Gas Turbine Engines

Programme course

6 credits

Gasturbinteknik

TMMV12

Valid from: 2017 Spring semester

Determined by
Board of Studies for Mechanical Engineering and Design

Date determined
2017-01-25

Main field of study
Energy and Environmental Engineering, Mechanical Engineering

Course level
Second cycle

Advancement level
A1X

Course offered for
- Energy-Environment-Management
- Industrial Engineering and Management - International, M Sc in Engineering
- Industrial Engineering and Management, M Sc in Engineering
- Mechanical Engineering, M Sc in Engineering

Entry requirements
Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

Prerequisites
Thermodynamics, Fluid Mechanics, Heat Transfer

Intended learning outcomes
The aim of the course is to provide some basic but fundamental knowledge and understanding about the functionality of turbine engines. This knowledge will enable the students how a turbine engine can be highly efficient while having the least impact on environment. That is to aim for a green energy to contribute in sustainable development.

Course content

Fundamentals of thermodynamics, fluid mechanics and aerodynamics are discussed for a turbine engine from an analytical and theoretical perspective. Furthermore, the functionality of different components such as compressor, combustor and turbine, common in all types of turbine engines, would be introduced.
Turbine engines have wide ranges of application such as in Aerospace Industry (Jet Engines), in Power Plant Industry (Gas Turbines, Steam Turbines), and in Automotive and Marine Industry (Turbofans, Turbochargers). However, in this course Gas turbines and Jet Engines are discussed in more details.

Teaching and working methods

The educational methods consist of lectures, seminars and labs. Seminars are given by guest lecturers from industrial partners such as Siemens Industrial Turbomachinery AB, SAAB Group, GKN Aerospace and etc.
To deepen the obtained knowledge, study visits from turbine engine manufacturers is planned.

Examination

LAB3	Laboratory Work	1 credits	U, G
TEN2	Written examination	2 credits	U, 3, 4, 5
UPG3	Assignment	1 credits	U, 3, 4, 5
UPG2	Assignment	2 credits	U, G

Grades

Four-grade scale, LiU, U, 3, 4, 5

Department

Institutionen för ekonomisk och industriell utveckling

Director of Studies or equivalent

Johan Renner

Examiner

Roland Gårdhagen

Course website and other links

http://www.iei.liu.se/mvs/utbildning/avancerade-kurser/tmmv12?l=en

Education components

Preliminary scheduled hours: 48 h
Recommended self-study hours: 112 h

Course literature

Fastställs senare

Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at http://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.