UNIVERSITEIT TWENTE.

FACULTY ELECTRICAL ENGINEERING, MATHEMATICS AND COMPUTER SCIENCE

Minutes 174th PC-AM-meeting
Tuesday 19 April 2022, 15:45 hr.
Ravelijn 3411

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Present: H.G.E. Meijer (chairman), A. Stoorvogel (PD), J.B. Timmer (B-coordinator), L. van Dissel, K. Proksch, S.J. Geerts, L.S. Lanting, N. Muntendam, B. Manthey, N. Luijten, F. Schuller (online)

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Absent (with notice):   B. Manthey, N. Apeldoorn (Abacus), J. Schut (M-coordinator)

1. **Opening**
    The chairman opens the meeting at 15.46.

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2. **Minutes 173ʳᵈ meeting 8 March 2022**
    Page 4, line 37: It would be clearer to add that no comments were made on this topic.

    Action points:
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    - *394b – It can be removed from the list.*
      Only a few students gave input regarding the workload in module 2, and those that responded did not indicate an extremely high workload. The topic has been dropped.
    - *417 – It can be removed from the list.*
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      The PD discussed the issue with the Programme Director and Module coordinator for Physics, and they ensured that next year all AM students that want to follow the course are served in English.
    - *421 – Remains on the list*
    - *423 – It can be removed from the list.*
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      The PD spoke to both lecturers of Spatial Statistics. They said that a lot of improvements were made last year, and they felt that the comments were remainders from incidents due to Covid19 two years ago.
    - *424b – It can be removed from the list.*
    - *435 – It can be removed from the list.*
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      It has been discussed with the module team.
    - *436 – It remains on the list.*
      It is a sensitive issue, and a meeting still has to be organized. The advice is to meet in an informal setting, and for instance, ask how he looks forwards to physical teaching.
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    - *437 – It can be removed from the list.*
      Geerts and the chairman have spoken with the lecturer.
    - *438 – It can be removed from the list.*
      It is about a premaster course for EE taught by AM.
    - *439 – It can be removed from the list.*
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      The PD talked to the lecturer. Geerts and Lanting have not seen any changes. They feel that the lecturer focuses too much on one topic. Furthermore, Lanting

thinks you cannot make the exam since the focus is on the project and not the exam in the weeks before the exam. This is a concern, and the PC will have to read the evaluation carefully.

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3. Announcements
There are about 60 students registered for AM so far.
The PD would like to discuss the Capita Selecta for the master in the next meeting.

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4. Advice/correspondence
- Mail from BOB about EEMCS mental health day (with attachment)
This will be sent back as it is in Dutch.
- Mail from University Council about training
Members of PC and the minutes maker can join the training if they want to.

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- Mail from B-coordinator about LaTeX
The PC is very happy with the proposal.

5. Bachelor Evaluations
- Module 6

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Lanting and Geerts thought that one comment given by students in the evaluation of module 6, was more a personal attack than useful criticism. They sent an email to remind students that teachers read the evaluations and therefore the students should write constructive and useful comments in their evaluations.

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Muntendam points out a comment given in the evaluation. Everyone that was not following Numerical Mathematics was put in the same project group, together with one student that was following NUM. The student that wrote the comment felt like the group missed some knowledge. Moreover, students that follow fewer courses are more likely to have personal circumstances, so there is less time available to work on the

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project. Muntendam thinks that this might not be the best way to form a group.
The chairman disagrees. He helped the group himself and he thinks he has taken care of the situation. The PD mentions that these kinds of situations are always difficult. You do not want to create an uneven balance regarding knowledge in a project group. The advice for students is to design a study programme with the study advisor such that

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theoretical parts are done first and the project later. The chairman also mentions that this situation is a dilemma; either you put the students with less knowledge together and guide them yourself, or you give a group a disadvantage by adding one student with less knowledge. The B-coordinator adds that she thinks the comment was more addressed to the study advisor. The chairman has forwarded this comment to the study

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advisor.

- Module 2
The B-coordinator remarks that the evaluation of the module 2 team is missing in the documents.

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The chairman points out that the high study load is mentioned again, but that the number of hours is not unreasonable.

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- Module 3

The chairman says that the remarks about Intro to Programming and Analytical Programming should be kept in mind when discussing the new bachelor curriculum.

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- Module 7

Students would have liked to see more physical teaching. The problem was that there was a shortage of lecture rooms. Lanting asks whether this problem will ever be resolved since TCS is still taking 400 students next year. The PD mentions that there are rumors that 20% of the teaching will be online for TCS, due to lecture room shortage. He feels
105 that this is unacceptable since TCS has not done anything last year to resolve the issue. This year students still understood that teaching had to be partly online due to corona reasons, but next year – assuming there are no more corona rules – teaching should be physical. It is also a tricky issue since rooms are booked for students, but many students do not show up, causing the rooms to be mostly empty, while at the same time another
110 course has to be given online due to room shortage.

- Module 11

The chairman will forward a suggestion to grammar check the minutes of the panel meeting.
115 The minor is mentioned in the evaluation since module 11 is an orientation phase.

6. **New bachelor curriculum**

The chairman thanks the PD for putting the draft for the new bachelor curriculum together, since it is now more concrete than ever.

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Geerts appreciates that they now know more about what the courses will entail. He feels like there are still some concrete ideas missing to be able to fully judge the program. He mainly misses the general programming line. He thinks that in the current draft it is more of a modeling line than a programming line. He also thinks that some learning
125 goals of courses are missing, overlapping, or not specific enough. Geerts says that he is more positive than before, but that the structuring of courses is not complete yet. Judging the study-ability of the new programme will be easier if the assessment of each course is known. That must be filled in by the teachers, so it would be good if the staff that is going to teach the courses is involved in this process.

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Schuller is in general very happy with the current proposal. He says that in comparison with before, the theoretical foundations of mathematics that everyone must have, are more present. There are still some problems, but he thinks the teachers are competent and should be able to fill in the gaps. Furthermore, he noticed that Linear Structures 2
135 seems to be thin topic-wise, and it could deal with more topics, especially compared to Analysis 2, which has a lot of topics.

The overall impression of van Dissel is that the curriculum committee is on the right track. It is a good draft, but it still needs quite some improvement regarding the
140 description of the courses, and how the courses within a module are connected.

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145 Proksch agrees with Schuller that the theoretical foundation is being formed. The connection within a module is still lacking. She is confused with the current idea for the electives. There have been other ideas, but these suggestions seem to have been abandoned.

150 The chairman has input from Manthey who thinks that the setup of module 11 is fine, however, the currently suggested electives are not representative. Furthermore, he feels that programming does not get the attention it deserves. Lastly, the term project is misleading in many modules, as it also involves coursework in some cases. The term project might make students think of something more practical, so his advice would be to give the course a name that reflects the content of the course and the teaching method.

155 Lanting also thinks that materials are missing to judge the study-ability. Moreover, she thinks it is not clear why the number of EC for some courses has changed.

160 Muntendam feels that the elective part in module 11 in the proposal is worse than it is currently.

The summary is given by the chairman:
The analysis line is much clearer. The students mentioned the study-ability of the programme. This might be clarified if the assessment and material are made clear. The programming line and the electives are still points of attention.

165 He noticed that presentation skills is dropped, and why that happened is unclear. In the final proposal, it would be good to think about double degree students. Also, the learning goals for the new courses have been taken from the current courses, but due to changes in the number of EC, these learning goals cannot be justified in all cases.

170 The PD reacts to the comments by saying that he agrees that the connection between courses in a module is missing. He needs to put meetings together to speak with the right persons since many people are involved in this process. The number of EC for Linear Structures can be justified. Now the number of EC is distributed as 6 + 3, and in the proposal as 5 + 4. So, it is the same amount of ECs. However, the division of the 175 material still needs to be decided.
He has a meeting soon to discuss how to make the academic skills more visible in the curriculum. Furthermore, the programming line is intended to be there. There are several modules involving programming.

180 The chairman responds to the programming discussion by saying that they investigated the programming line of other studies. For instance, Applied Physics has a 2.5 EC course on programming. The PC feels that it would be a good idea to give a real programming course, perhaps already in module 2, worth 2 to 3 EC.
The PD replies that he thinks that programming becomes abstract knowledge if it is not 185 used immediately in for instance a project.
Geerts responds that they mean real programming, so implementation, and not abstract programming.

190   The chairman says that the advice of the PC is to call it a programming course, also to make it more visible in the program. Module 1 does not need to have a large modeling project, you could make that smaller and focus on basic programming skills.

The PD agrees that the electives in module 11 are not balanced. He intends to have 3 electives, one for each master track. The chairman mentions that orientation for master tracks can also be done differently, for instance with case studies.

195   The PD also mentions that there are a lot of topics that have to be finalized. The topics for the first year of the bachelor programme have been given priority over the topics for the second and third year of the bachelor. He acknowledges that the topics for the second and third year also need attention.

200   Regarding the learning goals for the courses, the chairman sees that they are assembled from Osiris and still need to be polished. In this polishing, he suggests two things. Firstly, try to minimize. For instance, there are two items related to TBL, critical reading and understanding new mathematical concepts, and team-based learning sessions. He feels that this is an assessment form, and not a knowledge form, and therefore misplaced as a

205   learning goal. Secondly, while he believes the teaching staff should have some freedom, he also thinks that the learning goals should follow up on each other. For example, the Differential Equation course uses metric spaces for completeness. In the proposal, it comes after, and that feels misplaced.

210   The PC wonders how many books Analysis&Calculus will use. The PD responds that there will be two books, one for Calculus and one for Analysis. The staff and the PC support this decision.

215   The chairman comments that in the proposal, the Analysis & Calculus course is very Analysis driven. Calculus should not be neglected. The PD reacts by saying that there is a detailed weekly plan that describes the content for the course, and that reflects a balanced distribution better than the proposal.

220   The chairman mentions making sure that some learning goals are not treated twice. Moreover, it would be better to use one version of consecutives, also for the diploma supplement.

225   Concerning the course Mathematical Statistics, the topics are mentioned but the learning goals are not. The project Neural Networks is completely new. It should be made clear that this is a mathematics course, so make clear what is intended with this course. The PD responds that he already received comments about this.

230   In module 3, for the project, the course Probability Theory should come back.
A final comment about programming skills in terms of learning goals is that it would be good if the concepts students need to know are specified, e.g object-oriented programming, and the use of libraries, if that is what they learn.

Geerts comments that for module 11, he agrees with the three theoretical courses where two are obligatory and one is an elective. He thinks that the electives do not

235   reflect the content of the master. Especially Non-Linear Dynamics seems a vague choice, he thinks it should remain in module 1 of the master since it is a course that is currently done together with many other students from other studies. The PD responds that the electives still need a lot of attention.

Schuller adds that he thinks that electives are very important for a program. He thinks
240   that there should maybe not be so much preselection, they should be selected by a case-by-case method.

The PD sees little room for electives apart from module 11 due to the large number of ECs reserved for the minor. There is a lot of basic mathematics that needs to be taught.
245   Furthermore, there are not enough students in AM to select more than a few electives, since then every elective would be followed by only a handful of students. He is open to suggestions to change the electives every few years. Geerts comments that designating 4 ECs to the elective gives you fewer options, since you can choose less from existing courses. The PD reacts that there are not many 5 EC courses that would be suitable.
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Regarding the course Graph Theory, van Dissel asks why this course is in the basic curriculum. All the learning goals have already been met in module 7, so this course is just an extension of the knowledge gained in module 7. Therefore, she wonders why this course is not made an elective, instead of putting it in the basic curriculum, since then
255   there would be room for another elective. The PD responds that he thinks that Graph Theory is a topic that is important for mathematicians since it is used broadly. However, he does not know the details about the learning goals for this topic. Van Dissel responds that she did not follow Graph Theory but did follow the courses of module 7, and she feels that she already saw all the concepts of Graph Theory mentioned in the draft
260   curriculum.

There is a lot of tension regarding the new programme since everyone wants a say in the new curriculum. It is a fine line to keep everyone happy.

265   The chairman rounds the discussion about the new bachelor programme by repeating some of the comments. The PC advices:
- To pay attention to the study load
- To make the learning goals more coherent so that the assessment is automatically clear
270   - To make the programming line more visible
- To not forget about the academic skills, since they are not mentioned in the current proposal.

The next meeting of the PC is on May 10, and since 5 May is a day off, the chairman
275   suggests that May 4 is the deadline for the proposal. The PD wants to create a good document, and he thinks he can not be ready by then. The chairman proposes to schedule an additional meeting of the PC in late June or early July to give PD more time. It is now clear that the schedule proposed by the Vice-Dean of education is not manageable for AM due to the curriculum change. The PC will back up the PD in his
280   request for more time.

Action Point: *Communicate to the Vice-Dean of education that AM has a hard time facing the deadline (PD)*
Action Point: *Try to schedule an additional meeting of the PC in late June or early July (chairman)*

7. **MaterMath, documents for meeting 13 May 2022**
   - <u>Evaluation reports fall 2021</u>
   There are no comments regarding the 6 courses. Geerts will represent the PC at the MasterMath meeting.

   <u>- A proposal to increase the number of college weeks and the associated exam schedule</u>
   Regarding the proposal, the PD has only seen negative comments. It creates all kinds of difficulties should they decide to do so. Geerts will take as input to keep it as is. He will also gather more comments from students.

   - <u>Evaluation form</u>
   No comments

8. **Course "Introduction to Partial Differential Equations"**
   Lanting comments that after reading the description, she thinks that there is an overlap of Introduction to PDE with Numerical Techniques and with Finite Element Methods. The chairman adds that he tried to look up the learning goals of Numerical Techniques for Partial Differential Equations, but they are too vague to judge the overlap issue. He feels that the PC cannot give a positive or negative advice, because they are unable to judge this proposal.

   The PD comments that the ordering of the PDE courses is odd. Furthermore, the communication between the different professors is very poor.
   Lanting argues to check what the course Introduction to PDE entails. Although the course Introduction to PDE is a prerequisite, the teacher himself has said that you can follow the next course without it. The PD responds that he talked to the teacher and the status of Introduction to PDE has been changed from required to recommended.

   The chairman asks the PD whether he supports the proposal. The PD responds that he likes that they added some Numerical Techniques, but he feels that the course is very limited to the basics.

   The chairman will write a formal reaction to the PD that the PC decided not to react, because they feel they are lacking information to make a good decision.

   Geerts would like to add that in the students' opinion, the course has not only too much overlap with other courses, also in general it seems too much work.

9. **Master Evaluation Lunch**

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- Minutes meeting courses Block 1A
- Minutes meeting courses Block 1B
- Feedback session Applied Mathematics Students of February 2022

The PC acknowledges that they have read the documents, and there are no further comments.

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10. AOB / Questions before closing the meeting

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The chairman suggests replying to the email from Felix Schwenninger that there is a general Capita Selecta for SACS course. If a student wants to specialize in a topic that is not taught, that should be possible, but that should be catered for differently than in a course. He invites the PD to come up with a proposal.

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The PD mentions that he likes the BMT version. They have a Capita Selecta course that varies between 2 and 5 EC, and if a student wants to follow it, he must hand in a form to the examination board describing the topics he wants to study, together with the learning goals and the assessment. The teacher can help the student by providing the learning objectives. The chairman would add that there must be an additional examinator.

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Regarding the 20% online teaching of CS in module 7, the chairman says that he cannot suggest a solution for that. The PD comments that he is tempted to increase the number of classes by 25% in the new curriculum, which is going to be online, and then cancel these classes after announcing them to the scheduling office. Then the rules are satisfied.

There are no further questions.

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11. Closure

The chairman closes the meeting at 17.24.

Next meeting: 10 May 2022

Nr	Description	Meeting	Responsible
421	Ask the teacher of Mixed-Integer Optimization (previously Optimization Modeling) to send the learning goals of the course to the PC (as well as adding them to the OSIRIS page), and to check those against the ones from the Master math course Advanced Linear Programming. Correspondence via email is sufficient.	14/09/2021	PD
436	Talk with the lecturer of statistics regarding his way of teaching.	03/04/2022	PD
440	Communicate to the Vice-Dean of education that AM has a hard time facing the deadline to submit the B-EER.	19/04/2022	PD
441	Try to schedule an additional meeting of the PC in late June or early July.	19/04/2022	Chairman

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