SEFI Journal of Engineering Education Advancement
Vol. 3, No. 1, 2026, Hermund, Rees, Duedahl-Olesen, pp. 112-128, ISSN 3006-6301
DOI : 10.62492/sefijeea.v3i1.57

Supplementary material S3

Answers to free text questions for evaluation of course 23936 from year 2021-2024, where questionnaire in S2 states no answers the question has not been included below.

2021/2022:

Question	Answers (free text)
Q2	One student wrote: To be a skilled engineer, one must constantly develop oneself, one's competencies, and one's knowledge. One must take on new challenges. You are never too old to learn something new. Working across disciplines for new professional development is an important aspect of the engineering profession
Q3	There have been deliberately incomplete exercise instructions, requiring students to use common sense to ensure they are on the right track and apply the correct knowledge. It encourages curiosity and critical thinking about the analyses performed and their methods. The ability to work across disciplines is essential—understanding others' work and being able to interpret it with new insights and knowledge, even without having done the exercise yourself. This is a great way to prepare for real-world tasks, where collaboration across fields is key.
	I would say that the initial planning phase and the need to understand other groups' data and approaches—while remaining critical of both their data and our own—have contributed significantly. This is further supported by the requirement to write a report covering all analyses
	– Conducting product analyses (laboratory work) – Analyzing results, both statistically and overall – Communicating results, both in writing and orally
	The experimental part, and the theory behind the methods and experiments
	The laboratory work and reporting (critical thinking)
	Both the laboratory work and the reporting
	The experiments
	All parts of the course have provided me with relevant learning to carry out practical tasks, the ability to acquire knowledge, be critical of data and methods, gain an overview, and collaborate towards a common goal

Vol. 3, No. 1, 2026, Hermund, Rees, Duedahl-Olesen, pp. 112-128, ISSN 3006-6301
DOI : 10.62492/sefijeea.v3i1.57

Q5	You shouldn't just trust that the results a machine prints out are necessarily correct. Take a step back, look at the data—does it match expectations? Double-check the calculations to ensure the machines and results are accurate, so the work can be validated. There can be standard calculations that must be used, which may lead to deviations compared to other choices—such as the conversion factor. Examples from this course: – Salt determination: The machine gave a result, but calculations confirmed its accuracy. – Brix: The large variation in results made it clear that the machine couldn't be used for sugar determination. – Dumas: Data processing had to be double-checked with calculations, which confirmed the machine's precision
	I believe critical thinking is about how you relate to results, raw data, and methodology. If you understand the work that has been done, you can assess whether the process can be improved—and possibly identify what might have gone wrong.
	Being able to analyze data, facts, observations, etc. This skill can be applied in many contexts—for example, when choosing an analytical method to test a given hypothesis, or when analyzing the resulting data.
	Always be critical of your own thoughts. I believe you first need to have a certain level of knowledge about the subject you're thinking about. You should have some expertise in the area before diving into possible experiments, for example. Additionally, you must be critical of the results and data you obtain. That means considering potential errors that may have occurred, the individual's execution of the experiment, and possible flaws in the different methods used.
	You need to think for yourself and investigate. Taking up a topic and discussing it with others can also be a way of being critical or clarifying something.
	Being able to see the bigger picture in data—how the process from start to finish can influence the results. This kind of thinking can be used in the development and optimization of new methods and new knowledge
Q6	Challenging—but it sparks new thinking early in the study program, helping you become increasingly well-prepared throughout your education. Advantages: – Had the opportunity to search for possible solutions independently – Could see the differences between various analyses and methods chosen Disadvantages: – Uncertainty about whether the choices made were correct
	I wasn’t in the group that worked on water activity, but I would say that this part could have benefited from a more template-like approach, as the guidance was a video explaining what it was, but not how to analyze it.

Vol. 3, No. 1, 2026, Hermund, Rees, Duedahl-Olesen, pp. 112-128, ISSN 3006-6301
DOI : 10.62492/sefijeea.v3i1.57

	Advantages: – You're forced to think more deeply about things. – You relate much more to what is actually relevant and meaningful than you would if a template were provided. – You get the opportunity to think independently and outside the box. – It can be helpful in some cases. – If you have the right information, you can complete a task quickly and save time. – You learn new knowledge and become better at solving tasks in the future. – You're encouraged to seek out knowledge and truly understand it. Disadvantages: – It's easier to miss the expected output. But there's valuable learning in that too. – You might end up using incorrect or incomplete information. – It's important to remember whether the sources are trustworthy. – Many students have so little background knowledge that they don't know where to start. Even if one person in the group understands it, it doesn't guarantee that everyone learns it. – Personally, I had no issues because I have prior experience
	Advantages: You are forced to think more about things. Furthermore, you relate much more to what is actually relevant and what makes sense than you would have done if there had been a template. Disadvantages: You can more easily end up missing what is desired as output. But there is good learning in that too.
	You get the opportunity to think for yourself and think outside the box.
	I think it can help in some cases. The advantage is that if you have the correct information, you can quickly complete a task and save time. The disadvantage can be that you get hold of incorrect or missing information. Important to remember whether it concerns trustworthy sources.
	Advantages were that you learned new knowledge and became better at solving tasks in the future.
	Advantages are that you are forced to seek out knowledge and actually understand it. Disadvantages can be that many have so little background knowledge that they don't know where to start. If one in the group understands it, it's not certain that everyone learns it. Personally, I had no problems as I have experience from earlier.

Q7	You had to keep up with everything because you needed to use the others' data yourself. You had to be prepared and had the opportunity to ask questions. There was a clear variation in how people presented their methods, data setups, and how they communicated the different topics. But it has been a good way to see how everyone is different in their communication style, and how you can improve your own skills in presentations and conveying information to others
	An understanding of their experiments and how their results could be presented. The poster was without a doubt the best way to show it.
	It was good to hear their thoughts about the results and methods. Especially the results, as they could provide relevant information about how the analyses actually took place. In addition, their data processing was a good source of inspiration for our own report and helped give an overview of the key results. In the end, we also gained a lot from giving feedback to the others.
	I got a much better understanding and insight into what the other groups had done during the experiment period. Since we didn't do all the experiments ourselves, I found it exciting.
	I could compare and evaluate my own data based on this
	It gave a very good overview of the groups' work. It helps to gain more knowledge about others' analyses, which is a useful tool for report writing. There was an opportunity to hear about others' experiences. That way, you get an idea of what it might actually be like to carry out the analyses. There was also an opportunity to ask questions if you were in doubt about something. That way, you get the students' experience and perspective instead of the teacher's.
	I learned more about their experiments, procedures, and results, which is important for the report.
	What was important to remember when making a poster. Which data was important and what people had considered.
Q9	It was a very mixed experience. Advantages: You have to learn and understand others' data yourself. Be critical of others' data – do the results match what was expected? Knowledge about how to structure data (no one structured their datasets the same way). Double-check that the data is correctly structured. Disadvantages: Uploading unnecessary data (has been frustrating). Missing data.

Vol. 3, No. 1, 2026, Hermund, Rees, Duedahl-Olesen, pp. 112-128, ISSN 3006-6301
DOI : 10.62492/sefijeea.v3i1.57

	Of course, it's a disadvantage that we all write down data in different ways, but that's something you can't do anything about. An advantage is that we can always ask each other questions about the data if there's any doubt.
	Advantages: We get the opportunity to process more data during this period than if we had to do all the experiments ourselves. I think there was good learning in having so much data available, and then having to sort through it and assess how it could best be communicated in terms of relevance, etc. Disadvantages: The others' Excel files with data were not always clearly structured.
	Many groups managed to present their data in a way that the rest of us could understand. But I must admit that some groups were a bit quick with things and forgot to include units, explanations, etc. So it can end up with us being misinformed and therefore writing an "incorrect report"
	I engaged more with my own data and understood it better.
	Advantages: There is interaction within the groups; you can practice different ways of processing data. You automatically learn a lot about the different analyses, since you have the results in your hands all the time, which often makes us repeat the principles and methods. Disadvantages: If you haven't done your analysis properly, you might end up with incorrect results. It can be frustrating to waste time on something when you know you won't get good numbers because people haven't done their work properly. Missing data can be a problem. If you don't use the standard known methods to process data, it can be difficult to interpret the information.
	Some groups hadn't explained their data clearly, so in some cases it was a bit confusing to know what you were working with.
	Some people are very dedicated to what they do, others are not. Some data sheets were incomplete and hard to understand. There should have been clearer guidelines on how this kind of thing should be structured.
Q10	It has been a very mixed experience in terms of how much communication there has been with the different groups. Some groups have been easily accessible for data explanations, while others have been a bit more difficult. But there have mainly been major considerations when looking at the data—what the other groups have done—and trying to understand the data based on their exercise instructions, and then getting it confirmed by the groups that carried out the exercises.
	No, not specifically time for that. Of course, analyses and data were explained through posters, otherwise it was reading the instructions and asking questions if there was any doubt about an analysis or a result

	Yes, a bit
	Yes, I think so. If there was something I didn't understand, I asked the group if they could explain it
	A bit. You were bussy treating your own data
	Yes, a lot
	Yes
	Yes
Q11	Relatively early. Since you wouldn't be able to write the final report without help from each other. That's why it has been important that everyone was present to carry out their exercises and create understandable data sheets that could be shared with the other groups. The communication of knowledge about the exercises has come through presentations and reading the exercise instructions.
	Probably subconsciously. I mean, when your report has to include others' data, you must expect that it requires some collaboration.
	yes
	yes
	yes
	Definitely. I think it's a positive way to do it. You're much more active and, in a way, you carry a responsibility. It's also nice to be able to teach others something.
	Not along the way, but aftarwards yes
	No
Q12	It would probably mainly be the lab part, as there was too much wasted work and wasted time. There was a lack of communication through the groups and the lab technicians. So the expectations for what we were supposed to/mallowed to do were quite confusing. Maybe extra time should have been spent on a joint review of data from all the groups. Perhaps a better review of the analyses and ensuring understanding of the other groups' work.
	I would probably ask if the lab technicians could look at our planning. Most likely start working on the report already when the groups have done their first presentation. Of course, there are probably also some small changes that could be made in the lab. And finally, I would probably start preparing for the exam already after the explanation of the exam format—at least slowly and steadily.
	It could have been fun with a bit more lab work—we would also have had time for that. In general, I think it has been a good course where I've learned a lot.

	Wouldn't do anything differently. I think I've learned a lot during the period. Maybe I would have gone even deeper into the different methods.
	Collaborated more with the other groups.
	I think it would be good to be able to carry out all the analyses, but time-wise it's not optimal unless the report was changed into something else. But I don't know. If I were to redesign the course, I would require that everyone do all the analyses—maybe with a short report on each analysis—and remove the oral exam. But I must admit that you have to read and understand everything when you know there's an exam. In that way, an exam can be positive.
	I thought the course was perfect as it was, except for the part about presenting "the same thing" twice—the only difference being a PowerPoint and a poster. But then again, maybe it was good to present twice because you got feedback on the first presentation that you could use for the poster.
	Not much, really. I'm very satisfied with the work that was done.

2024:

Question	**Answers (free text)**
Q4	It doesn't make sence to make an experimental plan when we are not allowed to follow it. It seemed like the plan was already made. Also, we couldn't use the time plan for anything.
Q11	One wrote: "Personally I would have prefered that all in the group had made the same analysis since people have different opinion on the same problem. In that way we could have discussed the datatreatment and reporting within the group.
Q17	One wrote: Really good with posters, so you learn to communicate data in an easy understandable way
Q19	one wrote: I think it nice that there were collaboration across groups
	one wrote: I think it was a super awsome way of dividing groups, so you both worked together with those you know and don't know