



Course and Examination Fact Sheet: Autumn Semester 2019

7,046: Introduction to Computer Systems and Networks

ECTS credits: 6

Overview examination/s

(binding regulations see below)

Decentral - Written examination (50%, 90 mins.)

Decentral - Group examination paper (all given the same grades) (50%)

Attached courses

Timetable -- Language -- Lecturer

[7,046,1.00 Introduction to Computer Systems and Networks](#) -- Englisch -- [Mayer Simon](#)

Course information

Course prerequisites

There are no formal prerequisites. However, students should have basic knowledge, or sufficient motivation to acquire that basic knowledge, in basic (Unix) command-line tools (make, git, etc.) and, ideally, in basic programming in a high-level programming language.

Course content

The basis of modern IT systems is formed by local and remote hard- and software components and the networks in-between. These building blocks will be the focus of this course: first, we discuss the local components and their programming to gain an overview of processor and memory architectures as well as the representation of information on this level; next, we turn to the networks that interlink individual computers to form (globally distributed) computer systems; in the third part of the course, we discuss remote building blocks (e.g., Web services) in the "fog" and "cloud" and their implementation, usage, and management.

The practical part of this course focuses on the programming of IT systems on different levels of abstraction and is tightly integrated with the lecture: in the first part, students will gain hands-on experience with the programming of "bare metal" computer systems; these systems will be interlinked with each other and with remote components in the "cloud" in the second part of the course.

Overall, this course aims to equip participants with the fundamental knowledge and insights required to design, implement, analyze, and take decisions in the domain of distributed computer systems.

Course structure

This course features weekly lectures with integrated exercises. In addition, students will engage in graded practical laboratory exercises (implementation and experiments) in pairs or small groups.

Course literature

The course draws upon selected chapters in the book "Computer Systems: A Programmer's Perspective" by R. E. Bryant and D. R. O'Hallaron (ISBN 978-0134092669). Other referenced literature is linked from the course materials.

Additional course information

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Examination information

Examination sub part/s

1. Examination sub part (1/2)

Examination time and form

Decentral - Written examination (50%, 90 mins.)

Remark

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Examination-aid rule

Extended Closed Book

The use of aids is limited; any additional aids permitted are exhaustively listed under "Supplementary aids". Basically, the following is applicable:

- At such examinations, all the pocket calculators of the Texas Instruments TI-30 series and mono- or bilingual dictionaries (no subject-specific dictionaries) without hand-written notes are admissible. Any other pocket calculator models and any electronic dictionaries are inadmissible.
- In addition, any type of communication, as well as any electronic devices that can be programmed and are capable of communication such as notebooks, tablets, PDAs, mobile telephones and others, are inadmissible.
- Students are themselves responsible for the procurement of examination aids.

Supplementary aids

No further exam aids are permitted.

Examination languages

Question language: English

Answer language: English

2. Examination sub part (2/2)

Examination time and form

Decentral - Group examination paper (all given the same grades) (50%)

Remark

Laboratory Exercises and Reports

Examination-aid rule

Term papers

- Term papers must be written without anyone else's help and in accordance with the known quotation standards, and they must contain a declaration of authorship.
- The documentation of sources (quotations, bibliography) has to be done throughout and consistently in accordance with the APA or MLA standards. The indications of the sources of information taken over verbatim or in paraphrase (quotations) must be integrated into the text in accordance with the precepts of the applicable quotation standard, while informative and bibliographical notes must be added as footnotes (recommendations and standards can be found, for example, in METZGER, C. (2017), *Lern- und Arbeitsstrategien* (12th ed., Cornelsen Schweiz).
- For any work written at the HSG, the indication of the page numbers both according to the MLA and the APA standard is never optional.
- Where there are no page numbers in sources, precise references must be provided in a different way: titles of chapters or sections, section numbers, acts, scenes, verses, etc.
- For papers in law, the legal standard is recommended (by way of example, cf. FORSTMOSER, P., OGOREK R. et SCHINDLER B. (2018, *Juristisches Arbeiten: Eine Anleitung für Studierende* (6. Auflage), Zürich: Schulthess, or the recommendations of the Law School).

Supplementary aids



No further exam aids are permitted.

Examination languages

Question language: English

Answer language: English

Examination content

All contents from lecture and exercise sessions, as well as referenced literature, on the following domains:

- Information representation in computer systems
- Processor architecture, operations, basic assembler instructions
- Multiprocessors and Multicomputers
- Computer Networks
- Web Architecture

Examination relevant literature

- Provided slides
- Provided hand-outs
- Referenced literature
- Discussions during the lecture and exercise sessions
- "Computer Systems: A Programmer's Perspective" (Bryant & O'Hallaron)

Please note

Please note that this fact sheet alone is binding and has priority over any other information such as StudyNet (Canvas), personal databases or faculty members' websites and information provided in their lectures, etc.

Any possible references and links within the fact sheet to information provided by third parties are merely supplementary and informative in nature and are outside the University of St.Gallen's scope of responsibility and guarantee.

Documents and materials that have been submitted no later than the end of term time (CW51) are relevant to central examinations.

Binding nature of the fact sheet:

- Information about courses and examination time (central/decentral) and examination type starting from the beginning of the bidding on 22 August 2019
- Information about examinations (examination aid regulations, examination content, examination-relevant literature) for decentral examinations after the 4th semester week on 14 October 2019
- Information about examinations (examination aid regulations, examination content, examination-relevant literature) for central examinations as from the starting date for examination registration on 4 November 2019

Please consult the fact sheet again after these deadlines have expired.