Orientation Computer Science

August 28, 2008

Important guides

n Study guide http://www.cs.helsinki.fi/opinnot/opinto-opas/Studyguide0810.doc http://www.cs.helsinki.fi/opinnot/opinto-opas/opas2008_20010.pdf

n Teaching programme http://www.cs.helsinki.fi/opinnot/teachingprogramme autumn2008.html (mostly in English) http://www.cs.helsinki.fi/opinnot/syksy08opetus.html (preliminary in Finnish, information about exercise groups in Englsih) http://www.cs.helsinki.fi/opinnot/opass08.html (preliminary, in Finnish) http://www.cs.helsinki.fi/opinnot/opask09.html (preliminary, in Finnish)

n Main www-page http://www.cs.helsinki.fi/index.en.html

Important guides cont.

- n Computing Facilities at the Department of Computer Science
  http://www.cs.helsinki.fi/compfac/index.en.html
- n Recognition of credits from other institutions for degrees in computer science
  http://www.cs.helsinki.fi/opiskelu/ohjeet/recognition-of-credits05.html
- n Orientation Handbook for International Students
  http://www.helsinki.fi/admissions/materials/orientation_handbook.pdf
  http://www.helsinki.fi/admissions/materials/ohb_2007_2008.pdf
- n Orientation www-page http://www.helsinki.fi/orientation/
- n Foreign student tutoring
  http://db.cs.helsinki.fi/~tkt_tkoa/fuksi/index.php?title=Foreign_student_tutoring
- n Plastic keys to the night facilities for Computer Science students

  http://www.cs.helsinki.fi/opiskelu/muoviavainohje.en.html

Periods

- n 4 periods (6 weeks teaching, one exam week)
    - l I   1 Sept – 19 Oct 2008
    - l II   27 Oct – 14 Dec 2008
    - l III   12 Jan – 1 Mar 2009
    - l IV   9 Mar – 17 May 2009 (3 May)
- n Course Registration (major students) for courses in period I starts on Thu 21 August 2008 at 9:00

Two ways of compliting a course

- n Lecture course
- n Separate exam
- n Both requires registration

Lecture Course

- Usually 4-10 cr
- Lectures
- Compulsory or optional exercise groups
- Assigments
- Study circles
- One or two exams (2.5 hours)
- See course homepage

Resit Exam

n Same course component are required as in the course exam

Separate exam

- Formally independent of the lecture courses
- The requirements are based on the material in the course description
- Last 3.5 hours
- Schedule for exams http://www.cs.helsinki.fi/kokeet/

Grading

- The grading scale is divided into six (0-5)
- To gain lowest passing grade, 1/5, students usually need to gain half of the maximum points
- 5/6 of maximum points usually gives 5/5

Laboratory Work

- In Bachelor's degree 3 independent works
    - The Programming project
    - The Database application
    - The Datastructures project
- Each lab work lasts 6 weeks
- Registration for the lab work is binding

Registration

- Registration system at the department of Computer Science http://ilmo.cs.helsinki.fi/english.html
- See important dates (study guide) to find out when registration starts
- For separate and resit exams you should register about two weeks before the exam.
- If you want the questions in English, contact the examiner two weeks before the exam.

MASTER OF SCIENCE DEGREE (120 CREDITS)

A Master's degree in computer science can be completed in one of three sub-programmes:

n Algorithms and machine learning

n Distributed systems and data communications

n Software systems

1. Major subject studies

INTERMEDIATE STUDIES

- Intermediate courses that can be taken as part of the Bachelor's degree or in addition to the advanced module in the Master's programme are required in the sub-programmes Distributed systems and data communications and in Software systems.

ADVANCED MODULE (80 CREDITS)

- Compulsory courses for sub-programme, 8 cr
- Optional advanced courses appropriate for the sub-programme (other than seminars), 26 cr
- Seminars, 6 cr
- 50131   Master's thesis (Pro gradu), 40 cr
- 50039   Maturity test

2. Minor subject studies

- The sub-programme Algorithms and machine learning requires a total of 60 credits of modules in mathematics or method sciences for the Bachelor's and Master's degrees.

3. Other studies

- n 582510   Personal study plan (FM-HOPS), 1 cr
- n 584403   Advanced internship or vocational orientation studies, at least 2 cr
  - l 582511 Working professionally in advanced position in the IT field, 2-6 cr

    or
  - l 581387 Information technology: Now! (3 cr) or other appropriate course

n Optional courses so that the extent of the degree, 120 credits, is fulfilled. These may include major or minor subject courses or other subjects.

Algorithms and machine learning
1. Major subject studies

584333   ADVANCED MODULE

Compulsory courses, 8 cr

- 582630 Design and analysis of algorithms, 4 cr
- 582631 Introduction to machine learning, 4 cr

Optional courses, 26 cr
One of the following:

n 582632 Discrete optimization, 4 cr, and
n 582633 Discrete optimization project, 2 cr,
    or
n 582634 Data mining, 4 cr, and
n 582635 Data mining project, 2 cr
    or
n 582636 Probability models, 4 cr, and
n 582637 Project in probability models, 2 cr

Advanced courses in computer science
   (other than seminars), 20 cr, in accordance
   with the instructions on the sub-programme
   web page.

- Seminars, 6 cr
- 50131   Master's thesis
          (Pro gradu), 40 cr
- 50039   Maturity test

Algorithms and machine learning
2. Minor subject studies

- A total of 60 credits of modules in mathematics or method sciences for the Bachelor's and Master's degrees.

- The module in method sciences must include at least 10 credits of mathematics and at least 10 credits of statistics.

Distributed systems and data communications

1. Major subject studies

INTERMEDIATE STUDIES

n 58127 Programming in C, 4 cr

(unless included in previous degree)

584334 ADVANCED MODULE

Compulsory courses, 8 cr

n 582640 Operating systems, 4 cr

n 582417 Distributed systems, 4 cr

Optional courses, 26 cr

One of the following:

- 582641 Collaboration of autonomous business services, 4 cr
- 582498 Internet protocols, 4 cr
- 581365 Computer organization, 4 cr

Advanced courses in computer science (other than seminars), 22 cr, in accordance with the instructions on the sub-programme web page.

n Seminars, 6 cr

n 50131   Master's thesis (Pro gradu), 40 cr

n 50039   Maturity test

Software systems
1. Major subject studies

INTERMEDIATE STUDIES

n 582482 Database design, 4 cr

(unless included in previous degree)

584335 ADVANCED MODULE

n Compulsory courses, 8 cr

n 581358 Software architectures, 8 cr

Optional courses, 26 cr

One of the following:

n 581359 Software processes and quality, 4 cr

n 582642 Service-oriented software engineering, 4 cr

n 582490 Transaction management, 4 cr

Advanced courses in computer science (other than seminars), 22 cr, in accordance with the instructions on the sub-programme web page.

n Seminars, 6 cr

n 50131　Master's thesis (Pro gradu), 40 cr

n 50039　Maturity test

Complementary courses

n **Students who have been accepted directly to an MSc programme can be required to take complementary courses in addition to the 120 credits.**

n **Contact your special tutor**

Kumpula Science Library

- The collections contain materials in the fields of physical sciences, geology, chemistry, geography, mathematics and statistics, computer science and seismology.

- http://www.helsinki.fi/kumpula/tiedekirjasto/english/

Either of the following two cards can be used as a library card:

n HELKA card.

n UniCard or Lyyra card.

More information:

http://www.helsinki.fi/kumpula/tiedekirjasto/english/circulation/librarycard.htm

Computing facilities

Accounts for two systems are automatically created for major-subject students in computer science:

- n 1. the Computer Science Department system (cs), and

- n 2. the Unix system of the university's IT Department (cc)

The workstations at the Department of Computer Science

- rooms B121, B221, BK107, CK110, DK108, and DK110
- operating system of each workstation in the computer classrooms is Linux, and some computers run Microsoft Windows XP Pro, as well

User accounts

- http://www.cs.helsinki.fi/compfac/index.en.html
- user account manager
  Pekka Niklander
  room A230
  Pekka.Niklander@cs.helsinki.fi

Tour at the department

n Exactum floor plans
http://www.cs.helsinki.fi/contact/
exactum-kartat.html

Planning of studies

n A course that yields 4 credits, for example, requires a minimum of about 100 hours of work.

n The basic rule:
schedule some 2 hours of independent work per every classroom or exercise hour.

n The number of lectures and other contact teaching per course (and credit) varies; If there are uncommonly few teaching hours in relation to the number of credits a course yields, the portion of independent work is even larger than described above.

n About 30 credits per term

n 4 x 30 = 120 credits

Courses totally in English

For example during next autumn term (2008) we have at least following courses and seminars in English:

- 582481 Causal Analysis
- 582615 Peer-to-Peer Networks
- 582483 Biological Sequence Analysis
- 582606 Introduction to Bioinformatics
- 58308302 Seminar: Neuroinformatics
- 58308301 Seminar: Text Mining
- 58308305 Seminar: Future Internet and Other Hot Topics in Networking
- 58309106 Seminar: Machine Learning in Bioinformatics

Summary lecture and an exercise group in English

AUTUMN 2008

- 582640 Operating systems, 4 cr
- 582498 Internet protocols, 4 cr

Excercise group in English if needed

AUTUMN 2008
- 581324 Introduction to the use of computers, 1 cr
- 582102 Introduction to computer science, 4 cr
- 581325 Introduction to programming, 5 cr
- 581326 Advanced course in programming, 4 cr
- 582101 Software modelling, 4 cr
- 582206 Models of computation, 6 cr
- 581332 Concurrent programming, 4 cr
- 582203 Database application, 4 cr
- 58161   Data structures project, 4 cr

- 58127 Programming in C, 4 cr

Separate exams

- If you want the questions in English, contact the examiner two weeks before the exam

Other subjects

- Mathematics
- Statistics
- Language studies

n Erasmus co-ordinator: Hannu Erkiö
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Tue, Thu 12-13   D240a

n Foreign student advisor
Päivi Kuuppelomäki
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Tue, Fri 9:30-10   D228

Special tutors

n   Algorithms and Machine Learning:
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A322

n   Distributed Systems and Data Commication:
Tiina Niklander Tiina.Niklander@cs.helsinki.fi
D225

n   Software Systems:
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n   International CBU Marster's Degree Programme in Information and
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Welcome!

Questions?