# COURSE DETAIL

| ENERGY CONVERTERS FOR SUSTAINABLE TRANSPORTATION |
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| **Country**<br>Sweden |
| **Host Institution**<br>Lund University |
| **Program(s)**<br>Lund University |
| **UCEAP Course Level**<br>Upper Division |
| **UCEAP Subject Area(s)**<br>Mechanical Engineering Engineering Electrical Engineering |
| **UCEAP Course Number**<br>126 |
| **UCEAP Course Suffix** |
| **UCEAP Official Title**<br>ENERGY CONVERTERS FOR SUSTAINABLE TRANSPORTATION |
| **UCEAP Transcript Title**<br>ENERGY SUST TRANSPR |
| **UCEAP Quarter Units**<br>6.00 |
| **UCEAP Semester Units**<br>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 Course Details**
https://www.energy.lth.se/english/education/energy-converters-for-sustainable-t...

**Host Institution Campus**

**Host Institution Faculty**
Engineering

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| **Host Institution Degree** |
| **Host Institution Department** |
| **Course Last Reviewed**<br>2022-2023 |

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