Student Knowledge Improvement Program on ELECTRIC VEHICLES TECHNOLOGY

on 21st & 22nd Feb 2020

Resource persons
Mr. S. Shanmugam

at SASTRA Deemed to be University

Event Champion
B. Senthil Kumar

About the Course
The global Automotive industry is moving towards the development of Electric Vehicles (EVs). Battery electric vehicles store electricity onboard with high-capacity battery packs. BEVs do not emit any harmful emissions and hazards caused by traditional fossil fuel-powered vehicles. Understanding the future scenario and requirements SAE ISS has launched several events in Student Convention and also the prestigious ETWDC to motivate and align the student members to future needs.

Who should attend?
- Engineering graduate students of Mechanical, Automobile Engineering branch
- Aspirant Participants of SAEINDIA Baja, SAEINDIA ETWDC etc.

Subject Experts
Mr. S. Shanmugam – Managing Director Design Desk (India) Pvt Ltd. He is currently the managing director of Design Desk (India) Private Limited, a 21 year old Small and Medium enterprise based in Chennai. He has been a technical instructor, engineer, consultant and researcher in Reverse engineering for more than 22 years. He taught at IRTT Erode and Dr. MGR University, Chennai. He is currently a visiting faculty in AU FRG Centre for CAD/CAM of Anna University for their ME Product Design Course. He has received much recognition from various industries for his work on Reverse engineering. He presented lectures at numerous seminars and conferences. Active with professional societies, he is the Chairman of SAEINDIA Southern section for the term 2018 - 2020. He has a B.E. automobile engineering from Institute of Road and Transport Technology, Erode, a M.E. Automobile engineering from Madras Institute of Technology, Chennai.

Course Content

Introduction
- A brief history
- Developments towards the end of the 20th century
- Types of Electric Vehicle in use Today
- Electric Vehicles for the Future

Batteries
- Introduction
- Battery Parameters
- Various Battery Types
- Battery Charging
- The Designer’s Choice of Battery
- Use of Batteries in Hybrid Vehicles
- Battery Modeling

Electric Machines and their Controllers
- The ‘Brushed’ DC Electric Motor
- DC Regulation and Voltage Conversion
- Brushless Electric Motors
- Motor Cooling, Efficiency, Size and Mass
- Electrical Machines for Hybrid Vehicles

Electric Vehicle Modeling
- Introduction
- Tractive Effort
- Modeling Vehicle Acceleration
- Modeling Electric Vehicle Range
- Simulations – a Summary

Design Considerations
- Introduction
- Aerodynamic Considerations
- Consideration of rolling resistance
- Transmission efficiency
- Consideration of vehicle mass.
- Electric Vehicle Chassis and Body Design
- General Issues in Design
Design of Ancillary Systems
- Introduction
- Heating and Cooling Systems
- Design of the Controls
- Power Steering
- Choice of Tyres
- Wing Mirrors, Aerials and Luggage Racks
- Electric Vehicles Recharging and Refuelling Systems

Electric Vehicles and the Environment
- Introduction
- Vehicle Pollution: the Effect
- Vehicle Pollution: A Quantitative Analysis
- Vehicle Pollution in Context
- Alternative and Sustainable Energy via the Grid
- Using Sustainable Energy with Fuelled Vehicles
- The Role of Regulations and Law Makers

Case Studies
- Introduction
- Recharging Battery Vehicles
- Hybrid Vehicles
- Fuel Cell Powered Bus

Account Details
Demand Draft / Cheque in favor of “SAEINDIA Southern Section”, payable at Chennai.
Account Name: SAEINDIA SOUTHERN SECTION
Account Number: 38517580801
Bank Name & Branch: State Bank of India, Kottur
MICR Number: 600002023
IFSC Code: SBIN0001669
PAN No: AABAS2734H

Venue
SAASTRA Deemed to be UNIVERSITY
Trichy-Tanjore Road, Thirumalaismudram, Thanjavur, Tamil Nadu 613401
https://goo.gl/maps/yyVhZYVD5roKSZrV7

Eligibility
Any SAEINDIA Student Member with valid membership

Course Fee
Course Fee : Rs. 1770/- Inclusive of 18% GST
Accommodation for outstation participants: Rs. 100/- per day.
Payment Mode: DD/Cheque/ NEFT

We confirm the following will attend the above Program :

Name: ..........................................................
Designation: ..................................................
Company: ...................................................
Address: ...................................................
Email: ..........................................................

Signature:

Please email/post the registration form duly filled, on or before three days prior

Programme Executive
SAEINDIA Southern Section
Block-1, Modules: 29 & 30, SIDCO Electronic Complex, Thiru-Vi-Ka Industrial Estate, Guindy, Chennai - 600032
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Coordinators from SASTRA
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