

COURSE DETAIL

INTRODUCTION TO COMBUSTION ENGINES

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

121

UCEAP Course Suffix**UCEAP Official Title**

INTRODUCTION TO COMBUSTION ENGINES

UCEAP Transcript Title

COMBUSTION ENGINES

UCEAP Quarter Units

6.00

UCEAP Semester Units

4.00

Course Description

This course discusses the processes that occur in an internal combustion engine and the reason why it is designed as it is. It begins with an overview of the most common types of combustion engines (the spark ignition engine, diesel engine, Wankel, and Stirling engines) and the differences between two-stroke and four-stroke engines. The course then reviews both the parameters used to characterize an engine, such as medium-pressure piston and average speed, and the coupling between the engine characteristics and the requirements that a vehicle imposes on the engine. The course also includes a review of the general burning of an arbitrary fuel. Students learn to determine the air needs for complete combustion and no exhaust analysis. The course covers the ideal thermodynamic cycles with combustion at constant pressure or constant volume, Otto and Diesel engines' combustion processes and emissions, motors' mechanical systems, gas exchange, and overcharging. The course is composed of lectures, a guest lecture by an industry representative, exercises, and two labs, the first of which involves removing and installing a gasoline engine, and the other involves running a diesel engine in a dyno and measuring emissions.

Language(s) of Instruction

English

Host Institution Course Number

MVKN50

Host Institution Course Title

INTRODUCTION TO COMBUSTION ENGINES

Host Institution Campus

Engineering

Host Institution Faculty

Host Institution Degree

Host Institution Department

Engineering- Energy Sciences

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