COURSE DETAIL

SIMULATION

Country
Sweden

Host Institution
Lund University

Program(s)
Lund University

UCEAP Course Level
Upper Division

UCEAP Subject Area(s)
Computer Science

UCEAP Course Number
148

UCEAP Course Suffix

UCEAP Official Title
SIMULATION

UCEAP Transcript Title
SIMULATION

UCEAP Quarter Units
6.00

UCEAP Semester Units
4.00

Course Description

The purpose of the course is to introduce discrete event simulation, basic optimization approaches, and heuristic methods such as simulated annealing, tabu search, and evolutionary algorithms. The course begins by studying discrete event simulation. Students learn to write process-oriented and event-scheduling simulation programs in general programming languages. Estimation of accuracy, random number generation, methods for studying rare events, verification and validation are also covered. The next topic covered is optimization techniques. Linear programs (LP) and the simplex algorithm are studied. This is followed by integer programming (IP) and Mixed Integer Programming (MIP), the relation between IP and LP, and the branch-and-bound method for IP. Finally, heuristic and meta-heuristic methods for combinatorial optimization problems are viewed as optimization through simulation. The local search and its most common variations are explained along with the Monte Carlo techniques.

Language(s) of Instruction
English

Host Institution Course Number
EITN95

Host Institution Course Title
SIMULATION

Host Institution Campus
Engineering

Host Institution Faculty

Host Institution Degree

Host Institution Department
Engineering - Electrical and Information Technology

Print