

GENERAL CURRICULUM HYBRID AND ELECTRIC VEHICLES:

The curriculum provides a comprehensive overview of Hybrid Electric Vehicles (HEVs), covering key aspects and fundamental concepts. The curriculum includes the following components:

Overview of HEVs and Their History:

Students will gain insights into the historical development and evolution of Hybrid Electric Vehicles, understanding the key milestones and advancements in this field.

Components of HEVs:

An in-depth exploration of the essential components that constitute HEVs, including the electric motor, battery, internal combustion engine, and powertrain. Students will learn how these elements work together to achieve optimal vehicle performance.

Working Principle of HEVs:

The curriculum delves into the working principles that underlie the functionality of HEVs. Students will gain a thorough understanding of how hybrid systems seamlessly integrate electric and internal combustion power.

Benefits of HEVs:

A comprehensive examination of the advantages offered by HEVs, including fuel efficiency, emissions reduction, and noise reduction. Students will explore how HEVs contribute to environmental sustainability and energy conservation.

Electric Motors:

Detailed coverage of electric motors, encompassing various types, characteristics, and performance attributes. Students will learn about the role of electric motors in the propulsion of HEVs.

Career Prospect

The automotive industry presents a multitude of significant career opportunities, reflecting the dynamic evolution of technology and market demand. Below is an overview of key career opportunities in this sector:

- Vehicle Software Development
- Energy Management and Charging
- Project Management
- Supply Chain Management
- Vehicle Engineering

Each of these career opportunities plays a vital role in realizing innovation, sustainability, and efficiency in the continually evolving automotive industry.

Batteries:

An in-depth study of batteries used in HEVs, including different types, chemistry, charging methods, and life expectancy. Students will understand the critical role of batteries in storing and delivering electrical energy.

Powertrain:

Exploration of powertrain components with a focus on control systems and energy management strategies. Students will examine the sophisticated systems that optimize energy usage and ensure efficient power distribution.

HEV Infrastructure Development:

A dedicated section addressing the development of infrastructure for Hybrid Electric Vehicles. This includes the establishment and expansion of charging stations, as well as the broader initiatives to support the integration of HEVs into existing transportation networks.

This curriculum aims to equip students with a comprehensive understanding of HEVs, covering both theoretical principles and practical applications. It provides a solid foundation for individuals aspiring to contribute to the advancements and sustainability of the automotive industry.

International Academic Experience:

- Joint Degree Program with **Fachhochschule Südwestfalen** (approx. 6 months), get Sarjana Teknik (S.T.) and Bachelor of Engineering (B. Eng.) degrees.
- Internship program to ensure students receive global professional experience.
- Experience student exchange in several European and Asian countries.
- Global career in local and international company.