



**S-38.1145**  
**Introduction to Teletraffic Theory (III) 3 ECTS**  
**Spring 2008**

Samuli Aalto  
Networking Laboratory  
Helsinki University of Technology

`samuli.aalto@tkk.fi`

`http://www.netlab.tkk.fi/opetus/s381145/`

## General information

- Former course code: **S-38.145**
- Spring 2008 course given both in Finnish and in English
- **Lectures:**
  - *Samuli Aalto*, `samuli.aalto@tkk.fi`
  - *Pasi Lassila*, `pasi.lassila@tkk.fi`
- **Exercises:**
  - *Tuomas Tirronen*, `tuomas.tirronen@tkk.fi`
- **Course material:**
  - lectures delivered as a **compendium via Edita**
  - use course code **S-38.146** in **WWW-TOPI** to get the **English version!**
  - lectures and exercises available **on the web**
  - print the material using your own printer, but **not** the university's printers

<http://www.netlab.tkk.fi/opetus/s38145/>

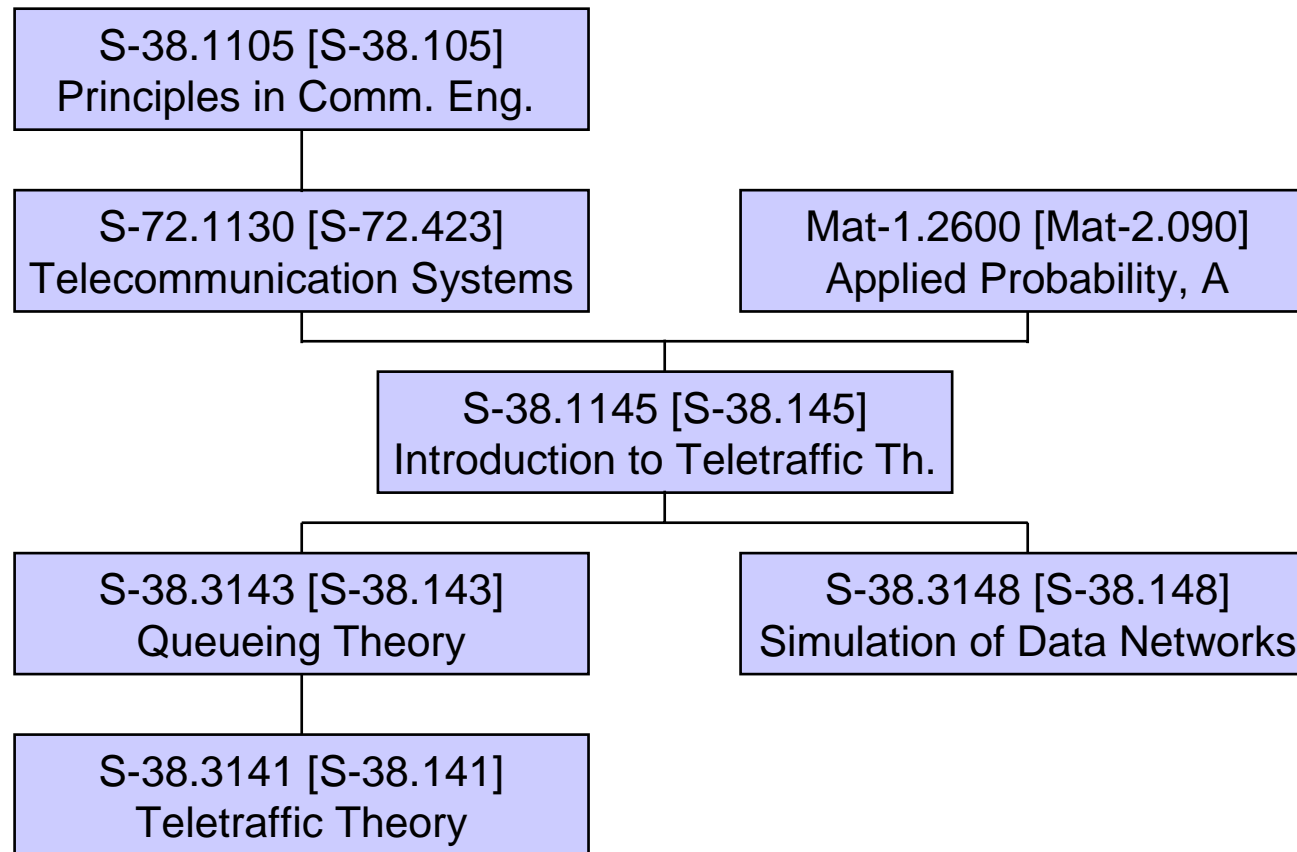
## Object of the course

- First step into the world of

### Traffic Issues in Telecommunications

- Purpose is to **familiarize** the participants with
  - mathematical modelling of various telecommunication systems and their traffic
  - performance analysis and dimensioning of such systems

## Status



## Lectures, exercises and course completion

- **Lectures** (4 hours/week):
  - on Thursdays at 14-16 in lecture hall S3
  - on Fridays at 14-16 in lecture hall S1
  - first time on 17 January (week 3)
- **Exercises** (2 hours/week):
  - on Tuesdays at 16-18 in lecture hall S2
  - first time on 22 January (week 4)
- **Examination:**
  - on Tuesday, 11 March, at 16-19 in lecture halls S3 and S4
  - 5 problems, max. 30 points
  - two retrial examinations
- **Course completion:**
  - pass the examination

## Schedule

Week	3	4	5	6	7	8	9	10
Lectures	1,2	3,4	5,6	7,8	9,11	--	10,12	--
Exercise classes	--	1	2	3	4	--	5	6

## Planned contents

1	Introduction	PL
2	Traffic	PL
3	Examples	PL
4	Basic probability theory recap	SA
5	Stochastic processes (1)	SA
6	Stochastic processes (2)	SA
7	Loss systems	SA
8	Queueing systems	SA
9	Sharing systems	SA
10	Network models	SA
11	Simulation	PL
12	Network dimensioning and load balancing	SA

## More details on the exercises

- **Demos:**
  - problems and solutions available as a compendium (and on the web) for self-studying
- **Homework exercises:**
  - 3 problems per week
  - available on the web about a week before the corresponding exercise class
  - no retrieval of solutions (instead you have to be present)
  - in the beginning of the exercise class, mark the problems you have solved
  - you can mark if you are ready to present your solution
  - 1 homework point per a marked exercise
  - one additional homework point for electronically given course feedback
- **Bonus points:**
  - 10 homework points = 1 bonus point in the examination
  - 14 homework points = 2 bonus points in the examination
  - 18 homework points = 3 bonus points in the examination
- Bonus points valid for 1 year