EP2200 Queuing Theory and Teletraffic Systems 7.5 credits

Köteori och teletrafiksystem

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for EP2200 valid from Autumn 2010

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Computer Science and Engineering,Information Technology,Information and Communication Technology

Specific prerequisites

For single course students: 120 credits and documented proficiency in English B or equivalent

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

The course gives a basic knowledge in modelling and analysis of queuing systems with applications to communication systems.

Course contents

This course includes the classical theory for queuing systems:

- Basic terminology, Kendall's notation and Little's theorem.
- Discrete and continuous time Markov chains, birth-death processes, and the Poisson process.
- Markovian waiting systems with one or more servers, and systems with infinite as well as finite buffers and finite user populations (M/M/).
- Systems with general service distributions (M/G/1): the method of stages, Pollaczek-Khinchin mean-value formula and and systems with priority and interrupted service.
- Loss systems according to Erlang, Engset and Bernoulli.
- Open and closed queuing networks, Jacksonian networks.

The theory is illustrated by examples from telecommunication and computer communication such as blocking in circuit switched networks, preventive and reactive congestion control, and traffic control for guaranteeing quality of service.

Course literature

Will be listed on the course page on the web.

Examination

- INL1 - Assignment, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 6.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

Other requirements for final grade

Written exam (TEN1; 5 cr)
Assignment (INL1; 1,5 cr)

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.