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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
ACADEMIC YEAR 2021-2022(ODD SEMESTER)

INTERNAL SEMINAR-REPORT

Department of EEE has organized Internal Seminar on **"Hybrid Electric Vehicles-overview** "for second, third and final year EEE students on 25.9.2021.

Beneficiaries: Total:62:(II, III&IV Year EEE Students)

Time: 6.00 P.M to 7.15 P.M

Venue: Online (Google meet)https://meet.google.com/rgu-aatt-gmb

Resource Person (Internal):
Mr.R.Sundaramoorthi, Assistant Professor/EEE

The main objective of the internal seminar:

- To understand the important theory aspects of Electric vehicles.
- To provide Comprehensive understanding of the functions and operations of Hybrid Electric vehicles and components.
- To impart technical skills to the students and make them to prepare projects and technical presentation.

Mr.R.Sundaramoorthi, AP/EEE has welcomed all the second, third and final year EEE students. Before starting the presentation, he interacted with students about basic Introduction about Electric vehicles and current trends in Electrical Engineering. The entire session was segregated with five sections such as Electric vehicle scenario, types of Electric vehicle, Hybrid Electric vehicle components, Battery Management systems and current research areas in Electric vehicles .In addition, question and answer session was also included during the presentation. During his initial part of the session, he started with basic questions related to Electric vehicles and comparison between conventional and Battery Electric vehicles. Second year and final year students have interacted well and answered.

Then, he introduced about classification of Electric vehicles such as Battery Electric vehicle, Hybrid Electric vehicle and Plug-in Hybrid Electric vehicle. He explained how hybrid Electric vehicle works and all the components involved in HEV with video presentation. Next, he briefly explained about battery and its types, graphical representation between various batteries. He pointed out the main parameters and terminals of battery. The different terminals are:(a)Capacity (b)specific Energy (c)Energy density (d)Specific power (e)Energy Efficiency (f)State of Charge(g)Depth of Discharge. Then he started to present the most important part of EV such as Battery Management system and wireless techniques. He has introduced about the Energy storage systems and importance of Battery, different types of battery, importance and functions of battery Management systems. He has briefed about the different techniques of estimating state of charge (SOC), state of health (SOH) mechanisms and applications. The following parameters are involved in SOC and SOH(a)Voltage (b)Current (c)Temperature (d)Power. He has given broad idea of different features and specifications of BMS.

Finally, he has given idea about all the methods of balancing techniques and Safe Operating Area (SOA) of different types of cells. He also specified software tools are used in EV.Examples are:(a) SIMPLEV(b) MARVEL(c) V-Elph (d) ADVISOR(e) PSAT, CarSim, OSU-HEVSim, Hybrid Vehicle Evaluation code (HVEC).Before concluding the session, he has given idea about research aspects in EV and projects areas of Hybrid Electric vehicles. At the end of the session, students from second year and final year interacted and asked questions about Converters importance and scope of job opportunities in EV and future development of energy storage systems.

OUTCOME:

- Students will be able to emphasize theoretical knowledge on Hybrid Electric vehicles.
- Students can be able to understand the different types of Electric vehicles, Components of Hybrid Electric vehicles, Battery Management Functions and methods that allow the students to observe applications in this field.
- Students shall select Hybrid Electric Vehicle area for their Project work, Paper Publication, Conference presentation and PCE activities.

SNAPSHOTS

Mr.R.Sundaramoorthi AP/EEE delivering lecture (online mode) during Internal Seminar