

## Instructions for the final exam

1. **Do not open this booklet before you are told that you are allowed to do so.**
2. **Write all answers in the exam booklet.** At the end of the exam booklet there are several blank papers for notes. These pages will **not** be graded, unless you explicitly mark them as to be graded. No additional paper will be provided and you should not use your own paper.
3. Write the number of the problem you solve on a page in the allocated space on the top left corner. **Do not split problems. Keep pages where you solve the same question together.** There are nominally four.
4. If you finish your exam early, raise your hand. We will come and collect your exam. In the last 15 minutes of the exam no one is allowed to leave.
4. **Permitted tools:** Pens, official formula sheet, calculator, rulers. Programmable calculators will need to have their memory wiped (the TAs will do random checks).
5. **Forbidden items:** Cellphones, tablets, pocket computers, personal formulasheets, everything else not mentioned in point 4.
6. The grade you will get on the final exam will be  $\frac{2}{3}$  of your final grade for the course.
7. All problems in the exam are of equal value.
8. Write in black or blue.

**AT THE END OF THE EXAM STAY SEATED!** We will come to pick up your exam and you are only allowed to leave after all exams are collected!

We will grade the final exam both on finding the correct values for the answers, as well as for using the correct path to solve the problem. **The correct numerical answer will not be sufficient to attain the points! Make sure all your steps can be tracked logically, in chronological order. If I can't understand how you've solved the question, I can't give you points for it!** Therefore make sure that we will be able to see how you got to your answer.

For your own benefit, I urge you to follow the procedure for solving the questions using the method we've been using in class:

1. Draw the relevant sketches.
2. Write what information is given.
3. Write what is asked.
4. What is the governing principle? What are the equations you'll be needing?
5. Perform all the calculations in symbolic form whenever reasonable.
6. Check if the physical dimensions of your answer match the expected physical dimensions.
7. Do the numerical calculations.
8. State your answer clearly and report your conclusions. Make sure you use proper significant digits.

**GOOD LUCK!**