



**S-38.1145**  
**Introduction to Teletraffic Theory (III) 3 ECTS**  
**Spring 2007**

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

## General information

- Former course code: **S-38.145**
- Spring 2007 course given both in Finnish and in English
- **Lectures:**
  - *Samuli Aalto*, `samuli.aalto@tkk.fi`
  - *Pasi Lassila*, `pasi.lassila@tkk.fi`
- **Exercises:**
  - *Riikka Susitaival*, `riikka.susitaival@tkk.fi`
  - *Juha Leino*, `juha.leino@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/>

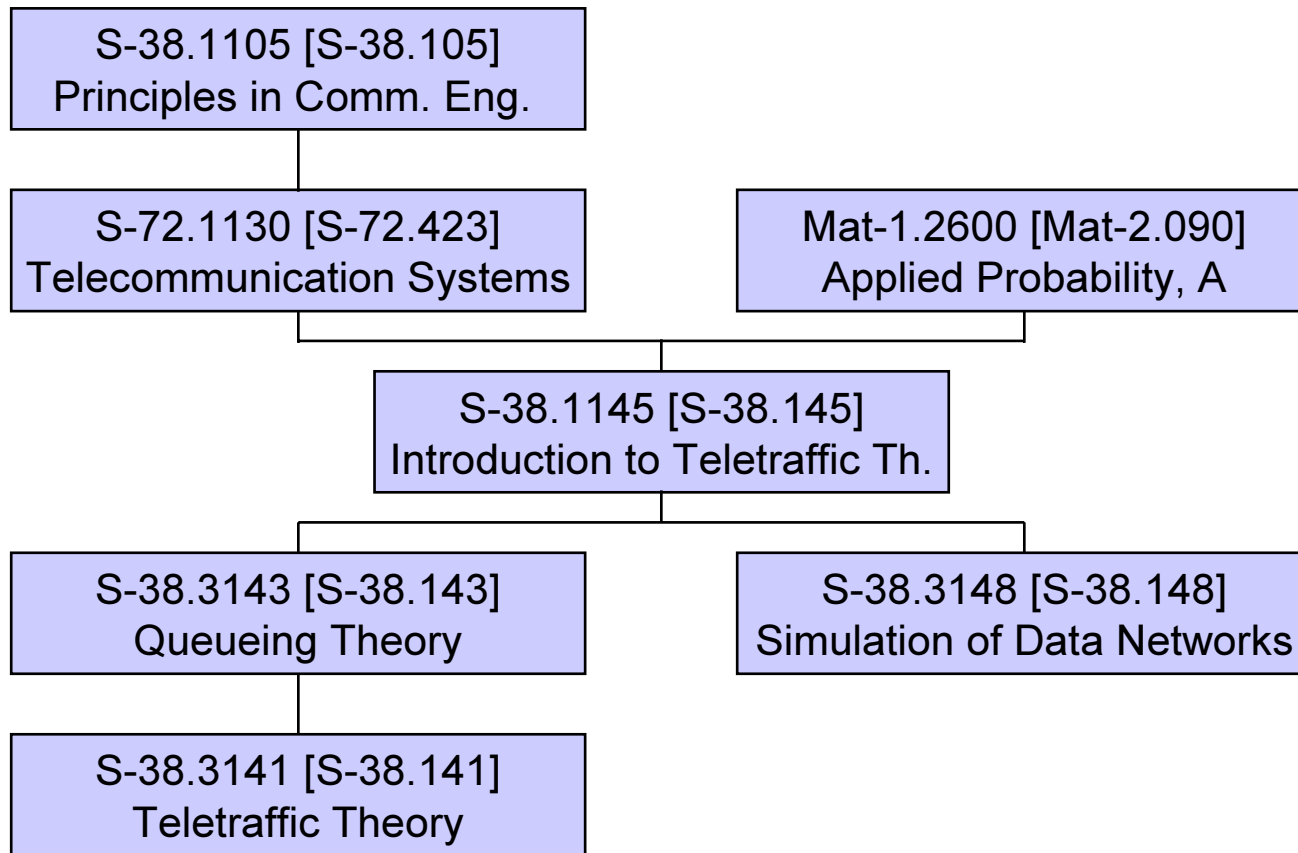
## Lectures, exercises and course completion

- **Lectures** (4 hours/week):
  - on Mondays at 14-16 in lecture hall S3
  - on Thursdays at 14-16 in lecture hall S1
  - first time on 15 January (week 3)
- **Exercises** (2 hours/week):
  - on Tuesdays at 16-18 in lecture hall S2
  - first time on 23 January (week 4)
- **Examination:**
  - on Wednesday, 7 March, at 13-16 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
Lectures	1,2	3,4	5,6	7,8	9,10	11	12
Exercise classes	--	1	2	3	4	5	6

## Status



## Objective of the course

- First step into the world of

### **traffic and performance 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
  - introduce the necessary mathematical tools

## 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

- Exercises distributed **only electronically** via the web
  - available about a week before the corresponding exercise class
  - 3 demo exercises and 3 homework exercises per week
- **Homework exercises:**
  - return into the course box of the laboratory (G-wing, 2. floor)
  - assistant shows the model solution
  - the model solution will not be available on the course web pages
  - grading 0/1 points per problem, total max.  $6 \cdot 3 = 18$  homework points
  - one additional homework point for electronically given course feedback
- **Bonus points:**
  - 6 homework points = 1 extra point in the examination
  - 11 homework points = 2 extra points in the examination
  - 16 homework points = 3 extra points in the examination
- Bonus points valid for 1 year