

Abstract of Contribution 537

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MS1: Modern teaching and didactics in mathematics and mechanics

Keywords: motivation, sustainability of learning

Above all: motivation ++ our maths-for-engineers teaching concept

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We present our maths-for-engineers teaching concept:

Above all, motivation: Sometimes mathematics teachers observe that engineering students, for example, perceive the math material as a useless evil for them and therefore learn with little motivation and sustainability. If the math material is then used in other subjects, the students do not know how to apply it and the teachers do not think much of the math education.

We solve the motivation problem by linking the mathematics with the subject education: the maths exercise program contains tasks from the subject education at the moment when the necessary maths material is available; examples can be found here: <https://wwwpub.zih.tu-dresden.de/~feldm/vernetzung.html>.

In our contribution we will document our experience in achieving this maths-subject-link and the success in motivating students.

Other parts of our teaching concept are:

1. making recordings of lecture and tutorial available so that students can decide whether to attend the face-to-face lecture or watch the video at home 'flipped-classroom-style': 4/5 of our students choose face-to-face but use the recordings for review.

2) Instead of TWO small group exercises per week, we offer ONE central exercise and ONE small group exercise per week: We are documenting the success of this change based on student views and on changes in exam scores: the pass rate did not change, but we are observing a raised midfield.

3. by means of our extra credit rules: <https://tu-dresden.de/mn/math/wir/ressourcen/dateien/studium/ma1/spielregelnMa1.pdf> we evoke a) group work, b) that students continuously 'stay on task' throughout the semester, as well as c) keep reviewing what they have learned so far.