All India Council for Technical Education

(A Statutory body under Ministry of HRD, Govt. of India)

Nelson Mandela Marg, Vasant Kunj, New Delhi-110070 Website: www.aicte-india.org

STTP- Sanction Letter

Ref. No. 34-66/9/FDC/STTP/Policy-1/2019-20

Date 10 AUG 2020

From

Director, Faculty Development Cell, AICTE, New Delhi-110070

To

The Drawing and Disbursing Officer, All India Council for Technical Education, Nelson Mandela Marg, Vasant Kunj, New Delhi – 110070

Sir,

This is to convey the sanction of the Council for payment of Rs. 293333 /- (Rupees Two Lakh NinetyThree Thousand Three Hundred ThirtyThree Only) for conduct of Short Term Training Program as per details given below:-

1.	Name and address of the beneficiary University / Institution	HIRASUGAR INSTIUTE OF TECHNOLOGY NIDAOSHI TALUKA: HUKERI DISTRICT: BELGAUM STATE: KARNATAKA Karnataka 591236
2.	Permanent ID of Institute	1-10564221
3.	Institute type	Unaided - Private
4.	Name of Coordinator	Dr. BASAVARAJ MADIGGOND
5.	Amount sanctioned	Rs. 293333/-
6	Amount to be released	Rs.293333/- Full & final payment
7.	Head of account	601.15(a) Gen. Short Term Training Programme (Plan)
8	The authorized officer in whose favour Cheque/ Demand Draft/ RTGS is to be made	REGISTRAR / DIRECTOR / PRINCIPAL
9.	Title of the programme	BATTERY MANAGEMENT AND CONTROL TECHNIQUES IN EVs.

- The amount of the grant shall be drawn by the Drawing and Disbursing Officer, All India Council for Technical Education on the grant-in-aid bill and shall be disbursed to and credited to the Registrar/ Director/Principal of the institute through RTGS.
- 2. This grant-in-aid is being released in conformity with the terms & conditions as well as norms of the scheme as already communicated, and also being communicated in this letter.
- The Principal of the Institute and the Coordinator of the Program are requested to verify the correctness of the under-mentioned Bank Account / RTGS Details submitted by them alongwith the proposals, in which the grant is being released:-

Sub: Release of grant for conduct of Short Term Training Programme (STTP) under AQIS 2019-20 during the financial year 2020-21- reg.

Institute PAN No.	Bank Name	Bank Branch Name	Bank Branch Address	Account Holder Name	Account Type	Account Number	IFSC Code
AACT504 52Q	STATE BANK OF INDIA	Sankeshwar	Post Box No. 15, Sankeshwa r Gokak Road Tq. Hukkeri, Dist. Belgaum	The Principal and Chairman Hirasugar Institute of Technology	Current Account	31868488488	SBIN000172 7

Instructions/Guidelines to be followed by the University/Institution

I. Disbursement of funds to University/Institutions

- a. The full amount of the grant sanctioned is being released as advance to the University/Institute.
- b. The amount spent by the institute on the conduct of STTP shall be adjusted on the basis of utilization certificate and detailed expenditure statement submitted by the University/Institution on the prescribed format along with other mandatory documents viz feedback form, copy of proceedings and completion report etc.
- b. The above said amount of grant shall be refunded back to AICTE if the Letter of Approval (LOA) / Extension of Approval (EOA) is not issued by AICTE to the institute for the academic year 2020-21.

II Maintenance of Accounts

- a. The Institute shall strictly follow the provisions laid down in the scheme document as available on the portal.
- b. Funds covered by this grant shall be kept separately and would not be mixed up with other funds so as to know the amount of interest accrued on the grant.
- c. The University/College/Institute shall maintain proper accounts of the expenditure out of the grants, which shall be utilized only on approved items of expenditure.
- d. The grant is intended to cover items of expenditure connected with the Short Term Training Programme such as Boarding & Lodging to the participants, TA to outstation participants, Honorarium to Course Coordinator, reading material to participants, Honorarium to resource persons, TA/DA to resource persons including two outstations resource persons & working expenses (reprographic services, postage, transport, daily wages, tea/coffee etc.

III. Conduct of test and issuance of certificate

A test shall be conducted by Program Monitoring Committee (PMC) at the end of the program and joint certificates shall be issued (by AICTE & conducting institute) to those participants who have attended the program and have scored minimum 60% marks in the test.

IV. Submission of Documents by the University/Institutions to AICTE

- a. The following mandatory relevant documents are required to be submitted by the University/Institution within one month of the completion of the program:-
 - (i) Original Statement of actual expenditure & Utilization Certificate in the prescribed proforma duly signed by the Head of the institution and countersigned by Registrar/Finance Officer/Govt. Auditor. In case of self-financing/private institutions, Statement of actual Expenditure & Utilization Certificate are required to be audited & signed and sealed by a Chartered Accountant endorsing the membership number and complete postal address. Format for the same is available on AICTE web portal.

The University/Institution is not required to submit bills/vouchers/invoices etc for the expenditure incurred out of recurring grants. However, such copies of bills/vouchers/invoices shall be digitized by respective institutions receiving grant and uploaded scanned copies of such bills/vouchers/invoices etc on the portal for availability and view at any point of time.

- (ii) Feedback form in the prescribed proforma.
- (iii) Copy of the proceedings and completion report.
- (iv) List of candidates who have successfully completed the program on the basis of the test conducted by Program Monitoring Committee (PMC).
- (v) Report submitted by Program Monitoring Committee (PMC).
- b. The amount of the grant shall be adjusted on submission of utilization certificate & detailed expenditure statement by University/Institution. On receipt of these documents, the total amount of financial assistance, admissible as per the norms, shall be worked out and grant-in-aid adjusted.

V. General instructions

- a. Preferably 10% of the participants may be industry professionals deputed by industry. Further, not more than 2 participants shall be from the host institution/group of institutions.
- b. The grant released/or part thereof, if remains unutilized for any reason after expiry of stipulated time period (for any reasons, to include unspent amount, interest, penalty if imposed) shall be refunded back to AICTE in the form of RTGS payable to Member Secretary, AICTE, New Delhi. The bank details of AICTE are as under:-

Account No	: 55113199952
Name of the Account Holder	: Member Secretary, AICTE, New Delhi
Bank Name	: State Bank of India
Branch Name	: Shastri Bhawan, New Delhi
IFSC Code	: SBIN0050203
IFSC Code	: SBIN0050203

- c. The STTP is a residential program of a duration of six days with minimum 40 participants. The approved STTP shall be conducted within six months from the date of release of funds.
- d. If programme is not conducted within the period of six months of the release of the 100% grant, the released amount, alongwith interest accrued thereon, has to be necessarily returned back to AICTE within a month through RTGS.
- d. The under the Heads 'Honorarium to Course Coordinator' and expenditure Resource Persons' shall not exceed 1% & 20% respectively of 'Honorarium to the total sanctioned grant for the Programme. However, overall expenditure shall not exceed the funds sanctioned for the Programme.
- g. Any extra money required to complete the programme must be borne by the institute from their own resources. But the quality of the activities should not be compromised.
- h. Any unavoidable circumstantial change in the program with respect to name of Project Coordinator, Venue and date for organizing STTP would mandatorily require prior approval of the Council. All such requests should be addressed to AICTE, in advance, recording the specific reasons for proposed changes, failing which the offer for the grant already issued would be treated as automatically withdrawn and the financial assistance released in favour of the beneficiary institution shall be refunded immediately to the Council. Kindly mention the File No. 34-66/9/FDC/STTP/Policy-1/2019-20 in your future correspondence.
- Steering Committee/Project Monitoring Committee (PMC) is required to be constituted at institutional level. The constitution of the PEC shall be as under:
 - (i) Principal/Director/Registrar of the institution (Chairperson).
 - (ii) (ii) Coordinator of the program (Member Secretary).
 - (iii) Two HoDs and one subject expert (members).

The members of the said PMC shall not be below the rank of Associate Professor. A test shall be conducted by Project Monitoring Committee (PMC) at the end of the program and the certificates shall be issued to those participants who have attended the program and have qualified in the test. The minutes of the meetings, along with PMC report, are to be submitted to the Council at end of the program along with other mandatory documents.

- j. Gol GFR rules (@https://doe.gov.in/order-circular/general-financial-rules2017-0) should be followed during utilization of grant.
- k. This Sanction Order may be treated as Offer Letter for all purposes.

NOTE:- Any deviation from the above will invoke serious action against the Institute.

Yours sincerely, (Col. B Venkat) Director (FDC) AUG LUL

Copy forwarded for information and necessary action to: -

- 1. Name and Address of the Coordinator Dr. BASAVARAJ MADIGGOND HIRASUGAR INSTIUTE OF TECHNOLOGY NIDAOSHI TALUKA: HUKERI DISTRICT: BELGAUM STATE: KARNATAKA Karnataka591236
- 2. The Registrar / Director / Principal HIRASUGAR INSTIUTE OF TECHNOLOGY NIDAOSHI TALUKA: HUKERI DISTRICT: BELGAUM STATE: KARNATAKA Karnataka591236
- 3. Guard File



E&E Engg. Dept. AICTE-STTP Schedule AY 2020-21

SCHEDULE

"AICTE Sponsored STTP-1 on Battery Management and Control Techniques in EVs" 23rd to 28th November 2020

Day 1: 23/11/2020			
Time	Programme		
9.00 am - 10.00 am	Inauguration		
	Key Note	Address by Prof. Rajashekhariah, Founder Vice Chancellor, Visvesvaraya Technological University, Belagavi.	
		Overview and History of Electric Vehicles	
10.00 am – 11.30 am	Session 1:	Environmental Impacts and History of Modern transportation.	
		By -Dr. H N Nagaraja Pro-VC GE, University, Dehradun	
11.30 am – 11.45 am	Tea/Coffee Break		
11.45 am – 01.15 pm	Session 2:	EV/HEV Configuration and Architecture.	
		By - Dr. L. Ashok Kumar, Professor, Dept. of EEE	
		PSG College of Technology, Coimbatore.	
1.15 pm -2.15 pm	Lunch Break		
2.15 pm – 3.45 pm	Session 3:	Control Applications to HEV.	
		By-Dr Bhanu Pratap Asst. Professor, Dept. of EEE NIT, Kurukshetra	

Time	Programme		
		Battery Technology	
10.00 am – 11.30 am	Session 1:	Battery Technology and Future trends. By-Mr. Gopal Athani, Automotive Electrical/Electronic Systems Engineer, Tata Technologies, Pune.	
11.30 am - 11.45 am	Tea/Coffee Break		
11.45 am – 01.15 pm	Session 2:	Battery Management Systems. By-Dr. Abhijeet Kshirsagar, Asst. Professor, Dept. of Electrical Engg. IIT, Dharwad	
1.15 pm -2.15 pm	Lunch Break		
2.15 pm – 3.45 pm	Session 3:	Energy Management in EVs By-Dr Chandrasekhar P, Asst. Professor, School of Electrical Sciences, IIT, Bhubaneshwar.	

Nidasoshi-591 236, Taq: Hukkeri, Dist: Belagavi, Karnataka, India. Phone: +91-8333-278887, Fax: 278886, Web: www.hsit.ac.in, E-mail: principal@hsit.ac.in



Time		Programme
		Electric Drives
10.00 am – 11.30 am	Session 1:	Electric Drives for EV applications. Dr. Ramulu, Asst. Professor, Department of Electrical Engg, NIT, Warangal.
11.30 am - 11.45 am	Tea/Coffee Break	
11.45 am – 01.15 pm	Session 2:	Suitability of BLDC Motor for EV Application By-Dr. Ragavan K Associate Professor, Dept. Electrical Engineering, IIT, Gandhinagar.
1.15 pm -2.15 pm	Lunch Break	
2.15 pm – 3.45 pm	Session 3:	SRM Drives for EVs. By- Dr. D. S. More, Professor, Electrical Engg. Dept. Walchand College of Engg. Sangli

Day 4: 26/11/2020		
Time		Programme
		P. E. Converters and Controls
10.00 am - 11.30 am	Session 1:	P. E. Converters for EVs.
	in signifi	By- Dr. B. V. Madiggond, Professor and Head, Dept.of EEE Hirasugar Institute of Technology, Nidasoshi.
11.30 am – 11.45 am	Tea/Coffee Break	
11.45 am – 01.15 pm	Session 2:	Automotive P. E. Converters for EVs. By- Dr. Satish Naik, Asst. Professor, Department of Electrical Engineering, IIT, Dharwad.
1.15 pm -2.15 pm	Lunch Break	
2.15 pm – 3.45 pm	Session 3:	Control Techniques for P. E. Converters. By- Dr. Suryanarayana K, Professor, EEE Dept. NMAMIT, Nitte.

Time	Programme	
		Modeling and Simulations
10.00 am – 11.30 am	Session 1:	Modeling and Simulations of EV/HV. By-Dr. Pramod Kumar Nayak, Manager at AIEI Pvt Ltd, Bangalore.
11.30 am - 11.45 am	Tea/Coffee Break	
11.45 am – 01.15 pm	Session 2:	Modeling and Simulations of EV/HV. By-Dr. Pramod Kumar Nayak, Manager at AIEI Pvt Ltd, Bangalore.
1.15 pm -2.15 pm	Lunch Break	
2.15 pm – 3.45 pm	Session 3:	G2V, V2G Communication. By- Dr. Dharavath Kishan, Asst. Professor, Dept. of EEE NIT, Surthkal

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Programmes Accredited by NBA: CSE, ECE, EEE & ME

Day 6: 28/11/2020 Time Programme **Charging of EVs** 10.00 am - 11.30 am Session 1: Chargers for EVs. By- Dr. Sanjeev Nayak, Specialist and Project Manager, L&T Tech. Services, Bengaluru. 11.30 am - 11.45 am Break 11.45 am - 01.15 pm Session 2: Research Avenues in EVs. By- Dr Sreejith S, Asst. Professor, Dept. of EEE, NIT, Silchar 1.15 pm -2.15 pm Lunch Break 2.15 pm - 3.45 pm Session 3: Test & Valedictory

H. C. B. Electrical & Electronics Enge Virasugar Institute of Technolegy NIDASOSHI-591236



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Programmes Accredited by NBA: CSE, ECE, EEE & ME

"AICTE Sponsored STTP-1 on Battery Management and Control Techniques in EVs" 23rd to 28th November 2020

Proceedings of STTP-1

Day: 1	Date: 23/11/2020
Session: 1	"Environmental Impacts and History of Modern Transportation"
Resource Person:	Dr. H N Nagaraja, Pro-VC GE, University, Dehradun
Contents delivered:	The environmental impact of transport is significant because transportation sector is a major user of energy, and burns most of the world's petroleum. In this session, different environmental impacts of modern transportation are discussed. Different modes of transportation such as vehicles, ships, trains and aviation also causes environmental pollution. Discussed about different sources of Green House gases and Green House effects. The evolution of vehicles was discussed during the session. Electric vehicles are advantageous over conventional fuel vehicles and also highlighted on history and future of transportation, components and advantages of Electric Vehicles.

Day: 1	Date: 23/11/2020
Session: 2	"EV/HEV Configuration and Architecture"
Resource Person:	Dr. L. Ashok Kumar, Professor, Dept. of EEE, PSG College of Technology, Coimbatore.
Contents delivered:	An Electrical Vehicle (EV) demand, determines deep changes in the electrical network infrastructure in order to allow a huge number of vehicles to be charged at the same time. Hybrid Electric Vehicles (HEVs) are experiencing a rapid sale growth in this scenario. They maintain the advantages of conventional vehicles besides they optimize the energy chain to electric and electronic components. Different architectures of Electric Vehicles and control of Hybrid Electric Vehicles and its major requirements are discussed in this session. Hybrid Electric Vehicle challenges and safety aspects are also addressed. Vehicle to Grid Technology (V2G), Electric Vehicle charging infrastructure and Limitations of Electric Vehicles are the main highlights of the session.

Day: 1	Date: 23/11/2020
Session: 3	"Control Applications to HEV"
Resource Person:	Dr Bhanu Pratap Asst. Professor, Dept. of EEE, NIT, Kurukshetra
Contents delivered:	The emergence of Hybrid Electric Vehicles (HEV's) has opened new doors in the area of automotive research, and the control of HEVs is one area attracting a lot of interest. In this session basic concepts of Real time embedded control systems, Anti-lock braking system (ABS) requirements and its various components, Lane Departure Warning System (LDWS) and Universal Digital PID Controller design are discussed and also highlighted on main objectives of formulating the present long term research and modeling and simulation of HEVs.



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Day: 2	Date: 24/11/2020
Session: 1	"Battery Technology and Future trends"
Resource Person:	Mr. Gopal Athani, Automotive Electrical/Electronic, Systems Engineer, Tata Technologies, Pune
Contents delivered:	Batteries are widely used due to increase in the usage of portable and mobile equipments, so does the battery technology. It was discussed about the history of electrification in automotive application. Looking at the very basics of battery technology, a battery is a combination of two or more electrochemical cells. There is a wide variety of different battery and cell technologies available. These range from the established non-rechargeable technologies such as zinc-carbon and alkaline batteries to rechargeable batteries that have moved from NiCd through NiMH cells to the newer lithium ion rechargeable batteries. Another area of battery technology that is becoming more important is the green or environmental aspects and commercial aspects.

Day: 2	Date: 24/11/2020
Session: 2	"Battery Management Systems"
Resource Person:	Dr. Abhijeet Kshirsagar, Asst. Professor, Dept. of Electrical Engg. IIT, Dharwad
Contents delivered:	Battery Management Systems (BMS) are used in many industrial and commercial systems to make the battery operation more efficient and to keep the battery heath in good condition away from destructive state to increase battery life time. The main functions of a Battery Management System for electric vehicles are Battery protection, Battery monitoring (SOC and SOH) and battery optimization. In this session it was explained about evolution in batteries and challenges faced with battery chemistry and also explained about structure of different type of batteries. It was discussed about the terms Safe Operating Area (SOA), Energy Efficiency, Cell Modeling and sources of Unbalance in cells of a battery. It was explained about BMS Mediated Charging & discharging methods and BMS Solutions like Custom vs OTS, BMS topologies and also discussed about EV Battery Reuse Challenges.

Day: 2	Date: 24/11/2020
Session: 3	"Energy Management in EVs"
Resource Person:	Dr Chandrasekhar P, Asst. Professor, School of Electrical Sciences, IIT, Bhubaneshwar.
Contents delivered:	Energy management systems are the key technologies of EV and HEV. They have functions of managing, monitoring, and recovering the energy of the vehicle propulsion system which is used to release, store, distribute, and braking time. In this session it was discussed about growth of EV in India. And further discussed about hybridization factor for different types of electrical vehicles. It was explained about Electrical vehicle classification such as series, parallel and series parallel combinations and terms like efficiency improvement, complexity of design and control of application with examples.EMS operation chart on PHEV and its challenges were



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Day: 3	Date: 25/11/2020
Session: 1	"Electric Drives for EV applications"
Resource Person:	Dr. Ramulu, Asst. Professor, Dept. of Electrical Engg, NIT, Warangal.
Contents delivered:	In this session, six types of the drive train systems of electric motor drives for EVs were discussed. Furthermore, the requirements of EVs on electric motor drives were presented. The comparative investigation on the efficiency, weight, cost, cooling, maximum speed, and fault-tolerance, safety, and reliability is carried out for switched reluctance motor, induction motor, permanent magnet blushless DC motor and brushed DC motor drives in order to find most appropriate electric motor drives for electric vehicle applications. The study shows that switched reluctance motor drives are the prior choice for electric vehicles.

Day: 3	Date: 25/11/2020
Session: 2	"Suitability of BLDC Motor for EV Application"
Resource Person:	Dr. Ragavan K Associate Professor, Dept. Electrical Engineering, IIT, Gandhinagar.
Contents delivered:	Use of Electric Vehicles is increasing due to zero carbon emission, its sustainability and energy saving capability. Comparison of performance, efficiency and reliability of different motors which can be used as drive train of electric vehicles is discussed during the session. Characteristics of vehicle load & various motors used for EV's and operation of BLDC motor for EV applications were discussed. Movement of mmf, operation of trapezoidal back emf motor and Operation of sinusoidal back emf motor are discussed.

Day: 3	Date: 25/11/2020
Session: 3	"SRM Drives for EVs"
Resource Person:	Dr. D. S. More, Professor, Electrical Engg. Dept. Walchand College of Engg. Sangli
Contents delivered:	Permanent magnet synchronous motors are widely accepted in automotive applications. The high torque density, high rotational speed with maximum efficiency in electric vehicle applications is technically challenging for motor design. However, these machines are expensive and difficult to work at high- temperature harsh environment due to permanent magnets demagnetization features. Alternatively, switched reluctance motors can provide similar output characteristics and a wider speed. Introduction to battery operated EV was given in brief. Construction & working principle of SRM for EVs were discussed in detail. Torque & speed control of SRM were discussed which proved its suitability. Converters for SRM & their Operating modes were discussed. Closed loop speed control of SRM shows its compatibility to EV applications. Applications of SRM for EVs were elaborated.



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Day: 4	Date: 26/11/2020
Session: 1	"P. E. Converters for EVs"
Resource Person:	Dr. B. V. Madiggond, Professor and Head, Dept.of EEE, Hirasugar Institute of Technology, Nidasoshi.
Contents delivered:	In Hybrid Power Systems, the power-electronic converters are considered as the key elements that interface their power sources to the drive train of the EVs. In order to design highly efficient converters for the EV's power system advanced DC/DC and DC/AC converters are required to adapt the output voltage and current levels with high power quality. Power electronic converter and their vehicular applications were discussed in this session. Power electronic converter requirements and evolution of Power Electronics in EVs are explained. Classification of DC-DC Converters with their topologies and comparison of DC-DC Converter topologies were main highlights of the session.

Day: 4	Date: 26/11/2020
Session: 2	"Automotive P. E. Converters for EVs"
Resource Person:	Dr. Satish Naik, Asst. Professor, Department of Electrical Engineering, IIT, Dharwad.
Contents delivered:	Overview of Electric Vehicle including structure and components of Electric Vehicles were discussed. Role of Power Electronics in Electric vehicles and Merits and demerits of converter topologies (AC-DC and DC- DC) for Fast Charging Stations (FCHARs) are discussed in detail. Overview of Electric Vehicle Supply Equipment (EVSE) and types of Electric Vehicle battery chargers and its levels were the main highlights of the session.

Day: 4	Date: 26/11/2020
Session: 3	"Control Techniques for P. E. Converters"
Resource Person:	Dr. Suryanarayana K, Professor, EEE Dept. NMAMIT, Nitte.
Contents delivered:	Power converter technology is basic and important because it supports and delivers all types of electronic equipment and devices. Need of power Electronic converters and Impact of source, load and control parameters variation in DC-DC converters are discussed. Need of converter modeling, transfer functions are explained. The regulatory design concepts and compensator design are discussed and Development of Omni Electric Vehicle and other hardware systems which are developed in EEE department NMAMIT, Nitte research laboratory are demonstrated at the end of the session.



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Day: 5	Date: 27/11/2020
Session:	"Modeling and Simulations of EV/HV" - Hands on Session
Resource Person:	Dr. Pramod Kumar Nayak, Manager at AIEI Pvt Ltd, Bangalore.
Contents delivered:	Electric vehicles (EVs) are likely to be an alternative energy mode of transportation for the future as it has shown a great ability to reduce the consumption of petroleum based and other high CO ₂ emitting transportations fuels. In this session, the components of the BEVs system were discussed and a model of BEV on the MATLAB-Simulink platform was simulated. All participants were made to develop and simulate battery electric vehicle module on MATLAB platform. Moreover, the relevant electrical system components as well as its corresponding equations for verification were identified. Furthermore, all simulation results were considered.

Day: 5	Date: 27/11/2020
Session:	"Modeling and Simulations of EV/HV" - Hands on Session
Resource Person:	Dr. Pramod Kumar Nayak, Manager at AIEI Pvt Ltd, Bangalore.
Contents delivered:	In this session, an EV drive train configuration is developed with the help of AC motors. The developed model contains a battery source, AC motors (Induction motor and Synchronous (PMSM), motor controller, DTC (Direct torque control) and FOC (field Oriented control), PI control, wheels configuration (Front and Rear) and vehicle body. The model was developed by using the Simulink tool of MATLAB. An optimization algorithm is used to optimize the gain parameters of PI control. Optimized PI controllers can adjust their gain values (Kp and Ki) in correspondence to deviations of EV speed and torque and results in stable speed and torque conditions. The proposed optimization controllers possess advantages over conventional controllers in terms of its robustness, to achieve better EV stability, no speed overshoot and accurate speeds. All participants were made to develop and simulate battery module on MATLAB platform.

Day: 5	Date: 27/11/2020
Session:	"G2V, V2G Communication"
Resource Person:	Dr. Dharavath Kishan, Asst. Professor, Dept. of EEE, NIT, Surthkal.
Contents delivered:	In this session, the current status and implementation impact of V2G/G2V (Vehicle- to-Grid and Grid-to-Vehicle) technologies were discussed on Distributed Generation (DG) systems, illustrating requirements, benefits, challenges and strategies for interfaces of both individual vehicles and fleets. Two of the key aspects for the diffusion of these technologies are those related to batteries and charging systems.



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Day: 6	Date: 28/11/2020
Session:	"Chargers for EVs"
Resource Person:	Dr. Sanjeev Nayak, Specialist and Project Manager, L&T Tech. Services, Bengaluru.
Contents delivered:	Session started with the discussion of different types of batteries, battery consistency & its performance. Discussed about charging of electric bus at parking and bus stop. Also discussed about charging, discharging profile of battery & super capacitor. Session continued with charging of e-bus, on-board, off-board and bidirectional charger. Isolation of battery with graphical representation, at present what is the impact of EV charger on grid is discussed by taking case study & Environmental impacts of EV's is also discussed.

Day: 6	Date: 28/11/2020
Session:	"Research Avenues in EVs"
Resource Person:	"Dr Sreejith S, Asst. Professor, Dept. of EEE, NIT, Silchar"
Contents delivered:	In recent years, due to the pressure of energy crisis and environmental pollution, Electric Vehicle (EV) has gained opportunities for development. With the large-scale construction of charging station, the wide use of EV will cause the rapid growth of the power load in local areas. As the essential part of grid loads in the future, the charging station load forecasting, especially the short-term load forecasting, will play a very important role in production arrangement, economic dispatching, and safe operation of electric power system. In this session various research avenues in electric Vehicle are highlighted. Selection of Lithium ion battery, improvement of battery performance, different battery technologies & battery swapping is discussed. Further session is continued with discussion of how to reduce losses in Vehicle to Grid (V2G) and Grid to Vehicle (G2V) technology and how to manage power at charging. Cyber security issues in Electric Vehicle are discussed in the session.

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Dr. B. V. Madiggond Program Coordinator HOD, GED Dept. Dectrical & Electronics Enge Hrasugar Institute of Technology NIDASOSHI-591236



Overall Feedback (23.11.2020-28.11.2020) : AICTE Sponsored One Week STTP on "Battery Management and Control Techniques" H.I.T Nidasoshi, Belagavi, Karnataka





Excellent
 Good
 Satisfactory
 Not- Satisfactory

