Report - IL2230 - 2020-01-27

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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COURSE DESIGN

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

This is a newly developed course and offered for the first time. This course is a specialized course tailoring for students studying the Embedded Systems master program (especially suitable for the Embedded Platform track) and those students who are interested in hardware acceleration of deep learning algorithms.

The course consists of 10 lectures, 3 labs, and 1 seminar. In the seminar, students are partitioned into groups to present latest research papers, one group (4-5 students) presenting one paper. The course examination includes two parts: the lab part with Pass/Fail and the written examination with grades (A-F) which is then the course grade (if all labs passed).

THE STUDENT'S WORKLOAD

Does the students' workload correspond to the expected level (40 hours/1.5 credits)? If there is a significant deviation from the expected, what can be the reason?

The course is offered in Period 2, Autumn term (HT 2019). The learning period spans over 10 weeks, with 50% of learning pace. The nominal workload is 20 study hours per week. In total, it is 200 study hours, worth of 7.5 ECTS credits. According to the student survey , the average number of study hours (estimated workload) is about 16-17 hours per week. Some students spent a bit more time and some a bit less. Overall, the course workload can be considered reasonable.

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?

There are 17 registered students. 16 of the 17 students attended the first written examination. The student who was absent from the first exam was due to sickness, as she told me by email.
The examination questions are designed to assess the intended learning outcomes with a reasonable level of difficulty. The examination uses the criteria-based evaluation.

The results are 3 As, 2 Bs, 4 Cs, 4 Ds and 3 Fs. The well-performing students in the examination showed better performance (in answering questions and handling labs) during lectures and labs. As far as I know, the failed students spent less time in studying the course and/or preparing the examination.

OVERALL IMPRESSION OF THE LEARNING ENVIRONMENT

What is your overall impression of the learning environment in the polar diagrams, for example in terms of the students' experience of meaningfulness, comprehensibility and manageability? If there are significant differences between different groups of students, what can be the reason?

The course evaluation uses the full Learning Experience Questionaire (LEQ) which has 22 questions. 12 of the 17 registered students have answered the LEQ. The response rate is 70.59%.

The student responses to the three categories of the learning experience in Meaningfulness - emotional level, Comprehensibility - cognitive level, Manageability - instrumental level, are quite positive. The total average score of the three categories in the 7-scale system is 6.27. See the details below. There are no significant differences among different groups of students.

Meaningfulness - emotional level. 6 questions. Average scores for Q1 to Q6: [6.6, 5.9, 6.4, 6.5, 6.0, 6.8] Average: 6.37
Comprehensibility - cognitive level. 10 questions. Average scors for Q7 to Q16: [6.3, 6.2, 6.4, 6.3, 6.7, 6.3, 6.0, 5.8, 6.5, 6.3] Average: 6.28
Manageability - instrumental level. 6 questions. Average scores for Q17 to Q22: [5.6, 5.5, 6.9, 5.9, 6.4, 6.6] Average: 6.15

ANALYSIS OF THE LEARNING ENVIRONMENT

Can you identify some stronger or weaker areas of the learning environment in the polar diagram - or in the response to each statement - respectively? Do they have an explanation?

The responses to each statement are scored from -3, -2, -1, 0 (neutral), 1, 2, 3, X (no standing). The stronger areas as shown in the responses to each statement refer to the ones that have all positive replies, +1, +2 and +3 (No negative ones, or 0 or X). They are across the three categories for the following 9 (40.9%) questions.

Q1. I worked with interesting issues.
Q4. The course was challenging in a stimulating way.
Q7. The intended learning outcomes helped me to understand what I was expected to achieve.
Q8. The course was organized in a way that supported my learning.
Q9. I understood what the teachers were talking about.
Q11. Understanding of key concepts had a high priority.
Q12. The course activities helped me to achieve the ILOs efficiently.
Q15. I could practice and receive feedback without being graded.
Q21. I was able to learn by collaborating and discussing with others.

In all other questions, there exist occasionally other scores (X, 0, -1, -2), but still, for all questions, the overall responses are all positive.

ANSWERS TO OPEN QUESTIONS

What emerges in the students' answers to the open questions? Is there any good advice to future course participants that you want to pass on?

The students seem to have enjoyed the lectures and labs. In answering the best aspect of the course:

"The assignments are fun and the difficulty is suitable."
"How the labs flowed into each other and the freedom to test our own ideas."
"Lab, we have learned a lot from different sides in the lab."
"I really liked the course and its objective. It helped me to also make an option related to NN Accelerators for my Master's Thesis."
"The seminar part, which let me know about the recent research papers on the hardware accelerator topics."

"The openness of the class and the communication."
"The best part is part II, and the labs are inspiring. I would have liked to have at least one month full time with just lab 3 and try to optimize it further, of course this is not possible in this time frame."
"The seminar !"

"The evaluation of research papers and analysis of the latest techniques in Machine Learning."
"The labs and class lectures were great."

In answering "What would you suggest to improve?" The students suggest "to have more guidance for the labs", "The lab's pdf should contain more details", and "Giving concrete feedback after each lab if possible", "Not organizing the labs and seminar in the same week". One student wanted to have more challenging task, "Maybe try implementing parts of Research papers, if VHDL/Verilog was made pre-requisite we can be expected to write some fairly complicated lab codes as well."

PRIORITY COURSE DEVELOPMENT

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

For the next course round, the following improvements will be done according to the student feedback and self-evaluation of the teaching /learning activities.

(1) Enrich the lab documents by including more details.
(2) Give more instructions for the labs.
(3) Allocate time for giving feedback to the lab reports.
(4) Add one more seminar.

In the long run, the latest research results will be continuously brought up to the course to keep the course really up to date, enrich the labs and make them both interesting and challenging.

Looking from the program perspective, it is really important to develop and deliver great courses in our master program. Students will appreciate, as quoted as follows.

"This is an amazing course that will take you on a journey to better understand what happens behind deep learning and the challenges preventing it from bring used in industrial applications".
"The professor made a great job in introducing this new course and constantly asked for feedback."
"Thank you for a great and inspiring course :D".
One student even commented: "This is one of the best courses I have taken in my entire student life."