruments, Texas Instruments, HCL and others.

CONTENT OF FDP TO BE COVERED

- ✓ Importance and Recent Challenges in Renewable Energy Sources.
- ✓ Solar Photovoltaic cells and solar power system.
- ✓ Wind energy and other renewables.
- ✓ Grid Integration, Renewable energy sources, and storage
- ✓ Introduction to Smart Grid.
- ✓ Challenges in implementing Smart Grid Technologies in India.
- ✓ Smart Grid Technologies and its Applications.
- ✓ Role of IoT in smart grids & smart cities.
- ✓ Smart Grid and Electric Vehicle (EV) Technologies.
- ✓ Hands-on Sessions in relevant topics.

RESOURCE PERSONS

The sessions will be delivered by eminent professors from IIT, NIT, NISE, CSIR, Foreign Universities, Central Universities, and Industrialists.

REGISTRATION AND PARTICIPATION DETAILS

- ✓ This FDP is for Faculty members, Scientists, Research scholars, PG Scholars, Students and participants from Government and Industry. **(Both India and Abroad)**
- ✓ **Platform:** The FDP will be conducted in Online mode (webex).
- ✓ **Certificate:** On completion of the course, all participants will be receive a digital certificate.
- ✓ Participants interested to attend this program should register online in the below mentioned links:

  https://forms.gle/f6uiSFad3xepkduH9

- ✓ Seats are limited (only 250) and the participants are selected by organizers on first come first serve basis.
- ✓ **Last date for registration:10.06.2021**

REGISTRATION FEE

	Indian	Foreign
Industry	Rs. 500/-	10 USD
Faculty Member / Scientist	Rs. 300/-	8 USD
Research Scholar and Student	Rs. 200/-	5 USD

WIRE INFORMATION

Account Name : Registrar, KLEF
Account Number : 62310916292
IFSC Code : SBIN0021361
Bank Name : SBI, K L University Vaddeswaram

ORGANISING COMMITTEE

GENERAL CHAIRS

Dr. V. K. Mittal, Professor & Chair, ECE, KL
Dr. L Koteswara Rao, Principal, Engineering, KLH

PROGRAM CHAIR

Dr. Suman Maloji, Professor & Hod, ECE, KL
Dr. M. Goutham, Associate Professor & Hod, ECE, KLH
Dr. D. Venkata Ratnam, Professor & Hod(Research),ECE, KL

TECHNICAL CHAIR

Dr. K. Srinivasa Rao, Professor & Mems Group Head,ECE,KL
Dr. P. Satyanarayana, Professor & Iot Steam Head,ECE,KL

CONVENER

Dr. S. Arunmetha, Associate Professor, Dept. of ECE, KL

CO-CONVENER

Dr. Lakshman Pappula, Associate Professor, Dept.of ECE,KL
Dr. Sai Krishna Santosh G, Associate Professor, ECE, KL
Dr. C. Santhosh, Associate Professor, Dept. of ECE, KL

COORDINATORS

Dr. Sunithamani, Associate Professor, Dept. of ECE, KL
Dr. Bhanu Chandra, Associate Professor, Dept. of ECE, KLH
Dr. Sd. Inthiyaz, Associate Professor, Dept. of ECE, KL
Dr. Biswajit Jena, Assistant Professor, Dept. of ECE, KL
Dr. Atul Kumar, Associate Professor, Dept. of ECE, KL
Ms. Lakshmi Prasanna, Assistant Professor, Dept. of ECE,KL

GUEST & EMINENT SPEAKERS

Inaugural Function

Chief Guest

Dr. R.K. Kotnala, FNASc, FIGU
Chairman, (NABL)
National Accreditation Boardof T&C Labs
Raja Ramanna Fellow
Department of Atomic Energy (DAE)

Valedictory Function

Chief Guest

Dr. N. Sundararajan
Professor (Retd.), EEE, NTU
Singapore

Hands on Training & Demo Session

DAY-6
19th JUNE 2021

Dr. Yogesh Kumar Singh
Ex Senior Research Scientist
National Institute of Solar Energy Gurugram Haryana India
Topic:
"Solar Power System Design Using PVSYST and PVSOL"

Yoga and Stress Management Sessions

Sri. A. Venkateswalu
Principal and Chairman
VTJM&IVTR Degree College
Topic: "Yoga and Stress Management"

DAY - 2 to 5
15th to 18th JUNE 2021

DAY-1 - 14th JUNE 2021

SESSION-I

Prof. Anil Kottantharayil
HAL Chair Professor, IIT Bombay
Topic: "A Tutorial on Photovoltaic Technology"

SESSION-II

Dr. Mustafa Alkhusheiny
CEO, Silicon Valley for Nanotechnology Co
Saudi Arabia
Topic: "Business and implementing best development strategies for operational excellence"

SESSION-III

Dr. Senthilarasu Sundaram
Senior Lecturer
Renewable Energy University of Exeter, UK
Topic: "A Third Generation Photovoltaic System"

DAY-2 - 15th JUNE 2021

SESSION-I

Prof. Chetan Singh Solanki
Professor, IIT Bombay
Founder, Energy Swaraj Foundation
Topic:
"Energy Swaraj: Essence of Sustainability"

SESSION-II

Dr. S. N. Karthick
Assistant Professor, Department of Chemistry
Bharathiar University, Coimbatore
Topic: "Recent Trends in Solar Energy Harvesting"

SESSION-III

Er. Christie Fernandez
Founder, Soooryа EV Pte Ltd., Singapore
Topic:
"Powering Electric Vehicles with Solar Energy"

DAY-3 - 16th JUNE 2021

SESSION-I

Dr. Dipankar Debnath
Assistant Professor, IIT Kharagpur
Topic: "Challenges of grid integration of Single-phase solar inverter"

SESSION-II

Dr. M. Sathish
Senior Scientist
Electrochemical Power Sources Division
CSIR-CECRI, Karaikudi
Topic: "Recent Trends in Energy Storage System"

SESSION-III

Er. Vijay Kumar
Sr Design Engineer, Green Cubes
Technology Corporation, Bangalore
Topic: "Electric vehicle batteries"

Session-I: 10am to 11.30am; **Session-II:** 12pm to 1.30pm; **Session-III:** 3pm to 4.30pm

DAY-4 - 17th JUNE 2021

SESSION-I

Er. Ramchander Nirudi
Associate professor &
Consultant Solar & EV projects
Topic: "Best practices in operation & maintenance of solar systems with case study"

SESSION-II

Dr. V. Mayilvelnathan
Professor & Head,
Mohamed Sathak Engineering College
Topic: "Microgrid & Solar Thermal Power plants"

SESSION-III

Er. Sharda Jadon
Product Development Engineer
LM Wind Power (GE Renewable) , Bangalore
Topic: "Design and Development of Wind Energy System"

DAY-5 - 18th JUNE 2021

SESSION-I

Dr. M. Venkateshkumar
Asst. Proff. (Sr.G), Amrita School of Eng.,
Amrita Vishwa Vidyapeetham
Chennai Campus
Topic: "AI based Smart Grid Integration of Renewable Energy System"

SESSION-II

Dr. Pierluigi Siano
Scientific Director
Smart Grids and Smart Cities Laboratory
University of Salerno, Italy
Topic: "Scalability and Privacy Issues of an Extreme-Scale Distributed Parallel Optimization"

SESSION-III

Dr. Imayavaramban Munuswamy
President and CTO - IC Tech Puducherry
Topic: "Trends in EV Technology"

"Registrations are on a first-come, First-served basis... So register early"

For Further Correspondence

Convenor
Renewable Energy FDP
Department of ECE
Mobile: +91 99948 31313
E- Mail: sarunmetha@kluniversity.in;
klefecefdp@gmail.com

KONERU LAKSHMAIAH EDUCATION FOUNDATION
K L Deemed to be University
Green Fields, Vaddeswaram
Guntur District, Andhra Pradesh, Pin: 522 502
Ph: 08645-350200 | www.kluniversity.in

Department of
Electronics & Communications

One-week Faculty Development Program (FDP) on

Integration of Renewable Energy and Smart Grids for Smart Cities

On 14th June 2021 to 19th June 2021

Time Schedule

Time / Days	9.00-10.00	10.00-11.30	11.30-12.00	12.00-1.30	1.30-3.00	3.00-4.30
DAY-1 14.6.2021	**Inauguration** **Chief Guest** **Dr.R.K.Kotnala, FNASc, FIGU** Raja Ramanna Fellow (Dept. of Atomic Energy) Chairman, National Accreditation Board for Testing & Calibration Laboratories (NABL)	**Prof. Anil Kottantharayil** HAL Chair Professor, IIT Bombay **A Tutorial on Photovoltaic Technology**	**Tea Break**	**Dr. Mustafa Alkhusheiny** CEO, Silicon Valley for Nanotechnology Co Saudi Arabia **Business and implementing best development strategies for operational excellence**	**Lunch Break**	**Dr Senthilarasu Sundaram** Senior Lecturer Renewable Energy University of Exeter, UK **A Third Generation Photovoltaic System**
DAY-2 15.6.2021	**Sri. A. Venkateswalu** Principal and Chairman VTJM&IVTR Degree College **Yoga and Stress Management Session-1**	**Prof. Chetan Singh Solanki** Professor, IIT Bombay and Founder, Energy Swaraj Foundation **Energy Swaraj: Essence of Sustainability**	**Tea Break**	**Dr. S. N. Karthick** Assistant Professor Department of Chemistry Bharathiar University Coimbatore **Recent Trends in Solar Energy Harvesting**	**Lunch Break**	**Er. Christie Fernandez** Founderl Sooorya EV Pte Ltd. Singapore **Powering Electric Vehicles with Solar Energy**
DAY-3 16.6.2021	**Sri. A. Venkateswalu** Principal and Chairman VTJM&IVTR Degree College **Yoga and Stress Management Session-2**	**Dr. Dipankar Debnath** Assistant Professor, IIT Kharagpur **Challenges of grid integration of Single-phase solar inverter**	**Tea Break**	**Dr. M. Sathish** Senior Scientist Electrochemical Power Sources Division CSIR-CECRI, Karaikudi **Recent Trends in Energy Storage System**	**Lunch Break**	**Er. Vijay Kumar** Sr Design Engineer Green Cubes Technology Corporation Bangalore Urban **Electric vehicle batteries**
Time / Days	**9.00-10.00**	**10.00-11.30**	**11.30-12.00**	**12.00-1.30**	**1.30-3.00**	**3.00-4.30**
DAY-4 17.6.2021	**Sri. A. Venkateswalu** Principal and Chairman VTJM&IVTR Degree College **Yoga and Stress Management Session-3**	**Er. Ramchander Nirudi** Associate professor & Consultant Solar & EV projects **Best practices in operation & maintenance of solar systems with case study**	**Tea Break**	**Dr. V. MAYILVELNATHAN** Professor & Head, Mohamed Sathak Engineering College **Microgrid & Solar Thermal Power plants**	**Lunch Break**	**Er. Sharda Jadon** Product Development Engineer LM Wind Power (GE Renewable), Bangalore **Design and Development of Wind Energy System**
DAY-5 18.6.2021	**Sri. A. Venkateswalu** Principal and Chairman VTJM&IVTR Degree College **Yoga and Stress Management Session-4**	**Dr. M. Venkateshkumar** Assistant Professor (Sr.G) , Amrita School of Engineering, Amrita Vishwa Vidyapeetham, Chennai Campus. **"AI based Smart Grid Integration of Renewable Energy System"**	**Tea Break**	**Dr. Pierluigi Siano** Scientific Director, Smart Grids and Smart Cities Laboratory, University of Salerno, Italy **Scalability and Privacy Issues of an Extreme-Scale Distributed Parallel Optimization**	**Lunch Break**	**Dr. Imayavaramban M** President and CTO - IC Tech Puducherry **Trends in EV Technology**
DAY-6 19.6.2021	**Final Online Test**	**Industry Hands on Session (Demo & Training)** **Solar Power System Design Using PVSYST and PVSOL** **Dr. Yogesh Kumar Singh** **Ex Senior Research Scientist** **National institute of Solar Energy** **Gurugram Haryana India**				**Feedback & Valedictory** **Chief Guest** **Dr. N. Sundararajan** **Professor (Retd.), EEE, NTU** **Singapore**

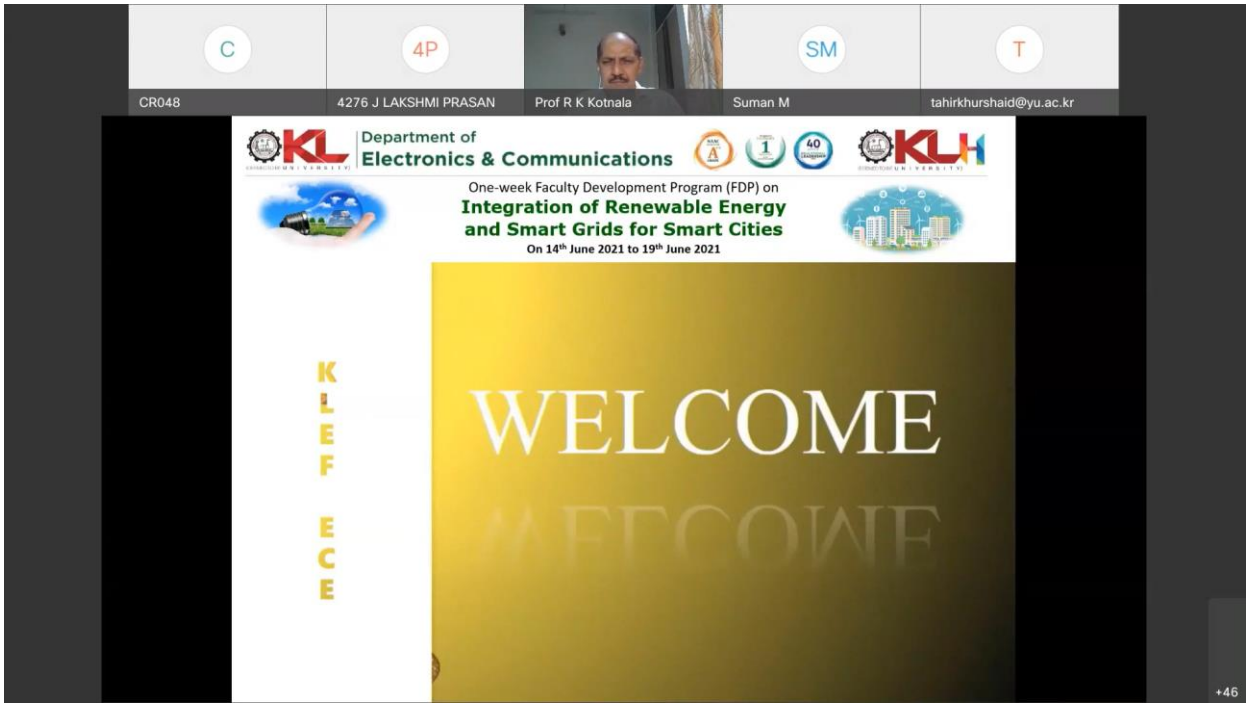
Convenor - Dr. S. Arunmetha, Associate Professor, ECE, KLEF; Mobile: +91 99948 31313; E- Mail: sarunmetha@kluniversity.in; sarunmetha@gmail.com

Inaugural Function

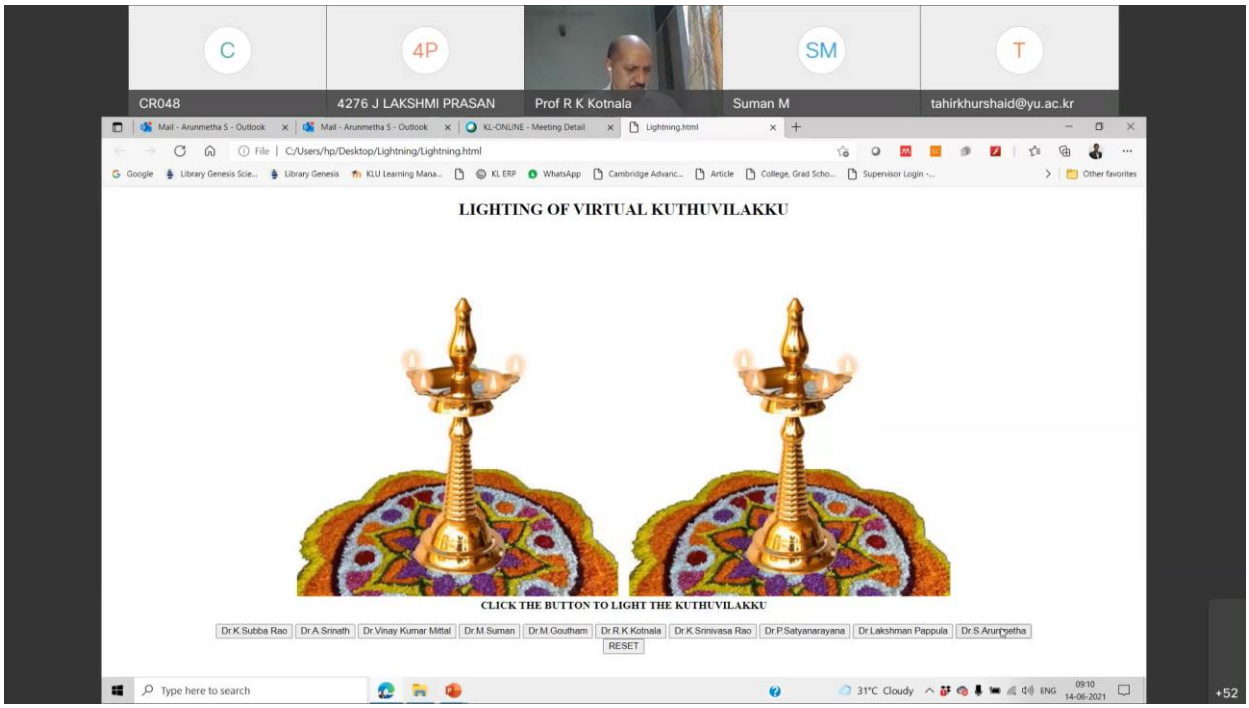
Inaugural Function

Inaugural Function

Prayer Song



Lighting of Kuthuvilakku



Department of
Electronics & Communications

One-week Faculty Development Program (FDP) on

Integration of Renewable Energy and Smart Grids for Smart Cities

On 14th June 2021 to 19th June 2021

Inaugural Function

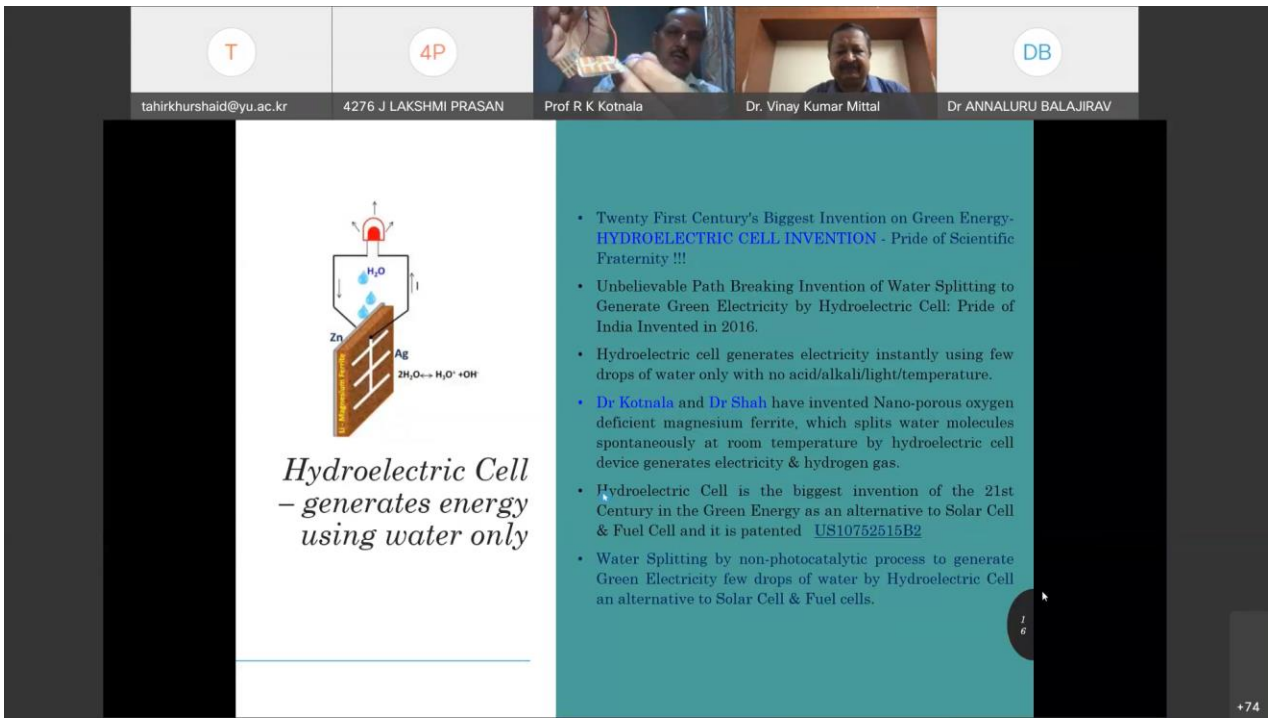
14th June 2021
9.00 am – 10.00 am

Inaugural Address

Hydroelectric Cell - Green Electricity

Chief Guest

Dr. R.K. Kotnala, FNASc, FIGU
Chairman, (NABL)
National Accreditation Board of T&C Labs
Raja Ramanna Fellow
Department of Atomic Energy (DAE)

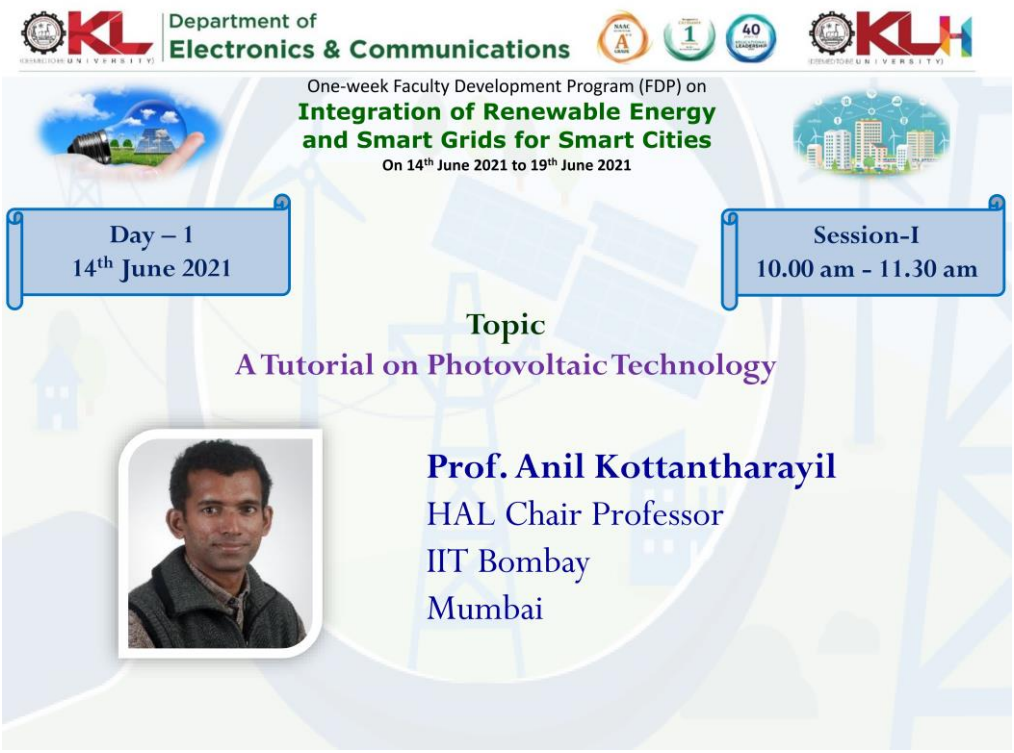


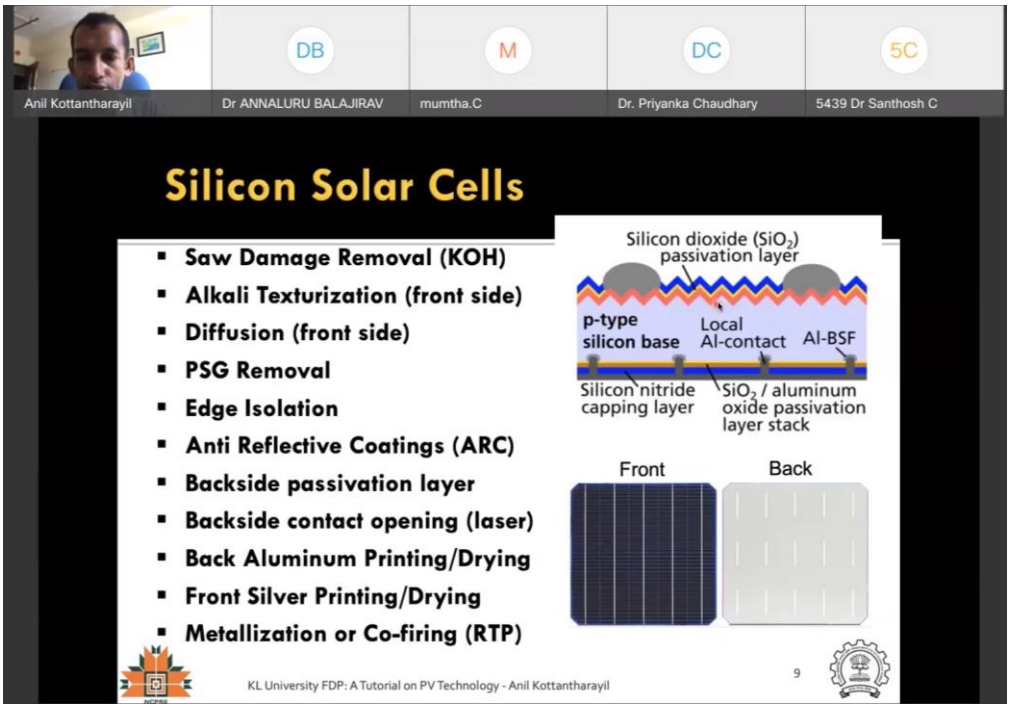
The FDP addresses the various aspects of Advances in Renewable Energy Technologies and promotes student centric effective teaching-learning pedagogy among the participants. This course was aimed for teachers who are teaching various disciplines of science and engineering subjects in colleges or Universities. There were 112 number of participants registered for this program from different Universities, Colleges, and Industries of all the parts of India including few abroad participants.

The Inaugural function start with the formal prayer song and all the dignitaries take part in the Lighting of Kuthuvilaku Ceremony. On behalf of Management and all the dignitaries Prof. M Suman, HoD, ECE, KLEF inaugurated the program. In his inaugural address, Prof. V. Mittal stressed upon the progress and importance of Renewable Energy and Smart grids changes from conventional method to modern technologies towards the development of Smart cities. Prof. A. Srinath, Dean Skill Development & Principal, ASC, KLEF address the gathering by welcoming all the Guest, participants and motivating the participants to take these latest technologies to the growing students.

Prof. R K Kotnala, Chairman NABL was the Chief Guest in the inaugural function. Prof Kotnala spoke about the Hydroelectric Cell for the Green Electricity by Few Drops of Water and explain the working principle and the mechanism of the cell with the practical demonstrations. It was really motivating the young faculties to take part in this kind of requirement, which need to be on the path of Make in India. He also addressed the participants to work on the integration of Renewable energy and Smart grids towards the development of Energy sustainable smart cities.
Prof K. Srinivasarao deliberations creates the curiosity on Smart grids approach in near future among the participants. Dr. S. Arunmetha, Convenor of the FDP, Prof. Kaviya, Prof. Habibulla Khan and IoT and Renewable Energy & Smart Cities Stream Faculties also graced the inaugural function of the program.

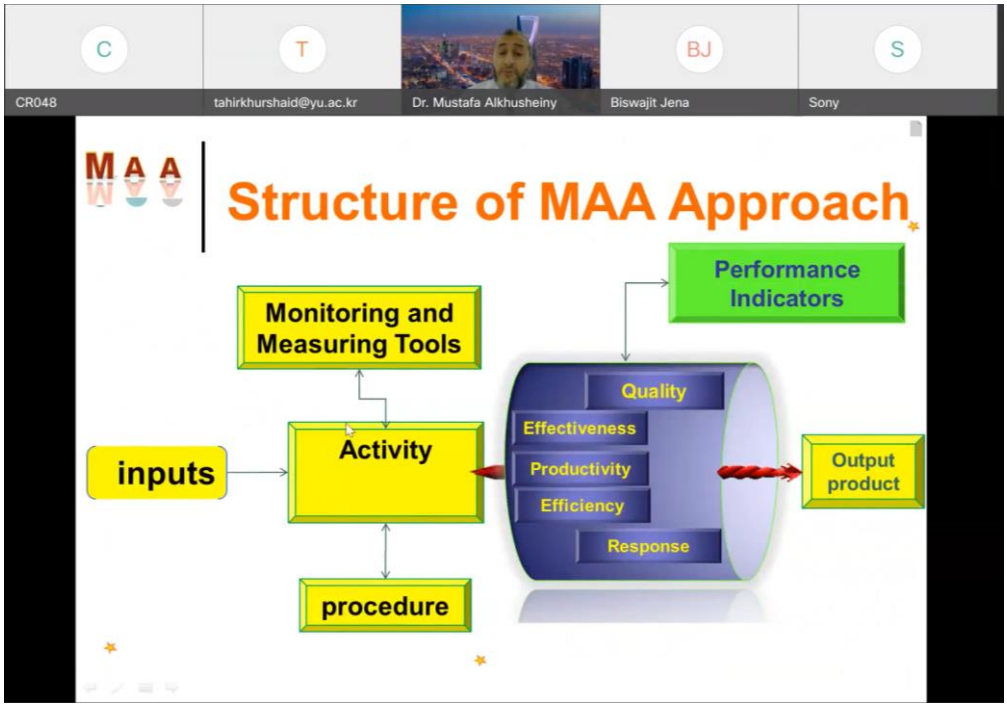
Day-1 (14-06-2021) Session – I (10.00 -11.30)





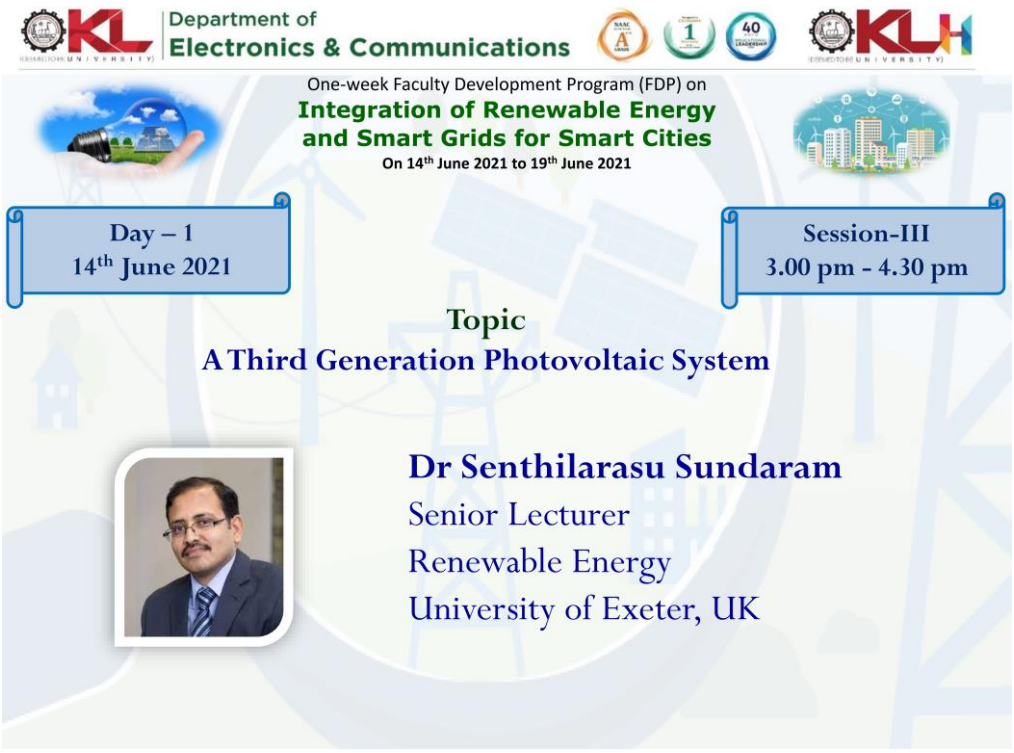
Prof. Anil Kottantharayil, HAL Chair Professor, IIT Bombay, has delivered keynote address on "A Tutorial on Photovoltaic Technology" In this session participants were learned about the state of art of the PV materials, device structure and Band gap of silicon measurements and find efficiency of the PV.

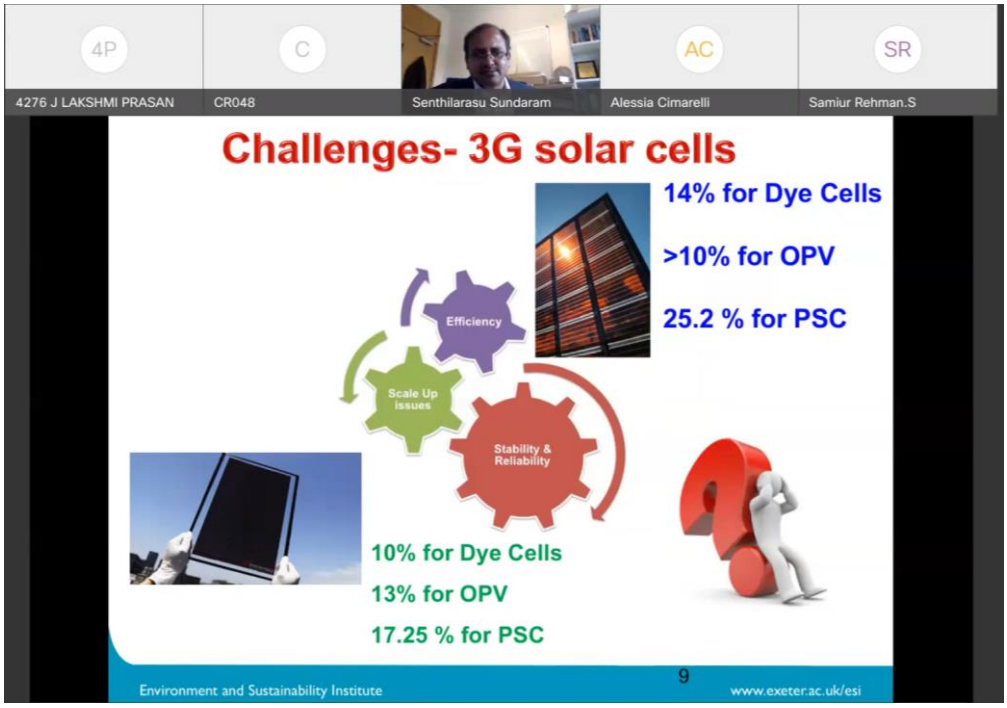
Day-1 (14-06-2021) Session – II (12.00 -1.30)



Dr. Mustafa Alkhusheiny, CEO, Silicon Valley for Nanotechnology Co, Saudi Arabia, has delivered a keynote address on "Business and implementing best development strategies for operational excellence" This session was flooded with theoretical ideas of MAA approach and newer field implemented projects of either Energy or water or transportation in Saudi Arabia is given and including the Manufacturing and Management Systems.

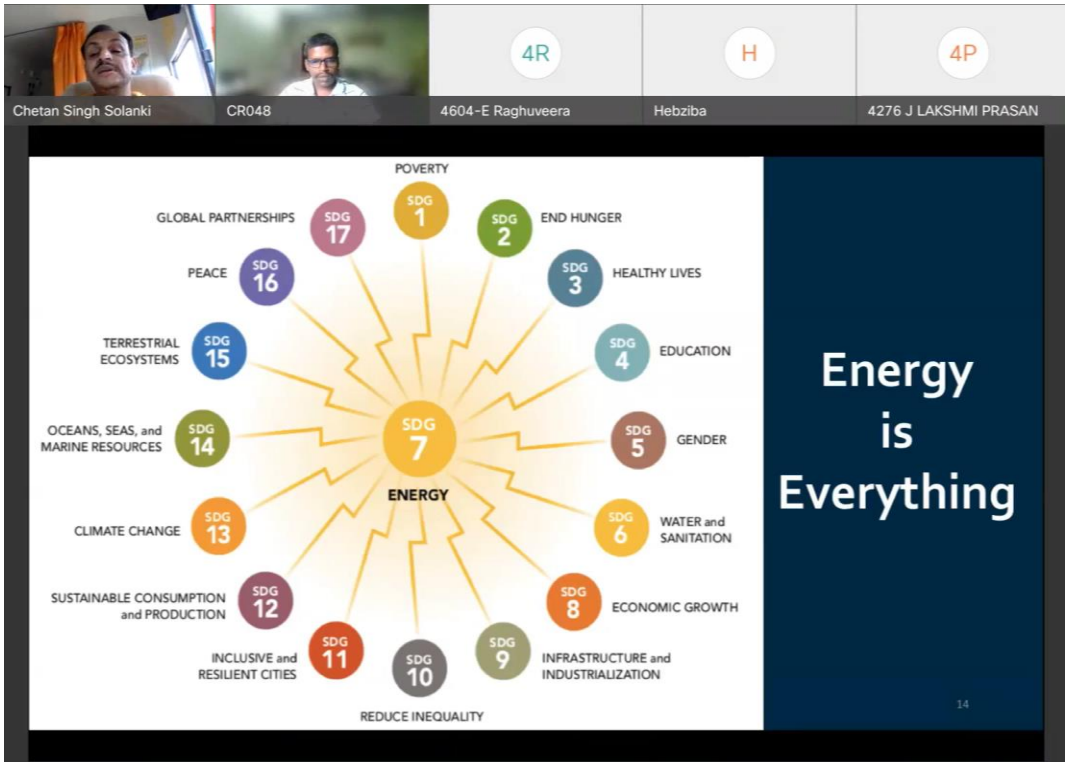
Day-1 (14-06-2021) Session – III (3.00 -4.30)





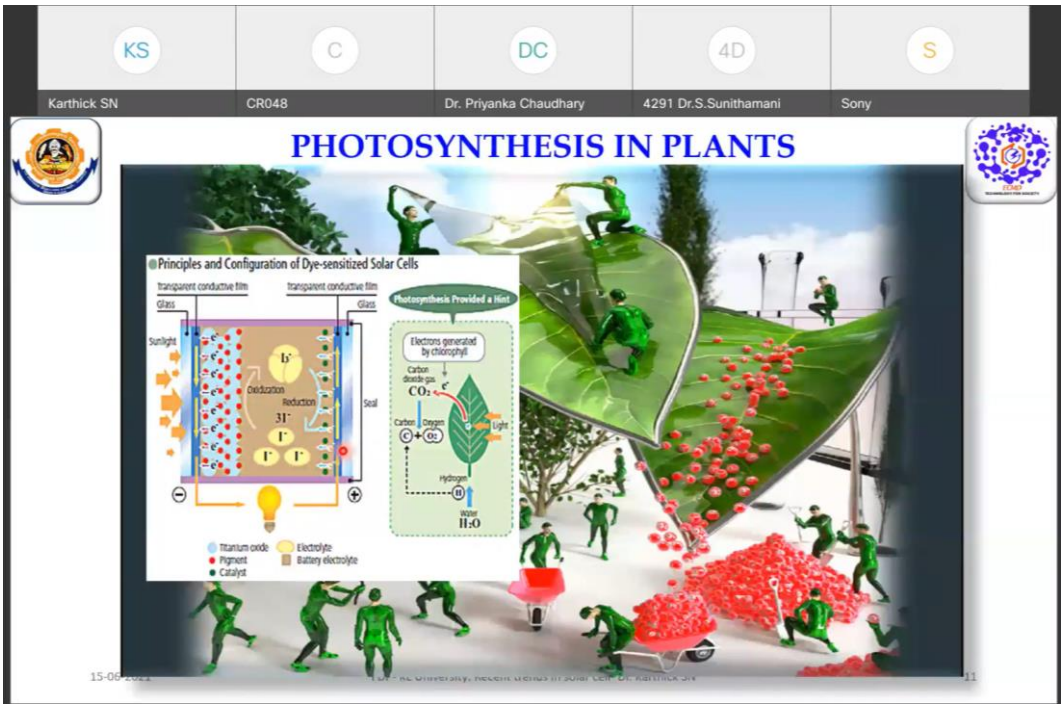
Dr Senthilarasu Sundaram, Senior Lecturer, Renewable Energy University of Exeter, UK, has delivered a keynote address on "A Third Generation Photovoltaic System". He Explained about the Insights and Techniques of Photovoltaic Systems with the possibility of future research aspects. The session was more informative, Knowledge shared about the different generation of solar cells.

Day-2 (15-06-2021) Session – I (10.00 -11.30)



Prof. Chetan Singh Solanki, Professor, IIT Bombay and Founder, Energy Swaraj Foundation Energy Swaraj: Essence of Sustainability. Great Lines (Energy Swaraj) and Great Philosophy!... Greatly Explained. The real time challenges in solar technology, session with present day energy wastages and the importance of conservation of energy. Learned a lot on current solar scenario, the importance and advantages of solar energy.

Day-2 (15-06-2021) Session – II (12.00 -1.30)

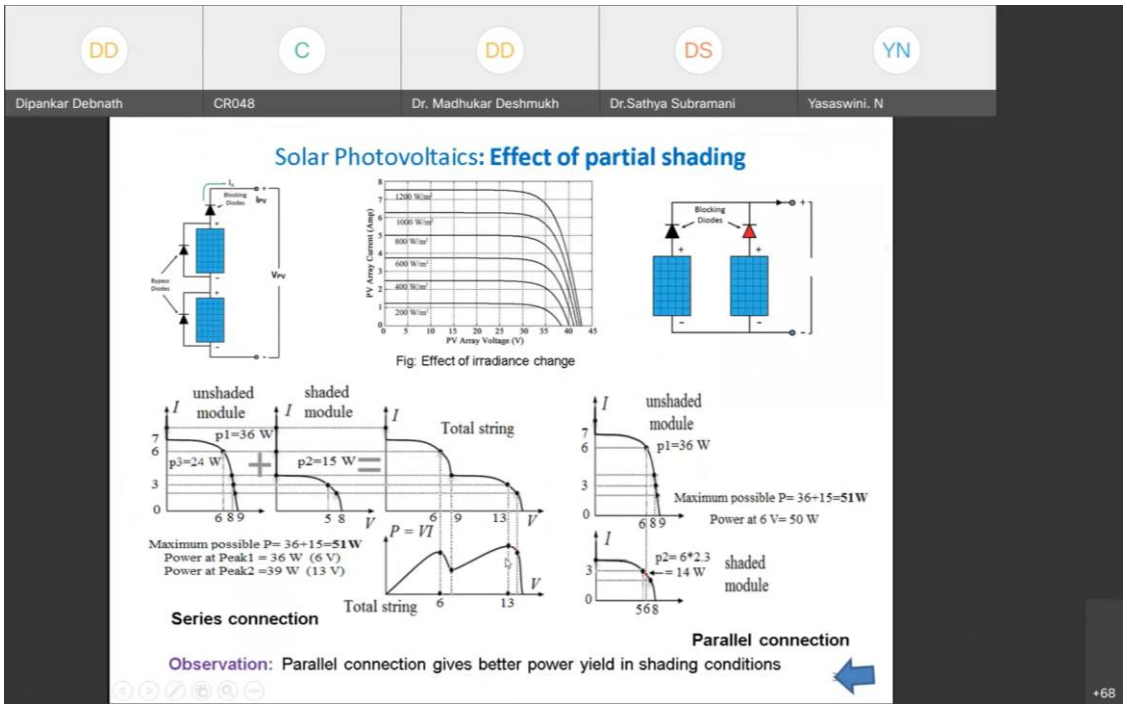


Dr. S. N. Karthick, Assistant Professor Department of Chemistry, Bharathiar University Coimbatore, has delivered a keynote address on "Recent Trends in Solar Energy Harvesting" This session was flooded with basics of solar cells and well Explained about the mechanisms of Dye Sensitized Solar Cells. The use of chemical engineering aspects in the design and fabrication of solar cells.

Day-2 (15-06-2021) Session – III (3.00 -4.30)

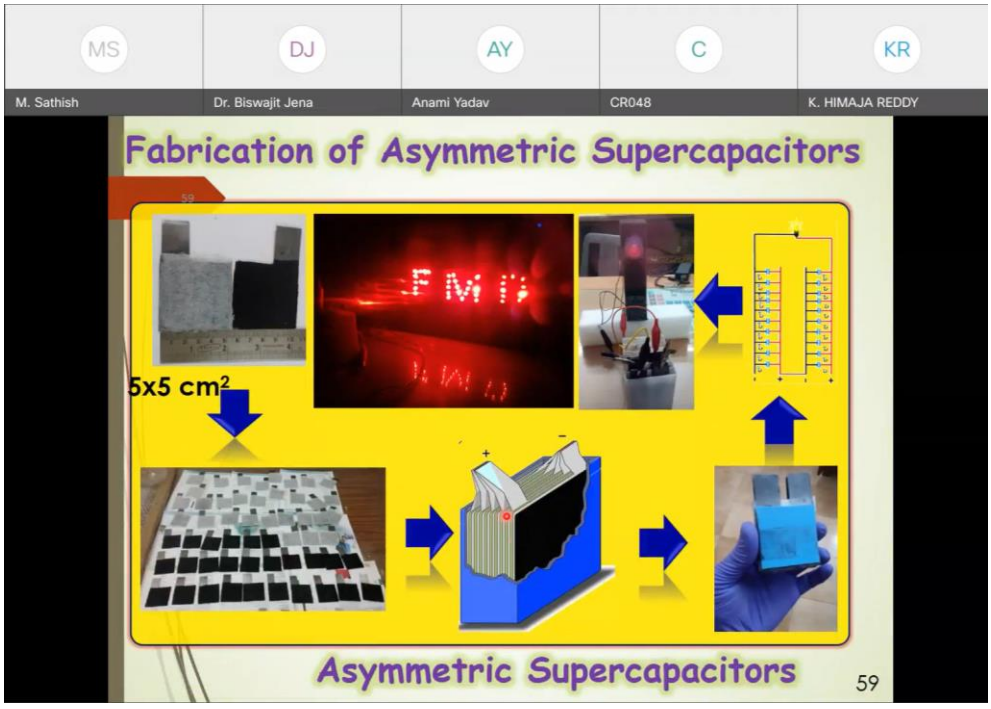
Er. Christie Fernandez, Founder Sooorya EV Pte Ltd, Singapore, has delivered a keynote address on "Powering Electric Vehicles with Solar Energy". He Explained about the different type of vehicle using solar energy with examples and animation, which helps in understanding the concepts. The session was informative and in synchronization with current trends towards solar power in e mobility.

Day-3 (16-06-2021) Session – I (10.00 -11.30)



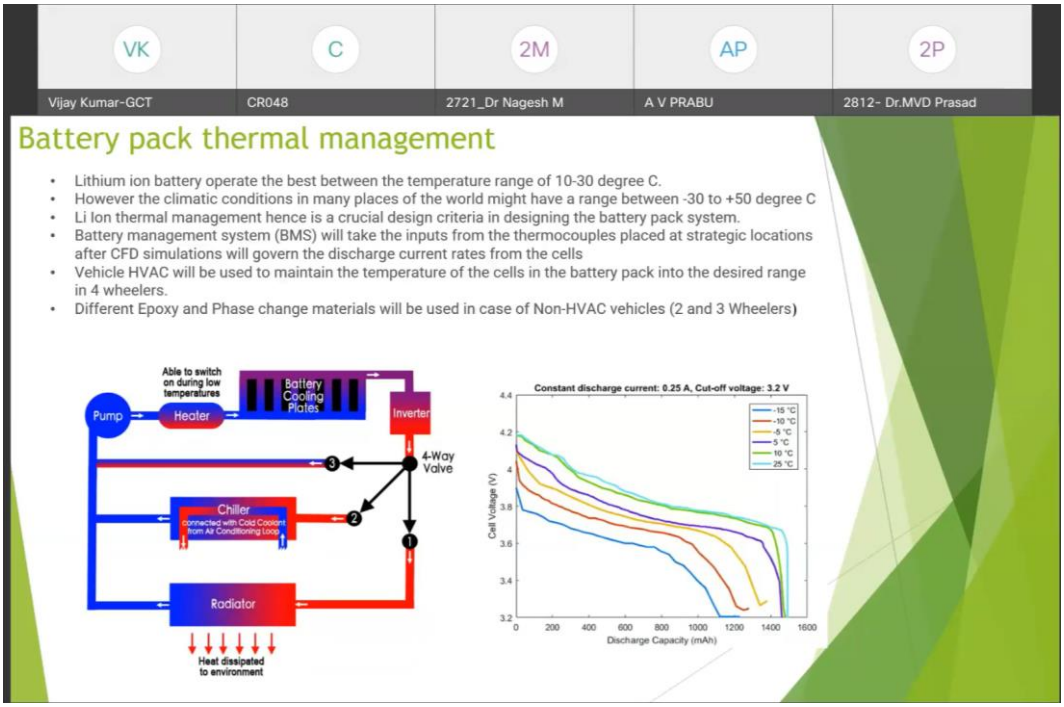
Dr. Dipankar Debnath, Assistant Professor, IIT Kharagpur, has delivered a keynote address on “Challenges of grid integration of Single-phase solar inverter”. In the session, explained about the details of solar power system and Different PV architecture of Solar Panels. Demonstrated about the design of the solar system, Single phase solar inverter, Grid connected Inverter and Analytical power analysis as well PV grid integration challenges.

Day-3 (16-06-2021) Session – II (12.00 -1.30)



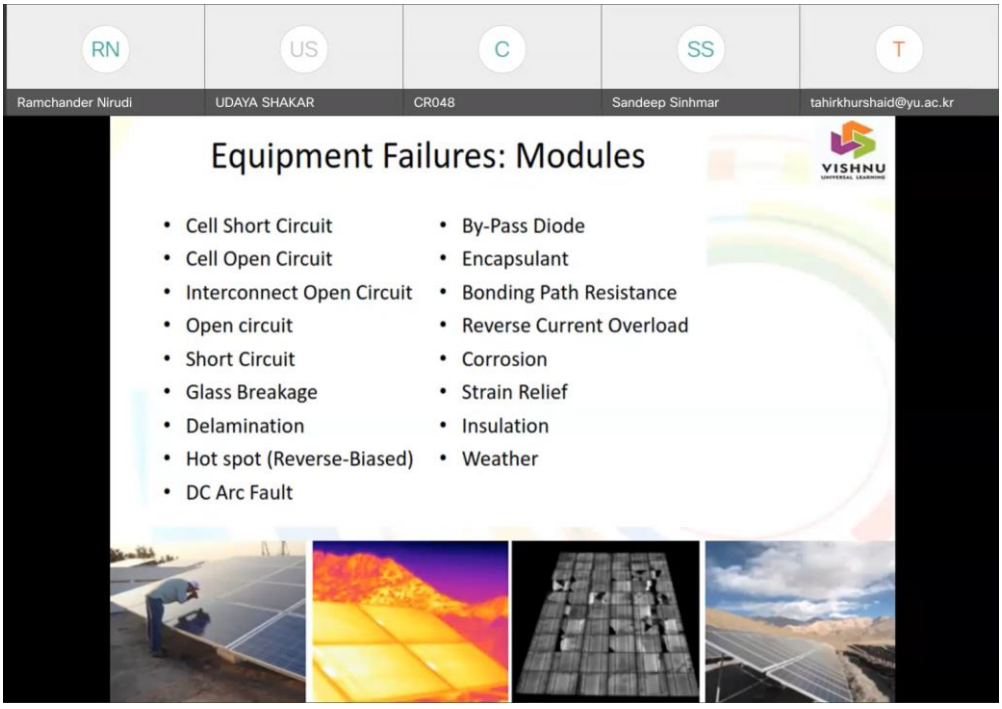
Dr. M. Sathish, Senior Scientist, Electrochemical Power Sources Division, CSIR-CECRI, Karaikudi, has delivered a keynote address on "Recent Trends in Energy Storage System" This session was Insights about the Technicalities and Applications of Energy storage devices like Supercapacitors and batteries. As well explained the combination of latest trends are being presented in grid technology and Storage systems.

Day-3 (16-06-2021) Session – III (3.00 -4.30)



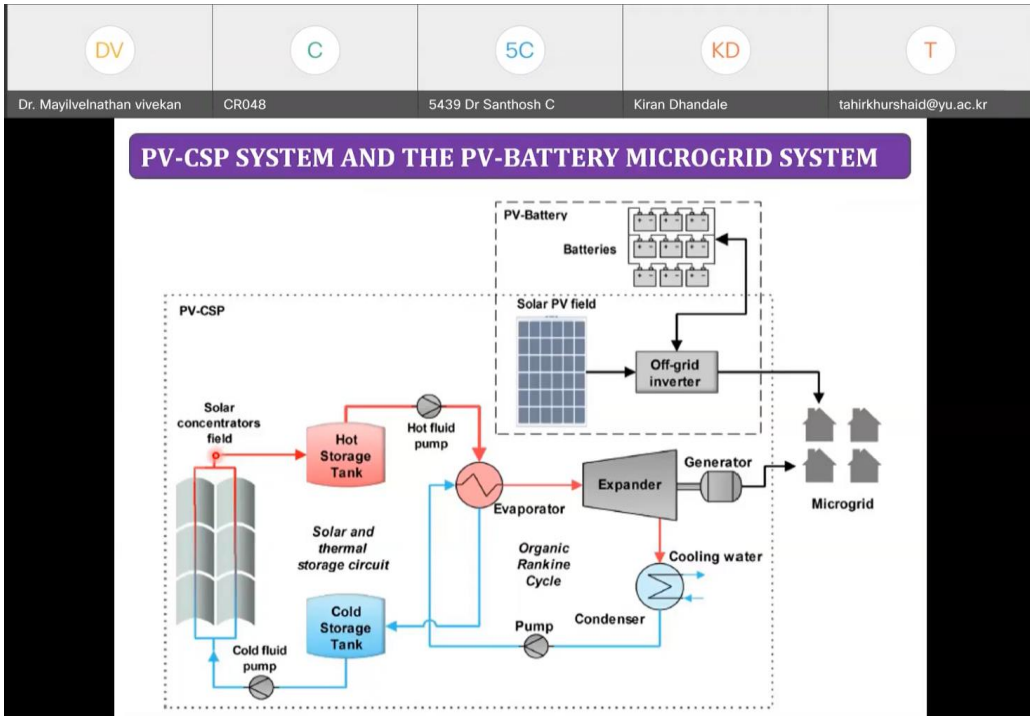
Er. Vijay Kumar, Sr Design Engineer at Green Cubes Technology Corporation, Bangalor, has delivered a informative session on “Electric vehicle batteries”. Lucid explanation to all parts of BMS irrespective of discipline of science and engineering. In this session participants were taught batteries elements, Battery pack mechanical design, benefits and thermal management in industrial perspective.

Day-4 (17-06-2021) Session – I (10.00 -11.30)



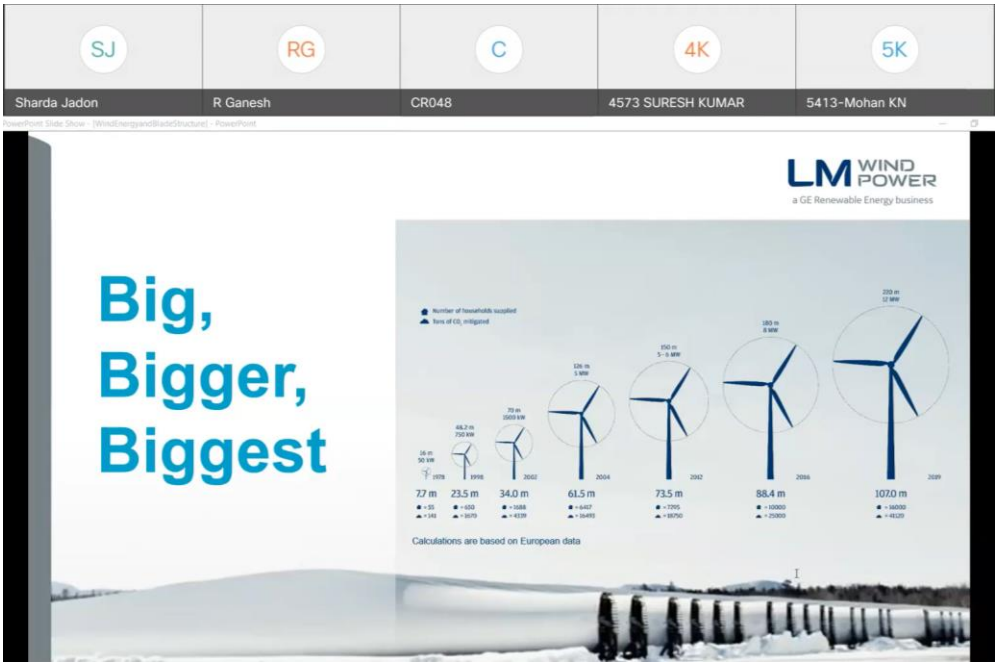
Dr. Ramchander Nirudi, Solar & EV Consultancy/Training/Testing of PV Modules & Systems, Telangana, India, has delivered a keynote address on “Best practices in operation & maintenance of solar systems with case study”. In the session, explained about the importance of renewable energy system and Different approaches for Solar System Maintenance and performance testing and monitoring. The detailed explanation of operation and maintenance employment opportunities to be provided for a smart city.

Day-4 (17-06-2021) Session – II (12.00 -1.30)



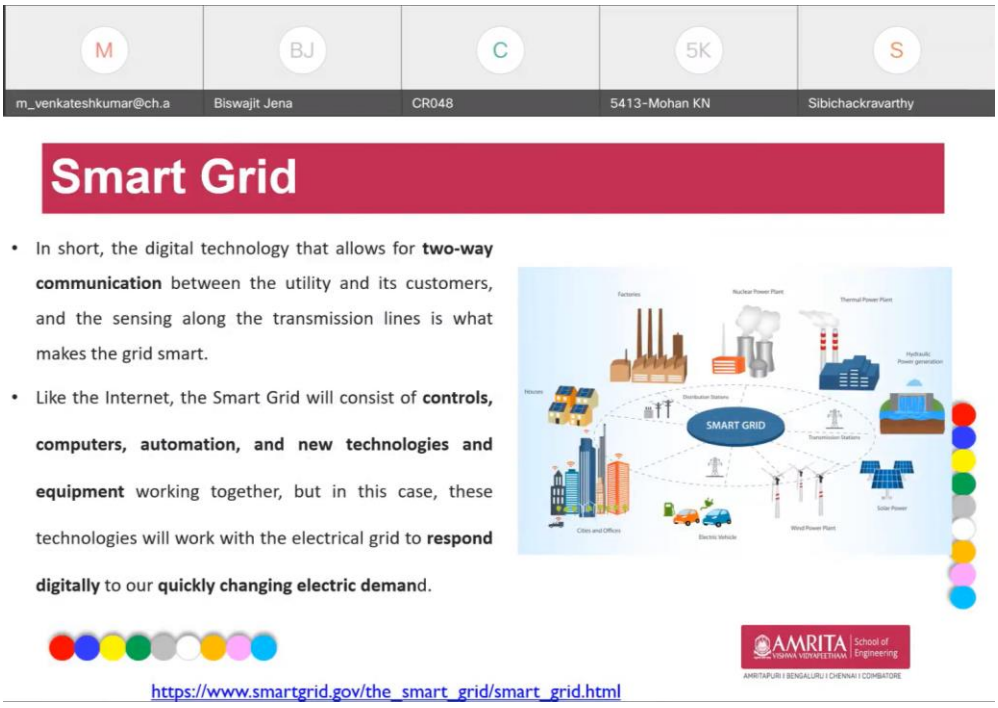
Dr. V. Mayilvelnathan, Professor & Head, Mohamed Sathak Engineering College, has delivered a keynote address on “Microgrid & Solar Thermal Power plants” This session was Insights about the Technicalities and Applications of Concentrated solar power storage systems. As well explained the Internal Details of Micro Grid being presented in importance of role of thermal storage system in the solar thermal systems.

Day-4 (17-06-2021) Session – III (3.00 -4.30)



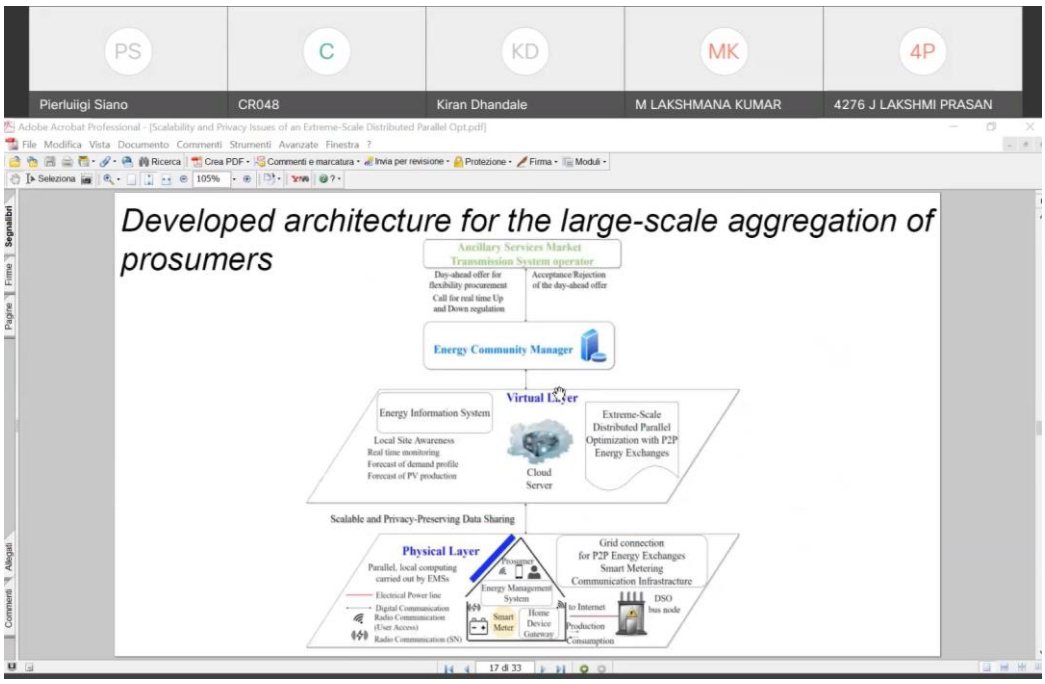
Er. Sharda Jadon, Product Development Engineer, LM Wind Power (GE Renewable), Bangalore, has delivered an informative session on "Design and Development of Wind Energy System". The role of wind energy in the Renewable energy resources, harnessing wind power and its technical details. Basics of wind blade structure and design of Blades leading to Aerodynamics. Wind energy characteristics, participants realized that no competitors for wind blades other than GE.

Day-5 (18-06-2021) Session – I (10.00 -11.30)



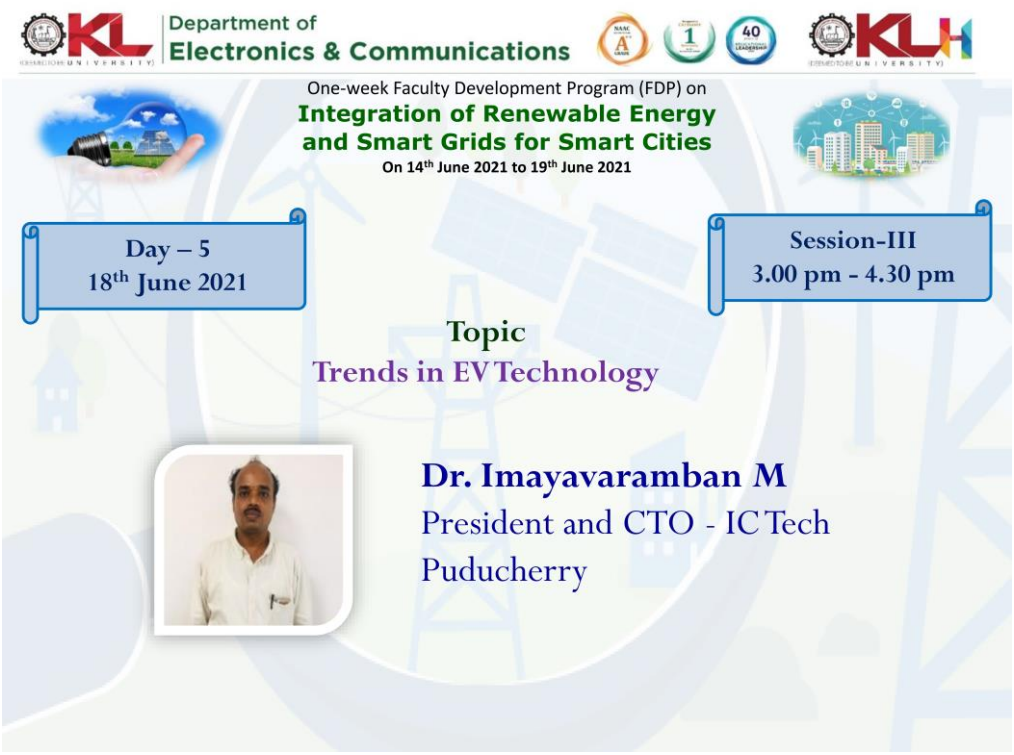
Dr. M. Venkateshkumar, Assistant Professor (Sr.G), Amrita School of Engineering, Amrita Vishwa Vidyapeetham, Chennai Campus, has delivered a keynote address on "AI based Smart Grid Integration of Renewable Energy System". In the session, explained about the AI technology used for power distribution and Excellent Perspective towards AI & ML with mor informative slides. The detailed explanation of Multilevel Inverter topic and DC Converter for smart technologies.

Day-5 (18-06-2021) Session – II (12.00 -1.30)



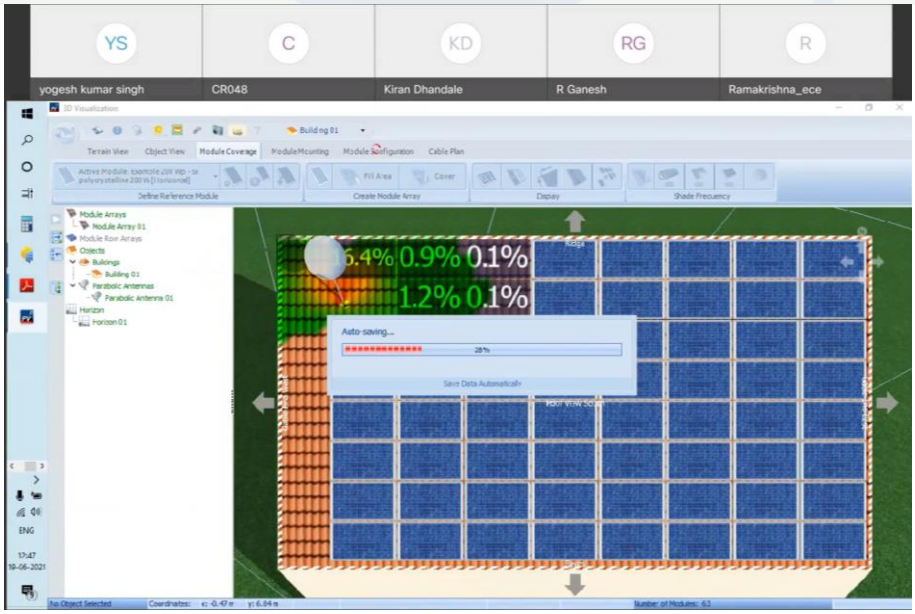
Dr. Pierluigi Siano, Scientific Director, Smart Grids and Smart Cities Laboratory, University of Salerno, Italy, has delivered a keynote address on “Scalability and Privacy Issues of an Extreme-Scale Distributed Parallel Optimization” This session was insights about the Technicalities and Applications of Smart Grids. As well explained the designing of large scale smart grids and optimization, being presented in necessity of smart grids in future.

Day-5 (18-06-2021) Session – III (3.00 -4.30)



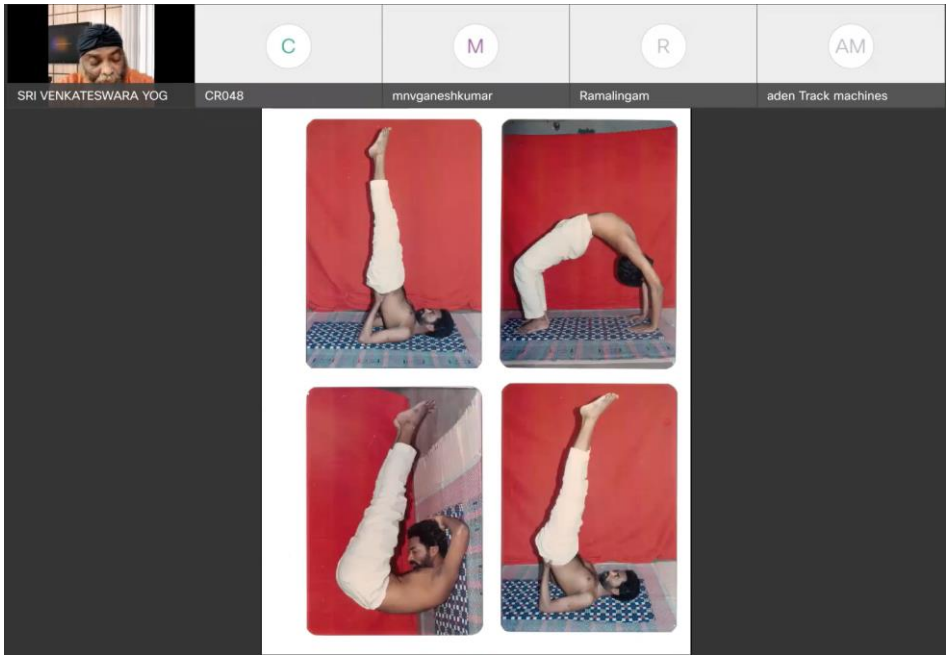
Dr. Imayavaramban M, President and CTO - IC Tech Puducherry, has delivered an informative session on “Trends in EV Technology”. In this session deliver a dissemination of information especially in electronics and mechanical inter disciplinary way from the Basics, construction, research of EV and Future Trends and Technologies in EVs.

Day-5 (19-06-2021) Session – I & II (10.00 - 1.30)
Industry Hands on Session (Demo & Training)



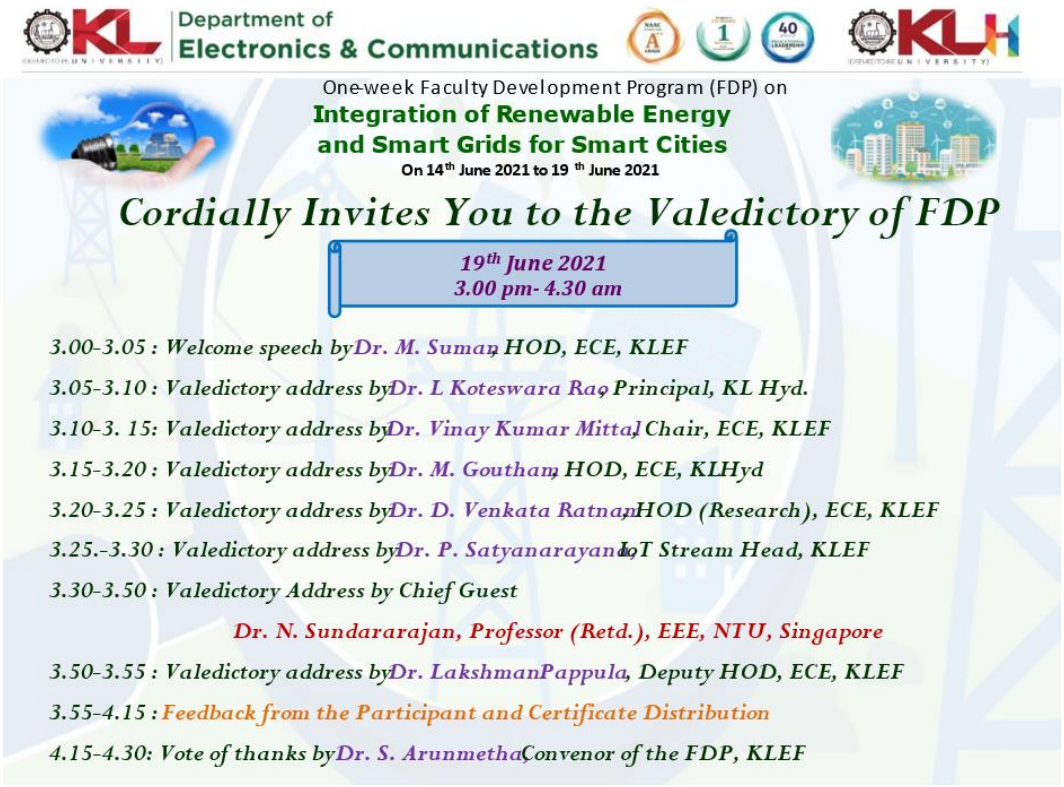
Dr. Yogesh Kumar Singh, Ex Senior Research Scientist, National institute of Solar Energy, Gurugram Haryana India, has delivered an Industry Hands on Session (Demo & Training) on Solar Power System Design Using PVSYST and PVSOL. This session was insights about the PVSYST and PVSOL software design for PV modules, Off Grid System Layout Details and Hands on Demo Solar energy Realtime demo session. Solar PV modules Technicalities and Applications of simulation tool to Designing the solar power system. As well explained the designing of large-scale solar power system and optimization, being presented in more Exercise in tool.

Day-5 (15-06-2021 to 18.06.2021) 09.00 – 10.00
Yoga and Stress Management

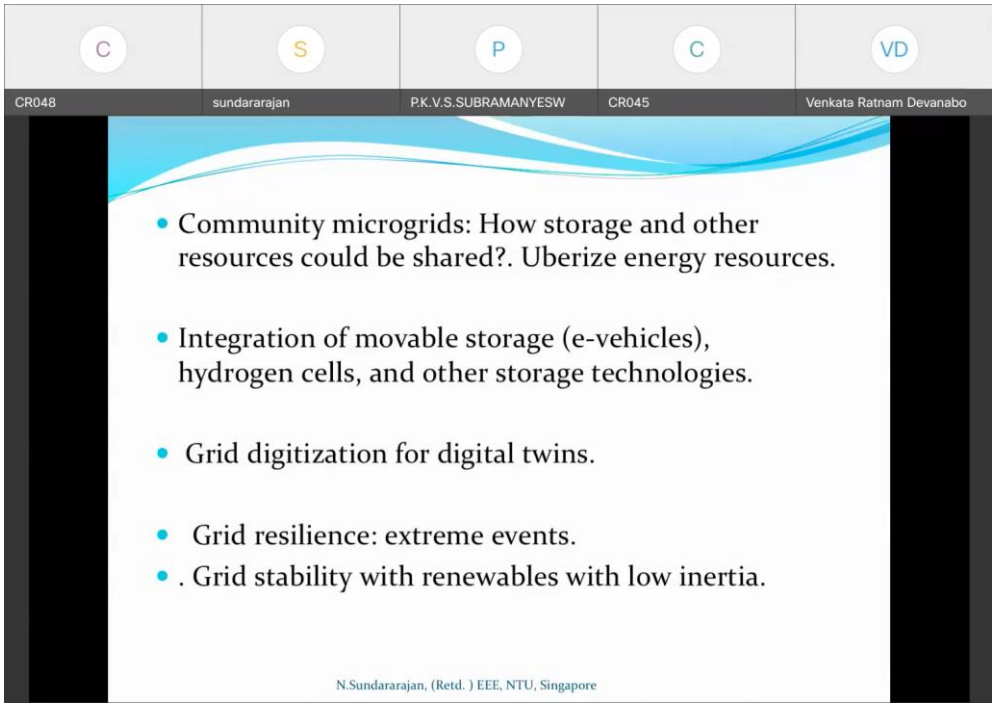


Sri. A. Venkateswalu, Principal and Chairman, VTJM&IVTR Degree College, Yoga and Stress Management. A Well-known yoga acharya and the State Government award recipient Sri Venkateswara Yogi Guruji is spending his precious time for us for the last three days. On the first day he explained the diet rules that yoga practitioners should follow. The procedures for doing yoga asanas on the second day, explained using pictures. On the third day he explained the procedure of pranayama in detail. The benefits of pranayama are explained. Fourth day he explains in demonstration how to do yoga practice in 30 minutes. The participants take advantage of this opportunity.

Day-6 (19-06-2021)
Valedictory Function (3.00 - 4.30)



Day-6 Valedictory Address



FEEDBACK BY THE PARTICIPANTS –A GLANCE

The great success of A One-week Faculty Development Program (FDP) on "Integration of Renewable Energy and Smart Grids for Smart Cities" was reflected through the feedback given by the speakers and delegates. Following are the some of the comments received:

- ✓ Well organized, all sections are useful and informative. Thank you to all Resource persons and Organizers committee
- ✓ Resource person's knowledge and presentation
- ✓ Resource persons from various industry and academia
- ✓ It was all good Thanks to team and their efforts appreciated
- ✓ Every concept explained keeping future aspects in research
- ✓ Overall selection of speakers and the management
- ✓ Perfection & time keep up
- ✓ The information presented effectively
- ✓ The selective resources and arrangement of sessions in sequence.
- ✓ Talks covered a broad spectrum of the FDP theme
- ✓ New technology, Informative talk and thank you for all organizers
- ✓ we need more like this type of FDPS
- ✓ It's always interactive and engaging, learnt a lot from subject matter experts please share the videos for the future review it will be very helpful
- ✓ Time schedule was excellent. Really appreciated.
- ✓ Gained knowledge which would be helpful for me in my final year project
- ✓ The detailed explanation of O&M is an eye opener for employment opportunities to be provided for a smart city.
- ✓ Scheduling, way of intimation, nice resource persons selection- everything good
- ✓ Learned a lot on current solar scenario and its a privilege to attend the lecture of Chetan singh solanki sir. Thanks.
- ✓ Excellent session with present day energy wastages and the importance of conservation of energy.
- ✓ Topics selected and practical implemented concepts
- ✓ It was very informative and in synchronization with current trends.
- ✓ Passionate dissemination of knowledge especially in electronics and mechanical-inter disciplinary way
- ✓ Practical knowledge shared session is very interesting
- ✓ Concepts explained with simulation results helped gain more knowledge on the topics covered
- ✓ Very well presentation of the basic concepts and design procedures were good

LIST OF PARTICIPANTS

S. No.	Title	Full Name	Designation	Department	Institution	State	Country
1	Mr.	M Lakshmana Kumar	Assistant Professor	ECE	K L E F Deemed to be University	Andhra Pradesh	India
2	Mr.	MOHAMED JAVITH S	STUDENT	MECHANICAL ENGINEERING	ANNA UNIVERSITY/ARASU ENGINEERING COLLEGE	Tamil Nadu	India
3	Mr.	SANTHOSH KUMAR B	Assistant Professor	ECE	VITS	India	India
4	Mr.	ANNAM SIVA NAGA RAMA GOPAL	Assistant professor	EEE	Sasi institute of technology and engineering	Andhra Pradesh	India
5	Mr.	AJAY SANKAR	Assistant Professor	Electronics and Communication Engineering	Aditya Engineering College	Andhra Pradesh	India
6	Mr.	RAJAPUTRA SUBHAKARAN SINGH	Research Scholar	Centre for Advanced Energy Studies (CAES)	Koneru Lakshmaiah Education Foundation (KLEF)	Andhra Pradesh	India
7	Mr.	GUDIMETLA VEERA KANAKA RAO	Research Scholor	Electrical Engineering	Andhra University	Andhra Pradesh	india
8	Dr.	Dr. G. China Satyanarayana	Associate Professor	ECE	K L University	Andhra Pradesh	India
9	Dr.	OM KANT	ASSISTANT PROFESSOR	PHYSICS	CHINMAYA DEGREE COLLEGE, HARIDWAR	UTTARAKHAND	India
10	Ms.	N. YASASWINI	Student	ECE	KLEF - Vijayawada	Andhra Pradesh	India
11	Ms.	K.HIMAJA REDDY	Student	ECE	KLEF - Vijayawada	Andhra Pradesh	India
12	Dr.	SANAGAPALLEA KOTESWARA RAO	Professor	ECE	KLEF	ANDHRA PRADESH	India
13	Mr.	LALITH PANKAJ RAJ G N	RESEARCH SCHOLAR	CENTRE FOR RURAL ENERGY - RENEWABLE ENERGY	THE GANDHIGRAM RURAL INSTITUTE-DEEMED TO BE UNIVERSITY	TAMIL NADU	INDIA
14	Dr.	G Radhika	Senior Assistant Professor	EEE	VNRVJIET	Telangana	India
15	Ms.	HEBZIBA JEBA RANI S	Assistant Professor	Computer Science and Engineering	Sri Ramakrishna Institute of Technology	Tamil Nadu	India
16	Mr.	SAMIUR REHMAN.S	Associate Professor	Architecture	KL University	ANDHRA PRADESH	INDIA
17	Mrs.	ANIE JOSEPHIN E	Assistant Professor	ECE	Grace college of Engineering	Tamilnadu	India
18	Prof.	KRUTI RAJESH LAVINGIA	ASSISTANT PROFESSOR	COMPUTER SCIENCE AND ENGINEERING	NIRMA UNIVERSITY	Gujarat	India
19	Mr.	NAVEEN KUMAR ELANGOVAN	Senior Research Fellow	EEE	ANNA UNIVERSITY	Tamil Nadu	India
20	Dr.	TAHIR KHURSHAID	Assistant Professor	Electrical Engineering	Yeungnam University	Gyeongsanbukdo	South Korea
21	Dr.	PRIYANKA CHAUDHARY	Assistant Professor	Electrical Engineering	Noida International University, Greater Noida UP, India	Uttar Pradesh	India
22	Mr.	SANDEEP SINGH	Assistant Professor	Electrical Engineering	VAISH COLLEGE OF ENGINEERING	HARYANA	INDIA

23	Ms.	KESA JYOTHI	RESEARCH SCHOLAR	ELECTRICAL&ELECTRONICS ENGINEERING	KLUNIVERSITY,VADDESWARAM	Andhrapradesh	India
24	Mr.	YADVENDRA SINGH	Assistant Professor	Electrical & Electronics	Roorkee College of Engineering ,Roorkee	Rajasthan	India
25	Mr.	MOHAMMED ASHRAFUDDIN	Phd Research Scholar	Computer Science and Engineering	Amrita Vishwa Vidyapeetham	Telangana	India
26	Mr.	Inumula Veeraraghava Rao	Assistant Professor	ECE	KLEF	Andhra Pradesh	India
27	Dr.	P.S.Srinivasa Babu	Professor	ECE	KLEF	Andhra Pradesh	INDIA
28	Mr.	ALI BAIG MOHAMMAD	Assistant Professor	ECE	KL DEEMED TO BE UNIVERSITY	ANDHRA PRADESH	INDIA
29	Dr.	Jagadeesha Chinagudi	Scientist / Engineer SE (R) / Adjunct Professor	Civil Engineering	KITS-Coimbatore (deemed to be University)	Karnataka	India
30	Mrs.	A PRIYA	Associate Professor	Architecture	K L University	Andhra Pradesh	India
31	Dr.	N.PRABAKARAN	Associate Professor	ECE	KLEF	ANDHRA PRADESH	India
32	Mr.	P Syam Sundar	Asst. Prof.	ECE	K L (Deemed to be) University	Andhra Pradesh	India
33	Dr.	S KARTHICK	Associate Professor	ECE	KL University	AP	INDIA
34	Ms.	P.SREE LEKHA	Student	EEE	CBIT	Telangana	India
35	Ms.	P.SREE LEKHA	Student	EEE	CBIT	Telangana	India
36	Mr.	P. KATHIRVEL	Assistant Professor	EIE	Dr.Mahalingam College of Engineering and Technology,Pollachi	TamilNadu	India
37	Mr.	ABHINAV BHATNAGAR	ASSISTANT PROFESSOR	ELECTRONICS & COMMUNICATION	BIRLA INSTITUTE OF APPLIED SCIENCES, BHIMATL (UTTARAKHAND)	UTTARAKHAND	INDIA
38	Dr.	SUDHA K	Assistant Professor	EEE	Bharati Vidyapeeth's college of Engineering	Delhi	India
39	Dr.	VINEET DAHIYA	Associate Professor	EEE	K R Mangalam University Gurugram Haryana	Haryana	India
40	Mr.	Chintan R Patel	Research Scholar	Electrical Engineering	G H Patel College of Engineering & Technology	GUJARAT	India
41	Dr.	Dr. Mahamuda Shaik	Associate Professor	Physics	KLEF	Andhra Pradesh	India
42	Prof.	ANNALURU BALAJIRAVIKUMAR	Professor	Physics	Narayana engineering college Nellore	Andhra Pradesh	India
43	Ms.	SRAVANI RAVIPUDI	Student	EEE	Kl University	Andhra Pradesh	India
44	Mr.	NEWAY YIFRU ADAMU	Student	Power and Control Engineering	ASTU	Oromiya	Ethiopia
45	Dr.	NAVEEN KUMAR	Assistant professor	CSE	KLEF Deemed to be University	Andhra Pradesh	India
46	Dr.	DURGABHAVANI DASARI	Assistant Professor	CSE	K L U	ANDHRA PRADESH	India
47	Mr.	SIBICHACKRAVARTHY C	Student	Chemical and Electrochemical Engineering	CSIR-Central Electrochemical Research Institute	Tamilnadu	India
48	Mr.	S. RAFEEK AHMED	INSTRUCTOR	ENGINEERING	University of Technogy & Applied Science	Muscat	Sultanate of Oman.
49	Dr.	MAHESWARA REDDY MALLU	Asst.Professor	BIOTECHNOLOGY	K L University	ANDHRA PRADESH	INDIA

50	Mr.	NAWEEN KUMAR	Asst. Professor	CSE	KLEF, Vaddeswaram	A. P.	India
51	Dr.	CHINNARI SRI KAVYA KORADA	Professor	ECE	KLEF	Andhra Pradesh	India
52	Dr.	SUBBA REDDY VASIPALLI	Assistant Professor	ECE	Koneru Lakshmaiah Education Foundation	ANDHRA PRADESH	India
53	Dr.	Aravindhan Alagarsamy	Associate Professor	ECE	Koneru Lakshmaiah Education Foundation	AP	India
54	Mr.	P KANAKARAJA	Assistant Professor	ECE	KLEF Deemed to be University	A.P	India
55	Mr.	KARETI YASWANTH SAI	Student	ECE	KONNERU LAKSHMAIAH EDUCATIONAL FOUNDATION	ANDHRA PRADESH	INDIA
56	Mr.	D MANOHAR	Assistant Professor	Electrical and Electronics Engineering	GATES Institute of Technology	Andhra Pradesh	INDIA
57	Dr.	ARUNMETHA S	Associate Professor	ECE	KLEF	Andhra Pradesh	INDIA
58	Ms.	Gomathy K	Student	Electrochemical Engineering	CSIR-CENTRAL ELECTROCHEMICAL RESEARCH INSTITUTE	TAMIL NADU	India
59	Dr.	S.SUNITHAMANI	Associate Professor	ECE	KLEF	Andhra Pradesh	India
60	Dr.	JOSHITHA C	Associate Professor	ECE	Koneru Lakshmiah Education FOundation	Andhra pradesh	India
61	Mr.	VIBHAV KATOCH	PhD. Student	Quantum Materials	Insti	Punjab	India
62	Dr.	Sathya Subramai	Guest faculty	Department of Electronics and Communication	BRPT Dr M.G.R. Government Arts and Science College, Palacode	TAMIL NADU	India
63	Dr.	Dr. M. VINOTH	Assistant Professor	Electrical and Electronics Engineering	Selvam College of Technology	Tamil Nadu	India
64	Mr.	SANATH KUMAR TULASI	Assistant Professor	ECE	KLEF	ANDHRA PRADESH	India
65	Dr.	PRAGHASH K	Assistant Professor	ECE	KLEF	Andhra Pradesh	India
66	Mr.	S VAMSEE KRISHNA	ASSISTANT PROFESSOR	ELECTRONICS AND COMMUNICATION ENGINEERING	KLEF, GUNTUR	ANDRA PRADESH	INDIA
67	Mrs.	N.DURGA INDIRA	ASSISTANT PROFESSOR	ECE	KLUNIVERSITY	ANDHRA PRADESH	India
68	Dr.	NAGESH MANTRAVADI	Associate Professor	ECE	KLEF	Andhra Pradesh	India
69	Mr.	K. T. P. S. KUMAR	Assistant Professor	ECE	Koneru Lakshmaiah Education Foundation	Andhra pradesh	India
70	Mr.	BANANA OMKAR LAKSHMI JAGAN	Research Scholar	Electrical and Electronics Engineering	Koneru Lakshmaiah Education Foundation	Andhra Pradesh	India
71	Mr.	KRUSHNA KESHAB BARAL	Asst.Professor	Electrical Engineering	COEB, Bhubaneswar.	Odisha	India
72	Mrs.	KARRA SONY	ASST PROF	ECE	KLEF	AP	INDIA
73	Dr.	HABIBULLA KHAN	Professor	ECE	KLUNIVERSITY	Andhra Pradesh	India
74	Dr.	A.VENKATESWARA RAO	Assistant Professor	Physics	KLEF, Vaddeswaram	Andhra Pradesh	India
75	Dr.	R S ERNEST RAVINDRAN	ASSOCIATE PROFESSOR	ECE	KLEF	ANDHRA PRADESH	INDIA
76	Mr.	B.Kalivaraprasad	Asst.prof	ECE	KLUniversity	Andhrapradesh	India

77	Dr.	SAKTHIPANDI K	Associate Professor of Physics	Department of Physics	SRM TRP Engineering College	Tamil Nadu	India
78	Mr.	SRIKANTH DEEPAK BANDHAKAVI	Assistant Professor	ECE	K L Deemed to be University	Andhra Pradesh	India
79	Mr.	MRATYUNJAY SINGH	Assistant Professor	Electrical Engineering	Rajkiya Engineering College Banda	UTTAR PRADESH	India
80	Ms.	Mumtha.C	ph.D Microbiology Research scholar	Department of Biology	Gandhigram rural institute (Deemed to be University) Dindigul district in Tamil Nadu	Tamil Nadu	India
81	Dr.	Dr.M.VENKATA NARAYANA	Professor	ECE	KLEF	Andhra Pradesh	India
82	Dr.	DR.I.GOVARDHANI	Professor	ECE	KLEF	Andhra Pradesh	India
83	Mrs.	SAKUNTHALA SIDDA	Assistant professor adhoc	ELECTRICAL AND ELECTRONICS ENGINEERING	Jntua college of engineering Kalikiri	Andhra Pradesh	India
84	Dr.	USHA DEVI YALAVARTHI	Associate Professor	ECE	KLEF	Andra Pradesh	India
85	Mr.	Chandrahas khare	Student	Student	Renewable energy	Madhyapradesh	India
86	Mr.	BRIJMOHAN KATARA	Student	Faculty of engineering	DAYALBAGH EDUCATIONAL INSTITUTE	Uttarpradesh	India
87	Ms.	Lakshmi Prasanna Jagupilla	Assistant Professor	ECE	KLEF	Andra Pradesh	India
88	Dr.	BISWAJIT JENA	Assistant Professor	ECE	KLEF	Andhra Pradesh	India
89	Dr.	ASWIN KUMER S V	ASSOCIATE PROFESSOR	ECE	KLEF (DEEMED TO BE UNIVERSITY)	ANDHRA PRADESH	INDIA
90	Dr.	G V SUBBA RAO	Professor	ECE	KLEF	Andhra Pradesh	India
91	Dr.	Dr. A. Hema Sekhar	Professor	EEE	VEMU institute of technology	Andhra Pradesh	India
92	Dr.	THIRUMURU RAMAKRISHNA	Professor	ECE	KLEF	Andhra Pradesh	India
93	Mrs.	SRI LAKSHMI MANCHALA	Assistant Professor	CSE	KLEF	Andhra Pradesh	India
94	Mr.	K SURESH KUMAR	Assistant Professor	ECE	KLEF	Andhrapradesh	India
95	Mr.	R Sekhar	Associate Professor	ECE	KLEF	AndhraPradesh	India
96	Mr.	Manik Clinton Franklin	Ph.D Research Scholar	Department of Chemistry	Bharathiar University Coimbatore	Tamil Nadu	India
97	Ms.	AKSHAYA. S	RESEARCH SCHOLAR	Department of chemistry	Bharathiar University, Coimbatore	TAMILNADU	India
98	Dr.	Dr.M.SUJATHA	Professor	ECE	KLEF	State	India
99	Mr.	ANJINEYULU VADDE	ENGG AT SPV PLANT	ENGINEERING	IEI	ANDHRAPRADESH	India
100	Mr.	RAJA GOPAL SURINEEDI	ASSISTANT PROFESSOR	BES-2	KL UNIVERSITY	ANDHRA PRADESH	INDIA
101	Prof.	V S V Prabhakar	Director Industry Connect & Professor	ECE	KLEF	AP	INDIA
102	Dr.	Dr BADUGU SURESH	Associate Professor	ECE	Koneru Lakshmaiah Education Foundation	Andhrapradesh	India
103	Mr.	Anami Yadav	Successful	B.voc (renewable energy)	Dayalbagh educational institute	Madhya Pradesh	India
104	Mr.	L S P SAIRAM NADIPALLI	Assistant Professor	ECE	KLEF	Andhra Pradesh	India

105	Mrs.	SAKUNTHALA SIDDA	Assistant professor adhoc and research scholar	Electrical and electronics engineering	Jntua college of engineering Kalikiri	chittoor district Andhra Pradesh	India
106	Mrs.	N.SOUJANYA	RESEARCH SCHOLAR	ECE	KLU	TELANGANA	INDIA
107	Dr.	SAMPAD KUMAR PANDA	ASSOCIATE PROFESSOR	ECE	KLEF DEEMED TO BE UNIVERSITY	Andhra Pradesh	India
108	Mr.	R GANESH	Student	EEE	Geethanjali college of engineering and technology Hyderabad	Telangana	India
109	Mr.	M V Kesava Kumar	Assistant Professor and Research scholar	EEE	JNTUACEK	ANDHRA PRADESH	India
110	Ms.	EENNU A. SHAIK	Student	Civil Engineering	KL University	Goa	India
111	Dr.	Shyam Kumar Katta	Director Programs	Biodiversity & Livelihoods	Heifer International, USA	Telangana	India
112	Ms.	Rim Ben Salah	PhD student	Energy	Université de Moncton	Canada	Canada

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