

# COURSE DETAIL

## ADVANCED COMBUSTION ENGINE CONCEPTS

**Country**

Sweden

**Host Institution**

Lund University

**Program(s)**

Lund University

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Mechanical Engineering Engineering

**UCEAP Course Number**

183

**UCEAP Course Suffix****UCEAP Official Title**

ADVANCED COMBUSTION ENGINE CONCEPTS

**UCEAP Transcript Title**

ADV COMBUST ENGINE

**UCEAP Quarter Units**

6.00

**UCEAP Semester Units**

4.00

## **Course Description**

The course starts from the challenges facing current internal combustion engines. The historical development of engines is reviewed to better understand the reasons for current engine designs. Next, experimental and numerical tools are reviewed for investigating the processes occurring in engines, which are used in studying and improving engine designs. Advanced engine concepts and fuels are then discussed, with their merits and challenges. This includes advanced engine controls. Finally, an outlook is given as to where continued research and development of engines and fuels can lead, and how the combustion engine can be part of a sustainable future. Engine combustion is analyzed in laboratory exercises. Simulation exercises are also conducted with the purpose of making the students identify the engine's response to changes to its components and settings as well as running engines virtually. Normally a guest lecture is given by an expert from industry.

## **Language(s) of Instruction**

English

## **Host Institution Course Number**

MVKN55

## **Host Institution Course Title**

ADVANCED COMBUSTION ENGINE CONCEPTS

## **Host Institution Course Details**

## **Host Institution Campus**

Engineering

## **Host Institution Faculty**

## **Host Institution Degree**

## **Host Institution Department**

Engineering- Energy Sciences

## **Course Last Reviewed**

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