# Report - MH2049 - 2020-06-16

Respondents: 1
Answer Count: 1
Answer Frequency: 100.00%

**Please note that there is only one respondent to this form: the person that performs the course analysis.**

**Course analysis carried out by (name, e-mail):**

Björn Glaser (bjoerng@kth.se)

**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.**

Students were offered to fill out an LEQ, but only 6 out of 16 students handed in their answers. In addition, the teachers have discussed details of the course with the students throughout the course.

**DESCRIPTION OF MEETINGS WITH STUDENTS**

**Describe which meetings that has been arranged with students during the course and after its completion. (The outcomes of these meetings should be reported under 7, below.)**

The teachers have discussed details of the course with the students throughout the course.

**COURSE DESIGN**

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

Objectives:
The course deals with:
-advanced knowledge for metal production, mainly via pyrometallurgy.
-advanced kinetic theories that are used in metal production.

The course provides knowledge of:
-how thermodynamic and kinetic theories can be used to optimise metallurgical processes.
-the importance of choice of process parameters to reach an improved process control of a metallurgical process with regard to both productivity and sustainability.
-possibilities to design processes or parts of processes in metallurgical industries.

After passing the course, the student should be able to:
• Explain the basic kinetic theories related to pyro metallurgical metal production
• Identify possibilities to process control and reactor design in industrial metallurgical processes
• Identify how it is possible to choose and optimize parameters to receive a sustainable metallurgical process chain
• Identify how it is possible to choose parameters to control a metallurgical process

Examination:
TEN1 - Written Exam, 3.0, grade scale: A, B, C, D, E, FX, F
Pro1 - Project, 4.0, grade scale: A, B, C, D, E, FX, F
LAB1 - Digital Laboratory, 1.0, grade scale: P/F
HEM1 - Home Assignment, 1.0 grade scale: P/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?**

The few answered varied from 6 - 8 hours per week for 3 students and 12-14 hours per week for two students. The sixth student answwered 27-29 hours per week. The workload is normal for
the first 5 students but far too high for the sixth student. It is not clear why the person spent so much time, but a guess is that the person liked the different topics and laboratories so much so that he/she put in that many hours.

**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?**

The grades of the course were the following:
A:2
B:9
C:3
D:0
E:0
Fx:0
F:0
All attending students passed the course.
The course result is good. The grade distribution given here is similar to the distribution of the years before.

**STUDENTS´ANSWERS TO OPEN QUESTIONS**

**What does students say in response to the open questions?**

What was the best aspect of the course?
- The combination of lectures from KTH teachers as well as lectures by people from the industry.
- Going to Sandviken and getting so close to the process
- sandvik project
- Working on different topics in groups and learning from others
- The Sandvik project and the seminar

What would you suggest to improve?
- To increase the number of projects to chose from.
- The calculation exercise, it was super confusing to just be expected to do exercises without help or collaboration for the first half. More calculation exercises would also be nice.
- to clarify the questions more accurately in given project
- It would be great to work also on the lecture after the kinetic part (I.e. homework)

What advice would you like to give to future participants?
- To start working on the project as soon as they are given one.
- keep in touch with supervisions all the time for delivering a very good report
- To go through the content of the program thoroughly.

**SUMMARY OF STUDENTS' OPINIONS**

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

The few students that answered seemed satisfied, but also pointed out that some parts need be improved. e.g. the project questions have not been very clear to the students and the calculation exercise should be done differently. When we discussed with the supervisors they also said that some students started very late with the project work and had almost no contact to the supervisors.

**OVERALL IMPRESSION**

**Summarize the teachers' overall impressions of the course offering in relation to students' results and their evaluation of the course, as well as in relation to the changes implemented since last course offering.**

It is all supervisors opinion that the students are very satisfied with the course since it teaches the students to work with realistic industrial problems that they can meet as future engineers.

**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 for these be? Are there significant difference in experience between:**
**- students identifying as female and male?**
**- international and national students?**
**- students with or without disabilities?**

Too few answers to be able to evaluate.