



Course analysis

Course code: KE2355	Credits: 7.5
Course name: Resource Recovery from Waste	
The course is part of the following program(s): MSc Chemical Engineering for Energy and Environment	
Semester: 1	Study period: P4
Course coordinator: Frederico Marques Penha	Examiner: Frederico Marques Penha
Number of first-time registered students: 19	Response rate to the course evaluation: 31.58 %
Number of first-time registered students who passed all sections/modules of the course: 19	
Description of implemented changes for this course offering: Since last offering the course coordinator has changed and a significant amount of effort has been put into developing the course. The prior version of the course had more focus on biotechnology strategies to recover different resources from waste. In the new version, the scope was broadened to more resources and the unit operations involved in their recovery. The recovery was subdivided into water, energy, materials, and assessment of environmental impacts. Some specific topics that were included are: water desalination, water recovery from mining tailings, recycling of waste electronics and electric equipment, gasification of biomass.	
Summary of the students' course evaluations: According to the answers, students were mostly happy with the course. They felt like they worked with interesting and challenging topics and that the “real-life” case studies that were chosen helped them develop in depth understanding of the topics. Students were mostly happy with the assessment as well, especially the project, said to be ‘very challenging and good for learning how would be to work in practice with the course content’. The exam was commented by some students as ‘good and fair’ and other specifically mentioned they liked that it was ‘open book that had questions that one could not find directly in the lecture slides’. Yet others criticized the multiple-choice questions (or the amount of points	

allocated to it), as ‘this does not adequately demonstrate how much knowledge and understanding someone has of the course’. Hence, the assessment can be revised.

Students also mentioned that there could be more occasions for them to practice what they’ve learned without being graded, such as homework or small assignments.

Another request was for the teachers to upload the material a few days in advance, especially papers that could be helpful in understanding the concepts, rather than just the night before. Students feel that if they have access to the slides beforehand, they can have a proper look and prepare themselves better for the TLO.

Reflections on the implementation and results of the course

a) Strengths of the course:

The ILO (intended learning objectives) were aligned with several learning activities such as group discussions, case solving and studies, and a project based on a particular waste stream to which the students had to design a recovery process. These specific activities were designed for different TLOs, aiming at facilitating the understanding of the basic concepts, shifting the mindset from waste to resources, and developing in-depth understanding of the topics.

Variety of teachers also provides experts in each topic for the TLOs whilst broadening the students’ network with the academics, which improves their overall experience of university and possibilities for master thesis projects and supervisions.

b) Development opportunities of the course:

The main area for development in the course regards the learning activities and how those relate to the assessment. Since the students complained about not having enough opportunities to practice their knowledge along the way without being graded, more extra classroom activities (homework, short projects, tutorial, or quizzes) should be implemented.

Another aspect to improve refers to making materials available for the students within a reasonable time before the TLOs, especially when preparation is expected.

Further improvements should take into consideration the order in which the TLOs are given. Some students pointed out that a better (more logical) sequence would improve their understanding.

Proposed changes for the next course offering:

Reorganizing the topics into a more didactic order;

Eliminating less relevant/disconnected topics;

Increasing the amount of extra-classroom activities (tutorial, exercises, quizzes and short projects);

Improving final assessment.

Other remarks:

The course analysis must be made within one month after the end of the course.

A compilation of the course evaluation, course questionnaires or meeting notes from course evaluation board meetings etc must be attached to the course analysis.

The completed course analysis is sent to: teachersupport@cbh.kth.se