Course analysis for CH2006 Autumn 2023

Performed by:

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DESCRIPTION OF THE COURSE EVALUATION PROCESS

Describe the course evaluation process. Describe how all students have been given the possibility to give their opinions on the course. Describe how aspects regarding gender, and disabled students are investigated.

During the course we had several anonymous web-form 'minute papers' for students to reflect on their favorite learning, things they want to know more about (or are confused about), and other general feedback about the course or session.

An LEQ-evaluation was performed at the end of the course including categories on gender and disabilities. An additional open-text question was added to the survey to collect reflections on each part of the course. Where possible, evaluation questions are disaggregated and analyzed by gender and disability.

COURSE DESIGN

Briefly describe the course design (learning activities, examinations) and any changes that have been implemented since the last course offering.

This course was delivered in two parallel parts with different teaching teams: Catherine Trask, and Bengt Johansson for noise and vibration, and Ann-Beth Antonsson Lundberg and Lena Andersson for air contaminants. **This was the first time this course was offered.**

OVERALL CONTENT OF THE COURSE
• Organic and non-organic particles (dust)
• Sound and vibrations
• Acute and long-term health effects
• Advanced methods for exposure measurements and analyses.
• Intervention strategies
• Work environment rules in the area

FORMS OF EXAMINATION

- LAB1 - Laboratory work, 2.0 credits, grading scale: P, F
- RED1 - Project work, 2.5 credits, grading scale: P, F
- SEM1 - Seminar, 1.0 credits, grading scale: P, F

- TEN1 - Written exam, 2.0 credits, grading scale: A, B, C, D, E, FX, F

THE STUDENTS' WORKLOAD

Does the students' workload correspond to the expected level (40 hours/1.5 credits)?

If these is a significant deviation from the expected, what can be the reason?

With some variation between students, the students' workload corresponded more or less the expected level according to the results from the LEQ-survey. this is also consistent with most other program courses.

THE STUDENTS' RESULTS

How well have the students succeeded on the course? If there are significant differences compared to previous course offerings, what can be the reason?

14/15 active students in the Masters course passed on the first exam attempt, with the remaining getting an Fx grade and the opportunity to do the re-exam. The lowest grade was a C (n=6), with the next most common being B (n=5) and then A (n=1).

There have been no previous course offerings, but this is on par with other courses in the same Masters program.

STUDENTS´ANSWERS TO OPEN QUESTIONS

What do students say in response to the open questions?

The overall impression was that students were content with the course.
7/15 students responded to the survey (risk of bias with low response rate, but not atypical for our program).   LEQ-answers ranged between 6.5-7 on average (7 = strongly agree = positive evaluation of the course).

What was the best aspect of the course?
- what uncertainty means, how to do advanced assessments
- Cases
- The most beneficial aspect of the course was the hands-on experience gained during the field work. The practical application of measuring
- sound and vibration in both the bus and the laboratory settings provided a comprehensive understanding of these critical environmental
- factors. This direct exposure to field conditions and the use of specialized instrumentation is invaluable for mastering the assessment and
- management of occupational hazards related to noise and vibration.
- Labbs and cases (noise/vibration) and group work in the chemical part
- The highlight of the course for me was the class discussions and the field lab (a lot of learning). Personally, I found the last course on sounds
- and vibrations (CH 2012) more interesting, challenging, and engaging. This was due to the increased number of class and group discussions,
- as well as the inclusion of case studies. It's possible that the appeal of the course was also influenced by its 7.5-credit structure, whereas the
- current course is a half course (Time is money). The previous course was designed to provide a comprehensive background and solid
- foundation, possibly positioning us at an 'advanced' level for the current course.
- The teacher team of Ann-Beth, Bengt, Catherine and Lena is gold standard in terms of teaching subjects, giving feedback, etc.
- This was a very good course giving me confidence (and lots of more knowledge after first courses) to work more with noise, vibrations and chemicals and book assignments on my own.

Requests and suggested improvements were made regarding:

- time management, some lectures felt rushed
- To enhance the course, I would recommend increasing the number of practical sessions. Specifically, sessions that focus on troubleshooting and resolving equipment-related issues would be highly beneficial. This could include practical exercises on downloading recorded data and diagnosing reasons for logging failures. Such hands-on problem-solving experience is crucial for developing the technical skills needed to ensure reliable data collection and equipment performance in the field.
- Recorded lectures.

Air contaminants portion specific comments:
- The best part was lectures with the instructors and discussions, more articles to read would also be good.
- Best teachers around.
- What worked well for me were the group dicsussions and in the following ways:
- Facilitated active engagement and provided a platform for sharing diverse perspectives on air quality issues.
- Offered an opportunity to learn through the experiences and knowledge of others, which can deepen understanding of complex topics.
- Encouraged collaborative problem-solving, which is crucial when dealing with air contaminants in a real-world setting.
- I believe besides group discussions during lectures incorporating case studies/assignments focused on the measurements strategy in the AIR CONTAMINANTS section would be highly beneficial for both project work and exams. These practical applications can enhance our understanding by providing real-world scenarios and hands-on experience in applying measurement techniques. This approach not only promotes a more comprehensive learning experience but also prepares us more effectively for assessments, ensuring we can apply theoretical knowledge in practical situations. Including these elements would add valuable depth to the course and contribute to a more holistic learning environment.
- The group work was really good as well as overall structure of the chemical part.

Noise & vibration portion specific comments:
- the lab could be improved.
- Best teachers around for this one too.
- Regarding the NOISE & VIBRATION section, I found the course to be well-structured and informative. The inclusion of case studies was particularly beneficial, providing practical applications of the concepts discussed in class. These real-world examples enhanced my understanding and allowed me to see how theoretical knowledge translates into practical scenarios.
- I really liked labs and cases that were very practical.

Personal highlights form the course:
- uncertainty calculation
- Again, the teacher team. I would probably take any course with these teachers in related subjects.
- Gaining a comprehensive understanding of legal requirements, industry standards, and best practices for managing noise and vibration in the workplace Learning how to conduct noise and vibration assessments, including the use of dosimeters and vibration measurement tools Enhancing the ability to communicate risks and precautions to stakeholders effectively, including training for employees on the importance of noise and vibration control
- Throughout the course, my personal highlights included the engaging class discussions and the practical application of concepts through hands-on projects. These experiences have provided me with a deeper understanding of the subject matter, allowing me to see its real-world relevance. One key takeaway that I intend to apply in my professional practice is the emphasis on critical thinking and problem-solving. The course has equipped me with the skills to analyze complex issues, consider different perspectives, and formulate effective solutions. Additionally, the practical projects have enhanced my ability to apply theoretical knowledge to real-world scenarios, preparing me for the challenges I may encounter in my future professional endeavors.
- I am going to work a lot with chemicals as well as noise/vibration in the future since big part of the jobs to AMI in my working area are about noise/vibrations and chemicals. So this course was essential to start working with this. As mentioned before the cases regarding noise/vibration were really good. I also learned a lot during the seminars we had on the chemical part were we discussed "cases" and different approaches.

There was also some exam-specific feedback which we have edited because it carried a risk of identifying individuals. Some desired a longer exam time, and suggested that the 4 hour exam time be used flexibly across both topics instead of split.

There was some problems surrounding how Canvas displays the grades of quizes which led to unnecessary stress; a has been identified and will be used next year.

SUMMARY OF STUDENTS' OPINIONS

Summarize the outcome of the questionnaire, as well as opinions emerging at meetings with students.

Overall the feedback from surveys and in-class learning reflections was positive, with some specific opportunities to improve.

Specifically, more cases and practical scenarios as well as hands-on time making measurements with the equipment could be incorporated to enhance the course further.

There is a wish for correcting the feedback glitches for exam Canvas quizes and making the time for the 2 exam parts combined and flexible.

OVERALL IMPRESSION

This course was very successful for a first-time offering, and overall the students demonstrated good mastery of the course content. The exam timing and number of questions seem adequate, since no one failed an exam portion they attempted.

We had some feedback & questions on the exam format and criteria. Following the exam, we conducted a review of the questions for the air contaminants portion. Some overall reflections on this:

Advanced courses require more applied skills and independent thinking than basic and survey courses, so scenario and case-based questions like this are appropriate assessments. However, it is also more tricky to develop good scenarios and more difficult to grade them since it is not a series of fully objective correct or incorrect answers, but more nuanced and holistic. On balancing the advantages and disadvantages, our assessment is that we should maintain complex case-base questions in CH2006 and elsewhere in the program, not least because they encourage deeper and more engaged study and application of course content to the real world. From this perspective, occasional inquiry about grading transparency is an acceptable disadvantage.

Clarity in expectations could be improved for the next exam by adding a short introduction that outlines the expectations for format of references, citations, bibliography (i.e. flexible or must be APA.) Setting a specific rubric such as 'must cite 2 articles to get a Pass and 7 articles to get an A' does not seem appropriate since the final grade depends on many things. However, a summary of the grading criteria could be added below the questions so that students know how to spend their time. For example: 'Grades for this case study will be assigned based on a holistic synthesis of the student's demonstration of: accessing and citing appropriate literature; selecting relevant sampling frameworks from the course and applying them appropriately to the scenario; identify and interpret relevant regulations to the scenario; draw conclusions and develop appropriate action plans.'

ANALYSIS

Is it possible to identify stronger and weaker areas in the learning environment based on the information you have gathered during the evaluation and analysis process? What can the reason be? Are there significant differences in experience between:
- students identifying as female/male?
- international/national students?
- students with/without disabilities?

Unfortunately too few students responded to have a disaggregated analysis. However, the values for men and non-disabled students did not vary much from the whole-class average, so we infer that there were no glaring inequities.

We did hear informally/verbally that not all materials were available in English, which could potentially be a disadvantage to non-Swedish-speaking students. We will endeavour to provide English translations of such materials in future offerings.

PRIORITIZED COURSE DEVELOPMENT

What aspects of the course should be developed primarily? How can these aspects be developed in short and long term?

We plan to maintain the flipped classroom format with class discussions and the applied 'professional practice' approach.

Short term for the next course offering:

- Fix canvas quiz glitches
- Provide a more flexible exam timeframe so students can answer questions from both sections for the whole duration
- Make clear the expectations for citing references
- Provide translations for Swedish resources, or translated summaries of the parts that are relevant for our course.

Long term development:

- Add more scenarios and case studies to both sections
- Build in more hands-on time practicing with equipment, or potentially take-home practice