Report on

STTP- Phase-I
(2 - 7 November 2020)

Coordinator

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Dept. of EEE

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Organized by

Department of Electrical & Electronics Engineering

Kakatiya Institute of Technology & Science, Warangal
(An Autonomous Institute under Kakatiya University)
(Accredited by NAAC with 'A' Grade)
Opp: Yerragattu Gutta, Hasanparthy (M)
Warangal-506015 (TS), INDIA

CONTENTS

AICTE Sponsored
Short Term Training Program (STTP)

Electric Vehicle Battery Charging System with Renewable Energy Sources

ABOUT THE STTP

Energy is a need in the modern world, but fossil fuel based energy system is polluting and depleting existing reserves. Environmental awareness is worldwide increasing. New paradigms are emerging, like the Electric Vehicle (EV), the Smart Grids (SG), the Vehicle-to-Grid (V2G), and the Electrical Markets (EM). Renewable energy sources (RES) and electric vehicle play an important role for a gradual transition. Also EVs integration on current electrical distribution network, without violating the system's technical restrictions, requires electrical data consumption analysis and smart charging approaches, where EV batteries charging or discharging processes need to be coordinated among the several users.

The novel grid techniques are demonstrated for the optimal integrated operation of renewable resources and electric vehicle to increase penetration of renewable energy. The distribution control system has to manage a charge and discharge strategy to support mismatching between load and renewable generation through V2G technology.

The objectives of this STTP are to

- Impart knowledge on the Basic EV Battery Charging Station (BCS) with RES
- Discuss the challenges in BCS and focuses on V2G systems, smart charging, to use EV batteries as a frequency response reserve, spinning reserve and non-spinning reserve for power regulation and keep a stable frequency and power quality
- Design and analyze the BCS with RES in MATLAB. Enable the students and researchers to acquire knowledge through hands-on experience in MATLAB.

This STTP is to provide opportunity to practitioners, researchers and people from industry to discuss the progress on state-of-the-art research and the practical usage of

EVBCS, focusing on the application and the technologies relying on it. EVBCS is very potential area of study where students can be guided to take up projects both at UG and PG level. Hence hands-on training to the faculty of engineering colleges will make them competent to guide students on good projects/dissertations.

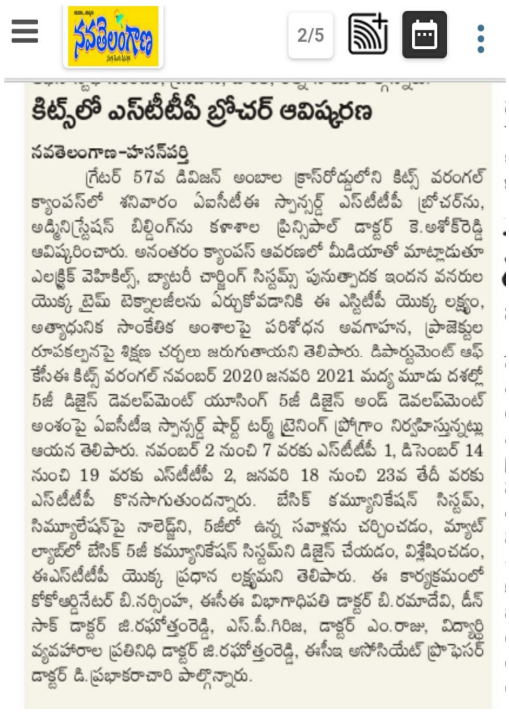
BENEFITS TO THE FACULTY

- Faculty will get trained in the area of EVBCS
- Faculty will start guiding meaningful projects to UG and PG students.
- Faculty will be introduced to EVBCS research

STTP COURSE CONTENTS

- Power quality in the distribution system in the presence of RES
- Electric vehicles
- Solar PV system and MPPT
- Implementation of battery charging station
- Optimization techniques and converter design
- Design and analysis of EV BCS with RES

RELEASE OF BROCHURE



నవతెలంగాణ 2/5

కిట్స్‌లో ఎస్‌టీటీపీ బ్రోచర్ ఆవిష్కరణ

నవతెలంగాణ-చౌటుప్పల్

గ్రేటర్ 57వ డివిజన్ అంబాల క్రాస్‌రోడ్డులోని కిట్స్ వరంగల్ క్యాంపస్‌లో శనివారం ఏఐసీటీఈ స్పాన్సర్డ్ ఎస్‌టీటీపీ బ్రోచర్‌ను, అడ్మినిస్ట్రేషన్ బిల్డింగ్‌ను కళాశాల ప్రిన్సిపాల్ డాక్టర్ కె.అశోక్‌రెడ్డి ఆవిష్కరించారు. అనంతరం క్యాంపస్ ఆవరణలో మీడియాతో మాట్లాడుతూ ఎలక్ట్రిక్ వెహికిల్స్, బ్యాటరీ చార్జింగ్ సిస్టమ్స్ పునుత్పాదక ఇందన వనరుల యొక్క టైమ్ టెక్నాలజీలను ఏర్పుకోవడానికి ఈ ఎస్టిటీపీ యొక్క లక్ష్యం, అత్యాధునిక సాంకేతిక అంశాలపై పరిశోధన అవగాహన, ప్రాజెక్టుల రూపకల్పనపై శిక్షణ చర్చలు జరుగుతాయని తెలిపారు. డిపార్టుమెంట్ ఆఫ్ కేసీఈ కిట్స్ వరంగల్ నవంబర్ 2020 జనవరి 2021 మధ్య మూడు దశల్లో 5జీ డిజైన్ డెవలప్‌మెంట్ యూసింగ్ 5జీ డిజైన్ అండ్ డెవలప్‌మెంట్ అంశంపై ఏఐసీటీఇ స్పాన్సర్డ్ షార్ట్ టర్మ్ ట్రైనింగ్ ప్రోగ్రాం నిర్వహిస్తున్నట్లు ఆయన తెలిపారు. నవంబర్ 2 నుంచి 7 వరకు ఎస్‌టీటీపీ 1, డిసెంబర్ 14 నుంచి 19 వరకు ఎస్‌టీటీపీ 2, జనవరి 18 నుంచి 23వ తేదీ వరకు ఎస్‌టీటీపీ కొనసాగుతుందన్నారు. బేసిక్ కమ్యూనికేషన్ సిస్టమ్, సిమ్యూలేషన్‌పై నాలెడ్జ్‌ని, 5జీలో ఉన్న సవాళ్లను చర్చించడం, మ్యాట్ ల్యాబ్‌లో బేసిక్ 5జీ కమ్యూనికేషన్ సిస్టమ్‌ని డిజైన్ చేయడం, విశ్లేషించడం, ఈఎస్‌టీటీపీ యొక్క ప్రధాన లక్ష్యమని తెలిపారు. ఈ కార్యక్రమంలో కోకోఆర్డినేటర్ బి.నర్సింహ, ఈసీఈ విభాగాధిపతి డాక్టర్ బి.రమాదేవి, డీన్ సాక్ డాక్టర్ జి.రఘోత్తంరెడ్డి, ఎస్.పీ.గిరిజ, డాక్టర్ ఎం.రాజు, విద్యార్థి వ్యవహారాల ప్రతినిధి డాక్టర్ జి.రఘోత్తంరెడ్డి, ఈసీఇ అసోసియేట్ ప్రొఫెసర్ డాక్టర్ డి.ప్రభాకరాచారి పాల్గొన్నారు.

కిట్స్‌లో ఎఐసిటిఇ ప్రాయోజిత ఎస్‌టిటిపి బ్రోచర్ ఆవిష్కరణ

వరంగల్, అక్టోబర్ 31, (ప్రజాతంత్ర ప్రతినిధి) : కిట్స్ ఇంజనీరింగ్ కళాశాలలో శనివారం ప్రిన్సిపాల్ ఎస్‌టీటీపి చైర్మన్స్ డాక్టర్ కె.అశోక్‌రెడ్డి, కన్వీనర్, కో-ఆర్డినేటర్, ఇఇఇ విభాగాధిపతి డాక్టర్ సి.వెంకటేష్, కో-కో-ఆర్డినేటర్, డీన్ అకాడమిక్ అఫైర్స్ డాక్టర్ వి.రాజగోపాల్, అసోసియేట్ డీన్ అకాడెమిక్ అఫైర్స్ డాక్టర్ ఎం.రఘురామ్, ఇఇఇ అధ్యాపకులు వరుసగా అసోసియేట్ డీన్ విద్యార్థి వ్యవహారాలు ఎం.నర్సింహారావు, డాక్టర్ బి.జగదీష్ కుమార్, డాక్టర్ పి.నాగార్జున రెడ్డిలు క్యాంపస్ పరిపాలనా భవనంలో ఎఐసిటిఇ ఎస్‌టిటిపి బ్రోచర్ ను ఆవిష్కరించారు. ఈ సందర్భంగా ప్రిన్సిపాల్ ప్రొఫెసర్ కె.అశోకరెడ్డి మాట్లాడుతూ ఎలక్ట్రిక్ వెహికల్స్, బ్యాటరీ ఛార్జింగ్ సిస్టమ్స్, పునరుత్పాదక ఇంధన వనరుల రియల్ టైమ్ టెక్నాలజీలను నేర్చుకోవటానికి ఎస్‌టిటిపి లక్ష్యమని, అత్యాధునిక సాంకేతిక అంశాలపై పరిశోధన అవగాహన, ప్రాజెక్టుల రూపకల్పన పై శిక్షణ చర్చలు జరుగుతాయని తెలిపారు. డిపార్ట్‌మెంట్ ఆఫ్ ఎలక్ట్రికల్, ఎలక్ట్రానిక్స్ ఇంజనీరింగ్ (ఇఇఇ), కాకతీయ ఇన్‌స్టిట్యూట్ ఆఫ్ టెక్నాలజీ అండ్ సైన్స్, వరంగల్, తెలంగాణ వారికి ఆల్ ఇండియా కౌన్సిల్ ఫర్ టెక్నికల్ ఎడ్యుకేషన్ (ఎఐసిటిఇ) స్పాన్సర్ చేసిన స్వల్పకాలిక శిక్షణా కార్యక్రమం (ఎస్‌టిటిపి) (దశ -1) వన్ వీక్ ఆన్‌లైన్ ప్రోగ్రాం నిర్వహిస్తున్నట్లు ప్రిన్సిపాల్ కె.అశోక్ రెడ్డి తెలిపారు. ఈ ప్రోగ్రాం "ఎలక్ట్రిక్ వెహికల్ బ్యాటరీ ఛార్జింగ్ సిస్టమ్ విత్ రెన్యూవబుల్ ఎనర్జీ సోర్సెస్ (ఇవిబిసిఎస్ ఆర్ఇఎస్)" అనే సాంకేతిక అంశంపై నవంబర్2వ నుండి 7 వరకు వారం రోజుల నిర్వహిస్తున్నామన్నారు. ఈ సందర్భంగా ఎంపి రాజ్యసభ, కిట్స్‌డబ్ల్యు కార్యదర్శి, కరస్పాండెంట్ కెప్టెన్ వి.లక్ష్మీకాంత రావు, కోశాధికారి పి.నారాయణ రెడ్డి, ఎఐసిటిఇ స్పాన్సర్ చేసిన ఎస్‌టిటిపిని పొందినందుకు మొత్తం జట్టును అభినందించి ఈఈఈ విభాగానికి శుభాకాంక్షలు తెలిపారు. ఈ కార్యక్రమంలో ప్రిన్సిపాల్, ఎస్‌టిటిపి చైర్మన్ డాక్టర్ కె.అశోక రెడ్డి, ప్రొఫెసర్ హెడ్, ఇఇఇ విభాగం, ఎస్‌టిటిపి కన్వీనర్, కో-ఆర్డినేటర్ డాక్టర్ సి.వెంకటేష్, డీన్, అకడమిక్ అఫైర్స్, కో-కోఆర్డినేటర్ డాక్టర్ వి.రాజగోపాల్, అసోసియేట్ డీన్ అకాడమిక్ అఫైర్స్ డాక్టర్ ఎం.రఘురామ్, అసోసియేట్ డీన్ విద్యార్థి వ్యవహారాలు ఎం.నర్సింహారావు, ఇఇఇ అధ్యాపకులు డాక్టర్ బి.జగదీష్ కుమార్, డాక్టర్ పి.నాగార్జున రెడ్డి, అసోసియేట్ ప్రొఫెసర్ డాక్టర్ డి. ప్రభాకర చారి పాల్గొన్నారు.

Release of brochure by Principal, KITSW

BROCHURE

AICTE Sponsored
Short Term Training Program (STTP)
on
Electric Vehicle Battery Charging System with Renewable Energy Sources

2- 7 November, 2020

Registration Form

Name:_____

Designation:_____
Organization:_____

Correspondence Address:

PIN code_____
E-mail:_____

Whatsapp Mobile No._____

Category: Academic/Industry/others

Signature of the Participant:

Date: _____

Place: _____

Participants need to fill this registration form and upload the scanned copy in PDF format in the below registration link.

Download the Word file of this Registration form:
https://drive.google.com/file/d/15JNqe-OBhkqHanzfEsqw63yQ33f689Cd/view?usp=sharing

Registration Link:
https://forms.gle/TxcDPXYf6z14iKvt9
Last Date for Registration:
on or before 30 October, 2020

ELIGIBILITY & REGISTRATION: No registration fee
The Faculty members, research scholars, PG students of AICTE approved Engineering colleges, and Polytechnic college faculty working in the field of Power Electronics and Renewable Energy are eligible to apply. Registrations will be accepted subjected to the availability on a first-come, first-serve basis and area of specialization with a maximum attendance of 100. Short-listed candidates will be informed through Emil.

MODE OF CONDUCTION: Online Mode
Online meeting link will be sent through Whatsapp and registered email for the short-listed candidates. Since hands-on sessions will be conducted in MATLAB, all the participants are requested to install MATLAB tool in their computers.

TEST AND CERTIFICATE:

- A test shall be conducted at the end of the program.
- The certificates shall be issued to those participants who have attended the program with minimum 80% attendance and scored minimum 60% marks in the test.

Chief Patron
Capt. V. Lakshmikantha Rao, *M.P. (Rajya Sabha)*
Secretary & Correspondent, KITS Warangal (KITSW)

Patron
Sri P. Narayana Reddy, Treasurer, KITSW

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Prof. K. Ashoka Reddy, Principal

Convener & Coordinator
Dr. C. Venkatesh, Professor & Head, Dept. of EEE

Co-Convener
Prof. V. Ramaiah, Professor, Dept. of EEE

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Dr. G. Sudheer Kumar, Assoc. Prof., EEE
Dr. B. Vijaykumar, Assoc. Prof., EEE

Core Technical Committee:
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Dr. D. Rakesh Chandra, Asst. Prof., EEE
Dr. A. Madhukar Rao, Asst. Prof., EEE
Dr. M. Santhosh, Asst. Prof., EEE

Organizing Committee: Faculty of Department of EEE

AICTE
Sponsored
Short Term Training Program (STTP)

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Warangal-506015 (TS), INDIA
We baite: www.kitsw.ac.in
MHRD NIRF-20
Rank Band: 201

ABOUT THE INSTITUTE

Kakatiya Institute of Technology and Science, Warangal popularly known as KITSW, was established in 1980 by Ekasila Education Society (EES), Warangal, a philanthropic society, with a primary objective of providing quality technical education. KITSW is recognized by the AICTE and also under section 2(F) and 12(B) of UGC act 1956. The UGC has granted autonomous status in 2014 under Kakatiya University (KU), Warangal. It is accredited by the NAAC with A grade (CGPA: 3.21) and all the UG engineering programmes are accredited by the NBA, New Delhi. Located in 68 acres of lush green sprawling campus, it is one of the premier institutes of Telangana. Over the years, it has attracted academicians of proven competence onto its faculty, augmented the infrastructural facilities, modernized laboratories, placed its products in reputed organizations all over the world and thus received recognition in industry and academia. At present, it is offering UG in ten branches of engineering, PG in six engineering specializations and MBA. The KU recognized CE, ME, E&I and CSE departments as research centers for Ph.D. programmes. The faculty at KITSW is now integrating research, innovation and incubation culture into course teaching to prepare students to gain tech skills for industry 4.0.

Warangal city is well connected to other cities by rail and road. The institute is located on Warangal – Karimnagar highway.

ABOUT EEE DEPARTMENT

Department of Electrical & Electronics Engineering (EEE) is the most sought by students in Telangana for admissions in to its programmes. Our alumni have spread over the world across MNCs, and PSUs enjoying their positions in top brands and running their own industries. The department of Electrical & Electronics Engineering (EEE) was established in the year 1994. The current intake in to UG program B.Tech (EEE) is 120 and PG program M.Tech. (PE) is 30.

The department is accredited by NBA under Tier – 1 in the year 2019. The department has dedicated and qualified faculty with 5 Professors, 6 Associate Professors, 24 Assistant Professors with 13 Doctorates, 04 Faculty members submitted PhD thesis and 06 pursuing Ph.D. in reputed Institutions/ Universities.

The department has very well equipped and modernized laboratories to cater to the needs of UG and PG courses.

- Basic Electrical Engineering Laboratory
- Power System Laboratory
- Power Electronics Laboratory
- Electrical Simulation Laboratory
- Control Systems & Simulation Laboratory
- Electrical Machines Laboratory
- Electrical Measurements & Instruments Laboratory
- Networks & Simulation Laboratory
- Electric Drives Laboratory
- Renewable Energy Systems Laboratory
- Power Electronics & Simulation Laboratory

ABOUT THE STTP

Energy is a need in the modern world, but fossil fuel based energy system is polluting and depleting existing reserves. Environmental awareness is worldwide increasing. New paradigms are emerging, like the Electric Vehicle (EV), the Smart Grids (SG), the Vehicle-to-Grid (V2G), and the Electrical Markets (EM). Renewable energy sources (RES) and electric vehicle play an important role for a gradual transition. Also EVs integration on current electrical distribution network, without violating the system's technical restrictions, requires electrical data consumption analysis and smart charging approaches, where EV batteries charging or discharging processes need to be coordinated among the several users. The novel grid techniques are demonstrated for the optimal integrated operation of renewable resources and electric vehicle to increase penetration of renewable energy. The distribution control system has to manage a charge and discharge strategy to support mismatching between load and renewable generation through V2G technology.

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- Discuss the challenges in BCS and focus on V2G systems, smart charging, to use EV batteries as a frequency response reserve, spinning reserve and non-spinning reserve for power regulation and keep a stable frequency and power quality
- Design and analyze the BCS with RES in MATLAB. Enable the students and researchers to acquire knowledge through hands-on experience in MATLAB.

This STTP is to provide the opportunity to practitioners, researchers and people from industry to discuss the progress on state-of-the-art research and the practical usage of EVBCS, focusing on the application and the technologies relying on it. EVBCS is very potential area of study where students can be guided to take up projects both at UG and PG level. Hence hands-on training to the faculty of engineering colleges will make them competent to guide students on good projects/dissertations.

BENEFITS TO THE FACULTY

- Faculty will get trained in the area of EVBCS
- Faculty will start guiding meaningful projects to UG and PG students
- Faculty will be introduced to EVBCS research

STTP COURSE CONTENTS

- Power quality in the distribution system in the presence of RES
- Electric vehicles
- Solar PV system and MPPT
- Implementation of battery charging station
- Optimization techniques and converter design
- Design and analysis of EVBCS with RES

Resource Persons:

Prof. Bhim Singh, ***Professor, IITD***
Prof. Mahesh Kumar Mishra, ***Professor, IITM***
Dr. Allabaksh Naikodi, ***Head, R&D EE Mahindra Reva EV Pvt. Ltd., Bengaluru***
Dr. M. Venkateswarlu, ***AGM-R&D, Amara Raja Batteries***
Dr. M. Mithun Bhaskar, ***Head, Model Based Product Engg., Tata Elxsi, Trivandrum***
Dr. Y. Chandrasekhar, ***Assistant Professor, NITW***
Dr. D. Sreenivasa Rao, ***Assistant Professor, NITW***
Dr. C. Venkatesh, ***Professor, KITSW***
Dr. V. Rajagopal, ***Professor, KITSW***
And Experts from Mathworks Pvt. Ltd., Bengaluru

Address for Communication
Dr. P. Nagarjuna Reddy
Asst. Professor, Dept. of EEE,
Kakatiya Institute of Technology & Science Warangal
Contact No: +91-9908926407
Email: pnreddy.eeeskitsw.ac.in

STTP Schedule

S. No.	Day	Name	Details	Duration
1.	Monday 02.11.2020	Inaugural Function		*1.00 pm to 2 pm*
2.	Monday 02.11.2020	Prof. Bhim Singh *"Grid Interfaced Solar Photovoltaic System"*	**Professor, IIT Delhi**	*2 pm to3.30 pm*
3.	Monday 02.11.2020	Dr. V. Rajagopal *"Solar Photovoltaic Power with MPPT "*	**Professor, KITS Warangal**	*3.30 pm to 5 pm*
4.	Tuesday 03.11.2020	Dr. D. Sreenivasa Rao *"Multilevel converters for electric vehicles"*	**Assistant Professor, NIT Warangal**	*2 pm to 3.30 pm*
5.	Tuesday 03.11.2020	Dr. Tata Narasinga Rao *"Li-ion Batteries & super capacitors for EV applications"*	**Scientist 'G' & Associate Director International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI) Hyderabad**	*3.30 pm to 5 pm*
6.	Wednesday 04.11.2020	Dr. Y. Chandrasekhar *"Research aspects of Electric vehicle charging station and its effect on distribution systems"*	**Assistant Professor, NIT Warangal**	*2 pm to 5 pm*
7.	Wednesday 04.11.2020			
8.	Thursday 05.11.2020	Debanand Singdeo, Ramana Anchuri *"Simulation Modelling of EV"*	**Math works Pvt. Ltd., Bengaluru**	*2 pm to 5 pm*
9.	Thursday 05.11.2020			
10.	Friday 06.11.2020	Dr. M. Mithun Bhaskar *"Challenges in retrofitting EV-Ex EV"*	**Head, Model Based Product Engr, Tata Elxsi, Trivandrum**	*2 pm to 3.30 pm*
11.	Friday 06.11.2020	Prof. Mahesh Kumar Mishra *" Power Quality Aspects in Microgrid Connected Power System"*	**Professor, IIT Madras**	*3.30 pm to 5 pm*
12.	Saturday 07.11.2020	Dr. Allabaksh Naikodi *"Overview of EV Technology and Trends"*	**Head, R&D EE, Mahindra Reva EV Pvt. Ltd., Bengaluru**	*2 pm to 3.30 pm*
13.	Saturday 07.11.2020	Dr. C. Venkatesh *"Plugged-in Electric Vehicles - Power Quality Concern"*	**Professor, KITS Warangal**	*3.30 pm to 5 pm*
14.	Saturday 07.11.2020	**Comprehensive Exam**		*5 pm to 5.30pm*
15.	Saturday 07.11.2020	**Valedictory**		*5.30 pm to6 pm*

Inaugural Function Invitation

KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE

WARANGAL - 506015

(An AUTONOMOUS Institute under Kakatiya University, Warangal)
(Accredited by NAAC with 'A' Grade)

KITSW

AICTE

INVITATION

The Management, Principal, Faculty and Staff
cordially invite you to attend the Virtual Inaugural Function of

AICTE Sponsored Short Term Training Program (STTP)
On

ELECTRIC VEHICLE BATTERY CHARGING SYSTEM WITH RENEWABLE ENERGY SOURCES

Organized
by

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Capt. V. Lakshmikantha Rao, M.P. (Rajya Sabha)
Secretary & Correspondent, KITSW
will preside over the function

Sri P. Narayana Reddy, Treasurer, KITSW
will grace the occasion

Prof. Bhim Singh, IIT Delhi
Chief Guest

NOVEMBER 02, 2020 (MONDAY) AT 03:30 PM

Mode: Online Mode via Google meet

Co-coordinator
Dr. V. Rajagopal
Professor, Dept. of EEE

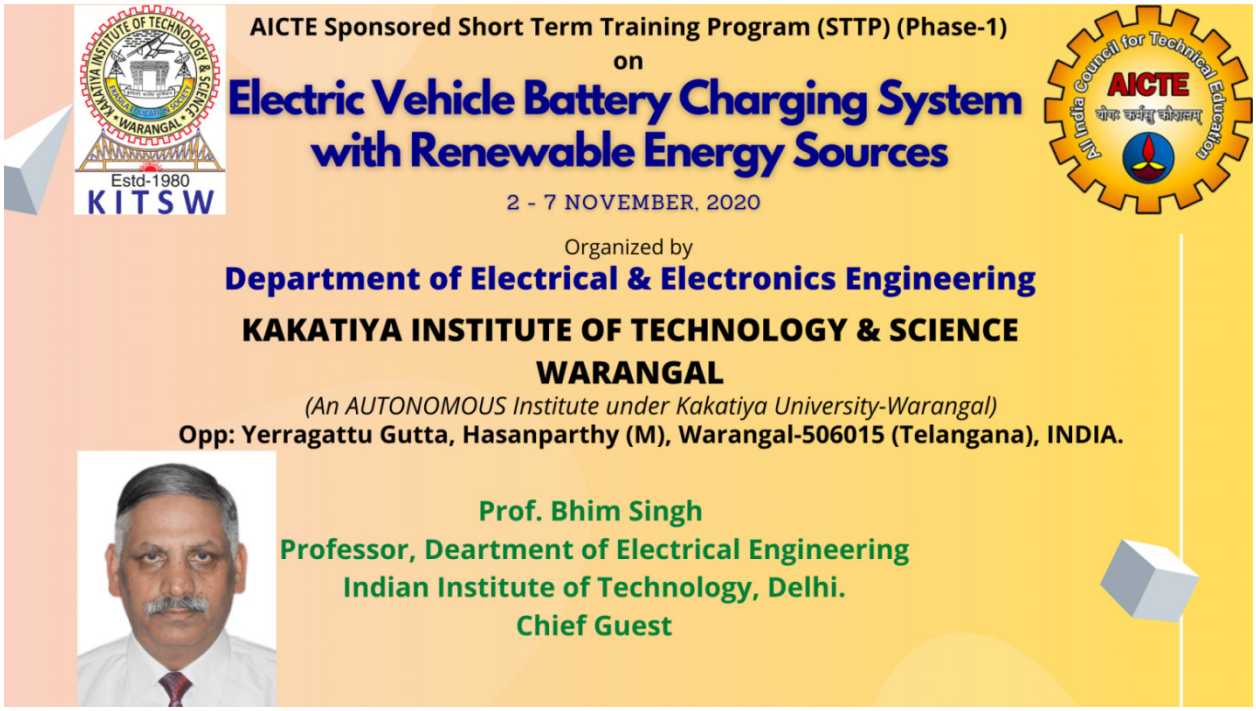
Convener & Coordinator
Dr. C. Venkatesh
Professor & Head, Dept. of EEE

Chairman
Dr. K. Ashoka Reddy
Principal, KITSW

Inaugural Function

Inaugural function of AICTE sponsored short term training programme (STTP) entitled, electric vehicle battery charging system with renewable energy sources is started at 1.00 PM on 2nd November 2020. Professor Bhim Singh, department of electrical engineering, IIT Delhi inaugurated this function as a Chief Guest. Inaugural function started with National Anthem. Dr. Prof V Rajgopal, Co-coordinator gave a brief introduction this STTP. Prof C Venkatesh, convener and coordinator, introduced the details and achievements of Electrical and Electronics Engineering Department of KITS Warangal. Principal, Professor K. Ashoka Reddy has given a speech about the role of FDPs to improve technical skills and knowledge. Finally, Chief Guest Prof Bhim Singh, explained about the importance these kind of STTP's to improve the technical skills of a faculty and he also explain the importance of Electric vehicles for present and future generation.

CHIEF GUEST



కిట్స్ కళాశాలలో షార్ట్ టర్మ్ ట్రైనింగ్

ప్రజాపక్షం/హసన్‌పర్తి : హసన్‌పర్తి మండల కేంద్రంలోని కిట్స్ ఇంజనీరింగ్ కళాశాలలో డిపార్ట్ మెంట్ ఆఫ్ ఎలక్ట్రానిక్స్ అండ్ కమ్యూనికేషన్ ఇంజనీరింగ్(ఈసిఈ) విభాగం ఆధ్వర్యంలో 2వ తేదీ నుండి 7వ తేదీ వరకు మొదటి దశ ప్రోగ్రాం హాండ్స్ ఆన్ ప్రాజెక్టు బేస్డ్ అప్రోచ్ ఫర్ 5జి అండ్ డెవలప్‌మెంట్ యూజింగ్ మ్యాట్ ల్యాబ్ అనే అంశంపై ఎఐసిటిఐ స్పాన్సర్డ్ షార్ట్ టర్మ్ ట్రేనింగ్ ప్రోగ్రాం(ఎఫ్‌టిపి) నిర్వహిస్తున్నామని ప్రిన్సిపాల్ ప్రొఫెసర్ కె.అశోక్‌రెడ్డి తెలిపారు.ఈ కార్యక్రమానికి ముఖ్యఅతిథిగా ఐఐటి కాన్పూర్ ప్రొఫెసర్ డాక్టర్ కె.వాసుదేవన్ ప్రారంభోత్సవం చేశారు. ఈ కార్యక్రమంలో కోశాధికారి పి.నారాయణరెడ్డి, బద్రి నరసింహం, ఈసిఈ విభాగాధిపతి ప్రొఫెసర్ ఇ.రమాదేవి, డాక్టర్ ఎం.రాజు, డి.వేణు, డాక్టర్ ధనలక్ష్మి, ఇ.సురేష్, డాక్టర్ వెంకటేశ్వర్‌రెడ్డి, వివిధ కళాశాలల నుండి 200పై చిలుకు పార్టీసిపెంట్స్, పలు విభాగాల హెచ్‌ఒడిలు, ఈసిఈ అధ్యాపకులు పాల్గొన్నారు.

6 మన తెలంగాణ www.manate

కిట్స్ కళాశాలలో స్పాన్సర్డ్ షార్ట్‌టర్మ్ ట్రైనింగ్ ప్రోగ్రాం ప్రారంభం

మన తెలంగాణ/హసన్‌పర్తి : హసన్‌పర్తి మండల కేంద్రంలోని కిట్స్ ఇంజనీరింగ్ కళాశాలలో డిపార్ట్ మెంట్ ఆఫ్ ఎలక్ట్రానిక్స్ అండ్ కమ్యూనికేషన్ ఇంజనీరింగ్(ఈసిఈ) విభాగం ఆధ్వర్యంలో 2వ తేదీ నుండి 7వ తేదీ వరకు మొదటి దశ ప్రోగ్రాం హాండ్స్ ఆన్ ప్రాజెక్టు బేస్డ్ అప్రోచ్ ఫర్ 5జి అండ్ డెవలప్‌మెంట్ యూజింగ్ మ్యాట్ ల్యాబ్ అనే అంశంపై ఎఐసిటిఐ స్పాన్సర్డ్ షార్ట్ టర్మ్ ట్రేనింగ్ ప్రోగ్రాం(ఎఫ్‌టిపి) నిర్వహిస్తున్నామని ప్రిన్సిపాల్ ప్రొఫెసర్ కె.అశోక్‌రెడ్డి తెలిపారు.ఈ కార్యక్రమానికి ముఖ్యఅతిథిగా ఐఐటి కాన్పూర్ ప్రొఫెసర్ డాక్టర్ కె.వాసుదేవన్ ప్రారంభోత్సవం చేశారు. ఈ కార్యక్రమంలో కోశాధికారి పి.నారాయణరెడ్డి, బద్రి నరసింహం, ఈసిఈ విభాగాధిపతి ప్రొఫెసర్ ఇ.రమాదేవి, డాక్టర్ ఎం.రాజు, డి.వేణు, డాక్టర్ ధనలక్ష్మి, ఇ.సురేష్, డాక్టర్ వెంకటేశ్వర్‌రెడ్డి, వివిధ కళాశాలల నుంచి 200పై చీలుకు పార్టీసిపెంట్స్, పలు విభాగాల హెచ్‌ఒడిలు, ఈసిఈ అధ్యాపకులు పాల్గొన్నారు.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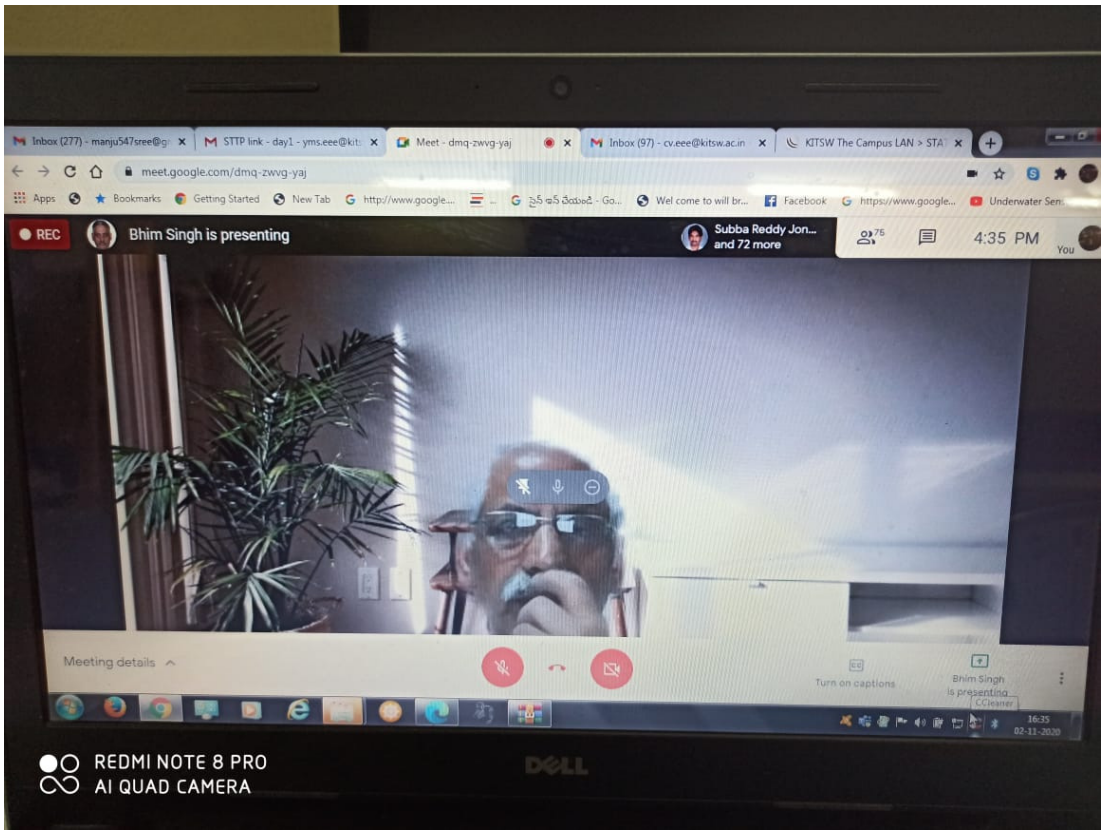
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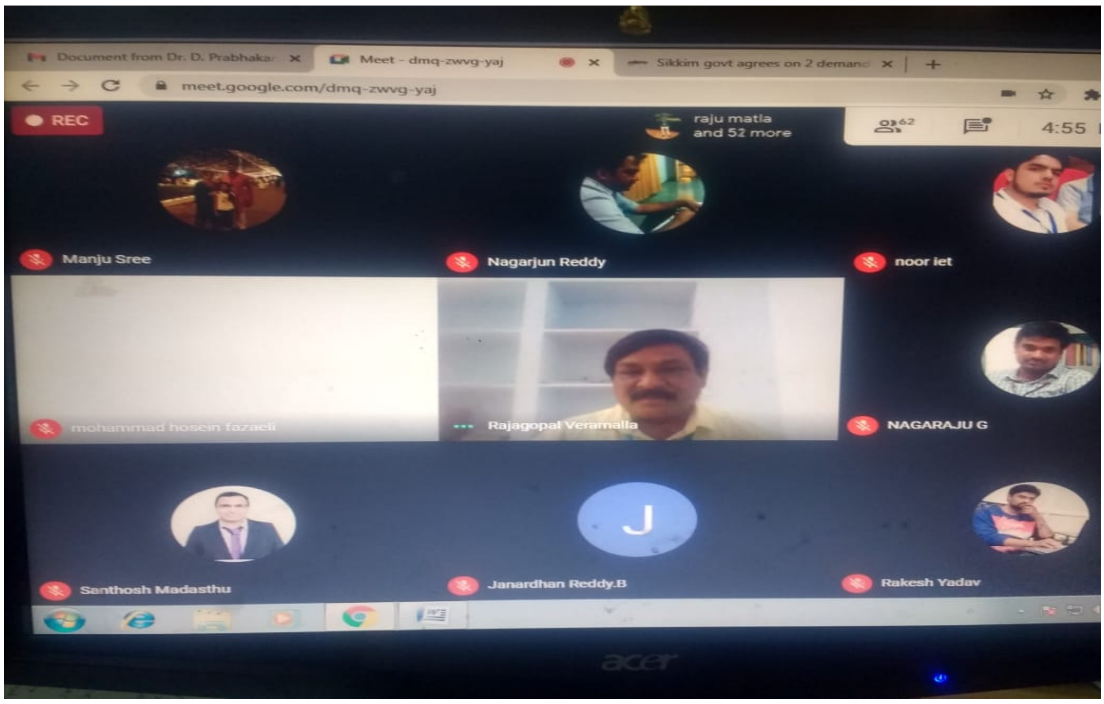
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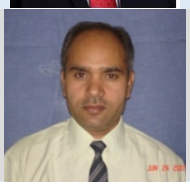
NAGARAJU G
Santhosh Madasthu
Janardhan Reddy.B
Rakesh Yadav

Resource Persons

S. No.	Topic	Resource Person	Duration
1.	***"Grid Interfaced Solar Photovoltaic System"***	**Prof. Bhim Singh** Professor, IIT Delhi	
2.	***"Solar Photovoltaic Power with MPPT "***	**Dr. V. Rajagopal** Professor, KITS Warangal	
3.	***"Multilevel converters for electric vehicles"***	**Dr. D. Sreenivasa Rao** Electrical Engineering Dept. NIT Warangal	
4.	***"Li-ion Batteries & super capacitors for EV applications"***	**Dr. Tata Narasinga Rao** Scientist 'G' & Associate Director International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI) Hyderabad	
5.	***Research aspects of Electric vehicle charging station and its effect on distribution systems***	**Dr. Y. Chandrasekhar** Electrical Engineering Dept. NIT Warangal	
6.	***Simulation Modelling of EV***	**Debanand Singdeo** Math works Pvt. Ltd., Bengaluru	
7.	***Simulation Modelling of EV***	**Ramana Anchuri** Math works Pvt. Ltd., Bengaluru	

8.	***"Challenges in retrofitting EV-Ex EV"***	**Dr. M. Mithun Bhaskar** Head, Model Based Product Engr, Tata Elxsi, Trivandrum	
9.	***" Power Quality Aspects in Microgrid Connected Power System"***	**Prof. Mahesh Kumar Mishra** Professor, IIT Madras	
10.	***"Overview of EV Technology and Trends"***	**Dr. Allabaksh Naikodi** Head, R&D EE, Mahindra Reva EV Pvt. Ltd., Bengaluru	
11.	***"Plugged-in Electric Vehicles - Power Quality Concern"***	**Dr. C. Venkatesh** Professor, KITS Warangal	

Organizing Committee

Advisory Committee

Sri M Narasimha Rao, Assoc. Prof., EEE

Dr. G. Rajender Nail, Assoc. Prof., EEE

Dr. G. Sudheer Kumar, Assoc. Prof., EEE

Dr. B. Vijaykumar, Assoc. Prof., EEE

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Dr. P. Nagarjuna Reddy, Asst. Prof., EEE

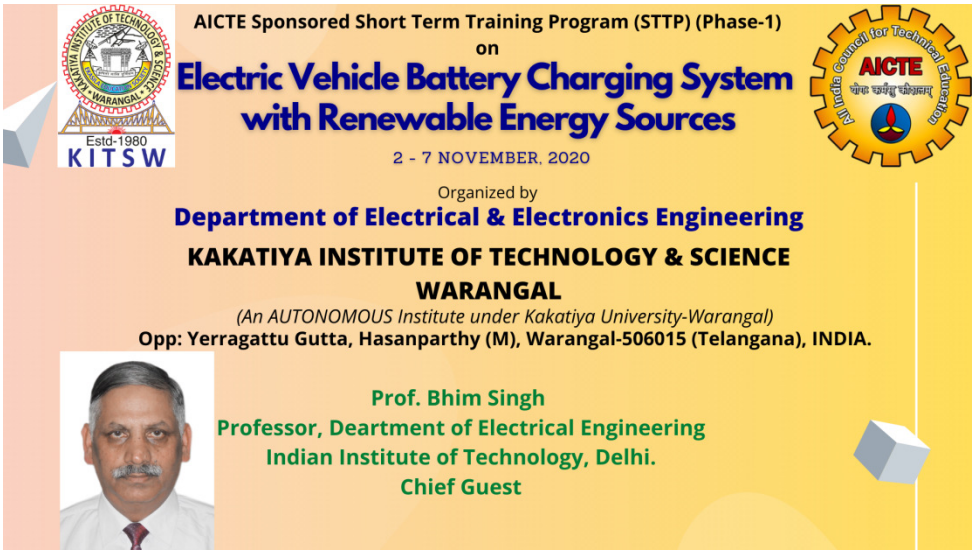
Dr. Y. Manjusree, Asst. Prof., EEE

Dr. D. Rakesh Chandra, Asst. Prof., EEE

Dr. A. Madhukar Rao, Asst. Prof., EEE

Dr. M. Santhosh, Asst. Prof., EEE

Session I (2nd November 2020)
TITLE: Grid Interfaced Solar Photovoltaic System



Resource Person:

Prof Bhim Singh,

Professor, Department of Electrical Engineering,

Indian Institute of Technology Delhi.

Biography:

Dr. Bhim Singh, Professor, Department of Electrical Engineering, Indian Institute of Technology, New Delhi-110016, India. Bhim Singh (SM'99, F'10) was born in Rahamapur, Bijnor (UP), India, in 1956. He has received his B.E. (Electrical) from the University of Roorkee (Now IIT Roorkee), India, in 1977. M.Tech (Power Apparatus & Systems) and Ph.D. from the Indian Institute of Technology Delhi, India, in 1979 and 1983, respectively. In 1983, he joined the Department of Electrical Engineering, University of Roorkee, as a Lecturer. He became a Reader there in 1988. In December 1990, he joined the Department of Electrical Engineering, IIT Delhi, India, as an Assistant Professor, where he has become an Associate Professor in 1994 and a Professor in 1997.

Dr. Bhim Singh has been ABB Chair Professor from September 2007 to September 2012. He has also been CEA Chair Professor from October 2012 to September 2017. He has been Head of the Department of Electrical Engineering at IIT Delhi from July 2014 to August 2016. He has been the Dean, Academics at IIT Delhi from August 2016 to August 2019. He is JC Bose Fellow of

DST, Government of India since December 2015. Prof. Singh is the Chairman of BOG, Maulana Azad National Institute of Technology, Bhopal, since 3rd July 2018 for 3 Years and Non-official Independent Director, NTPC Limited, since 17th July 2018 for 3 Years. He is CEA Chair Professor since January 2019.

Prof. Singh has guided 91 Ph.D. dissertations, and 168 M.E./M.Tech./M.S.(R) theses. He has been filed 60 patents. He has executed more than eighty sponsored and consultancy projects. He has co-authored a text book on power quality: Power Quality Problems and Mitigation Techniques published by John Wiley & Sons Ltd. 2015.

His areas of interest include solar PV grid interface systems, micro grids, power quality monitoring and mitigation, solar PV water pumping systems, improved power quality AC-DC converters, power electronics, electrical machines, drives, flexible alternating transmission systems, and high voltage direct current systems.

Prof. Singh is a Fellow of the Indian National Academy of Engineering (FNAE), The Indian National Science Academy (FNA), The National Academy of Science, India (FNASc), The Indian Academy of Sciences, India (FASc), The World Academy of Sciences (FTWAS), Institute of Electrical and Electronics Engineers (FIEEE), the Institute of Engineering and Technology (FIET), Institution of Engineers (India) (FIE), and Institution of Electronics and Telecommunication Engineers (FIETE) and a Life Member of the Indian Society for Technical Education (ISTE), System Society of India (SSI), and National Institution of Quality and Reliability (NIQR).

He has received Khosla Research Prize of University of Roorkee in the year 1991. He is recipient of JC Bose and Bimal K Bose awards of The Institution of Electronics and Telecommunication Engineers (IETE) for his contribution in the field of Power Electronics. He is also a recipient of Maharashtra State National Award of Indian Society for Technical Education (ISTE) in recognition of his outstanding research work in the area of Power Quality. He has received PES Delhi Chapter Outstanding Engineer Award for the year 2006. Professor Singh has received Khosla National Research Award of IIT Roorkee in the year 2013. He is a recipient of Shri Om Prakash Bhasin Award-2014 in the field of Engineering including Energy & Aerospace. Professor Singh has received IEEE PES Nari Hingorani Custom Power Award-2017. He is also a recipient of “Faculty Research Award as a Most Outstanding Researcher” in the field of Engineering-2018 of Careers-360, India. He has received Faculty Lifetime Research Award-

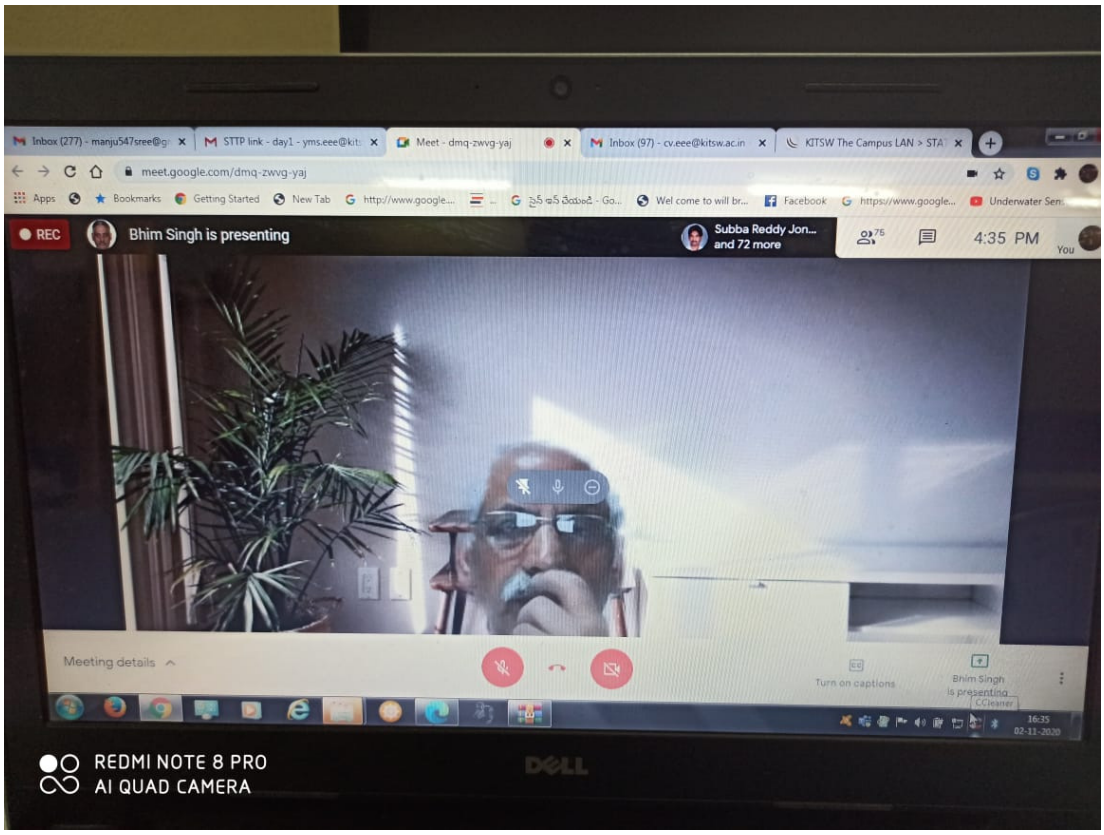
2018 for overall research contribution at IIT Delhi. He is recipient IEEE-IAS outstanding educator/mentor award 2020. Prof. Singh is also the recipient of INAE outstanding teaching award 2020 and Eminent Engineer Award-2020 by The Institution of Engineers (India). Prof. Bhim Singh is the recipient of first International Solar Alliance (ISA)- Haryana Kalpana Chawla Solar Award for working towards developing solutions in the Solar Energy Sector to help create a sustainable and low-carbon world for generations to come.

He has been the General Chair of the 2006 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES'2006), General Co-Chair of the 2010 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES'2010), General Co-Chair of the 2015 IEEE International Conference (INDICON'2015), General Co-Chair of 2016 IEEE International Conference (ICPS'2016) held in New Delhi, General Co-Chair of 2017 National Power Electronics Conference (NPEC) held in Pune.

Prof. Singh has been Chair, PES-IAS Delhi Chapter for 2005-2010, (PES-IAS Delhi Chapter won Outstanding Chapter Award-2005 Large and High Performance Chapter Award Every Year). Prof. Singh has been Chair, PELS-IES Delhi Chapter 2007-2010 and Founder Chair, PELS-IES Delhi Chapter. He has been Chair of IEEE Delhi Section for 2012-2014.

Report: Important points covered by Prof Bhim Singh

- Introduction about the solar photo voltaic systems.
- Discussed about India's current solar capacity and its future targets.
- Types of interfacing systems such as off grid and grid tied.
- Off grid solar applications such as grid connected solar PV rooftop system.
- Enlightened about the types of interfacing systems available between solar and the grid.
- Types of grid connected inverters for solar interfacing and the problems faced while injecting the solar power into the grid.
- Various topologies, control algorithms are discussed and finally concluded with well supported simulation and experimental results.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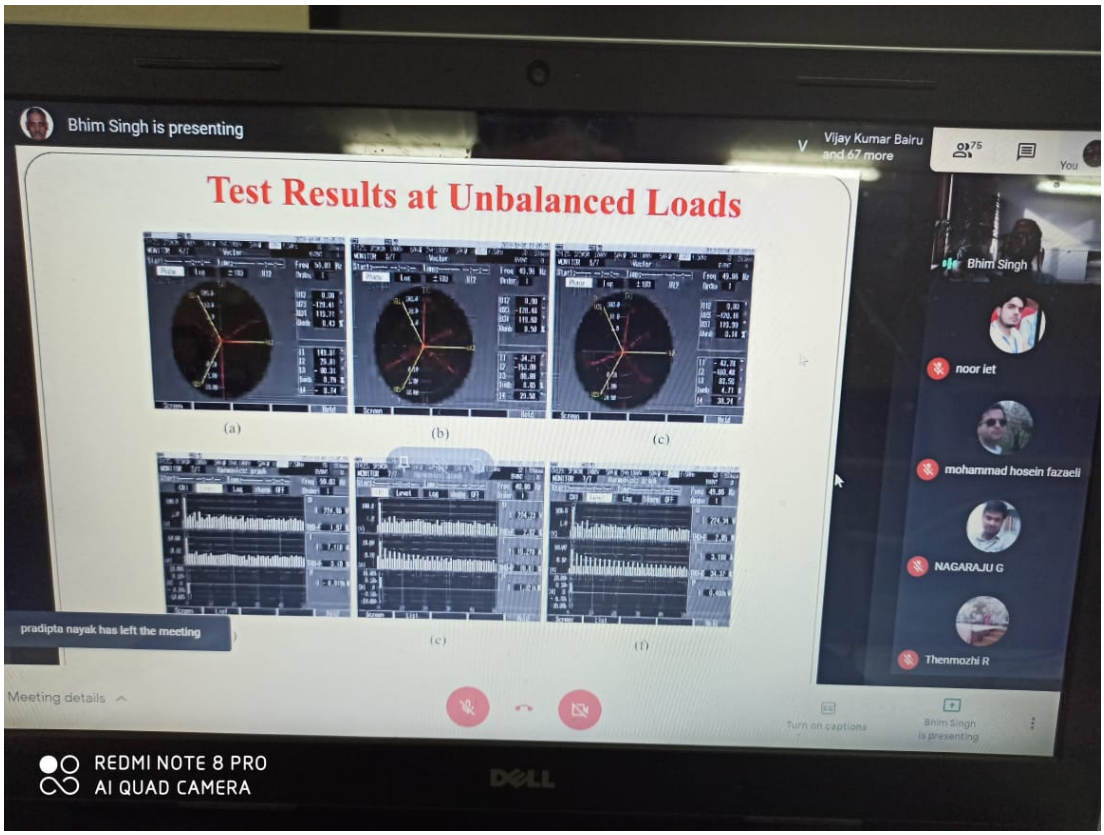
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NAGARAJU G
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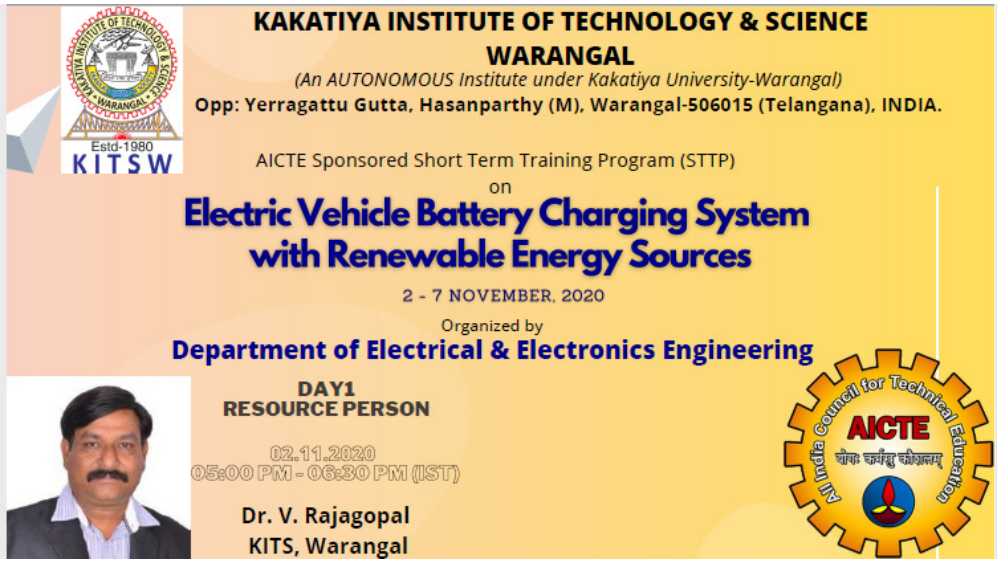
Session II (2nd November 2020)

TITLE: Solar Photovoltaic Power with MPPT



Resource Person:

Dr. V Rajagopal,

Professor, Department of Electrical and Electronics Engineering

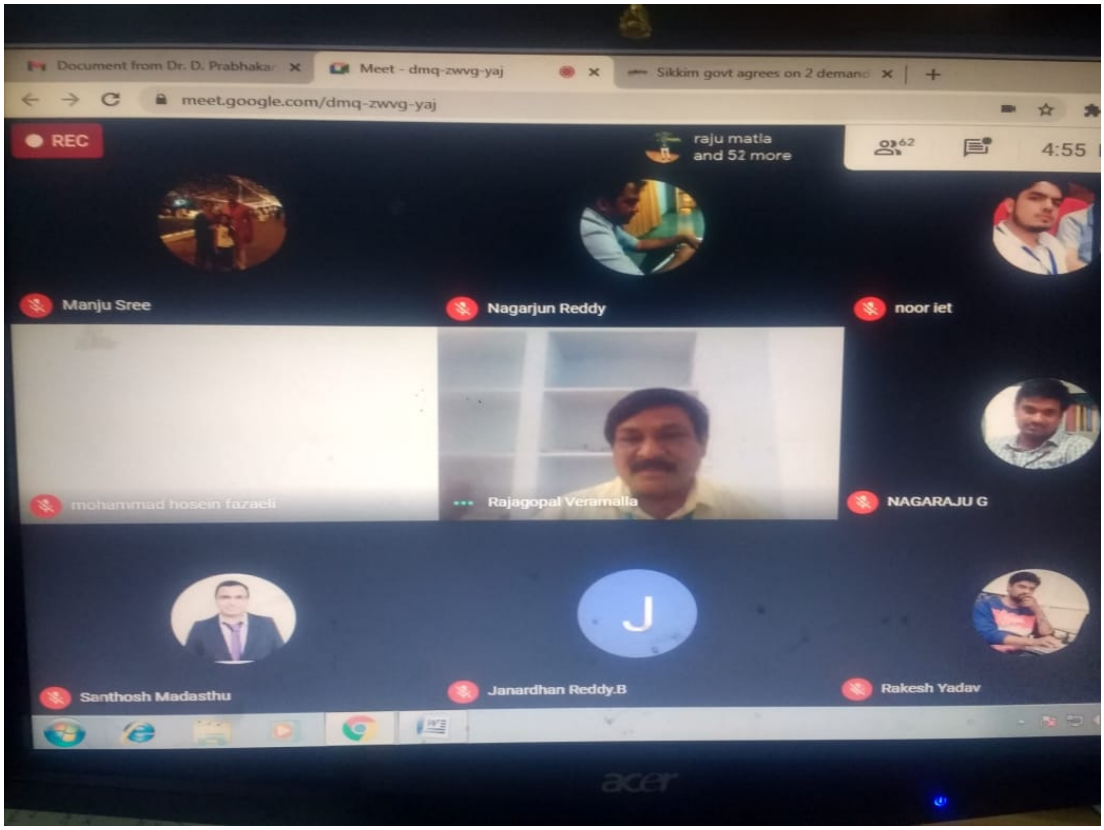
KITS Warangal

Biography:

RAJAGOPAL VEERAMALLA was born in Kazipet, Warangal, India, in 1969. He received the AMIE (Electrical) degree from The Institution of Engineers (India), M.Tech Degree from the Uttar Pradesh Technical University India and Ph D degree in Indian Institute of Technology (IIT) Delhi. Currently, he is working as a Professor of EEE, Kakatiya Institute of Technology and Science Warangal Telangana India. His area of interest includes power electronics and drives, renewable energy generation and applications, FACTS, and power quality. He has 01 patent, 14 International & National Journals and 40 IEEE and National conferences held at India and abroad. He is a life member of the Indian Society for Technical Education (ISTE) and Fellow of Institution of Engineers (India) (IE (I)).

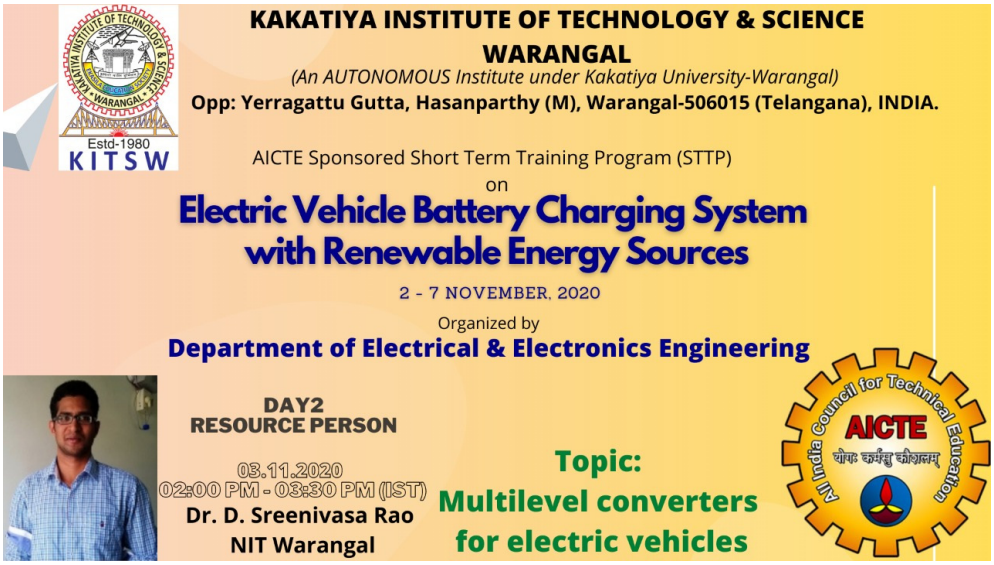
Report: Important points covered by P Dr. V Rajagopal

- Evaluation of solar effect and Introduction about solar energy.
- What are solar cell, module, panel, and array?
- Solar panel diagram, terms related to solar cells and its equivalent circuit.
- I-V and P-V curves of a PV cell and its variation with respect to irradiation.
- Efficiency of a PV cell.
- Series and parallel connection of PV cells to increase its current and voltage ratings.
- Maximum power point operation.
- DC-DC converters to extract maximum power.
- Explanation of maximum power point tracking operation with the help of Perturb and Observe (P & O) algorithm.



Session III (3rd November 2020)

TITLE: Multi level converters for Electric Vehicles



Resource Person:

Dr. D Sreenivasarao,

Assistant Professor, Department of Electrical Engineering

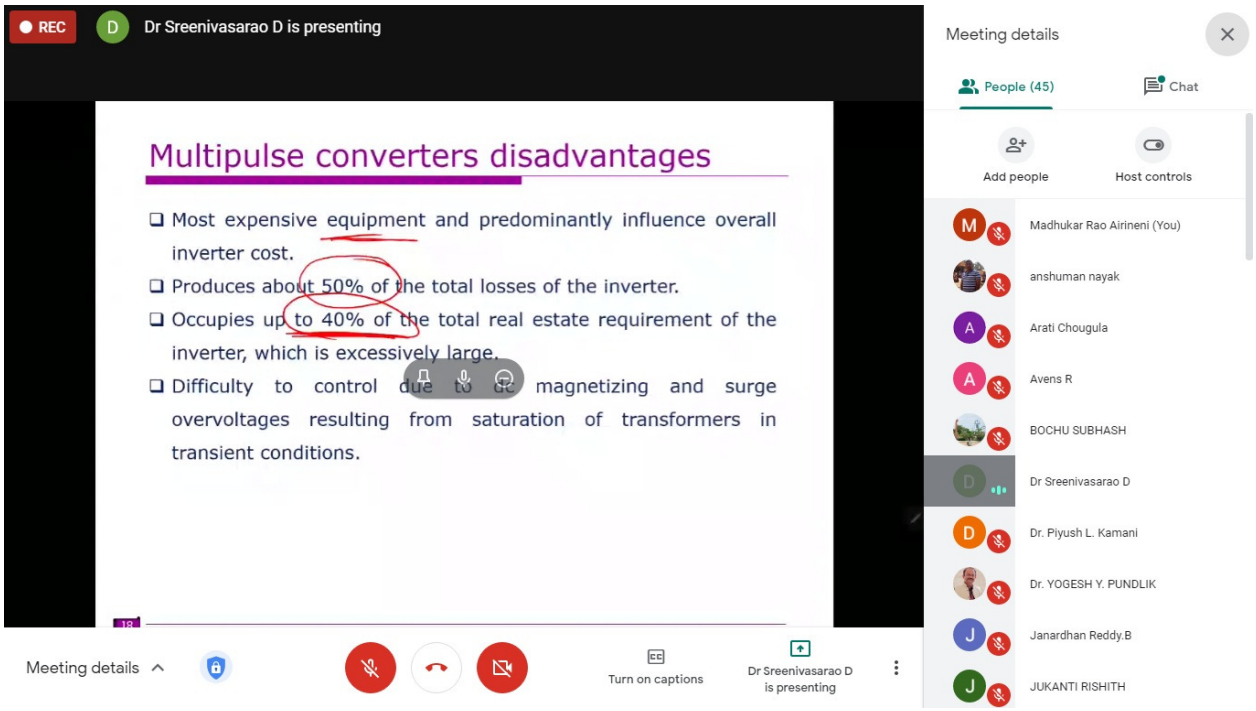
NIT Warangal

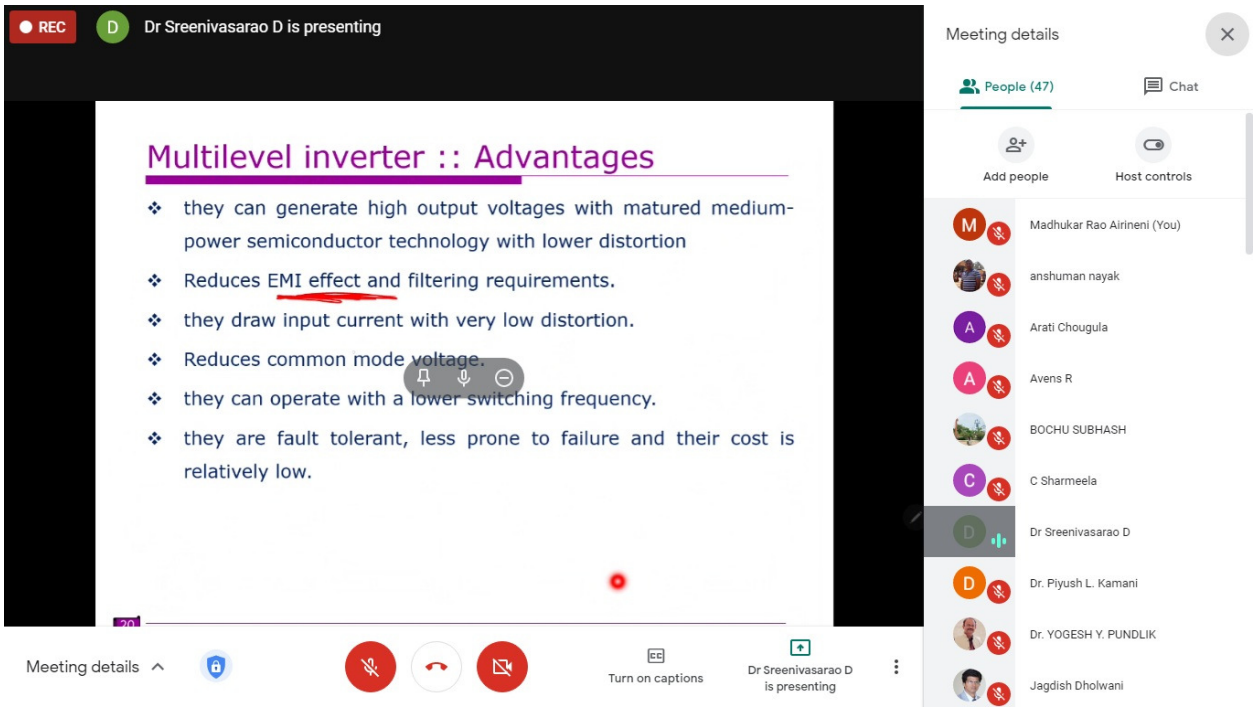
Biography:

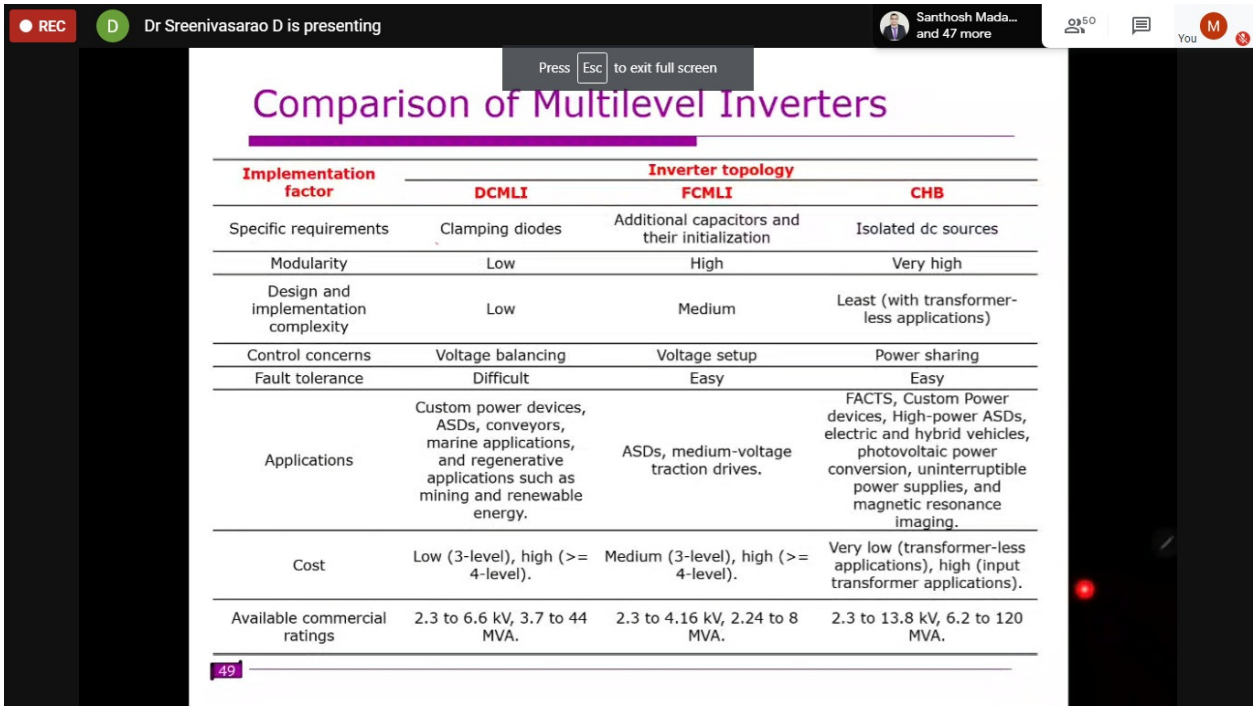
Dr. D. SREENIVASARAO was born in Andhra Pradesh, India. He received his B.Tech. Degree from Bapatla Engineering College in 2006, He received the M.Tech, and Ph.D. degrees in electrical engineering from Indian Institute of Technology Roorkee, Roorkee, in 2008 and 2014, respectively. He is currently working as an Assistant Professor with the National Institute of Technology Warangal. His research interests include power quality, multilevel inverters, and modulation techniques for multilevel inverters, development of new converter topologies, electric vehicles, and adjustable-speed drives. He published more than 20 research papers in various journals and presented more than 10 research papers in various international conferences.

Report: Important points covered by Dr. D Sreenivasarao

- Advantages and limitations of voltage source converters (VSC) and current source converters (CSC).
- Limitations of two level and multi pulse inverters.
- Advantages of multi level inverters (MLI) over two level inverters for high power applications.
- Conventional MLI topologies such as
  - Neutral point clamped (NPC) MLI.
  - Flying capacitor MLI (FCMLI).
  - Cascaded H-bridge (CHB) MLI.
  - Component comparison and performance comparison between NPC, FCMLI, and CHB multi level inverters.
- MLIs for drive applications.
- Reduced switch count MLIs to overcome limitations of conventional MLIs.
- Various RSC MLI topologies for drive applications.



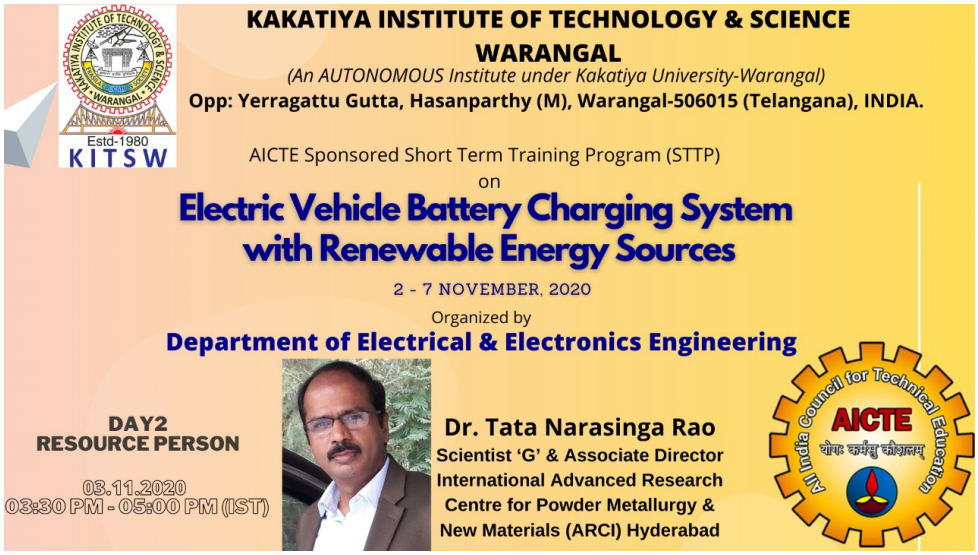




Implementation factor	Inverter topology		
	DCMLI	FCMLI	CHB
Specific requirements	Clamping diodes	Additional capacitors and their initialization	Isolated dc sources
Modularity	Low	High	Very high
Design and implementation complexity	Low	Medium	Least (with transformer-less applications)
Control concerns	Voltage balancing	Voltage setup	Power sharing
Fault tolerance	Difficult	Easy	Easy
Applications	Custom power devices, ASDs, conveyors, marine applications, and regenerative applications such as mining and renewable energy.	ASDs, medium-voltage traction drives.	FACTS, Custom Power devices, High-power ASDs, electric and hybrid vehicles, photovoltaic power conversion, uninterruptible power supplies, and magnetic resonance imaging.
Cost	Low (3-level), high (>= 4-level).	Medium (3-level), high (>= 4-level).	Very low (transformer-less applications), high (input transformer applications).
Available commercial ratings	2.3 to 6.6 kV, 3.7 to 44 MVA.	2.3 to 4.16 kV, 2.24 to 8 MVA.	2.3 to 13.8 kV, 6.2 to 120 MVA.

Session IV (3rd November 2020)

TITLE: Li-ion Batteries & Super Capacitors for EV Applications



Resource Person:

Dr. Tata Narsinga rao,

Scientist 'G' & Associate Director

International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI) Hyderabad

Biography:

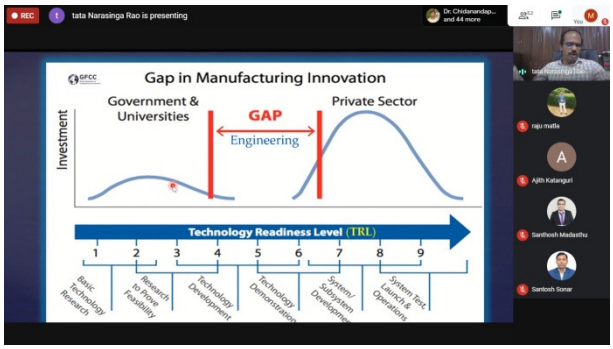
Dr. Tata Narasinga Rao received his Ph. D degree in Chemistry from Banaras Hindu University, India in 1994. After working at IIT Madras as Research Associate, he moved to The University of Tokyo in 1996 as a JSPS post doctoral fellow and subsequently became lecturer in the same University in 2001. He joined International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), Hyderabad, India, in 2003 as senior scientist, and presently he is Scientist G and Associate Director of ARCI. He was also guest faculty at IIT Hyderabad and University of Hyderabad in the past. He is recipient of several awards and honors including 'Material Research Society of India (MRSI) medal'-2009; 'Tokyo University of Science President Award'-2014; 'Academician of Asia Pacific Academy of Materials (APAM)'-2015; 'Technology Day National Award'-2016 (received from President of India); Fellow of Telangana & AP Academy of Sciences'-2017; and 'Bangalore India Nano Innovation Award'-2018 (receiver from Bharat Ratna, Prof. CNR Rao). Dr. Rao published more than 150 research papers and filed more than 20 patents. His publications got total citation index more than 16000

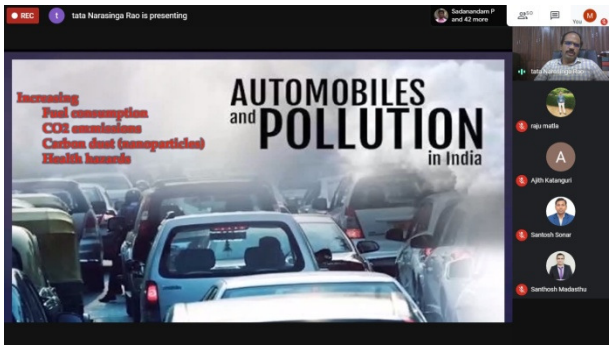
with a h-index more than 40. Three of the technologies developed by his team were transferred to industry and commercialized. His research interests include, Photo electrochemistry & Photo catalysis, Diamond Electrochemistry, Basic and translational research on nano materials synthesis and applications. Currently his research focus is on indigenizing the technology for large scale synthesis of electrode materials for Li-ion batteries, super capacitors which is need of the hour for electric vehicle applications. In the present pandemic situation, he has developed three UVC-based disinfection systems (UVC trolley for Hospitals, UVC cabinets for home and office use and UVC baggage scan systems for airport, malls and hotels) in collaboration with companies, and the products are already launched in the market. He is presently working on nano-coated self-disinfecting masks and antiviral-paints.

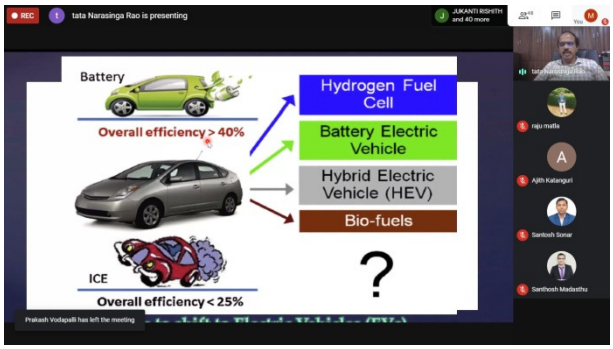
Report: Important points covered by Dr. Tata Narsinga rao

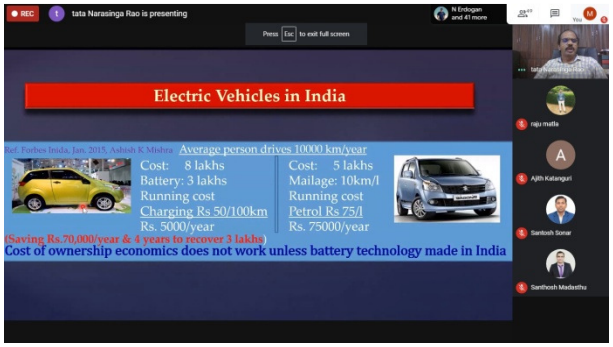
- Conventional IC engines and its limitations.
- How one can contribute in this covid-19 pandemic situation and sustainability of the environment.
- Advantages about available batteries for electric vehicle applications.
- Comparison between led acid and Li-ion batteries.
- Limitations of led acid batteries.
- Gap in manufacturing innovation between government, universities and private sector.
- High power nano-materials to synthesize batteries.
- Carbon based super capacitors alternative to Li-ion batteries.

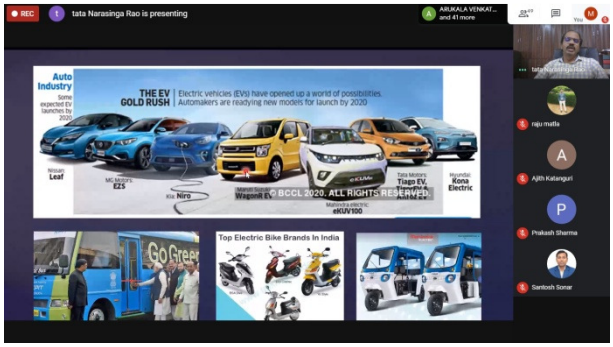

tata Narasinga Rao is presenting
Li-ion Batteries and Supercapacitors for EV Applications
Tata Narasinga Rao
Associate Director
E-mail: tata@arci.res.in
International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), Hyderabad, India
Mandate: Transforming Laboratory research into Technology and transfer to industries

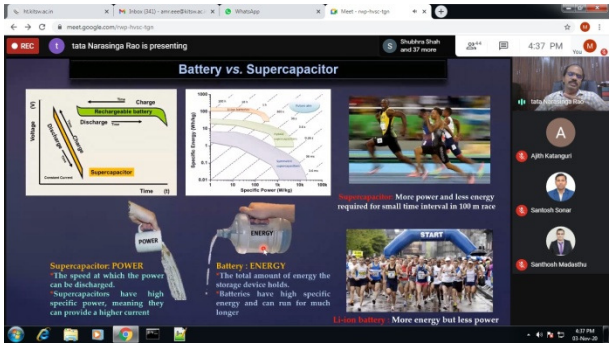

tata Narasinga Rao is presenting
Gap in Manufacturing Innovation
Government & Universities
GAP
Private Sector
Engineering
Investment
Technology Readiness Level (TRL)
1 2 3 4 5 6 7 8 9
Basic Technology Research
Research to Prove Feasibility
Technology Development
Technology Demonstration
System/ Subsystem Development
System Test, Launch & Operations


tata Narasinga Rao is presenting
Increasing
Fuel consumption
CO2 emissions
Carbon dust (nanoparticles)
Health hazards
AUTOMOBILES and POLLUTION in India


tata Narasinga Rao is presenting
Battery
Overall efficiency > 40%
Hydrogen Fuel Cell
Battery Electric Vehicle
Hybrid Electric Vehicle (HEV)
Bio-fuels
ICE
Overall efficiency < 25%
?


tata Narasinga Rao is presenting
Electric Vehicles in India
Average person drives 10000 km/year
Cost: 8 lakhs
Battery: 3 lakhs
Running cost
Charging Rs 50/100km
Rs. 5000/year
Cost: 5 lakhs
Mailage: 10km/l
Running cost
Petrol Rs 75/l
Rs. 75000/year
(Saving Rs.70,000/year & 4 years to recover 3 lakhs)
Cost of ownership economics does not work unless battery technology made in India

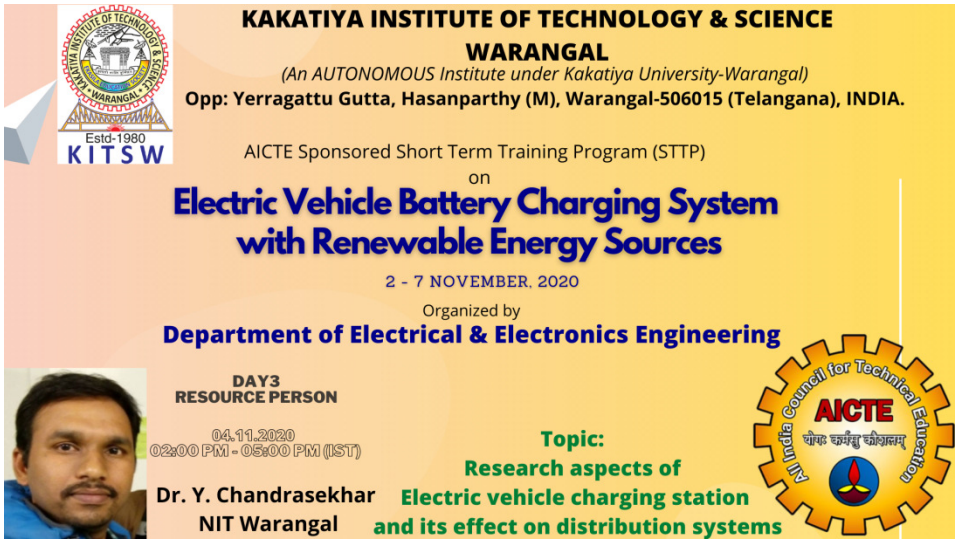

tata Narasinga Rao is presenting
Auto Industry
THE EV GOLD RUSH
Electric vehicles (EVs) have opened up a world of possibilities. Automakers are readying new models for launch by 2020
Top Electric Bike Brands In India


tata Narasinga Rao is presenting
Battery vs. Supercapacitor
Supercapacitor: POWER
Battery : ENERGY
Supercapacitor: More power and less energy required for small time interval in 100 m race
Li-ion battery : More energy but less power


tata Narasinga Rao is presenting
Battery vs. Supercapacitor
Supercapacitor: POWER
Battery : ENERGY
Supercapacitor: More power and less energy required for small time interval in 100 m race
Li-ion battery : More energy but less power

Session V (4th November 2020)

TITLE: Research Aspects of Electric Vehicle Charging Station and its Effect on Distribution Systems



Resource Person:

Dr. Y Chandrasekhar,

Assistant Professor, Department of Electrical Engineering

NIT Warangal

Biography:

Dr. Chandrasekhar Yammani received B.Tech degree in Electrical and Electronics Engineering under JNTU, Hyderabad, India, in 2007. He possessed M.Tech and Ph. D Degrees in Power Systems Engineering from the National Institute of Technology Warangal (NITW), Warangal, India, in 2009 and 2015 respectively. He completed Post-Doctoral studies from Scotland under Erasmus Mundus European Program in 2018. Since March-2012, he is working as an Assistant Professor in Electrical Engineering Department of NIT Warangal.

His research areas are Renewable energy resources in power systems, Micro grids, Optimization techniques, Meta-heuristic Techniques, Fast EV Charging stations, Block chain Technologies to Smart Grid and Power system Reliability.

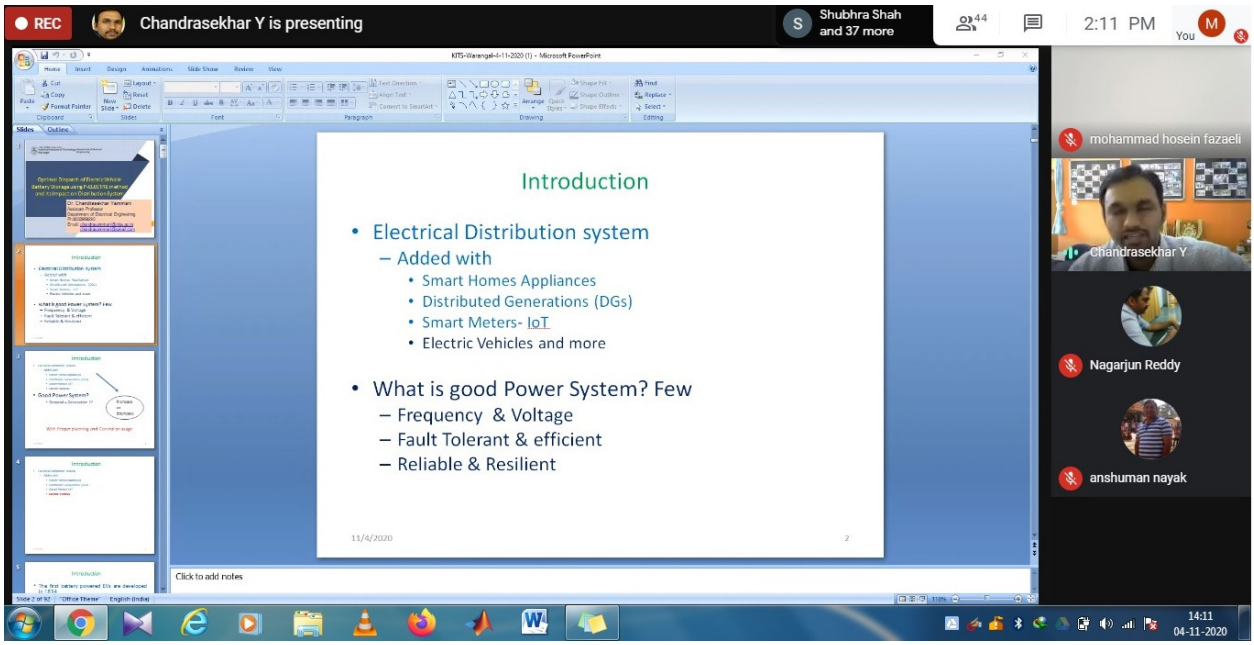
In his career, he has published 30 international Research publications and 2 National publications in reputed journals and conferences in India and abroad. He completed one research project under European union H2020 program. He is working on one Indo-Norway projects sponsored

by DST and SERB, Govt. of India worth Rs.2 crore. He visited USA, UK, Scotland, Norway, Romania and Singapore for presenting his research papers. He acted as a chair in the IEEE Tencon-2016, held in Singapore. He selected as a transnational access researcher of European Union's ERI Grid under H2020 for conducting Research at The National Smart Grid Laboratory, SINTEF Energy and NTNU, Trondheim, Norway.

Under his guidance 14 B.Tech projects, 16 M.Tech projects are completed. Three research scholars are working under him in the areas of Electric Vehicle Fast Charging Stations study in Micro grids, Microgrid Scheduling with Reliability and Resiliency studies.

Report: Important points covered by Dr. Y Chandrasekhar

- Introduction about power system and electrical distribution systems.
- Types of Electric vehicles.
- Improvements in EV battery technologies.
- EV battery charging and discharging systems.
- Strategic dispatch of EV battery storage, charging and discharging criteria.
- Concept of State of charge.
- Placement of charging stations.
- Determining the optimal fast charging stations location.
- Limitations of fast charging stations.


REC
Chandrasekhar Y is presenting
Shubhra Shah and 37 more
2:11 PM
You
Introduction
Electrical Distribution system
Added with
Smart Homes Appliances
Distributed Generations (DGs)
Smart Meters- IoT
Electric Vehicles and more
What is good Power System? Few
Frequency & Voltage
Fault Tolerant & efficient
Reliable & Resilient
11/4/2020
mohammad hosein fazaeli
Chandrasekhar Y
Nagarjun Reddy
anshuman nayak
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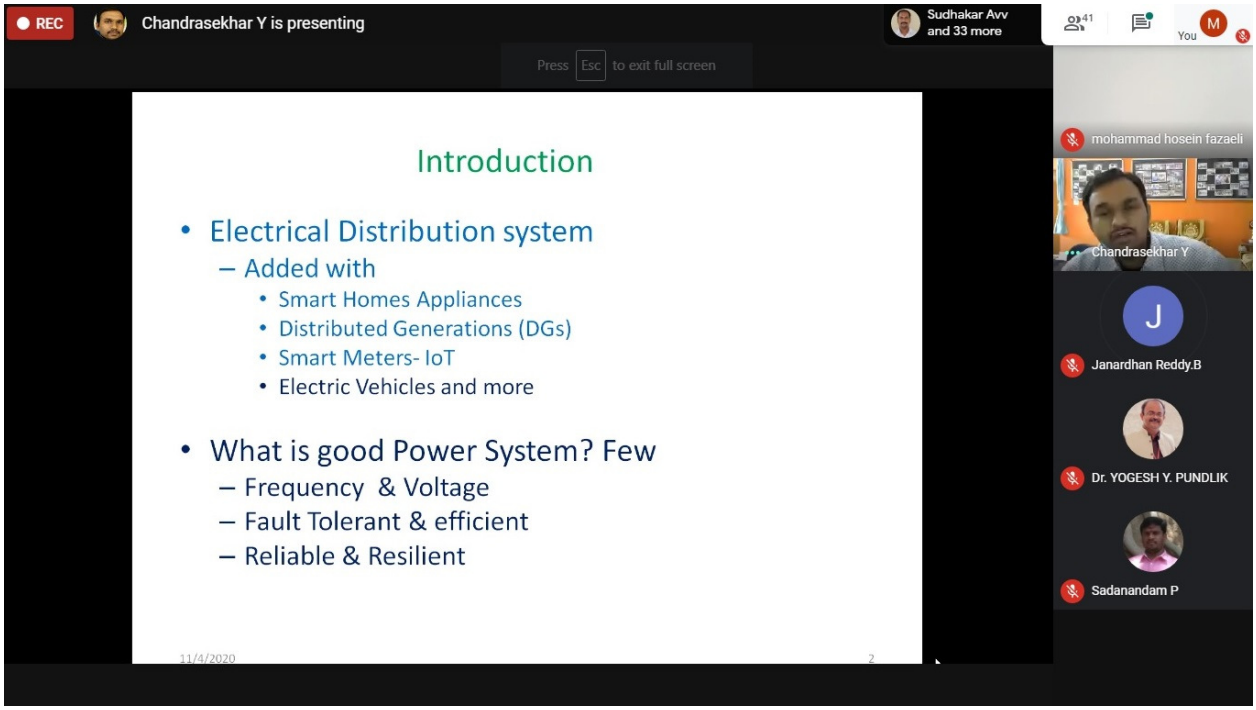
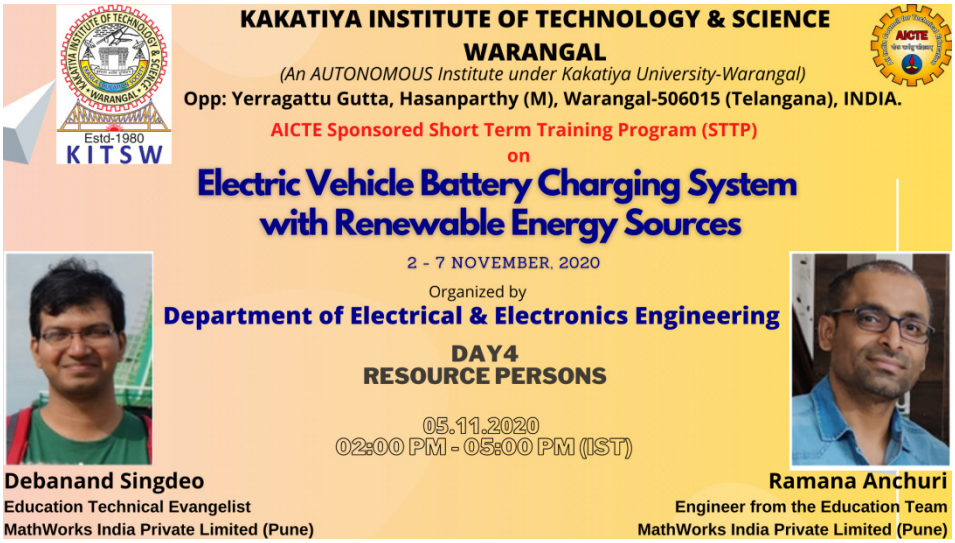
04-11-2020


REC
Chandrasekhar Y is presenting
Sudhakar Avv and 33 more
Press Esc to exit full screen
Introduction
Electrical Distribution system
Added with
Smart Homes Appliances
Distributed Generations (DGs)
Smart Meters- IoT
Electric Vehicles and more
What is good Power System? Few
Frequency & Voltage
Fault Tolerant & efficient
Reliable & Resilient
11/4/2020
mohammad hosein fazaeli
Chandrasekhar Y
Janardhan Reddy.B
Dr. YOGESH Y. PUNDLIK
Sadanandam P

Session VI (5th November 2020)

TITLE: Modeling of Electric Vehicles using MATLAB - Simulink



Resource Person:

1. Debanand Singdeo
   Education Technical Evangelist
   Math Works India Private Limited (Pune).

Biography:

Debanand Singdeo works as an Education Technical Evangelist at Math Works India Private Limited (Pune). In this role, he collaborates with researchers with the aim of accelerating the pace of innovation in science and engineering. Also, he works closely with academic institutions for effective utilization of Math Works resources in education. He has a Bachelor's degree in physics from Visva Bharati, Santiniketan, followed by MSc -PhD degree from the Department of Energy Science and Engineering, IIT Bombay. His prior research experience is in the area of modeling and simulation of renewable energy systems. In previous roles, he has worked as a postdoctoral fellow in the Department of Energy Technology, Aalborg University, Denmark.

2. Ramana Anchuri
   Math Works.

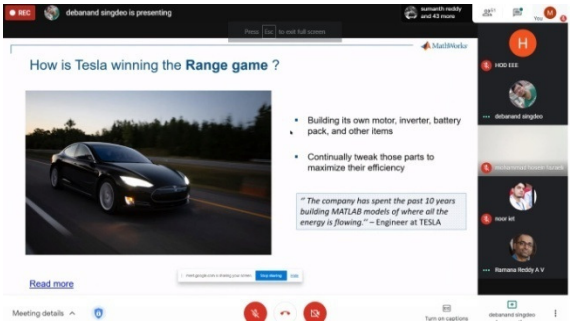
Biography:

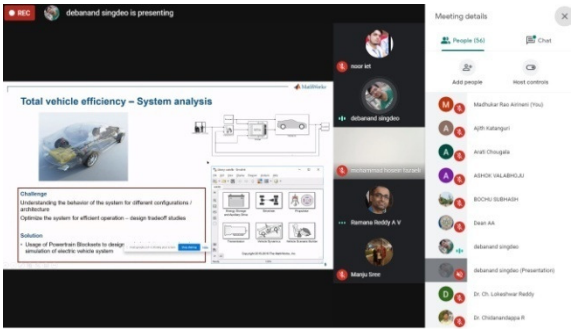
Ramana Anchuri is an Engineer from the Education Team at The Math Works, working with academia in India. He completed his undergraduate studies in Electrical and Electronics Engineering and Masters in Power Electronics form JNTU Hyderabad. Prior to joining The Math

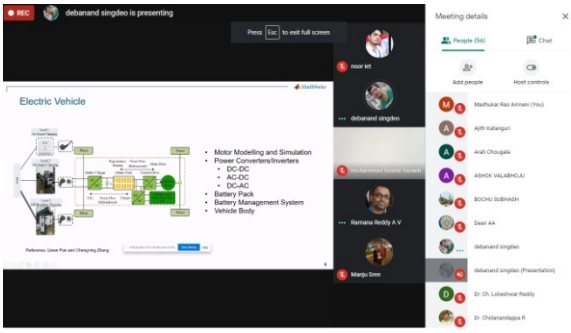
Works, he worked for academia and in industry. He worked with KPIT Pune as senior software engineer where he is responsible for control design for automotive engine systems and with CYIENT limited as senior software engineer responsible for developing, verifying and validating aircraft engine control systems. He is passionate about teaching and learning, and his current interests include Power Electronics and Control Design, Model Based Design and Code Generation.

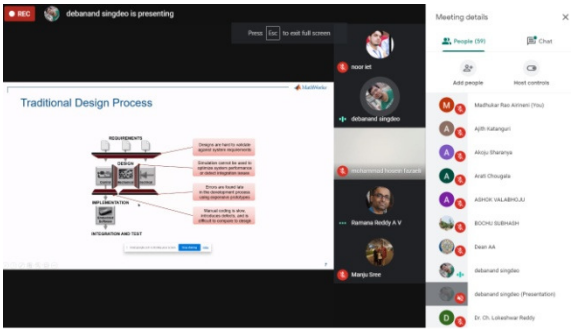
Report: Important points covered by Prof Bhim Singh

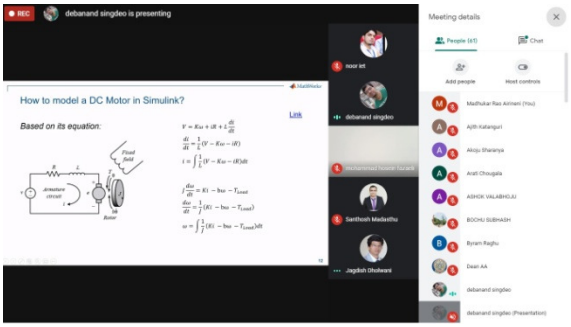
- How is TESLA winning the electric vehicle (EV) range game?
- Challenges of EV modeling.
- Total EV efficiency and system analysis.
- Schematic diagram of an EV.
- Traditional design process of a vehicle.
- Model based design process and different approaches for modeling dynamic systems.
- Modeling of brush less dc motor (BLDC) and DC-DC converters using simscape.
- Demonstration of DC-DC converter implementation.
- Implementing control for power converters on Texas Instruments (TI) DC led developer kit.
- Modeling of an electric vehicle using motor, DC-DC converters, battery, and inverter models.

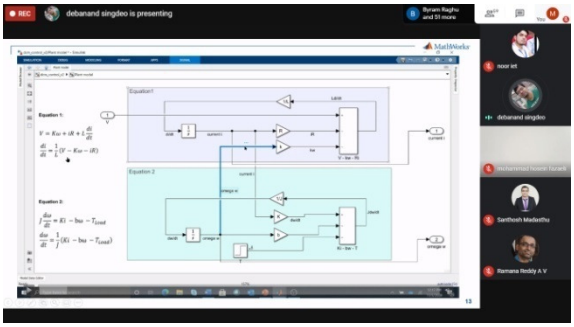

debanand singdeo is presenting
How is Tesla winning the Range game ?
Building its own motor, inverter, battery pack, and other items
Continually tweak those parts to maximize their efficiency
" The company has spent the past 10 years building MATLAB models of where all the energy is flowing." – Engineer at TESLA
Read more

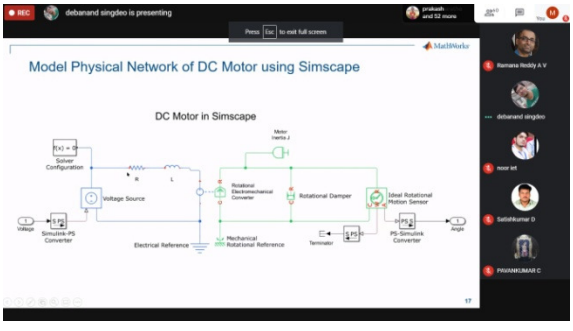

debanand singdeo is presenting
Total vehicle efficiency – System analysis
Challenge
Solution

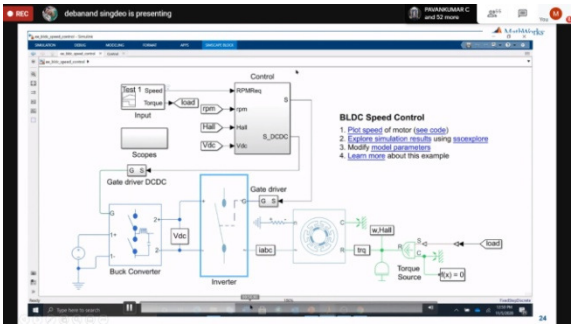

debanand singdeo is presenting
Electric Vehicle
Motor Modelling and Simulation
Power Converters/Inverters
DC-DC
AC-DC
DC-AC
Battery Pack
Battery Management System
Vehicle Body


debanand singdeo is presenting
Traditional Design Process
REQUIREMENTS
DESIGN
IMPLEMENTATION
INTEGRATION AND TEST


debanand singdeo is presenting
How to model a DC Motor in Simulink?
Link
Based on its equation:

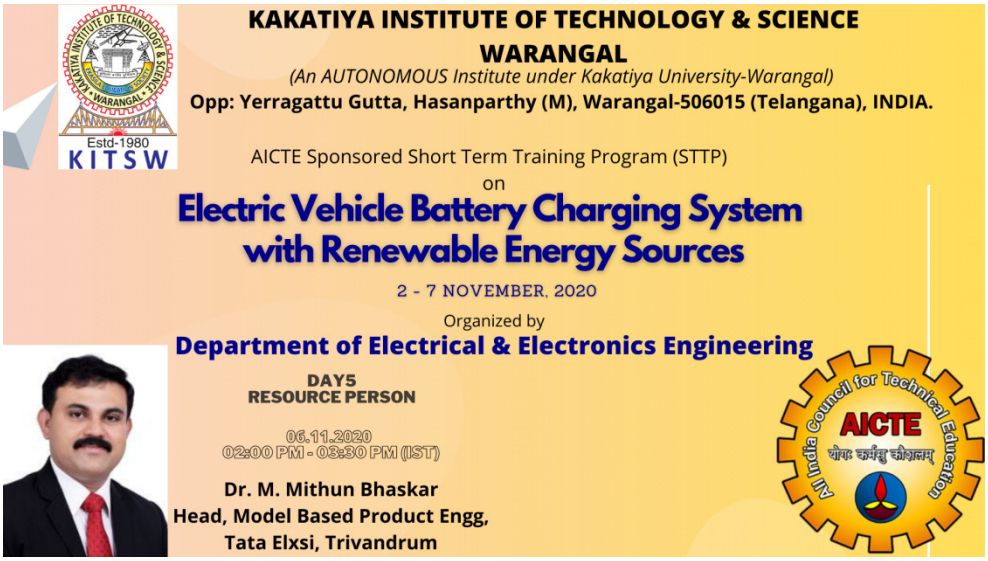

debanand singdeo is presenting


debanand singdeo is presenting
Model Physical Network of DC Motor using Simscape
DC Motor in Simscape


debanand singdeo is presenting
BLDC Speed Control
1. Plot speed of motor (see code)
2. Explore simulation results using sscexplore
3. Modify model parameters
4. Learn more about this example
Buck Converter
Inverter
Gate driver DCDC
Gate driver
Torque Source

Session VII (6th November 2020)

TITLE: xEV Autonomy, Retrofitting and MBD



Resource Person:

Dr. M. Mithun Bhaskar

Head, Model Based Product Engg,

Tata Elxsi, Trivandrum

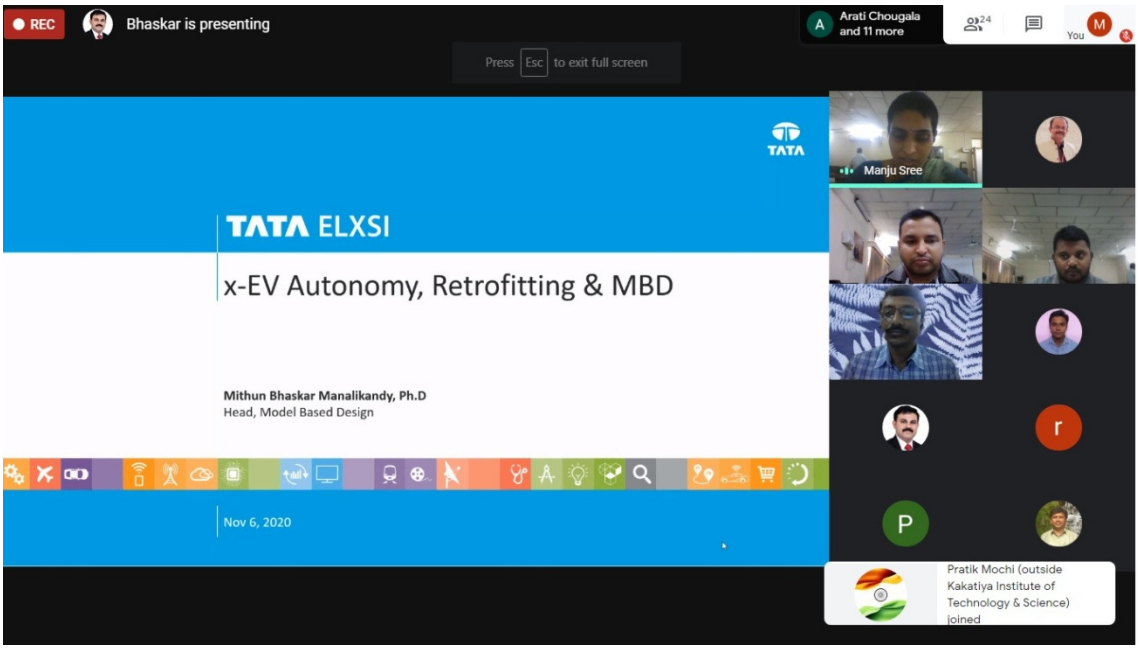
Biography:

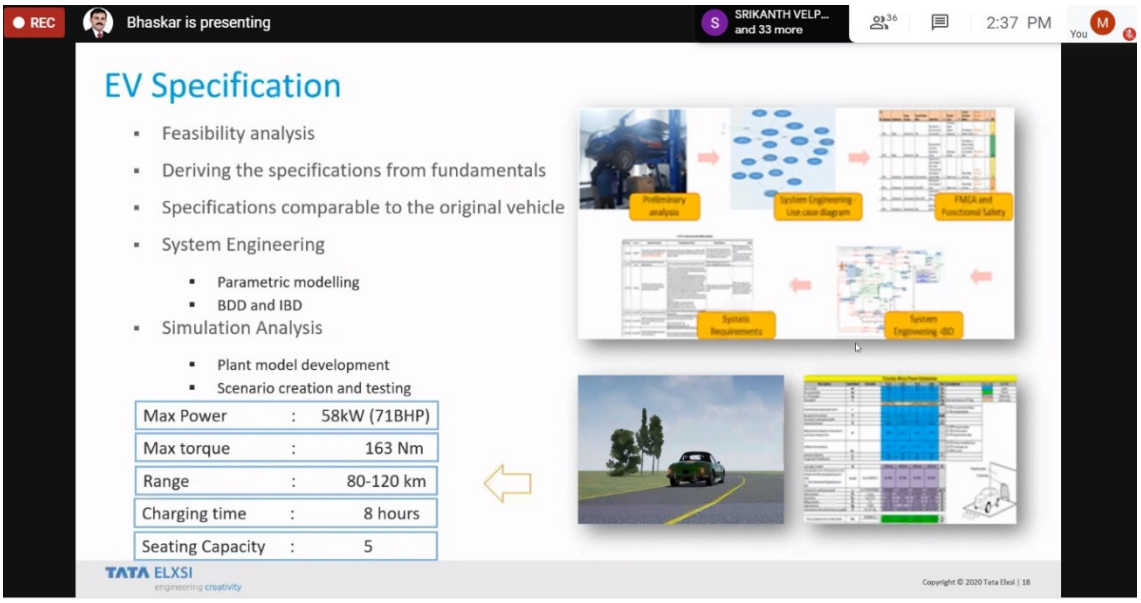
Dr Bhaskar is an influential engineering leader with a Ph. D. in computational intelligence, known for leveraging emerging and disruptive technologies, build center of excellences (CoE's) to execute projects for products in multiple domains. 14+ years of professional experience in leading MNC's and other organizations, with skills in creating physics based models, integrating testing with design, production code generation, rapid control prototyping and automating processes to accelerate development. He attended as an invited speaker at International and National seminars, author of technical papers and member of industry bodies such as IEEE, BIS, and NIST.

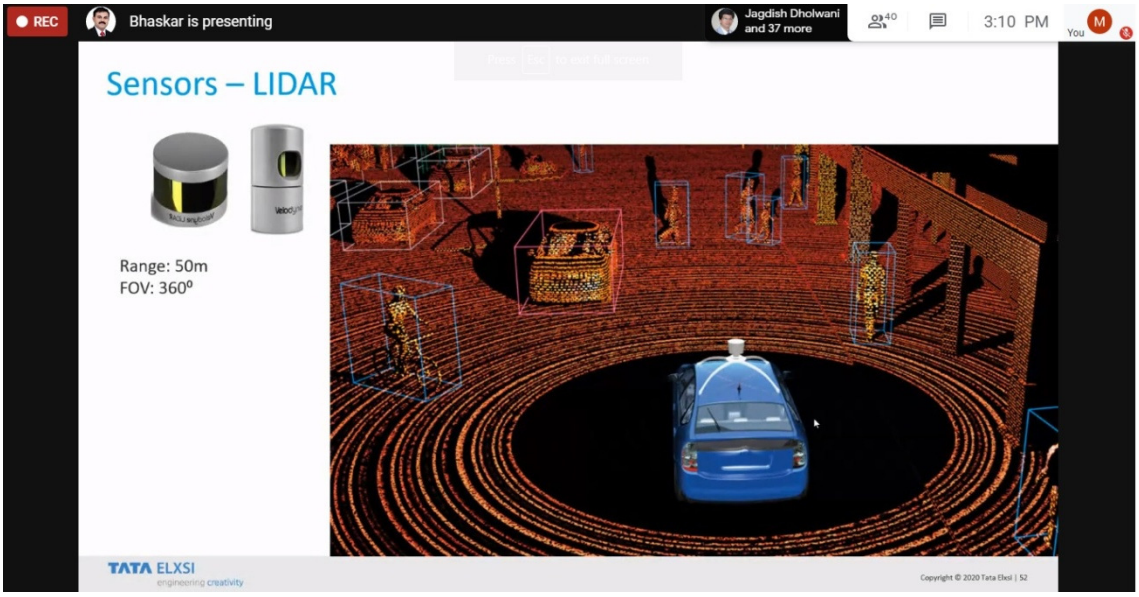
Dr. Bhaskar has built and managed 300+ world class model based design embedded engineers at Tata Elxsi in multi-disciplinary, multi-geography BU's, delivering advanced embedded product design engineering services. The team has scaled up 525% with proportionate engagements in few years. He received IEEE MGA young professional's achievement award for demonstrating leadership in 2012 and has submitted 5 patents.

Report: Important points covered by Dr. M. Mithun Bhaskar

- Challenges to be faced by increasing the number of normal IC engine cars.
- EV-HEV electrification offerings.
- Pictorial representation of battery electric vehicles (BEV), hybrid electric vehicles (HEV), plug in hybrid electric vehicles (PHEV), mild hybrid electric vehicles (MHEV), and fuel cell electric vehicles (FCEV).
- Levels of autonomy of a car such as driver only, assisted, partial auto, conditional auto, highly automated, and fully automated.
- Challenges in EV retrofitting.
- xEV autonomous enabler and sensors.
- Mechanical design, packaging, validation of an EV and its functional safety.
- The basic self driving loop and self driving car.
- Challenges in EV electric control unit (ECU).




REC
Bhaskar is presenting
SRIKANTH VELP... and 33 more
2:37 PM
You
EV Specification
Feasibility analysis
Deriving the specifications from fundamentals
Specifications comparable to the original vehicle
System Engineering
Parametric modelling
BDD and IBD
Simulation Analysis
Plant model development
Scenario creation and testing
Max Power : 58kW (71BHP)
Max torque : 163 Nm
Range : 80-120 km
Charging time : 8 hours
Seating Capacity : 5
TATA ELXSI
engineering creativity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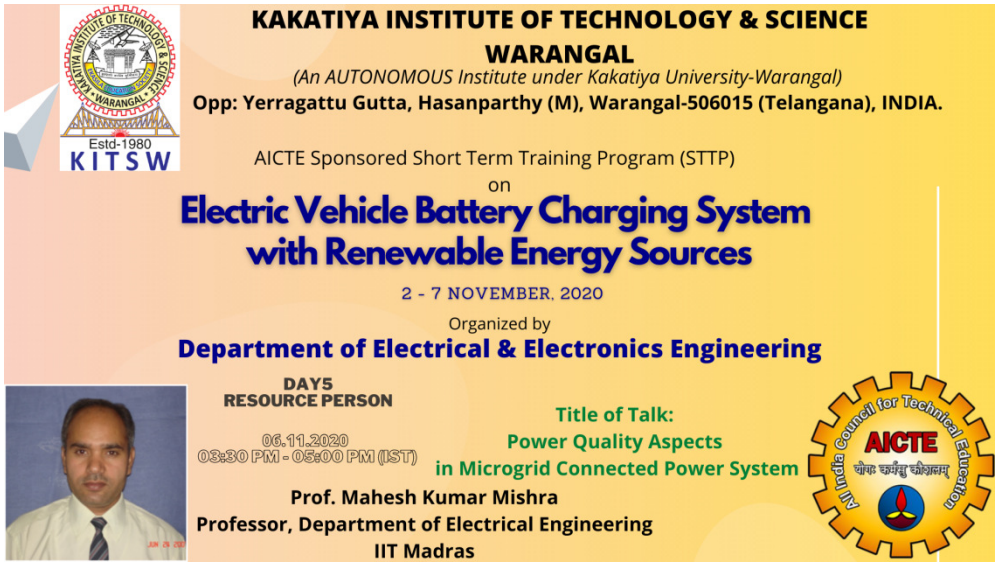
Bhaskar is presenting
Jagdish Dholwani and 37 more
3:10 PM
You
Sensors – LIDAR
Range: 50m
FOV: 360º
TATA ELXSI
engineering creativity

Session VIII (6th November 2020)

TITLE: Power Quality Aspects in Micro Grid Systems



Resource Person:

Prof Mahesh Kumar Mishra,

Professor, Department of Electrical Engineering

IIT Madras

Biography:

Mahesh K. Mishra received the B.Tech. degree from the College of Technology, Pantnagar, India, in 1991, the M.E. degree from the Indian Institute of Technology, Roorkee, India, in 1993, and the Ph.D. degree from the Indian Institute of Technology, Kanpur, India, in 2002, all in electrical engineering. He has about 28 years of teaching and research experience. For about ten years, he was with the Department of Electrical Engineering, Visvesvaraya National Institute of Technology, and Nagpur, India. He is currently a Professor with the Department of Electrical Engineering, Indian Institute of Technology Madras Chennai, India. His research interests include the areas of power distribution systems, power electronics, micro grids, and renewable energy systems.

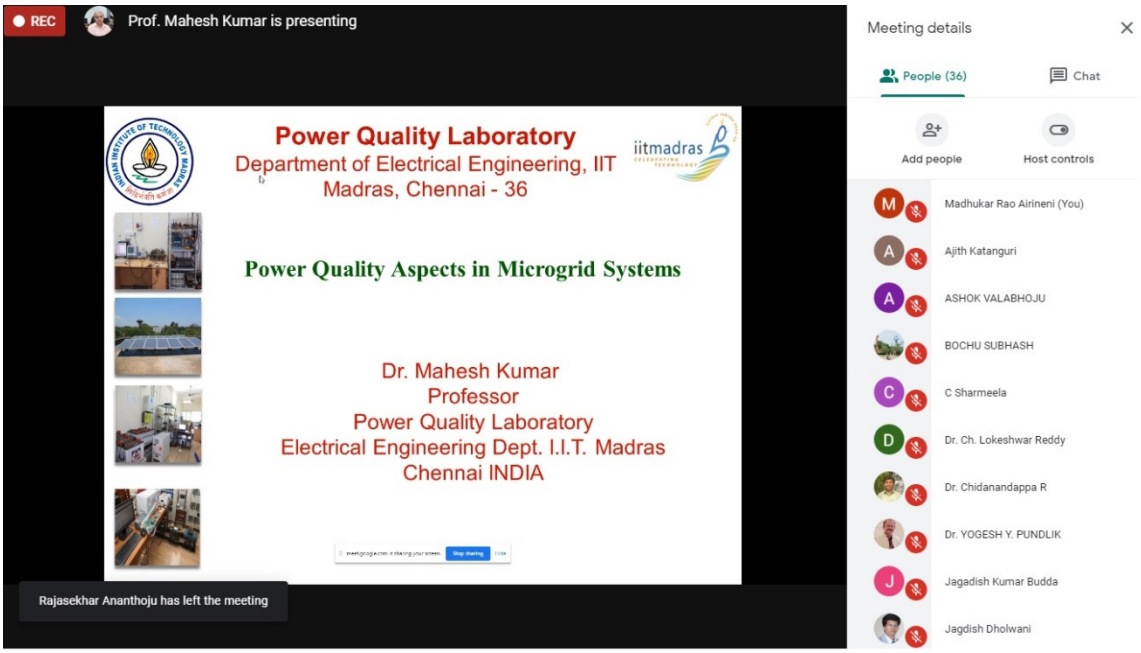
Prof. Mahesh has completed a dozen of sponsored projects and consultancies. Under his research supervision, about 18 Ph.D., 12 MS and 50 M. Tech. students have been awarded. Prof. Mahesh and his scholars have been awarded many International, National and Institute level awards. He has around 250 research publications in International and National peer reviewed journals and

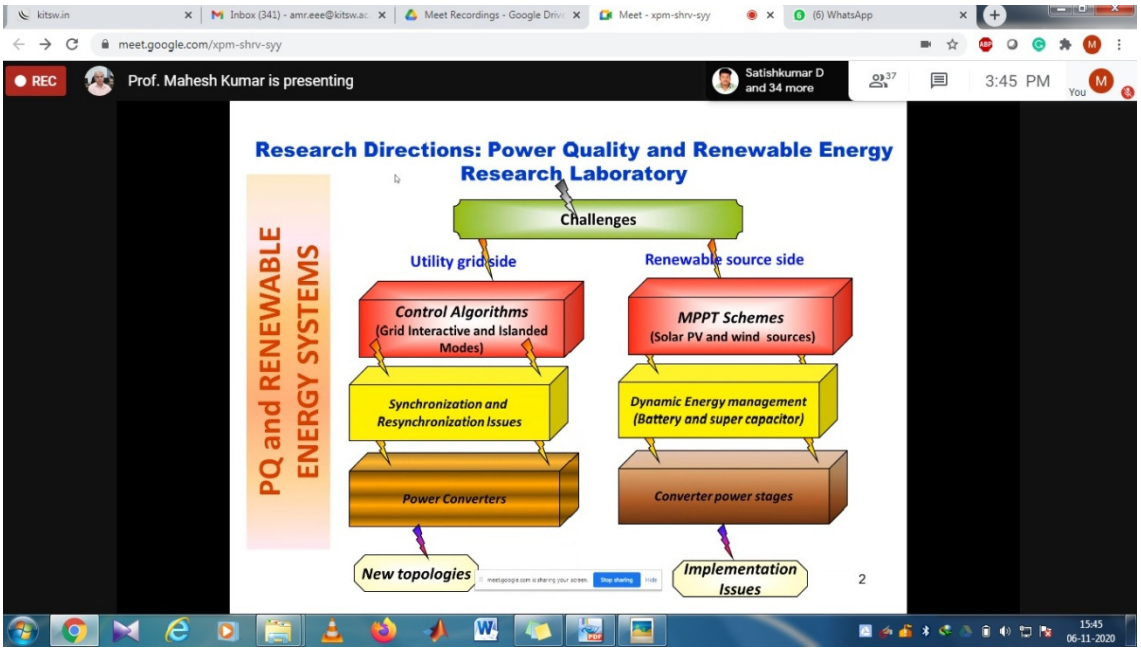
conferences. He has written NPTEL web book on "Power Quality in Power Distribution Systems: Concepts and Applications".

Prof. Mahesh is a Life Member of the Indian Society of Technical Education. He received the IETE Prof. Bimal Bose Award in 2015 for his outstanding contributions to Power Electronics Applications in Power Systems. He serves has served as an Editor for the IEEE Transactions on Sustainable Energy. In Nov. 2017, he has been elected as Fellow of Indian National Academy of Engineering.

Report: Important points covered by Prof Mahesh Kumar Mishra

- Challenges in utility grid side and renewable source side.
- General structure of micro grid systems.
- Integrated micro grid system.
- Grid side converter objectives, power quality issues and challenges.
- Control algorithms of micro grid voltage source converter (VSC).
- Controlling of a micro grid VSC using instantaneous symmetrical component theory (ISCT) for micro grid applications.
- PQ aspects of micro grid VSC under different conditions.
- Dual voltage source inverter (DVSI) scheme for micro grid applications.
- Objectives and challenges of DVSI scheme.
- Simulation and experimental results to validate DVSI scheme.


REC
Prof. Mahesh Kumar is presenting
Power Quality Laboratory
Department of Electrical Engineering, IIT Madras, Chennai - 36
iitmadras
Power Quality Aspects in Microgrid Systems
Dr. Mahesh Kumar
Professor
Power Quality Laboratory
Electrical Engineering Dept. I.I.T. Madras
Chennai INDIA
Rajasekhar Ananthoju has left the meeting
Meeting details
People (36)
Chat
Add people
Host controls
Madhukar Rao Airineni (You)
Ajith Katanguri
ASHOK VALABHOJU
BOCHU SUBHASH
C Sharmeela
Dr. Ch. Lokeshwar Reddy
Dr. Chidanandappa R
Dr. YOGESH Y. PUNDLIK
Jagadish Kumar Budda
Jagdish Dholwani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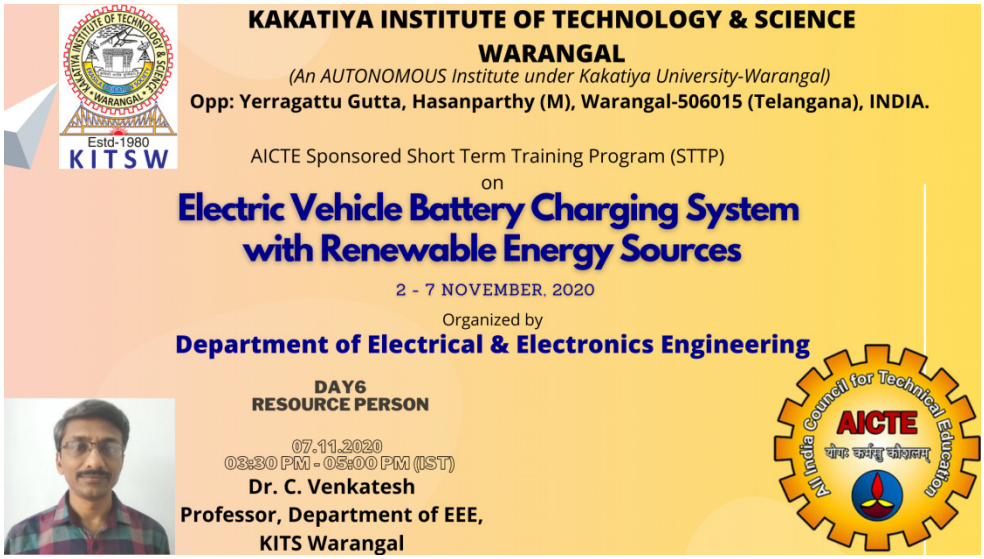
REC
Prof. Mahesh Kumar is presenting
Satishkumar D and 34 more
3:45 PM
Research Directions: Power Quality and Renewable Energy Research Laboratory
PQ and RENEWABLE ENERGY SYSTEMS
Challenges
Utility grid side
Renewable source side
Control Algorithms (Grid Interactive and Islanded Modes)
MPPT Schemes (Solar PV and wind sources)
Synchronization and Resynchronization Issues
Dynamic Energy management (Battery and super capacitor)
Power Converters
Converter power stages
New topologies
Implementation Issues
2

Session IX (7th November 2020)

TITLE: Plugged in Electric Vehicles: Power Quality Concern



Resource Person:

Dr. C Venkatesh,

Professor and Head, EEE Department

KITS Warangal

Biography:

C. Venkatesh obtained B.E (Electrical Engineering) and M.E (Power Electronics) degrees from University Visvesvaraya College of Engineering (UVCE), Bangalore, in 1994 and 1996 respectively. He obtained his PhD from NIT Warangal in 2012.

He worked as Lecturer in Vijayanagar Engineering College, Bellary, and Karnataka from 1999 to 2005. Associate Professor in SR Engineering College, Warangal, Telangana from 2005 to 2012, Professor in SR Engineering College, Warangal, Telangana from 2013 to 2015. Currently working as Professor, EEE Department in Kakatiya Institute of Technology & Science, Warangal since 2015 He had taken administrative position as Dean, Academic Affairs Coordinator, and Internal Quality Assurance Cell of the Institute Prof. I /c Institute Data Centre in KITS Warangal from 2016 to 2019Prof. In charge of Higher Education and Students Counseling

Presently he is HOD, EEE Dept., and KITS Warangal.

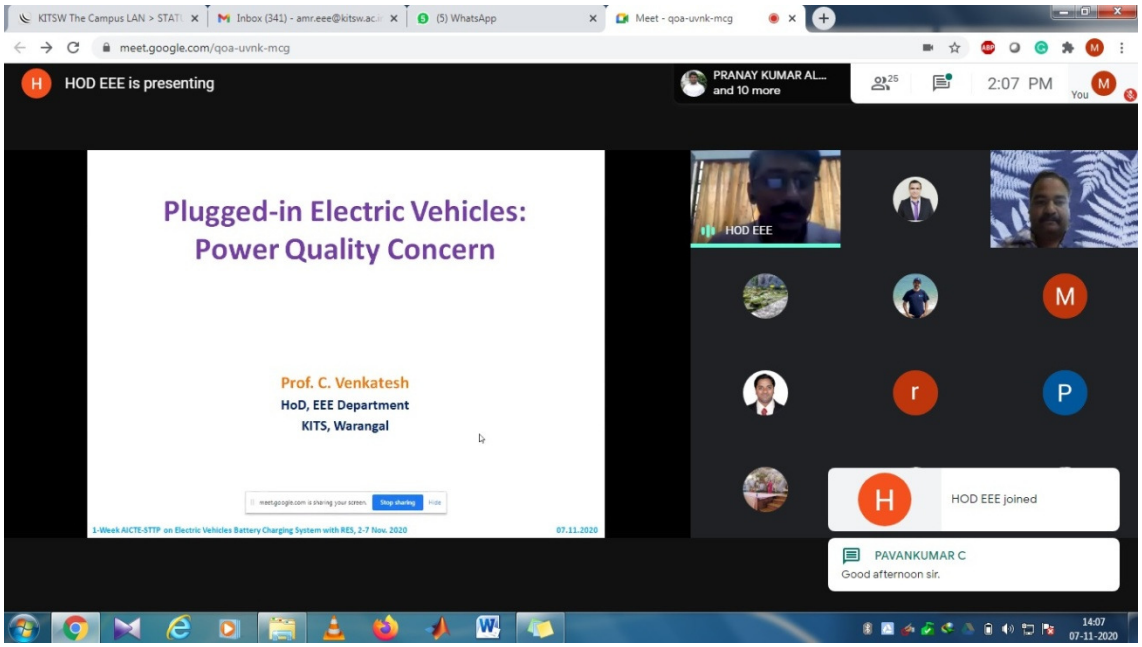
His areas of interest include Power Quality and Power Electronics applications to Power systems

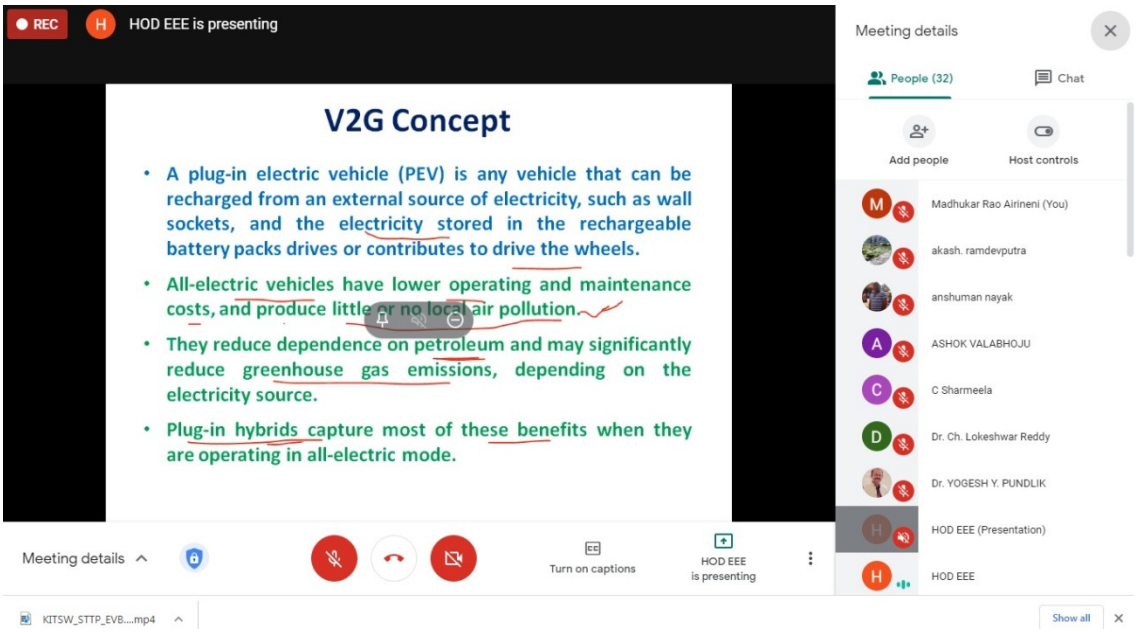
He has published about 40 papers in national and international Journals and Conferences.

Report:

Important points covered by Dr. C Venkatesh,

- Introduction about electric vehicles.
- Dimensions of power.
- Concept of grid to vehicle (G2V) and vehicle to grid (V2G).
- General scheme, main components, and power flows of the V2G concept.
- Why power quality is a concern while dealing with EV?
- Harmonic emission problem with vehicle to grid connection.
- Modelling of EV charging system using Simulink.




REC
HOD EEE is presenting
V2G Concept
• A plug-in electric vehicle (PEV) is any vehicle that can be recharged from an external source of electricity, such as wall sockets, and the electricity stored in the rechargeable battery packs drives or contributes to drive the wheels.
• All-electric vehicles have lower operating and maintenance costs, and produce little or no local air pollution.
• They reduce dependence on petroleum and may significantly reduce greenhouse gas emissions, depending on the electricity source.
• Plug-in hybrids capture most of these benefits when they are operating in all-electric mode.
Meeting details
People (32)
Chat
Add people
Host controls
Madhukar Rao Airineni (You)
akash. ramdevputra
anshuman nayak
ASHOK VALABHOJU
C Sharmeela
Dr. Ch. Lokeshwar Reddy
Dr. YOGESH Y. PUNDLIK
HOD EEE (Presentation)
HOD EEE
Meeting details
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KITSW_STTP_EVB....mp4
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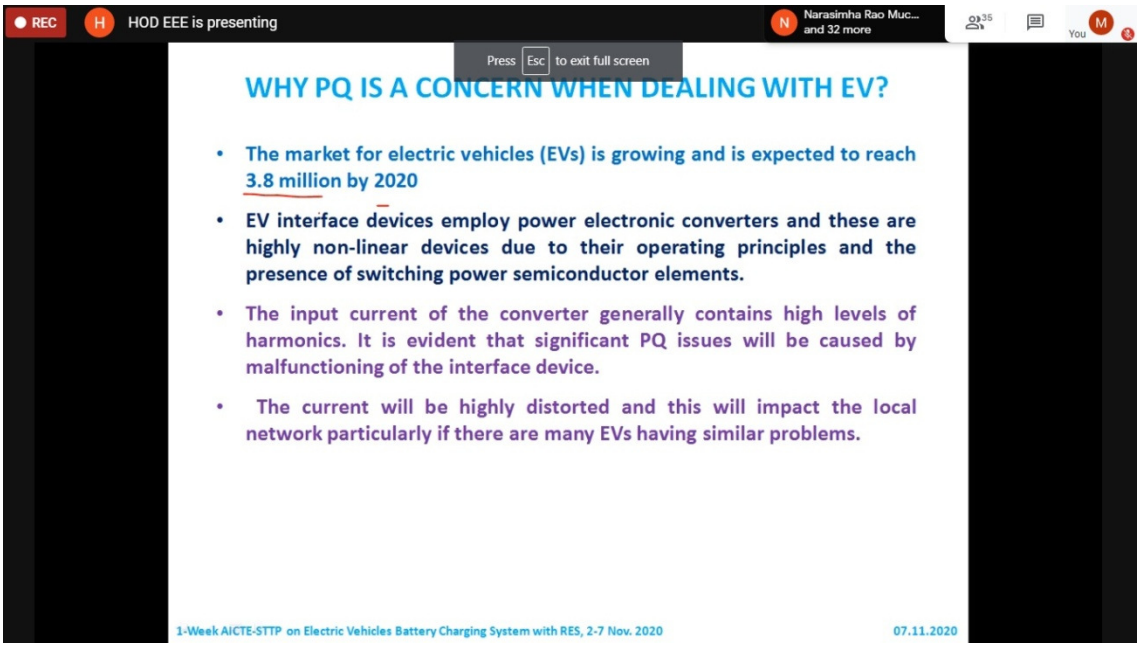
REC
HOD EEE is presenting
Narasimha Rao Muc... and 32 more
35
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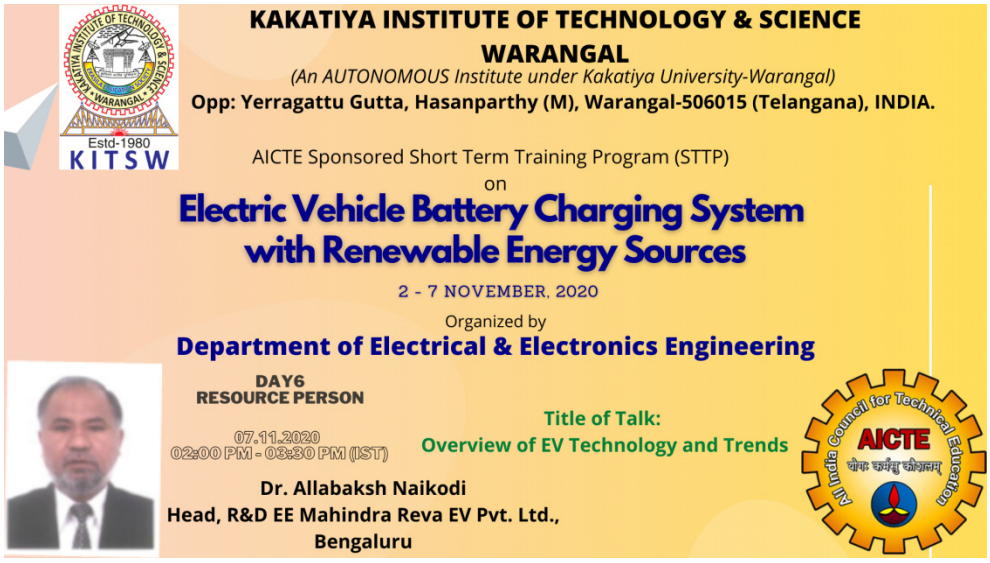
WHY PQ IS A CONCERN WHEN DEALING WITH EV?
• The market for electric vehicles (EVs) is growing and is expected to reach 3.8 million by 2020
• EV interface devices employ power electronic converters and these are highly non-linear devices due to their operating principles and the presence of switching power semiconductor elements.
• The input current of the converter generally contains high levels of harmonics. It is evident that significant PQ issues will be caused by malfunctioning of the interface device.
• The current will be highly distorted and this will impact the local network particularly if there are many EVs having similar problems.
1-Week AICTE-STTP on Electric Vehicles Battery Charging System with RES, 2-7 Nov. 2020
07.11.2020

Session X (7th November 2020)

TITLE: Overview of EV Technologies and Trends



Resource Person:

Dr. Allabaksh Naikodi ,

Head, R&D

EE Mahindra Reva EV Pvt. Ltd., Bengaluru

Biography:

With over 30 years of experience is presently he is leading the EV development at Royal Enfield. After getting his Ph. D. in Electrical Engineering from Indian Institute of Technology, Madras (Chennai) in 1995, he is working in industrial R&D. Prior to joining his present role at Royal Enfield, he has worked for Mahindra Electric, ABB, Honeywell, Schneider Electric and Tech Mahindra.

He is a member of expert committee - government of India on EV sub-systems development and Bureau of Indian Standards ETD51 for EV charging systems. He has filed 14 patents in EV technology with 3 global grants.

Report: Important points covered by Dr. Allabaksh Naikodi

- Overview about the rein of electric cars.
- Types of EV's such as
  - Parallel Hybrid
  - Plug in hybrid
  - Micro hybrid
  - Series hybrid
  - Battery electric
- Comparison of system efficiency between gasoline and electric vehicles.
- Architecture layout of an electric vehicle.
- Types of batteries and battery management of an EV.
- Types of cell balancing such as
  - Active cell balancing
  - Passive cell balancing
  - Charge shunting.
- State of charge (SoC) and State of Health (SoH) measurement.
- Topologies of centralized, modular, and distributed battery management systems.
- Energy density and cost of Li-ion batteries.
- Typical characteristics of an EV traction motor.
- On-board and off-board EV charging.
- Basic architecture of AC charging point.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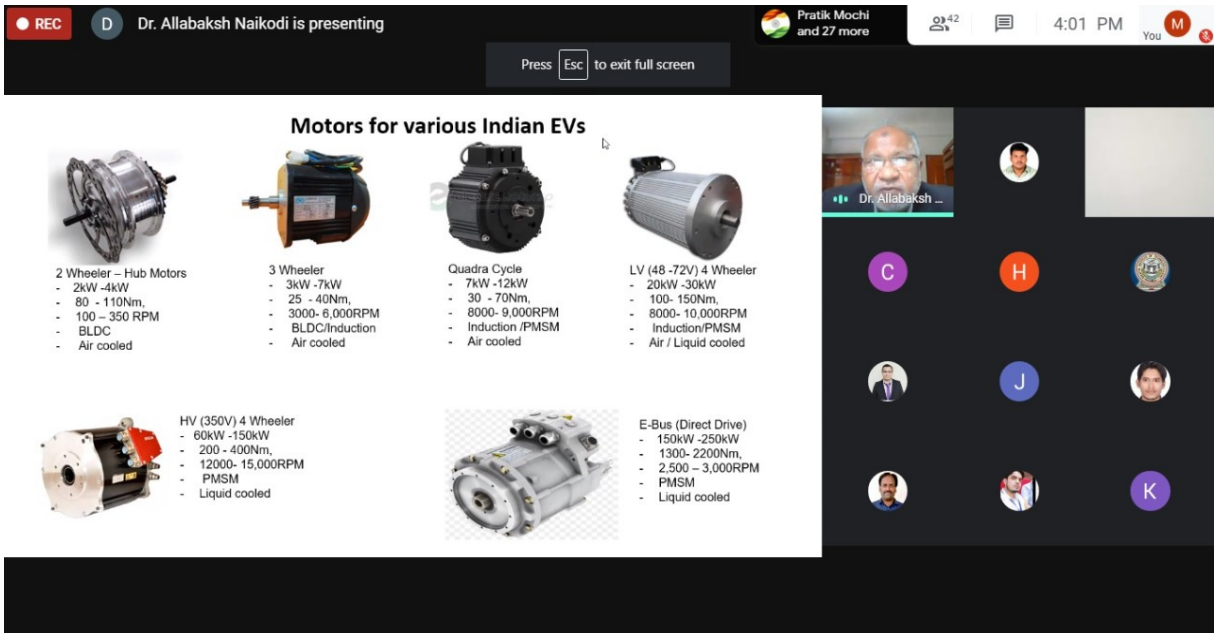
Santosh Sonar and 37 more
40
You
Dr. Allabaksh Naikodi


REC
Dr. Allabaksh Naikodi is presenting
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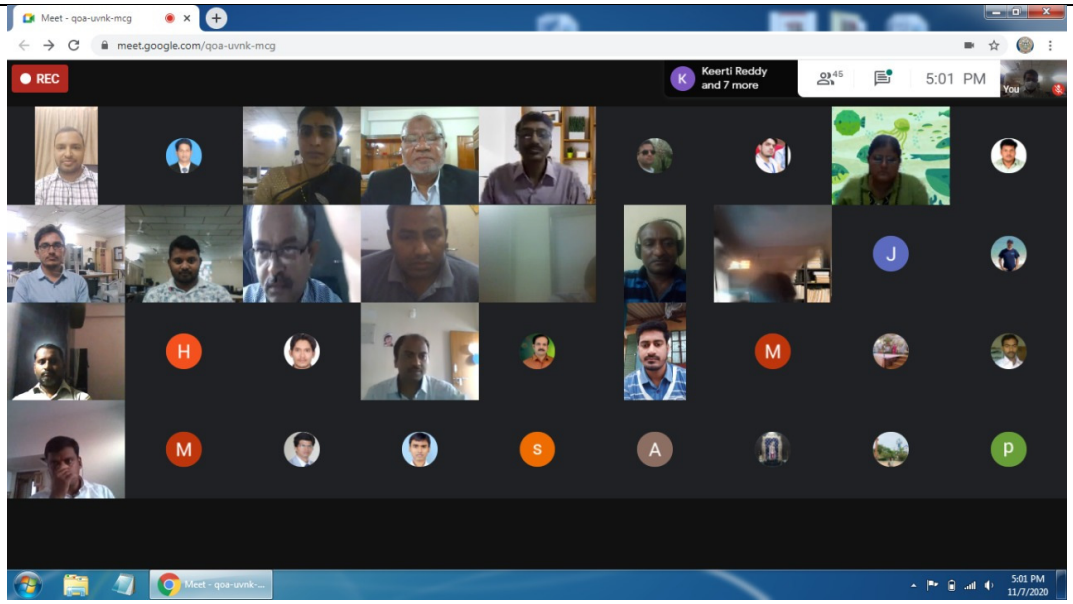
Pratik Mochi and 27 more
42
4:01 PM
You
Motors for various Indian EVs
2 Wheeler – Hub Motors
- 2kW -4kW
- 80 - 110Nm,
- 100 – 350 RPM
- BLDC
- Air cooled
3 Wheeler
- 3kW -7kW
- 25 - 40Nm,
- 3000- 6,000RPM
- BLDC/Induction
- Air cooled
Quadra Cycle
- 7kW -12kW
- 30 - 70Nm,
- 8000- 9,000RPM
- Induction /PMSM
- Air cooled
LV (48 -72V) 4 Wheeler
- 20kW -30kW
- 100- 150Nm,
- 8000- 10,000RPM
- Induction/PMSM
- Air / Liquid cooled
HV (350V) 4 Wheeler
- 60kW -150kW
- 200 - 400Nm,
- 12000- 15,000RPM
- PMSM
- Liquid cooled
E-Bus (Direct Drive)
- 150kW -250kW
- 1300- 2200Nm,
- 2,500 – 3,000RPM
- PMSM
- Liquid cooled
Dr. Allabaksh ...

Valedictory Ceremony

Prof C Venkatesh, convener of this STTP started the valedictory ceremony by introducing our chief guest Sri Dr. Allabaksh Naikodi followed by a brief explanation of the sessions conducted in this STTP. Chief Guest addressed all the participants and explained the importance of the research on electric vehicle for the present and future generations.



List of Participants

Unique Identification Number	Full Name	Designation	Name Of The Organization / Institute
EVBCS1001	Mohammad Hosein Fazaeli	Research Scholar	Amirkabir
EVBCS1002	Prashant Kadi	Assistant Professor	B.L.D.E.A's Dr. P. G. Halakatti College of Engineering and Technology
EVBCS1003	Kothuri Ramakrishna	Associate Professor	B.V Raju Institute of Technology
EVBCS1004	Golla Naresh Kumar	Assistant Professor	B.V.Raju Institute of Technology
EVBCS1005	Pritam Singha Ray	Lecturer	Bankura Government Polytechnic
EVBCS1006	Prashant Upadhyay	Research Scholar	Birla Institute of Technology and Science, Pilani
EVBCS1007	B. Subhash	Associate Professor	Chaitanya Institute of Technology & Science
EVBCS1008	Pratik Mochi	Assistant Professor	Chandubhai S Patel Institute of Technology, Charusat
EVBCS1009	Mr. Mahammadsoaib Saiyad	Assistant Professor	Chandubhai S. Patel Institute of Technology, Charusat
EVBCS1010	Maulik J. Shah	Assistant Professor	Chandubhai S. Patel Institute of Technology, Charusat
EVBCS1011	Pratik B Panchal	Assistant Professor	Charotar University of Science And Technology
EVBCS1012	Jigar Sarda	Assistant Professor	Charusat University
EVBCS1013	Dharmeshsinh Ajmalsinh Dabhi	Assistant Professor	Charusat University
EVBCS1014	Navneet Mishra	Student	CK Pithawala College Of Engineering And Technology
EVBCS1015	Anshuman Nayak	Assistant Professor	College of Engineering Bhubaneswar
EVBCS1016	Pradipta Kumar Nayak	Associate Professor	College of Engineering Bhubaneswar
EVBCS1017	Dr. C. Sharmeela	Associate Professor	College of Engineering, Guindy, Anna University
EVBCS1018	Ameen Ullah	Research Scholar	Comsats University Islamabad, Abbottabad, Campus
EVBCS1019	Krushna Chandra Sahoo	Assistant Professor	DRIEMS Autonomous Engineering College, Cuttack
EVBCS1020	K. Dharani Sree	Research Scholar	Government College of Engineering, Salem
EVBCS1021	Kamani Piyushkumar Lavjibhai	Associate Professor	Government Engineering College, Bhuj
EVBCS1022	Hanuman Dileep Batchu	Assistant Professor	Gudlavalleru Engineering College
EVBCS1023	Venkata Rajkumar Ch	Instructor	Higher College of Technology
EVBCS1024	Noor Alam	Junior Research Assistant	Govt. Engg. College of A K T U Lucknow

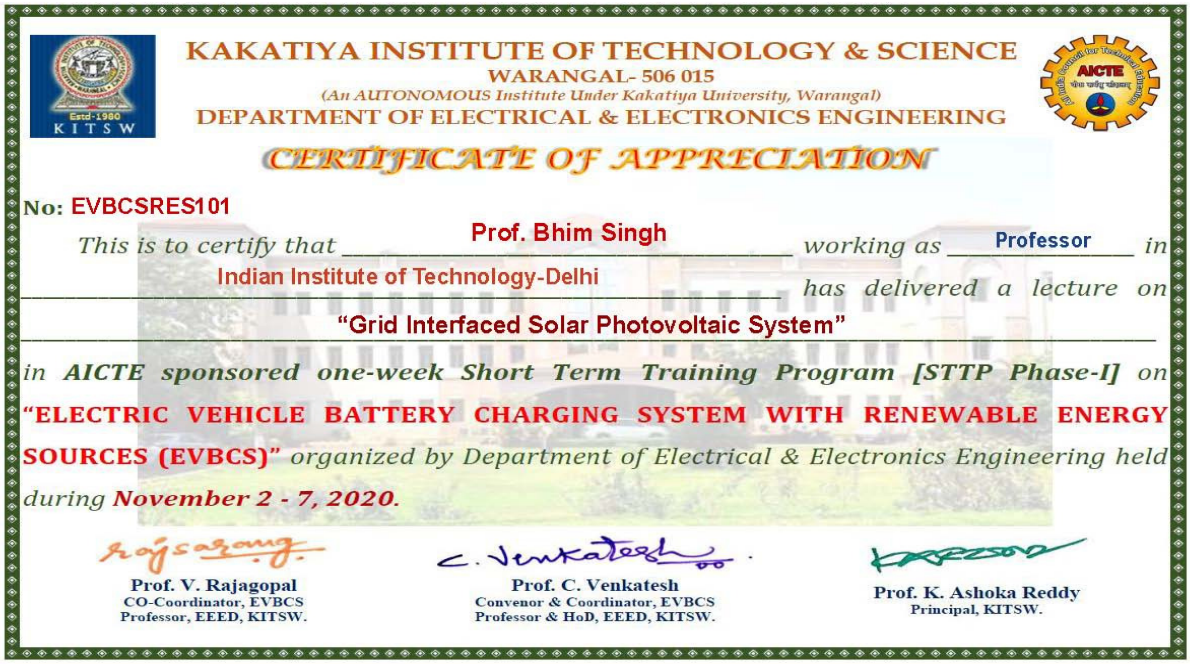
EVBCS1025	Muhammad Zarkab Farooqi	Research Scholar	IIT Delhi
EVBCS1026	Sharankumar Shastri	Research Scholar	IIT Delhi
EVBCS1027	Parnapalli Ramesh	Research Scholar	IIT Kharagpur
EVBCS1028	Chaduvula Hemanth	Research Scholar	IIT Kharagpur
EVBCS1029	Bhushan Save	Research Scholar	Institute Of Chemical Technology , Mumbai
EVBCS1030	Debashis Jana	Assistant Professor	Institute Of Engineering & Management, Kolkata
EVBCS1031	Satvinder Singh	Assistant Professor	J C Bose University of Science And Technolgy, Haryana
EVBCS1032	Naresh Boda	Assistant Professor	Jayamukhi Institute of Technological Sciences, Narsampeta
EVBCS1033	S.UmarMuktar	Assistant Professor	JCT College Of Engineering And Technology
EVBCS1034	Prakash C	Assistant Professor	JCT College Of Engineering And Technology
EVBCS1035	G.G. Raja Sekhar	Associate Professor	K L University
EVBCS1036	Dr.Yogesh Yashwant Pundlik	Professor	Kamala Institute Of Technology & Science, Singapur
EVBCS1037	Matla Raju	Assistant Professor	Kamala Institute Of Technology & Science, Singapur
EVBCS1038	Jonnala Subba Reddy	Associate Professor	Lakireddy Bali Reddy College of Engineering, Mylavaram
EVBCS1039	Dr. M. Vijay	Associate Professor	Madanapalle Institute of Technology And Science, Andhra Pradesh
EVBCS1040	PALARAPU ANILKUMAR	Assistant Professor	Matrusri Engineering College
EVBCS1041	Dhananjay Kumar	Research Scholar	Maulana Azad National Institute of Technology Bhopal
EVBCS1042	Arnab Pal	Research Scholar	National Institute of Technology, Agartala
EVBCS1043	Surbhi Aggarwal	Research Scholar	National Institute of Technology, Delhi
EVBCS1044	Rasananda Muduli	Research Scholar	National Institute of Technology Karnataka, Surathkal
EVBCS1045	Mr. Jagdish Pitambar Dholwani	Research Scholar	National Institute of Technology Silchar, Assam
EVBCS1046	Satish Kumar.D	Assistant Professor	New Horizon College of Engineering
EVBCS1047	Shubhra Shah	Industry Delegate	NHPC Ltd
EVBCS1048	Prakash Chand Sharma	Industry Delegate	NHPC Ltd
EVBCS1049	Kesari Hanumanthu	Research Scholar	NIT Tiruchirappalli
EVBCS1050	GIRISH BV	Industry Delegate	Predipower solutions
EVBCS1051	S P R Swamy Polisetty	Assistant Professor	S R K R Engineering College
EVBCS1052	A M S V Sushma	Assistant Professor	Sagi Rama Krishnam Raju Engineering College(S R K R)

EVBCS1053	Reenu Bose	Assistant Professor	SCMS School Of Engineering And Technology
EVBCS1054	Amit Yogesh Wani	Student	Shri Vile ParleKelavani Mandal Institute of Technology
EVBCS1055	Mistari Prathamesh Nandulal	Student	Shri. Vile ParleKelvani Mandal Institute of Technology
EVBCS1056	Suman Sharma	Associate Professor	SKIT M&G Jaipur
EVBCS1057	Dr. A V V Sudhakar	Associate Professor	SR University, Warangal
EVBCS1058	B Janardhan Reddy	Lecturer	SreeVidyanikethan Engineering College
EVBCS1059	Payani M	Assistant Professor	Sri Ramakrishna Engineering College
EVBCS1060	Srianandа Ganesh T	Assistant Professor	St. Joseph's College of Engineering
EVBCS1061	Arpita Manohar Magar	Student	SVKM Institute of Technology
EVBCS1062	Rohit Kiran Bhadane	Student	SVKM Institute of Technology
EVBCS1063	Patil Kunal Sanjay	Student	SVKM Institute of Technology
EVBCS1064	Dr.R.Thenmozhi	Professor	T.J.S.Engineering College
EVBCS1065	Mohammad Hosein Fazaeli	Industry Delegate	Tavanir
EVBCS1066	Dr Santosh Sonar	Assistant Professor	Thapar Institute of Engineering and Technology
EVBCS1067	Dr.R.Chidanandappa	Associate Professor	The National Institute of Engineering
EVBCS1068	M Naveen Kumar	Research Scholar	The National Institute of Engineering,Mysuru
EVBCS1069	Talha Mujahid	Research Scholar	The Superior College (University Campus), Lahore
EVBCS1070	PoluVeeraraghava Reddy	Assistant Professor	TKR College of Engineering And Technology
EVBCS1071	Luis JosãRodrãguez MuOz	Student	Universidad Del Zulia
EVBCS1072	Nuh Erdogan	Research Scholar	University College Cork
EVBCS1073	Hasnain Ahmad	Research Scholar	University of Central Punjab Lahore, Pakistan
EVBCS1074	Perumandla Sadanandam	Associate Professor	Vaagdevi College of Engineering
EVBCS1075	PunemAnuja	Assistant Professor	Vaagdevi College of Engineering
EVBCS1076	Syed Shahbazuddin	Assistant Professor	Vaagdevi Engineering College, Warangal
EVBCS1077	Dr.Kiran Kumar Nallamekala	Professor	Vardhaman College of Engineering Hyderabad
EVBCS1078	Mohd Adil Sheikh	Research Scholar	VeermataJijabai Technological Institute
EVBCS1079	Nemali Keerthi	Pg Student	Vellore Institute Of Technology
EVBCS1080	Srinivas Singirikonda	Research Scholar	Vellore Institute Of Technology

EVBCS1081	M .Rajalakshmi	Research Scholar	Vellore Institute Of Technology
EVBCS1082	Onkar Manohar Marathe	Assistant Professor	SSPM College of Engineering, MH
EVBCS1083	PAULA PÁRAMO BALSA	Research Scholar	Universidad de Sevilla, Escuela Técnica Superior de Ingeniería
EVBCS1084	Saleh Abujarad	Research Scholar- PostDoc	Ghent University, Belgium
EVBCS1085	Dr. Ch. Lokeshwar Reddy	Professor	CVR College of Engineering
EVBCS1086	Wakade Vikas Malhari	PG Student	VJTI Mumbai
EVBCS1087	Siddalinga Nuchhi	Research Scholar	NITK, Surathkal
EVBCS1088	Aakash Ramdevputra	PG Student	Marwadi Education Foundation Group Of Institution, Gujarat
EVBCS1089	Ahad Abessi	Research Scholar	Univeristy of waterloo, ONtario- Canada
EVBCS1090	Manish Kumar	Industry Delegate	U-electric, Bangkok
EVBCS1091	Sunidhi Bhamre	PG Student	SVKM's Institute of Technology, MH
EVBCS1092	Venugopal Thumula	Associate Professor	Vaagdevi College of Engineering
EVBCS1093	Srikanth Velpula	Assistant Professor	KITS, Warangal
EVBCS1094	Vodapalli Prakash	Assistant Professor	KITS, Warangal
EVBCS1095	Srinivas Mavurapu	Assistant Professor	KITS, Warangal
EVBCS1096	Dr. M. Santhosh	Assistant Professor	KITS, Warangal
EVBCS1097	Sunil Kumar Gunda	Assistant Professor	KITS, Warangal
EVBCS1098	Dr. Rajasekhar Ananthoju	Assistant Professor	KITS, Warangal
EVBCS1099	Bairu Vijay Kumar	Associate Professor	KITS, Warangal
EVBCS1100	T. Praveen Kumar	Assistant Professor	KITS, Warangal

Sample Certificates

Resource Person



KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE
WARANGAL- 506 015
(An AUTONOMOUS Institute Under Kakatiya University, Warangal)
DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

CERTIFICATE OF APPRECIATION

No: EVBCSRES101

This is to certify that Prof. Bhim Singh working as Professor in Indian Institute of Technology-Delhi has delivered a lecture on "Grid Interfaced Solar Photovoltaic System" in AICTE sponsored one-week Short Term Training Program [STTP Phase-I] on "ELECTRIC VEHICLE BATTERY CHARGING SYSTEM WITH RENEWABLE ENERGY SOURCES (EVBCS)" organized by Department of Electrical & Electronics Engineering held during November 2 - 7, 2020.

Prof. V. Rajagopal
CO-Coordinator, EVBCS
Professor, EEED, KITSW.

Prof. C. Venkatesh
Convenor & Coordinator, EVBCS
Professor & HoD, EEED, KITSW.

Prof. K. Ashoka Reddy
Principal, KITSW.

Participant

KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE
WARANGAL- 506 015
(An AUTONOMOUS Institute Under Kakatiya University, Warangal)
DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

PARTICIPATION CERTIFICATE

No: EVBCS1003

This is to certify that Kothuri Ramakrishna working as Associate Professor in B.V Raju Institute of Technology has actively participated in AICTE sponsored one week Short Term Training Program [STTP Phase-I] on "ELECTRIC VEHICLE BATTERY CHARGING SYSTEM WITH RENEWABLE ENERGY SOURCES (EVBCS)" organized by Department of Electrical & Electronics Engineering held during November 2 - 7, 2020.

Prof. V. Rajagopal
Co-Coordinator, EVBCS
Professor, EEED, KITSW.

Prof. C. Venkatesh
Convenor & Coordinator, EVBCS
Professor & HoD, EEED, KITSW.

Prof. K. Ashoka Reddy
Principal, KITSW.

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