IMPLEMENTING AN ANNUAL COURSE REVIEW PROCESS

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ABSTRACT

At Aarhus University School of Engineering (ASE), courses are evaluated by students at the end of each term. Recently, the reports from these course evaluations have been made available to the head of the study programmes to which the courses adhere. In the Department of Electronics and Communications Engineering (ECE) within ASE, this has sparked the implementation of an annual course review process in which the evaluation reports are used as input.

A key part of the course evaluation process is the Course Review and Development Meeting (CRDM), in which the professor responsible for the course and the head of the study programme is given an opportunity to review and discuss the state of the course, future development, etc. The CRDM follows a semi-set format for which a review guide has been developed.

The course review process, and the CRDM in particular, provides an opportunity to acknowledge the successes achieved in course executions and the work of the professors and enhances the head of study program's understanding of the details of the individual courses and inter-course relationships and dependencies. Furthermore, it provides an insight into challenges faced by the courses and the professors' ideas for course development. This insight has already proven valuable in the continued development of both individual courses and the study programs as a whole.

KEYWORDS
Course review, course review process, feedback, Standards: TBD.

BACKGROUND
The ASE is an engineering college. As such, its primary product is the education of students. Therefore, the importance of providing quality education and a coherent study program is of the very highest priority to ASE, as is the continued development of courses and study programmes.

With such priorities, the ability to acknowledge the success in teaching of the courses, and thus the work of the professors, and to react quickly to challenges, is of high importance. Both, however, require knowledge of the state of the course. When challenges arise from within the course, and when knowledge of such challenges is not fed back to the head of the study

programme, they can grow to an unacceptable magnitude before any action can be taken to address them. This of course means that the courses themselves suffer, but so do the professors that teach these courses. To put it short, teaching a challenged course is not exactly inspiring to the work effort. Similarly, acknowledgement of professors' work can only be given in the broadest terms if no detailed information about the state of the course are available. This may mean that the acknowledgment is perceived as less sincere.

Until 2016, all professors at the ECE were encouraged to carry out some form of course evaluation at the end of courses. However, the time and form of this evaluation was left for the professor in charge of a course to determine, and the results of the evaluations were shared between the professor and his students, but not with the head of the study program. As such, course execution had no feedback loop: A professor provided teaching of a given course to students, but no feedback from the students was available to the study programme. Therefore, there was no objective or quantitative evaluation results upon which the head of the study program could acknowledge the success of the course and thus professors' work, or provide support if the courses were challenged.

In the spring of 2016, Aarhus University began to introduce standardized course evaluations. However, the response rate was initially very low (spring 2016 for the ICT programme: 0-20%) and the results were only available to the professor.

However, the course evaluations matured and gained traction with students and professors alike, the use of them was made mandatory in all courses, and – notably – the results became available to the heads of the study programmes. In the spring of 2018, the response rate, maturity, and data availability was such that the result of the course evaluations could be used as an important input for a process that would review the courses on an annual basis. This process could provide an insight into the state, successes and challenges of the courses and thus "close the feed-back loop".

THE ANNUAL COURSE REVIEW PROCESS
The course review process was initiated in August 2018 for all four study programmes under the ECE department: Information and Communication Technology, Electronics, Health Technology, and Electrical Energy Technology.

The aim of the course review process is to increase the quality of the study programme as well as the individual courses.

The goal of the course review process is to provide an opportunity for the following:

- To discuss the state and contents of each course in detail.
- To properly appraise the successes of the course, and thus the work of the professors.
- To identify and counter any challenges to the course at an early point.
- To define and execute any required or desired development of the course.
- To monitor and review such course development that has been performed.

Stakeholders
The stakeholders of the annual course review process are as follows:

- The professor in charge of the course ("the professor"), who is in charge of the course.
- Other professors, with whom the professor in charge may share the execution of the course
- The head of the study programme, who in charge of the study programme.
- Department management, represented by the Head of Development for the department, who is responsible for human resources and budget rests, and who, ultimately, allocates resources for development activities.

Activities

The course review process for a given course contains three major activities:

- Course evaluation (as described above)
- Course Review and Development Meeting
- Course development

Each of these are described below.

Course evaluation

Course evaluations are conducted for each executed course in each term. The results of the course evaluation constitute a key input to the rest of the process. The course evaluations consists of questionnaire which contains a number of "questions" (statements, really) that the student answers quantitatively on a scale of 1-5, 1 being in easy/high/good/in complete agreement and 5 being hard/low/poor/in complete disagreement. Additionally, for most of the questions, the student could provide an optional comment.

The questions are selected at three different administrative levels within the AU: By the AU, by the Faculty of Science and Technology and by the study programme. The questions selected by all three entities have varied during the first executions of the course evaluations, but as of fall 2018 they settled on the following 11 questions:

- "I rate the overall outcome of the course as"
- "During the course, there have been good opportunities to receive feedback/guidance regarding my academic performance."
- "I have been able to get academic help and support from my fellow students in relation to the course."
- "The teacher/teachers taught the material and ran the course as well as possible."
- "I gained a good understanding of the key concept and principles in this course"
- "I experienced that the course is relevant for my studies on the whole"
- "The teaching, preparation (at home), assignments, etc. in the course all helped me to achieve the learning objectives"
- "The workload on the course is assessed as"
- "The course is well organized"
- "I rate the course as a difficult course"
- "The study facilities such as rooms, tables, chairs, AV equipment etc., work well"

In addition, the professors of each course can add his/her own questions to the questionnaire. The students answer the questionnaire electronically from within the Blackboard Learning Management System. Time must be allocated to fill out the questionnaire in the second-to-last

lesson of the course (at the latest), and the results must be presented to and discussed with the students of the course in the last lesson of the course.

Upon completion of the evaluation, the results (i.e. all students' answers and comments to all questions) become available to the head of the study programme. The results of the discussion in the last lesson of the course do not become available.

The Course Review and Development Meeting (CRDM)
The Course Review and Development Meeting, or CRDM, is held annually for each course in the study programme, with the required participation of the head of the study programme, who chairs the meeting, and the professor responsible for the course. When several professors share a course, all professors may participate.

The CRDMs are intended to take place in January or February for courses which are executed each semester or in the fall semester only, and in August/September for courses that are executed in the spring semester only. This schedule ensures that the CRDM coincide as little as possible with the professors' own appraisal interviews, which are held around September each year. The separation of the two meetings is intended to signal that the CRDM is not related to the appraisal interview, and that the CRDM focuses on the courses, not the professors.

To focus the CRDM, a review guide has been developed. This outlines 4 topics to be covered during the CRDM:

- **Most recent execution of the course**. This is a discussion of the most recent execution of the course as experienced by the professors, and as perceived by the head of the study programme, based on the results of the course evaluations. The goal is to identify successes during the execution, as well as any challenges have emerged during the course execution.

- **Follow-up on previous agreements**. If any agreements have been (i.e. course development etc.) made at previous CEDMs, the status of such agreements are evaluated.

- **Future development in the course**. Any required or desired development in the course, i.e. the development of new course material, a new study plan, a shift in focus, etc. are discussed at this point. At this point, the necessary resources to perform the development can also be discussed. If a more detailed and time-consuming discussion of development is deemed necessary, or if the discussion requires the involvement of other parties, it is scheduled for a stand-alone discussion at a later time in order to maintain the broad focus of the CRDM itself.

- **Agreements**. Any agreement for course development or other agreements originating from the above three topics are captured in the review guide. For each such agreement, a responsible (typically one of the participants) is identified, along with a date for first follow-up.

The review guide contains open fields in which main points for each topic of the discussion may captured in writing for future reference.

The CRDM is called by the head of the study programme several weeks in advance. As preparation for the meeting, the head of the study programme and the professor each reflect on the topics to be covered in the meeting as outlined by the CRDM review guide. Both also review the course evaluation, both quantitative results and the available comments, if any.

The CRDM itself is scheduled to be of a 1-hour duration, although less time (30-45 minutes) is often spent. As mentioned, the CRDM is conducted along the lines in the CRDM review guide, but, as courses differ, so do the discussions and the form they take. This is allowed to a great extent, as the aim of the CRDM is to have a frank discussion about the course and the successes and challenges uncovered by this, not the strict adherence to a guide.

During the meeting, the head of the study programme captures main points of the discussion and any agreements for course development in the upcoming year in a copy of the guide. At the conclusion of the meeting, this copy is reviewed and signed by the participants. After the conclusion of the meeting, the head of the study programme distributes the annotated copy of the review guide to all other participants in electronic form.

The head of the study programme also schedules any follow-up meetings required to discuss any topics of the CRDM further, and initiates any discussions related to allocation of required resources for course development with the management of the ECE department.

Course development
During the following year, and under the provision that the necessary resources have been allocated, work is done to meet the agreements entered into during the CRDM. The work is typically driven by the professor and may involve the head of the study programme, other professors, management, etc. as necessary. Follow-up on the fulfillment of the agreement is done at the time and initiative agreed upon during the CRDM.

CURRENT ACTIVITIES
The course review process has been initiated for 17 courses.

In 12 instances, the CRDMs were held in July and August 2018. The following activities have been initiated as results of these CRDMs:

- In 11 instances, the CRDM resulted in agreements of investigations or reflections to be made as precursors for possible future development activities.

- In seven instances, the CRDM resulted in concrete agreements of development activities (or other changes) to be completed before the next CRDM (August/September 2019).

- Of the seven agreements, work is in progress in 6 instances, while 1 has been abandoned.

In the remaining five instances, the CRDMs are scheduled to be held in January and February 2019. None of these, however, have been held at the time of writing.

PRELIMINARY RESULTS

The preliminary results of the course review process are not easily quantifiable.

Development activities initiated
A number of development activities have been initiated as a result of the first CRDMs conducted in August/September 2018:

- In two instances, professors are developing customized learning material to supplement or replace the books used in the course.

- In one instance, approval criteria for mandatory exercises in a course are undergoing substantial revision.

- In one instance, CRDMs for three individual courses on the same semester gave rise to a semester-wide revision and reallocation of curricula.

Testimonies to the course review process
The four study programmes for which the course review process has been introduced are headed by three individuals, of which the author is one. The two other heads of study programmes testify:

The head of the study programme for Healthcare Technology: "*I think that the CRDM yields a structured discussion of all courses, so that we address all topics every time, and not only what we find the most relevant for the individual courses, i.e. a structured approach. We discuss positives and negatives in a balanced way, and we are reminded to acknowledge. Our focus is on development, not only review*". (given in Danish, translated by the author).

The head of the study programme for Electronics and Electrical Energy Technology: *"It (the process, red.) yields a "legalization" to discuss the course with the professor, meaning that the discussion **must** take place and hence [gives rise to] no unnecessary anxiety with the professor. No "why is he inviting me", "did I do something wrong".* (given in Danish, translated by the author).

Additionally, the author can attest that he has gained an insight into the detailed contents, successes and in some instances challenges faced by the individual courses. This insight is put to use both in the frequent, informal discussions with professors regarding the individual courses, and in the continued work of developing the study programme as a whole. The CRDM has exposed both details of the individual courses and relations and dependencies between courses that were not evident or explicit, and that would remain hidden, had the annual course review process not been in place.

Testimonies from the professors

Professor A: *"What I find we have gained from the CRDM is the following:*
1. *We are forced to work the [course] evaluation an reflect on the course and its quality.*
2. *The preparations for the discussion is important – we work the input from the students and consider what could be done different.*
3. *We are inspired by the discussion and sparring with the head of the study programme to what could be done differently*

4. *The resulting action plan (agreements from the CRDM, red.) fprces us to act on the points we agreed upon*
5. *[In] the subsequent course evaluation, the points we focused on were significantly improved."*

FUTURE WORK

A substantial amount of work needs to be done for the course review process to yield the best results. The immediately identifiable tasks are as follows:

- At the time of writing, the course evaluation process has not run a full year for any of the courses. Therefore, the effects of having a history of course evaluations and reviews are unknown. Work remains to use such historical information to gauge the effect of development activities initiated as a result of the process.

- Similarly, the effects of reviewing last year's agreements at the CRDM has not been relevant yet. Work remains to be done to perform these reviews and to gauge the effects of them.

- As the process was initiated for courses held in spring 2018, most (12 of 17) CRDMs have been held in August/September 2018. This is in conflict with the stated intention that most CRDMs should be held in January/February. It remains to be seen if the separation of CRDM and appraisal interviews is necessary and, if so, how to re-schedule the annual CRDM for the 12 courses.

BIOGRAPHICAL INFORMATION

Troels Fedder Jensen is an associate professor at Aarhus University School of Engineering and head of the study programme in Information and Communication Technology (ICT). His current focus is on the continued development of this study programme and the courses related to it.

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