COURSE DETAIL

THE FINITE ELEMENT METHOD - FLOW ANALYSIS
Country Sweden
Host Institution Lund University
Program(s) Lund University
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Mechanical Engineering Engineering Civil Engineering
UCEAP Course Number 124
UCEAP Course Suffix
UCEAP Official Title THE FINITE ELEMENT METHOD - FLOW ANALYSIS
UCEAP Transcript Title FINITE ELMNT FLOW
UCEAP Quarter Units 6.00
UCEAP Semester Units 4.00

Course Description
This course covers the basic steps in the finite element method, as well as the modelling and analysis of general flow problems described from a physical context. Common problems within the field of engineering are also discussed, such as heat flow, pipe network flow, ground water flow, and diffusion for both stationary and transient conditions. The course consists of lectures, exercises, and two compulsory design assignments. The first part of the course covers a detailed derivation of all the steps in the finite element formulation for a one-dimensional heat flow problem, including direct approach, strong and weak formulations, approximating functions, and weighted residual methods. More advanced problems are gradually added to this basic knowledge, such as, 2- and 3-dimensional field problems. At the end of the course the theory is extended to the study of transient field-problems. The design assignments illustrate the procedure of transferring a design problem into a model suitable for finite element analysis.

Language(s) of Instruction
English

Host Institution Course Number
VSMN25

Host Institution Course Title
THE FINITE ELEMENT METHOD - FLOW ANALYSIS

Host Institution Campus
Lund

Host Institution Faculty
Engineering

Host Institution Degree

Host Institution Department
Engineering - Structural Mechanics

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