COURSE DETAIL

ENERGY CONVERTERS FOR SUSTAINABLE TRANSPORTATION
Country Sweden
Host Institution Lund University
Program(s) Lund University
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Mechanical Engineering Engineering Electrical Engineering
UCEAP Course Number 126
UCEAP Course Suffix
UCEAP Official Title ENERGY CONVERTERS FOR SUSTAINABLE TRANSPORTATION
UCEAP Transcript Title ENERGY SUST TRANSPR
UCEAP Quarter Units 6.00
UCEAP Semester Units 4.00

Course Description

The objective of this course is, starting from the requirements for vehicle propulsion, to present the different options in terms of vehicle energy converters, that have the potential for near-zero pollutant emissions and defossilization. The course deals with powertrains for vehicles. The expectations are that in a sustainable society, transportation powertrains will be a mix between battery electric, fuel cell, combustion engines, and hybrids. The combustion engines would then be powered by renewable fuels produced using sustainable sources. The main features of the different energy converters are given, with their pros and cons, followed by a detailed discussion for each option. Challenges to the combustion engine fueled by fossil fuels are discussed. The different configurations for hybrid powertrains and criteria for choosing the optimum configurations are presented. Plug-in hybrids and range-extended hybrids are discussed. The main features for hydrogen fuel cells and battery electric drive are stated, including advantages and challenges, as well as expected future trends for the different transportation modes.

Language(s) of Instruction
English

Host Institution Course Number
MVKN51

Host Institution Course Title
ENERGY CONVERTERS FOR SUSTAINABLE TRANSPORTATION

Host Institution Campus

Host Institution Faculty
Engineering

Host Institution Degree

Host Institution Department

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