

Fundamentals of Electric vehicles: Technology & Economics

Multi faculty

TYPE OF COURSE	: Rerun Elective UG/PG
COURSE DURATION	: 8 weeks (20 Jul' 20 - 11 Sep' 20)
EXAM DATE	: 27 Sep 2020

PRE-REQUISITES : None; Interest in electric Vehicles

INTENDED AUDIENCE : B. Tech 4th year / M. Tech / MS / PhD or working professionals in EE, ECE, Mech, Engineering Design, Aerospace Engineering students interested in Electric Vehicles

INDUSTRIES SUPPORT : Large number of people in industry will be interested.

COURSE OUTLINE :

A systems course to understand the fundamentals of Electric Vehicles (EVs), especially in Indian Context. The course will examine technology associated with each element of EV drive-train; at the same time, it will get into economics of EVs in India vis-à-vis petrol vehicles.

ABOUT INSTRUCTOR :

Ashok Jhunjunwala, Institute Professor at IIT Madras, did his B.Tech degree from IIT Kanpur and MS and PhD from University of Maine, USA and was a faculty at Washington State University, USA for a year and half before joining as a faculty at IIT Madras in 1981. In 2017-18, he was on sabbatical from IITM and was Principal Advisor to Minister of Power, MNRE, and Railways, Government of India, New Delhi. Prof. Jhunjunwala is considered a pioneer in nurturing Industry-Academia interaction in India towards Research and Development, Innovation and Product Development. He conceived and built India's first university affiliated business park (IIT Madras Research Park) to promote Industry-Academia Research and Development collaboration.

COURSE PLAN :

The key topics that are going to be discussed in this course are

1. Overview of Electric Vehicles in India
2. Vehicle Dynamics
3. Vehicle Subsystems: EV Power-train
 - 3.1 Storage for EVs
 - 3.2 Fundamentals of EV Battery Pack design
 - 3.3 EV Motors and Controllers: Fundamentals and Design
- 4 Vehicle Accessories
- 5 Battery Charging and Swapping
6. Management of EV Infrastructure