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1. Description of the course evaluation process

The group of students is usually small and there is a close rapport between students and teacher. The course has a home exam, and a questionnaire (see below) is distributed and handed in with the exam but anonymously. The questionnaire responses are compiled by myself. The final question concerns fair and equal treatment.

2. Description of meetings with students

Student opinions are solicited during the course and discussed at a mid-point workshop in conjunction with a progress report on the group assignment task. Several of the students are exchange students that return home at the Christmas break.

3. Course design

Learning activities include

- 13 double-hour lectures;
- 3 tutorial sessions;
- one or two field trips;
- one group assignment in groups of three students: write an in-depth article, *or* solve a set of fairly complex audio programming tasks. Good articles are accumulated from earlier course rounds and used as add-on literature in this course.
- 4 three-hour laboratories, with ears-on activities using audio equipment in studios (not computer labs);
- author a candidate problem for the exam, including a solution and marking criteria; good problems will appear on the actual exam; ex-exams are *not* made available (but probably circulate anyway...).
- complete a home exam, which may involve a lot of independent literature research, to be handed in in January. Students report spending at least 10 hours on the exam.

4. Students' workload

The students usually report being kept quite busy and that the workload is evenly distributed across the course. Earlier complaints about high workload near the end of the course have been addressed. The authoring of a usable exam problem is seen as particularly difficult but very instructive.

5. Students' results on the course

It is rare for students to fail this course; in 2021 no-one did. However, only 7 of 10 participating students completed the exam. Generally the motivation is very high and students invest many hours of work in the home exam, where creativity and integrity are encouraged. Grades tend to spread evenly from E to A. This year there

were no D's or E's. The background knowledge varies; those with no prior signal processing have a somewhat harder time.

6. Students' answers to open questions

7. Summary of students' opinions

The questionnaire with average scores and samples of compiled comments is given at the end of this document.

8. Overall impression

This is a specialized course that attracts highly motivated students with an interest in sound processing and sound reproduction. The ambience during the course is generally very good and positive, and much effort is invested in trying to keep everyone on board even though the pace through complex topics is rather high. The laboratories are highly appreciated. In 2021 our leading assistant KJJ had moved on to Sveriges Radio, so we had a "new" assistant SWG for Lab A. Still, the labs received overall very positive ratings and remarks also in 2021.

9. Analysis

In 2021 twelve students were registered but ten participated actively; at least we had more than in 2020. International students sometimes do better thanks to a stronger background in signal processing.

10. Prioritized course development

Strengthening the focus on networked audio and lessening that on physical storage media. Trying to find a more updated textbook for that purpose.

11. Other information you want to share'

Pandemic restrictions were fortunately lifted, so teaching (except the sessions led from York) and labs were conducted on-site as we normally do. The first eight hours of the course are a module on spatial audio and surround sound. This module is normally taught by professor Damian Murphy, University of York, who visits us every year with support from Erasmus. Similar to 2020, not being comfortable with travelling to Stockholm, Damian in 2021 very kindly did these hours remotely from York. In the room Fantum, we have a surround sound system. We started in period 2 with hybrid lectures there, and we managed to convey some of the surround-feeling using a dummy-head microphone placed in the center of the room, played in binaural stereo over Zoom, while Damian controlled the sound system (and slides) remotely from York. Even the crowning component of this module, a field-trip/lecture at KMH, under their spectacular loudspeaker dome, was conducted by Damian remotely from York. We hope he can return in person, in 2022.

The course offers a lot of teacher time per student, since the labs only take three students at a time, in specially equipped rooms. This is a bit of a luxury, but it is tremendously appreciated and the free comments 'I learned a lot from the labs', 'the labs were great' always appear in the course evaluation.

(questionnaire responses are summarized on the next page)

Course assessment DT2410 Audio Technology 2021

Your anonymous response may be given in Swedish or English.

	Bad-Good	<i>Based on 5 responses; 7 took the exam</i>
Lectures	1-5 Means	Comments (<i>Compiled</i>)
<i>Damian Murphy</i> : spatial sound (3 sessions + tutorial)	4,6	[Hybrid in Fantum and on Zoom]
Analog-digital-conversion, 2 sessions + tutorial	4,4	
Audio IC's	4,6	
Software architecture (x 2)	4,4	
Audio coding/compression	4,4	
Connection and transmission	4,2	
<i>Rossholm</i> from Spotify, on streaming	5,0	
<i>Swedish Radio</i> : Audio in broadcasting	4,5	SR came to Fantum with a great team of four (!) people, several of whom are former CMETE students
Other, please specify:		
Labs	1-5	Comment
A: The mixing console and outboard units	4,0	
B: Audio coding	4,1	
C: Analytical listening and voice reproduction	4,3	
D: Spatial sound and virtual acoustics with Ambisonics	4,5	
Enough time? Would have needed more preparation? Function? Competent lab-assistants?	4,8	
Assignment	1-5	Comment
Clear directives?	4,6	
Access to materials/guidance?	4,8	
Cooperation in the group?	4,6	
General	1-5	Comment
Textbook: <i>Pohlmann</i> , Principles of Digital Audio, 6 th edition (or other)	3,8	
Curriculum: topics missing, or redundant topics?	4,8	
Did the course fit your prior knowledge?	3,9	
Did the exam reflect the course contents well?	4,6	
Overall disposition of the course	5,0	
Participants were treated fairly and without discrimination	5,0	
Other		