COURSE DETAIL

HEAT TRANSFER
Country Sweden
Host Institution Lund University
Program(s) Lund University
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Mechanical Engineering Engineering Chemical Engineering
UCEAP Course Number 129
UCEAP Course Suffix
UCEAP Official Title HEAT TRANSFER
UCEAP Transcript Title HEAT TRANSFER
UCEAP Quarter Units 6.00
UCEAP Semester Units 4.00

Course Description
The course provides students with understanding and knowledge of the mechanisms of heat transfer and the methods, analytical and empirical, being used to analyze and predict heat transfer and temperature distributions. Students are also trained to apply the theory on engineering problems. The course covers heat conduction, convection, thermal radiation, condensation, evaporation/boiling, and heat exchangers. The heat conduction part includes general theory, fins as well as transient heating and cooling processes. Convective heat transfer presents the governing equations, similarity laws, forced and free (natural) convection. Laminar as well as turbulent cases are considered for ducts and immersed bodies. The chapter on thermal radiation includes general theory of radiation, black and non-black bodies, grey bodies, view factors, radiative heat exchange between non-black surfaces and gas radiation (participating media). Basic theory of film condensation is presented and influence of various parameters on the condensation process is described. A brief description of dropwise condensation is included. Evaporation and boiling cover pool boiling, forced convective boiling, two-phase flow and heat transfer in ducts and tubes. Empirical correlations are presented. Various types of heat exchangers in engineering applications and their classifications are presented. Theory and methods for design (sizing) and performance evaluation as well as analysis of heat transfer equipment are provided.

Language(s) of Instruction
English

Host Institution Course Number
MMVF05

Host Institution Course Title
HEAT TRANSFER

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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