



S-38.188 Computer Networks (3 cr) Spring 2003

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<http://www.netlab.hut.fi/opetus/s38188/>

S-38.188 - Computer Networks - Spring 2003

General information

- Mandatory subscription through TOPI

<https://webtopi1.hut.fi>

- Course homepage

<http://www.netlab.hut.fi/opetus/s38188/2003>

- Personnel:

- Lectures: Pasi Lassila (e-mail: pasi.lassila@hut.fi)
- Exercises: Eeva Nyberg (e-mail: eeva.nyberg@hut.fi)

Course material

- **Course book:**
 - Larry. L. Peterson and Bruce S. Davie, "Computer Networks: A Systems Approach", 2nd edition, Morgan Kaufman Publishers, San Fransisco, USA, 2000, 748 p.
 - price: £31.95 (Amazon UK), main building's book shop may also have it
 - 1st ed. is basically OK, but course requirements based on 2nd ed.
- **Other material**
 - lecture slides delivered as a compendium via Edita
 - lectures also available **electronically** (via the web pages)

<http://www.netlab.hut.fi/opetus/s38188/2002/>

- at the bottom of the home page
- NOTE ! Printing the material on the university's printers is strickly forbidden!

Lectures & assignments

- **Lectures** (2 hours/week):
 - On Mondays between 14 - 16 in hall S1 (12 - 13 times)
 - First lecture: January 14, last lecture: April 15
 - Lectures are given in Finnish
 - slides in English
- **Homework**
 - Mandatory!
 - Consists of two parts:
 - Pre-assignments
 - Project work
 - Last year's (or earlier) homeworks are not accepted any more

Exercises and project work

- Pre-assignments
 - will appear Thu, February 6
 - must be returned by Thu, February 27
 - pre-assignments on related topics with the project work
- Project work
 - will appear Thu, February 20
 - must be returned by thu, April 24
 - can be returned only if home exercises have been successfully completed
 - project work deals with TCP and congestion control and is done by using ns2 simulation tool

Exercise classes

- To be used as “question hours” for doing the pre-assignments and the project work
- 3 for pre-assignments:
 - Wed, February 12 (week 7), at 12-14, hall S2
 - Wed, February 19 (week 8), at 12-14, hall S2
 - Wed, February 26 (week 9), at 12-14, hall S2
- 3 for project work:
 - Wed, March 19 (week 12), at 12-14, hall S2
 - Wed, March 26 (week 13), at 12-14, hall S2
 - Wed, April 2 (week 14), at 12-14, hall S2

Course completion

- To complete the course, you **must**
 - Pass the exam
 - 1st exam on Thu, May 8, at 16 - 19, in halls S2 and S4
 - + two retrial examinations (September 2003, January 2004)
 - **and** make the home assignments
 - **and** make the project work
- Grading based both on exam and project work (weighted sum)

Course overview

- The course S-38.188 Computer Networks is intended
 - for under graduates and
 - as a first course in computer networking technologies
 - Note! The course is equivalent to CS department's course T-110.350
- The course assumes familiarity with
 - Layer 1 and 2 issues: encoding, framing, MAC protocols, LANs,....
 - don't worry, these topics will be reviewed, though!
- This course is (mostly) about the **Internet**
 - the course covers in depth layers 3 and up of the **Internet**
 - the IP protocol
 - routing
 - transport protocols: UDP, TCP,....
 - traffic management aspects, QoS
 - applications, security

Planned contents

- 1 Introduction
- 2 Layer 2 (link layer) functions (overview)
- 3 General switching technologies
- 4 Internet basics
- 5 Routing in the Internet
- 6 IPv6, Mobile IP & Multicasting
- 7 UDP + reliable transfer in Internet (TCP)
- 8 TCP congestion control
- 9 Realtime services and multimedia
- 10 QoS in Internet
- 11 Applications (DNS, ...)
- 12 Internet security