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Institute Accredited by National Assessment and Accreditation Council (NAAC), Bengaluru
National Board of Accreditation (NBA), New Delhi. Accredited Programs:
Information Technology, Electronics and Telecommunication Engineering, Electrical Engineering

REPORT ON

"One Month workshop on Electric Vehicle"

(Under the Electronics & Telecommunication Students Association)

at

Department of Electronics and Telecommunication Engineering

Bhivarabai Sawant Institute of Technology & Research Wagholi, Pune

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GTTAnd Supported By Accenture

Name of The Program	**One Month workshop on Electric Vehicle**
Date	**08/01/2024 to 09/02/2024**
Mode	Offline
Organizer	Department of E&TC, JSPM Bhivarabai Institute of technology & Research, Wagholi. Pune, and Supported By GTT And Accenture
Programme Convenor	Dr. Y. S. Angal, HOD (E&TC)
Programme Co-Ordinator	Prof. Nilesh A. Mohota , Prof. Jayshree Y. Suryawanshi (E&TC)
Participants	40

Introduction :

"BUILDING AN ELECTRIC VEHICLE" Workshop was scheduled **From (08/01/2024 to 09/02/2024)** organized by Department of E&TC, JSPM Bhivarabai Institute of technology & Research, Wagholi. Pune, and Supported By GTT And Accenture

Workshop Description: Have you ever wondered how an electric vehicle work? Do you want to learn how they are designed? Here's your opportunity, because as part of Department of E&TC brings you a 1-month workshop on "ELECTRIC VEHICLE" to introduce you to the new era of vehicles.

Introduction about electric vehicles: Electric vehicles: An electric vehicle (EV) is one that operates on an electric motor, instead of an internal-combustion engine that generates power by burning a mix of fuel and gases. Therefore, such as vehicle is seen as a possible replacement for currentgeneration automobile, in order to address the issue of rising pollution, global warming, depleting natural resources, etc. Though the concept of electric vehicles has been around for a long time, it has drawn a considerable amount of interest in the past decade amid a rising carbon footprint and other environmental impacts of fuel-based vehicles. The maintenance of Electric vehicles (EVs) should be less than internal combustion engine vehicles, due to the lack of a gearbox and the oils and cooling fluids that are associated in ICEVs.

Workshop Objective:

Topics covered: 1. IC engines to electric vehicle (technology shift)

2. Introduction of electric vehicle

- ➢ Definition of an electric vehicle
- ➢ Types of electric vehicles (autonomous, hybrid)

3. IC engines v/s electric vehicle

- ➢ Components
- ➢ Efficiency
- ➢ Weight significance

4. Components / structure of electric vehicles

- ➢ Components
- ➢ Selection system
- ➢ Battery alignment
- ➢ Control system
- ➢ Material significance

5. Electric motor and batteries

- ➢ Types of motors (BLDC, PMSM, IM)

6. Individual components of electric motor 4

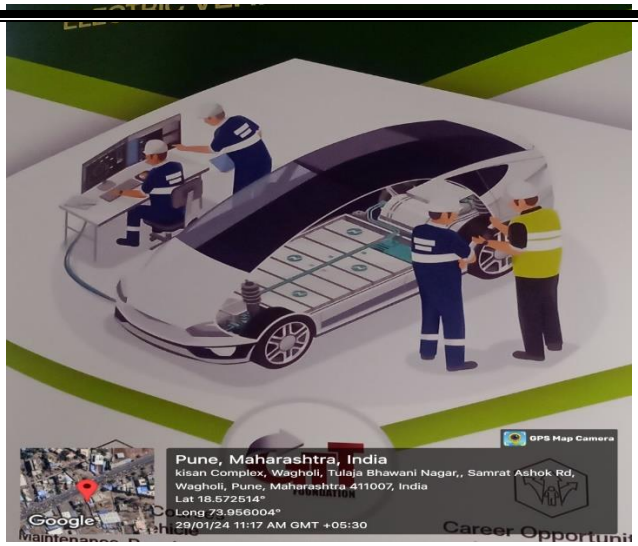
7. Frame of an electric vehicle and its types

- ➢ Structure of frames
- ➢ Suspension systems
- ➢ Modular frame

In this workshop, the speaker discussed about types of motor used by various Electric Vehicle manufacturers and approval procedure in various organization for the newly designed motors . He explained the advantages of BLDC motors and PMSM over induction motor & DC motors . He also discussed the operation , speed torque characteristics and control procedure for BLDC motor and their suitability for Electric traction . In AN session , He discussed the design procedure of BLDC motor in MAGNET software . He also explained the steps to be followed in design of electric motors in MAGNET software . The participants are downloaded the trial software and trained the use of software in designing the Electrical Machines.

Conducting Sessions on EV

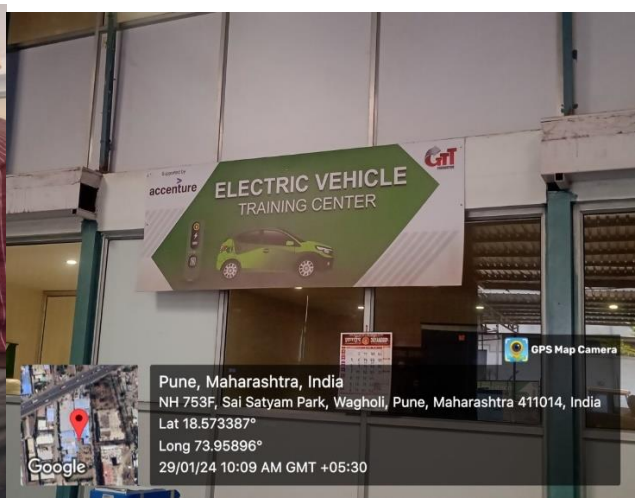
How they differ from typical IC engine: Electric cars are very pleasant to drive compared to internal combustion engine vehicles. The major difference being that they are extremely quiet and are therefore very relaxing on the move. They also deliver power in an incredibly smooth manner, which eliminates the need for a gearbox, making the driving experience even easier. As petrol and diesel prices continue to rise and more stringent conditions come into force on vehicle emissions, motor manufacturers are being encouraged to develop alternatives to traditional internal combustion engine vehicles (ICEVs).



Industrial Visit to EV Center

At EV Center

Trainer discussed about Electric motors have far less moving parts than conventional petrol / diesel engine too. The running costs of electric vehicles are considerably less for the average commute to work or shopping trip. Battery longevity is still a bit of an unknown area, many manufacturers are offering long warranties to reassure potential customers. Renault offers a battery-leasing scheme where you pay a monthly fee and they will guarantee the batteries performance.



The beauty of electric vehicles is that tail-pipe emissions are zero, therefore making our towns and cities more pleasant environments. However, they are not without 5 environmental impact; the electricity used for charging has to come from somewhere! If your electricity comes from a coal fired power station, it may not be anymore CO2 efficient than a conventional diesel car. Primary Components of an Electric Car: An electric powered car has three primary components. These are the electric engine, motor controller, and battery.

Electric Engine: Unlike a gasoline engine with lots of moving parts, an electric engine or motor only has one moving part. This makes it a very reliable source of motive power. Choosing an electric engine depends on your car's system voltage. They can be structured to use either AC or DC current. AC motors are less expensive and lighter compared to DC engines. They are also more common and they tend to suffer from less mechanical wear and tear. However, AC technology requires a more refined or sophisticated motor controller. Motor Controller: The motor controller of an electric car administers its complete operation and the distribution of its power at any given moment.

Battery: The battery of an electric car can be charged through the use of ordinary grid electricity at a specialized power station

Completion of EV Training Certificates Distribution at EV Center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Workshop Outcome:

By attending the workshop, the students can be able to perform different projects on Electric Vehicle. Mini as well as Major projects, as part of the curriculum. Further, the students will gain knowledge on Electric vehicle issues.

Sr. No.	Workshop Outcome	PO	PSO
1	By attending the workshop, the students can be able to perform different projects on Electric Vehicle	PO1, PO2, PO3, PO4,	PSO1, PSO2
2	Students will gain knowledge on Electric vehicle issues.	PO5, PO10	PSO3

Programme Co ordinator	Prof. Nilesh A. Mohota Prof. Jayshree Y. Suryawanshi	
Programme Convenor	Dr. Yogesh S. Angal (H.O.D E&TC)	
Principal	Dr. T.K. Nagaraj (Principal, BSIOTR)	