

Report on Value Added course on “Electric vehicle present and Future Scope Held on 22nd Feb –12th March, 2022

Date of Event	22nd Feb –12th March, 2022
Name and Type of Event	Value Added course on “Electric vehicle present and Future Scope”
Conducted by	Prof. Viranshu Kumar and Prof. Mukesh Kumar Sharma
Number of Participants	61

About the Course Developers

Prof. Viranshu Kumar

Prof. Viranshu Kumar working as an Assistant Professor in the mechanical engineering department school of Engineering and IT of ARKA JAIN UNIVERSITY, Jamshedpur. He is pursuing Ph.D. from National Institute of Advance Manufacturing Technology Ranchi. He has completed his M.TECH and B.TECH- Mechanical Engineering from Lovely professional University, Punjab. He has 5 Years of teaching experience in the field of mechanical engineering. He has published more the 15 research paper in reputed international journal.

Prof. Mukesh Kumar Sharma

Prof. Mukesh Kumar Sharma working as an Assistant Professor in the mechanical engineering department, school of Engineering and IT of ARKA JAIN UNIVERSITY, Jamshedpur. He has completed his M.TECH and B.TECH- Mechanical Engineering from BPTU, Odisha. He has 8 Years of teaching experience in the field of mechanical engineering. He has published more the 5 research paper in reputed international journal.

Key Points of the Value Added Course

Course Content:

This course will deliver from basic to advance in the domain of Electric Vehicle: Prerequisite, Challenges and probable solutions for both as career or Entrepreneurship. The objective of this course is to meet the following –

Module 1: Electric Vehicle: Introduction

- Components; EV classification
- INDIAN and GLOBAL Scenario
- Prerequisites for EVs

Module 2: Electric Vehicle Architecture Design

- Battery Electric vehicle (BEV); Hybrid electric vehicle (HEV)
- Cell Types their Selection, sizing & layout design
- Charging station& their types
- Energy Storage Solutions

Module 3: Electric Drive and controller

- Types & Selection criteria of Motors; Torque calculation
- Mechanical & Electrical connection of motor

Module 4: Electric Vehicles charging station

- Components of Charging station& their types

Module 5: Setting up Electric Vehicle Retrofitting Business

- Electrical Vehicle Simulation as Career
- Service, Maintenance & Repair of EVs as Career
- Other Challenges

About the course:

Course Convener: Prof. Ashwini Kumar

Course Developer: - Prof Viranshu Kumar & Prof Mukesh Kumar Sharma

Contact No- 8210257269, 9040875250

Email-Viranshu.k@arkajainuniversity.ac.in ,mukesh.s@arkajainuniversity.ac.in

Course Duration: - 30 Hours, Commencement Date: - 22th Feb 2022 Batch No-First

Course Location: - Arka Jain University Jharkhand and Online (Google Meet)

Mode of Learning: - Online

Who can Enroll: - All Engineering Students

Registration Fee: - 100/-

Course Objective

- Explain the basics of electric and hybrid electric vehicles, their architecture, technologies and fundamentals.
- Explain plug – in hybrid electric vehicle architecture, design and component sizing and the power electronics devices used in hybrid electric vehicles.
- Analyse various electric drives suitable for hybrid electric vehicles.
- Discuss different energy storage technologies used for hybrid electric vehicles and their control.
- Demonstrate different configurations of electric vehicles and its components, hybrid vehicle

Configuration by different techniques, sizing of components and design optimization and energy management.

Process of Enrollment and Certification

- Fill out the registration form using the Google form link given below. After the successful enrolment, participants will attend a 30 hour session in which 80% attendance is required. At the end of the each module, the participants have to submit an assignment. To be eligible for the certificate, the participants must complete at least three out of five assignments and score at least 60% in the quiz. The participant will receive a certificate from Arka Jain University Jharkhand after successful completion of the assignment and quiz.

Program Specific outcome

- An ability to design and develop environmental friendly electrical Vehicle
- To introduce application of smart grid and electric vehicle for conversion, control and automation.
- Apply appropriate techniques and modern Engineering hardware and software tools in electric vehicle to engage in life- long learning and to successfully adapt in multi- disciplinary environments.

- Understand the impact of Professional Engineering solutions in societal and environmental context, commit to professional ethics and communicate effectively.

Course Outcome

- Explain the basics of electric and hybrid electric vehicles, their architecture, technologies and fundamentals.
- Analyze the use of different power electronics devices and electrical machines in hybrid electric vehicles.
- Explain the use of different energy storage devices used for hybrid electric vehicles, their technologies and control and select appropriate technology

Interpret working of different configurations of electric vehicles and its components, hybrid vehicle configuration, performance analysis and Energy Management strategies in HEVs.

Event Poster

School of engineering and IT
Department of Engineering

Short-term Certification Course in

ELECTRIC VEHICLES

Present & Future scopes

For: All Engineering students

JGI

**ARKA JAIN
University**
Jharkhand (Jamshedpur)



- **DATE**
22nd Feb to 08th March 2022
- **TIME**
6:30 PM to 8:00 PM (Evening) daily
- **VENUE**
Online (google meet)
- **CONTACT NO**
8210257269, 7696565388

Registration Link:
<https://docs.google.com/forms/d/1ky8ycqnGWSpT7CHS0UDMnVTKtTK1XGTCPrtuMor90WY/edit>

Coordinator - Prof. Ashwini Kumar | Course Developer- Prof Viranshu Kumar & Prof Mukesh Kumar Sharma

Event Brochure

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REGISTRATION LINK:

<https://docs.google.com/forms/d/1ky8ycqnGWSpT7CH50UDMnVTKfTK1XGTCPrtuMor90WY/edit>



ARKA JAIN
University
Jharkhand (Jamshedpur)



Short-term Certification
Course in

**“Electric Vehicles:
Present & Future
scopes”**

