COURSE DESIGN

The course was divided in 4 parts: The first part was about analytical aspects of ordinary differential equations. The second part was on numerical aspects of these. The third part was on Fourier/Laplaces transformations and PDE. The fourth part was on numerical aspects of these.

There were minor changes in the course design. Last year we had one KS and 4 seminars. This year we removed the seminars and had two KS instead. They were scheduled directly after Module 1 and Module 3. We also increased the number of exercise sessions.

There were four projects in the course, one for each part, where students worked in pairs. Two of them were examined orally with one assistant talking to a pair of students at a time, two of them were examined with written reports. New for this year was that for the projects that were examined orally, there were preparatory assignments in Matlab Grader that the students did before the examination. For the written reports, peer review was applied, where project groups swapped reports and gave feedback to each other in writing and during a discussion session, before the final report was due.

The final exam had two parts. Part I contained general questions and Part II some more difficult exercises. The students needed to collect enough points (bonus points could be added) to pass for the first part, which gave the grade E. To obtain a higher grade they needed to collect points in Part II.

THE STUDENT'S WORKLOAD

The course is one of the larger courses in the programme with 11hp credit points. Most students seemed to have worked according to the expected working hour (with a few exceptions). Students indicated that the projects were the most time consuming.

THE STUDENT'S RESULTS

The students performed very well on the exam. Of the 117 that wrote the exam, 97 passed and 20 failed. This was a significant increase from last years performance, but consistent with the teachers' experiences during teaching activities. Compared the last year, many more students attended the exercise sessions and seemed more active during the teaching activities.
The students performed very well on the projects. It was perceived from assistants and teachers that the oral presentation were helped by the preparatory exercises in Matlab Grader, and that the peer review did indeed improve on the quality of the written reports.

OVERALL IMPRESSION OF THE LEARNING ENVIRONMENT

17% of the students filled in the questionnaire.

Some thoughts:
- Several students expressed that they were happy with the lectures in general.
- The exercise sessions were appreciated and greatly recommended for future students
- Most students felt they were learning meaningful material. The mix of theory and applications is appreciated.

- Some students asked for more time to work on the projects

ANALYSIS OF THE LEARNING ENVIRONMENT

The course as a whole seems to be working well. The students seem to be happy with the combination of analytical and numerical methods. Modules 1 and 2 are easier than Modules 2 and 3. Overall the course is demanding, especially in Module 3. There is a lot to learn for the students. That said, the students to seem to appreciate the course and feel they work with meaningful tasks. The combination of theory and practice motivates some students.

We increased the number of exercise sessions. This was a good choice and the students made good use of this. It is clear that, especially the analytical part of the course, requires lots of practice and the exercise sessions are a vital part of the learning activities.

For the numerical part, Matlab is the programming language that we use. The skill level in Matlab varies a lot among the students. Those who know it well can focus on the new material and the understanding of the numerical methods, while others struggle with the code writing and spend a lot of time on different implementation details.

The new peer review worked well with many good discussions among the groups, and did indeed improve the quality of the reports. The drawback is that this procedure with cross-reading adds a few days to an already compressed schedule

PRIORITY COURSE DEVELOPMENT

Module 1 is considerably lighter than Module 3. For next year, it could be considered to have the Laplace transformation already in Module 1, to make more time for PDE and Fourier series in Module 3. Especially on PDE's, the level of understanding that one can reach in the given amount of time is limited. More lectures on PDE's (without increasing the amount of material) would be desirable.