

# HYBRID ELECTRIC VEHICLE

**Date:** Dec 14,2021

**Speaker:** Mr. Yogendranath Rao

The Training and Placement Cell, B.I.T. Sindri arranged a live Webinar on “Hybrid Electric Vehicle” by Toyota Learning and Development-India Division focused on introducing the students to the present and the foreseeable scenario of EVs in India and the role electrification would play in its feasibility. The webinar was open to students from all years and it had a presence of nearly 200 members.

After the briefing of the participants on attendee etiquettes, the webinar kicked off with a rationale on Human Evolution- Automobile Industry analogy. The illustration cited specifics like inquisitiveness in prehistoric times leading to the development of mathematical ability and predictive analysis skills of humans, the industrial revolution in the automobile industry etc.

The central discussion began with a crisp history of automobiles mainly, consisting of date insights of the inventions involved. Going in about the Internal Combustion Engines, the attendees were filled in concisely about the role of ICE in the social and economic growth of individual nations in the past few decades. This followed up with a short video showcasing the operational difference between an ICE and an EV stressing on the efficiency edge of EVs over their ICE administered counterparts. Further, the session explored categories of EVs namely Battery-EVs, Fuel Cell-EVs and Hybrid-EVs featuring their key components and setup along with animated demonstrations of their working. Owing to the market merit of hybrids, presentations on Micro, Mild/Smart, strong-hybrids took a relatively deeper dive. After a commentary on the definition, setup, types viz. series, parallel and series-parallel of powertrain and benefits of series-parallel powertrains, the session shifted its attention on the structure of an EV. Battery genus was also studied, with an emphasis on the application, pros and cons of lead-acid, Li-ion and solid-state batteries. Keynotes on electric motor and Power control units were also briskly summed up. Finally, some useful data insights on the Indian electrification scenario were shared, weighing on terminologies like energy security, greenhouse emissions, pollution etc.

The session concluded with the introduction of CASE (Connected; Automation; Shared Mobility; Electrification).A link was then pinned in the chat box by clearing which the candidates would be eligible for an e-certificate.

