Networks (2IRR20)

Course Details and Study Guide (00)

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Interconnected Resource-aware Intelligent Systems (IRIS)

2IRR20

- Staff
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  - plus some student assistants…

- Course communication via Canvas.

- You have a question that is not of personal nature? Use Canvas Discussion for asking it so that others can also benefit from the answer.

Pre-knowledge

- 2IC30 - Computer Systems (recommended)

- Basic programming skills are needed for one of the lab sessions (Python or Java).

Learning goals
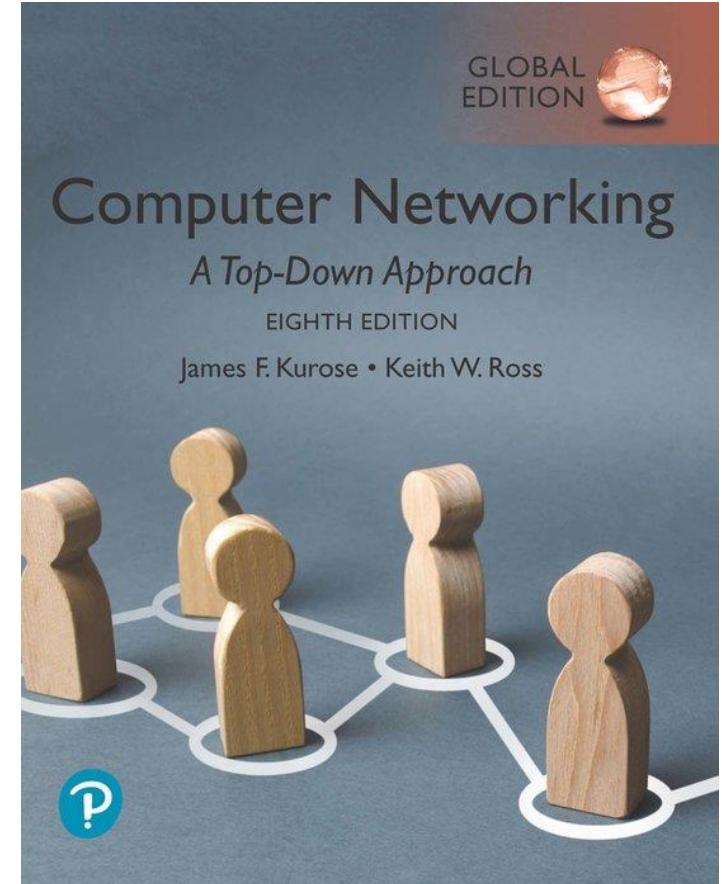
- understanding the organization of computer networks, including heterogeneous networks of networks such as the Internet, or the Internet of Things

- understanding the Internet structure and how standard problems are solved in that context,

- ability to analyze simple network protocols,

- ability to independently study literature concerning networks.

Forms of education
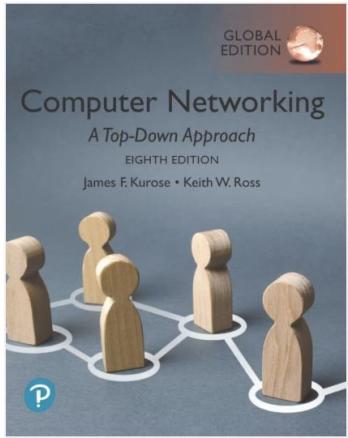
- Lectures

- Instructions / labs

- Other activities:

  - Do the homework assignments.
  - Do the essay assignment (professional skills).
  - Study for the final exam.
    - (doing the lab exercises is part of this)

Study material

- **Textbook**
  - Computer Networking: A Top-Down Approach, Global Edition, 8th edition by James Kurose, Keith Ross. ISBN: 9781292405469
  - Digital versions are also available (e.g., from the publisher's website).

- **Lecture slides on Canvas.**

- **Digital resources for students at media.pearsoncmg.com**

Student Resources

Self-Assessment Multiple Choice Quiz		>
Self-Assessment True/False Quiz		>
Powerpoint Slides Download and view Powerpoint slides for each chapter.	zip, 80.4 MB	⬇
Python 3 Socket Programming Assignments Download Python socket programming assignments.	zip, 7 MB	⬇
Wireshark Labs		↗
Interactive Exercises Interactive end-of-chapter exercises.		↗
Interactive Animations Animations illustrating fundamental concepts of computer networking.		>
VideoNotes Video tutorials illustrating key concepts from the text.		>
Miscellaneous Labs Miscellaneous lab activities.		>

To get access, use the access code on the page titled "**Digital Resources for Students,**" which you can find in your own copy of the textbook.

https://media.pearsoncmg.com/ov2/intl/ge/2021/cws/ge_kurose_compnetwork_8/cw/index.php

Instruction / lab sessions

- Check the schedule on Canvas for instruction / lab times.

- Instructors help with
  - course subjects
  - theory exercises
  - lab exercises

Lab exercises

- You get some hands-on practical experience.

- Your task will be explained on Canvas. Further explanation in the classroom.

- You are responsible for the things that you learn in these sessions.
  - You get questions about this in the exam.

The labs

- **Network analysis**
  - Tool: Wireshark (www.wireshark.org)
    - Network troubleshooter & analyzer
    - A basic tool for observing the messages that are exchanged.

- **Socket programming (in Python or Java)**
  - Sample code snippets and code skeletons available via the companion website: media.pearsoncmg.com
    - If the link does not work, just Google "Pearson Global Editions companion website".
    - To get access, use the access code on the page titled **"Digital Resources for Students"** on your textbook.

Homeworks (4 in total)

- These contain a number of exercises chosen from the textbook chapters.

- Your average is the average of your top 3 scores in all homeworks.
  - So your worst homework submission our of the four is discarded.

Homework grading:

Grading of the 4 homeworks (exercise sets from the textbook):

- 2 pts out of 10: You get 2 points out of 10 for "a serious attempt" to answer ALL questions.

- 8 pts out of 10: A selection of 2 exercises in each homework set will be graded in detail.

Example:

Given exercises   : R1, R2, R3, R4, P1, P2, P3, P4

Graded exercises   :   R2   P1
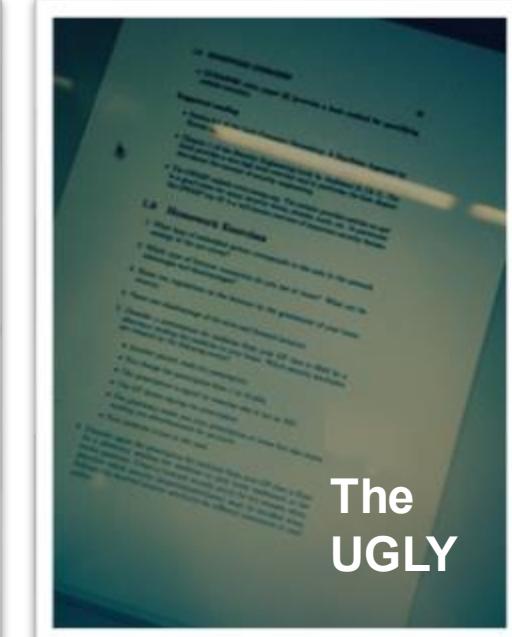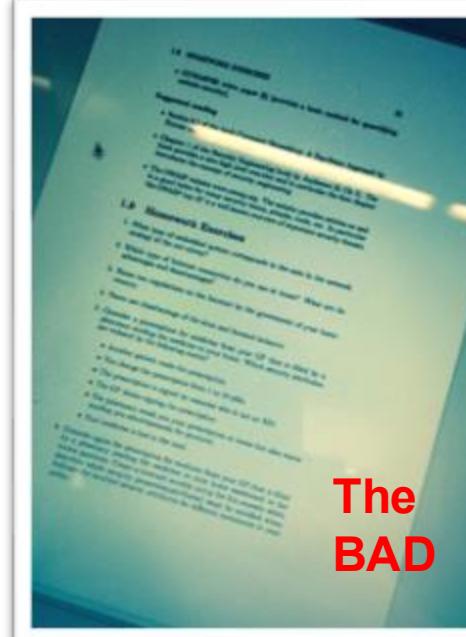
- We won't tell in advance which exercises will be graded.

Homework announcements, deadlines and submissions

- All in Canvas.

- Submissions are electronic (in PDF format).

- For the exercise sets, you may, for example:
  - do your homework in any electronic editor and save/print to PDF.

    OR

  - scan your homework to PDF.
    - If you don't have access to a scanner: Several free apps for iPhone and Android are available. Check app stores. Example: "Notes" app in iPhone.

  - make sure your scans are of GOOD QUALITY.

Homewsubmission

- GOOD QUALITY means
  - Taken from a good angle. Nice resolution. Good light. Clearly readable.

- Ask for help during instruction if you do not know how to
  - Scan to PDF, print to PDF, save as PDF…

The GOOD

The BAD

The UGLY

The essay
(professional skills)

- Written based on a research paper studied (in groups of 3).
  - You can form/join a group in Canvas now under People/Essay Groups.
  - Papers to study will be posted on Canvas.

- Consists of 2 parts:

  - Part 1: The draft essay
    - Grading: Complete or Incomplete.
    - The draft essay is not taken into account in computing the final grade. However, it is a pre-requisite for being able to submit the final essay. You must make a serious attempt for your submission to count. The feedback you will receive from the **TU/e Language & Writing Center** will help you strengthen your writing for the Final Essay.

  - Part 2: The final essay

The final essay

- Peer assessment to identify free-riders: not everyone in a group gets the same grade.

- Students must submit a peer assessment form (confidentially, separately to CANVAS). Answer ALL of the following:

  - How did **you** perform?
  - How did partner 1 perform?
  - How did partner 2 perform?

Grading of the essay

- There can be a maximum of 3 points (out of 10) difference between any two group members based on the peer review (i.e. unless free-riding is detected).

- Examples: Consider an essay that deserves a score of 8 overall.
  - These examples do not cover the entire set of possible situations/scenarios, but are there to give the idea.

Examples	Student1	Student2	Student3	Scores
1	did significantly more/better	did less than others, but is not a free-rider either.	did his/her share decently	S1: 9.5 S2: 6.5 S3: 8
2	did his/her share	did his/her share	did his/her share	S1: 8 S2: 8 S3: 8
3	had to do more than others and pull the execution	contributed upon request, did not take initiative. Was active but let S1 do more work.	contributed upon request, did not take initiative. Was active but let S1 do more work	S1: 10 S2: 7 S3: 7

Essay submission parts

- Groups are formed (submission by 3 students via CANVAS)

- Draft essay submitted (submission by the group of 3 students via CANVAS)

- Final essay submitted (submission by the same group of 3 students via CANVAS)

- Peer assessment form submitted (individually submitted via CANVAS)
  - Confidential = Do not share your peer assessment with ANYONE, especially with essay partners.
  - Not submitting the peer assessment form equals not submitting the essay.
    - In CANVAS this is the assignment that gets graded.
  - It is YOUR responsibility to report free-riding essay partners in time. Your essay partners have a responsibility respond to communication regarding the essay.
    - When this is not the case, try to let Tanir Ozcelebi (t.ozcelebi@tue.nl) know ASAP, but in any case, at least 2 weeks before the essay deadline.

Assessment is through…

- Final exam → 60% (minimum requirement: 5.0)

- Homework assignments → 20%

- Final essay → 20%
  - Written in groups of 3:
    - Peer assessment survey to differentiate.
    - Identified free-riders will get zero.

Students who are repeating

- You can resubmit your old homeworks / essays.

- There is a dedicated assignment for this. You must submit your preferences in this assignment before the submission deadline. Options are:
  - I would like to resubmit
    - only my homeworks.
    - only my essay.
    - both my homeworks and my essay.

- When you have not submitted your preference in time, you must do these assignments completely from scratch. Then you cannot write a new essay on last year's paper either (it must be one of the papers designated for this academic year).

Studying for this course

1. Study *lecture slides and the textbook.*
   - Download pdf slide sets provided on Canvas.

2. Do the lab assignments – <u>not</u> graded. Can work in groups if you prefer.
   - Assessment through exam question(s) regarding lab assignments.

3. Do the homework assignments – graded.

4. Do the **draft** essay [need "complete" to be allowed to submit the final essay].

5. Do the **final** essay - graded.

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- You are NOT allowed to copy/use text/figures/pictures from publications or the Internet and work/code found on repositories (e.g. github, gitlab, stack overflow, studeersnel) without a proper citation.

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Must read references: (i) https://www.tue.nl/en/our-university/about-the-university/integrity/,
(ii) https://educationguide.tue.nl/practical-info/regulations-codes-of-conduct-and-guidelines/

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