HYBRID AND ELECTRIC VEHICLES

Our Partner:

Fachhochschule Südwestfalen
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Why Hybrid and Electric Vehicles

Studying Hybrid Electric Vehicles (HEV) holds various strong and relevant reasons in the context of technological advancements and current environmental challenges. Here are several reasons why learning about HEV is crucial:

Technological Innovation:
HEV studies provide a gateway to a profound understanding of technological innovations in the automotive industry. Students can access knowledge about the ongoing development of vehicle software, battery technology, and propulsion systems.

Demand for High-Quality Jobs:
With the rapid growth of the electric and hybrid vehicle industry, there is an increasing demand for professionals who understand this technology. Learning about HEV can enhance qualifications and competitiveness in a competitive job market.

Contribution to Sustainability:
HEVs are an integral part of a more sustainable transportation solution. By understanding how to design, develop, and manage environmentally friendly vehicles, HEV students can contribute to global efforts to reduce greenhouse gas emissions and air pollution.

Energy Saving and Fuel Efficiency:
HEV studies involve knowledge about optimizing energy use and improving fuel efficiency. This becomes increasingly important given global challenges related to energy resources and climate change.

Diversified Career Opportunities:
Graduates of HEV programs have access to various career opportunities in the automotive industry, including software development, energy management, battery technology, and more. This opens doors to diverse and challenging careers.

Comprehensive Understanding of Vehicle Systems:
Learning about HEV provides a holistic understanding of all aspects of vehicles, including traditional and electric propulsion systems. This establishes a solid foundation for a career in the ever-evolving automotive industry.

Practical Experience and Industry Collaboration:
HEV programs often involve practical projects and collaborations with the automotive industry. Students get the opportunity to apply their theoretical knowledge in real-world settings and build networks with industry professionals.

The Hybrid Electric Vehicles program prepares students to become professionals who can contribute to the development and implementation of sustainable and environmentally friendly transportation solutions. Additionally, the program often includes practical projects and collaborations with the automotive industry to provide students with hands-on experience.

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.

International Academic Experience:

- Joint Degree Program with **Fachhochschule Südwestfalen** (approx. 7 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.
- Accelerate Success with the **SGU-University of Missouri - Kansas City** Fast Track Program

CURRICULUM

DOUBLE DEGREE
Academic Year 2024/2025

SEMESTER 1

- English 1
- Discrete Math
- Physics 1
- Physics 1 Laboratory
- Electrical Engineering 1*
- Electrical Engineering 1 Lab*
- Algorithm, Programming & Data Structure 1
- Technical Drawing & CAD
- Introduction to Mechatronic Systems*
- Engineering Statics*
- Extracurricular Courses
- German Language and Culture 1

SEMESTER 2

- English 2
- Calculus
- Physics 2
- Physics 2 Laboratory
- Electrical Engineering 2*
- Electrical Engineering 2 Lab*
- Algorithm, Programming & Data Structure 2
- Strength of Materials*
- Linear Algebra
- Chemistry
- Extracurricular Courses
- German Language and Culture 2

SEMESTER 3

- English 3
- Control Techniques*
- Kinematics & Dynamics
- Sensors and Instrumentation*
- Analog and Digital Electronics*
- Thermodynamics and Fluid Mechanics
- Differential Equation
- Statistics

SEMESTER 4

- English 4
- Machine Design*
- Microcontroller*
- Power Electronics
- Introduction to automotive system
- Electrical and Electronic Systems
- Internal Combustion Engine
- HEV Manufacturing Processes
- Extracurricular Courses
- German Language and Culture 3

SEMESTER 5

- Electric Drive*
- Internship 1
- Manufacturing Process Workshop (Training)
- Battery and Energy Storage System
- Vehicle Power Management: Modelling, Control and Optimization
- Elective Subject 1
- Elective Subject 2
- Extracurricular Courses
- German Language and Culture 4

SEMESTER 6

- Basic of Electrical Engineering
- Introduction to Project Management
- Model Based Design
- Internship 2*
- Elective Subject 4
- Current Developments in Business IT
- Advanced Programming
- IS-Project
- German Language (C1)
- Seminar (Focus Seminar)

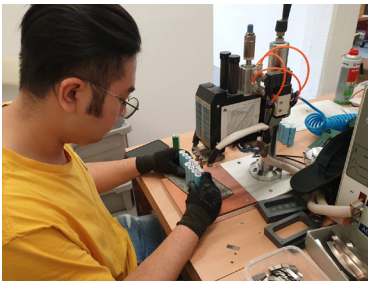
SEMESTER 7

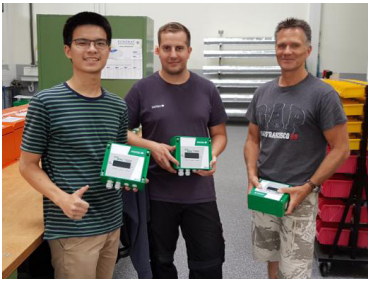
- English 5
- Indonesian Language
- Research Methodology
- Sustainable Transportation System
- Capstone Design Project
- Project Management (IE)
- Engineering Economics
- Optional: Internship in Germany

SEMESTER 8

- Character & Professional Development
- EV Competence Certification*
- Bachelor Thesis
- Pancasila and Civics
- Ethics and Religious Philosophy

INTERNSHIP EXPERIENCES





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