Report - MH2041 - 2021-02-22

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):

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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.

Students were offered to fill out an LEQ, but only 5 out of 13 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:
Read and interpret ternary, quaternary, and quinary phase diagrams of alloys and oxide systems, apply ternary lever rule, liquidus projections, and iso-activity diagrams, apply phase diagrams in selection of refractories for liquid slags, perform equilibrium calculations in reduction of metal oxides and sulfides, gas solubility in metallic melts, solute distributions in slag-metal systems, and in modification of non-metallic inclusions. This knowledge can be used for analysis and optimization of metallurgical processes and provides a basis for subsequent advanced courses (Advanced Course in Process Science).
Examination:
TEN1 - Written Examination 5 hp (A,B,C,D,E,Fx,F)
INL1 – preparation for the examination, exercises provided by the teachers 1 hp (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 3 - 20 hours per week. These mentioned workload can be considered as normal and expected.

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 on the course were the following:
A:1
B:2
C:0
D:3
E:4
Fx:1
F:0
INL1: all students passed
The result is overall okay, but could be better. The examiners opinion is, that some of the students didn't attend the preparation session for the examination as offered by the teachers.
All students were given the opportunity before exam to contact the teacher and get advice and additional explanation by zoom-discussion. The students could use all available materials and tools during the examination.

STUDENTS´ANSWERS TO OPEN QUESTIONS
What does students say in response to the open questions?

What was the best aspect of the course?
- The correlation with the real processes
- The lectures would have been really nice a normal year! I think that they are informative enough to learn most of the course from. This year however, the digital format makes it harder as it is harder to remember when the experience is just another few hours at the computer rather then a physical experience
- The lectures were interesting because they felt very connected the the "real" world. Both Jesse and Andrey has a lot of knowledge which makes the lectures very good.
- Clear, up-to-date slideshow and monograph in J. White's part. Generally good visuals and explanations for the most part.

What would you suggest to improve?
- I would suggest to spend more time on the exercise session in the part 1 , to get a better understanding
- The exam was right out horrible. The questions were fine (except maybe Q4), but either too long or too many! It took me 19h straight to write the exam, which is neither efficient nor healthy. Each of the questions took around 2h to do when in a good state, but 3-4h after 10+ hours of work. As a student who has decided to try to stop making misreading errors and sloppy mistakes I like to spend a lot of time on every question and believe that a consideration of such aspects should be taken when estimating the time required to solve each question. In theory a 24h exam is fine. However, one must be really careful when designing questions to not put an inhuman workload on the students. I think that the current exam with 48h deadline would be fine if you are unwilling to remove questions due to their content. Once again, the main point is to have a reasonable workload. I'd happily spend 8h/day on an exam! I'd be fine with 10h/day, but 12h+ makes me want to check if it violates the geneva convention...
- I would prefer to have some more worktime with the exercises connected to Jesse´s part, it would be nice to have some scheduled exercise earlier in the course where one could work with other students but also get help from Jesse directly.
- -A. Karasev's slides require a make-over to meet the standard of J. White's slides. Especially in exercise lectures (LEx) the path of calculations is difficult to follow because lots of information is copied from earlier slides and pasted into random locations. Visuals of A. Karasev's slides should also be updated (graphs, schematics, slide template).
-A. Karasev's presentation slides should not be uploaded in the hand-out format (i.e. 3 tiny slides per page, along with 3 sets of unnecessary lines for student notes), but instead in the native presentation format. Studying with the material provided is unrewarding because half of the time is spent on decyphering the tiny text on the screen.
-A. Karasev's exercises should be formulated more precisely to avoid confusion (cf. one of the online exercise classes).
-J. White should provide students with old exams for preparation of the final exam, or at least with a worked solution for one type of problem and only then more problems that are solved using the same approach.
-The 24h exam format should be avoided, or the amount of work required to complete it should be reduced. Working "around the clock" (even when one gets most done on the first day) is nerve-wrecking, robs students of their sleep and is not a good end to an otherwise well-done course. An exam within the normal bounds of time should be preferred.
-Lecturers must be available throughout all of the 24h exam. Given the level of instruction, questions to exercises arise not upon the first look taken at them, but rather later in the process of solving the exercises.
-Teoridelen

What advice would you like to give to future participants?
- It ‘s a good course to understand how the pyrometallurgy is related to the thermodynamics and what are the aims of the different processes used.
- Find a good way to quickly solve equations numerically or be fast at MATLAB!
- Ask a lot of questions if you fell uncertain about something and really try the to calculate the problems by yourself.
- There is plenty of good video material available online to look at processes (schematically or the real thing). Looking at these external sources helps understand and remember processes better.

Is there anything else you would like to add?
- I like how this course blends together with MH2040 to form a mix of thermodynamic knowledge!
- I think the exam was very difficult on some areas and due to it being a 24 hour exam it is difficult to know how much time each task "should" take. Some of the problems where very connected to the exercises we had been working on before but some areas felt completely new. Also, there was no grading table published before the exam and evan on the exam there was no information regarding the different grading steps.
-The e-waste exercise from the exam was inadequate: For the importance of the exercise (20% by points) the skill level required was too high. To make the exercise more adequate, this kind of problem (or at least an approach to it) must be presented during the lecture.

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 some issues with lecture materials, course structure and examination. When we have discussed with the supervisors they also said that they had the feeling that some students didn't prepare well for the examination. Thats why some ended up working more as 12 hourse on the examination, which is obvious without proper preparation.

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 satisfied with the course and the students appreciate to get an deeper knowledge about industrial applied thermodynamics.

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.

PRIORITIZED COURSE DEVELOPMENT
What aspects of the course should be developed primaily? How can these aspects be developed in short and long term?

Lecture notes will be updated to a common standard.

Next year we can add another problem session as support on the homework exercises. There was a session this year as well, after request by the students. It was held just the day before the exam. The worked solutions have been posted on Canvas before the examination, which helped the students.

OTHER INFORMATION
Is there anything else you would like to add?

Any official conclusions made on the viability of 24-hr take-home exams for this type of course?
We think it is a feasible concept considering that a high enough difficulty level can be managed on such an exam even when the students have full access to their notes. There was evidently no cheating either. Next time we can make sure and reinforce the message that it is indeed a take-home exam and not a long homework assignment, and that the students are expected to study properly in advance like for any other exam. I was very dismayed about the poor results on Problem #4 on the exam, since we had thoroughly covered that subject in a lecture, and it was obvious that very few of the students had remembered that and reviewed the lecture notes.