

Introduction - invitation:

Greetings,

We would like to invite you to participate in our research study comparing the Swiss and Canadian engineering education systems, investigating how to improve materials science practical sessions in undergraduate mechanical engineering programs. This form includes information about the study, your participation in it, and how to contact the research team with any questions you may have. Before you decide to participate, it is important that you understand why this research is being conducted and the potential benefits and risks involved in participation. Please note that your participation is completely voluntary.

You were selected as a potential participant in this study because you are a student in the MSE234 course this semester. We would like to ask for your participation in one or more of a series of questionnaires on your experiences in your MSE234 practical sessions. We will hand out questionnaires after the practical sessions each week.

These questionnaires will be completely anonymous to protect your identity. Submitting your completed questionnaire will indicate your consent for your responses to be used in the study. Due to the anonymous nature of the questionnaires, it is not possible for you to withdraw your responses from the study after submittal. Participation is completely optional; your decision to participate will have no bearing on your course grades.

Please take the time to read this information fully. All data collected in this project is subject to strict data protection rules. If you have any questions or require further information, please do not hesitate to contact the Principal Investigator, Dr. Siara Isaac (siara.isaac@epfl.ch) or the doctoral researcher, Mackinley Love (mackinley.love@ucalgary.ca).

INFORMATION SHEET FOR RESEARCH PARTICIPANTS

A copy of this information sheet should be given to you

Name of the project: Comparing and Contrasting the Swiss and Canadian Engineering Education Systems in Materials Science

This research project has been approved by the EPFL Human Research Ethics Committee (HREC No: HREC0000641 / 22.08.2024).

The research project is conducted by: Dr. Siara Isaac

Institution / Professional address: EPFL AVP-E CAPE

1. General information about the project

This project compares practical sessions in the materials science courses of the mechanical engineering curricula at the EPFL in Lausanne, Switzerland and at the University of Calgary in Alberta, Canada, seeking to identify how national regulation of engineering education in Canada and the lack thereof in Switzerland shapes engineering education in both countries. Practical sessions are a key component of many engineering programs, but there are many calls for improving how students are taught and prepared for their engineering careers. Engineering is a global profession, and the comparison of international institutions provides a great opportunity to develop improvements and benefit engineering practice.

As an international project, data on the EPFL MSE234 practical sessions will be compared to data generated by students and instructors in the ENME421 and ENME521 courses at the University of Calgary. This international project will collect data from September 2025 to April 2026 and analyze this data in the summer of 2026, culminating in a research journal article recommending improvements for practical sessions at both the EPFL and University of Calgary. It is anticipated that approximately 20-50 students and 2-5 practical session facilitators at each institution will participate.

This study is funded by the University of Calgary Taylor Institute for Teaching and Learning.

2. Objectives of the research project (Why this research project?)

The goal of this project is to investigate the effect of national regulation on practical sessions for materials science courses in university mechanical engineering education. Engineering education in Canada is strongly shaped by Engineers Canada, which accredits university programs and regulates the profession. Switzerland does not have such a regulator, but produces a similar quality of engineering graduate, inviting comparison between the two countries. Findings will be used to develop a framework of recommendations for improving materials science practical sessions in both countries.

3. Selection of potential participants (Who has been invited to participate in this study?)

Participation in the questionnaires is open to all students taking practical sessions in the MSE234 course at the EPFL in the Autumn 2025 semester. We are carrying out this project in accordance with the requirements of Swiss and Canadian law.

4. Procedure for participants (What do I have to do / what is expected of me if I decide to participate?)

A paper questionnaire will be handed out to students leaving each of the MSE234 practical sessions during the semester. These questionnaires are designed to be short and only take 10-15 minutes to avoid taking up too much of your time. The questionnaires will ask you about your experiences, engagement, and satisfaction in your MSE234 practical sessions. Once complete, you can submit your responses by returning your questionnaire to a member of the research team.

5. Benefits for participants (What are the possible benefits of my participation?)

There are no direct benefits to you from participating in this project. It is anticipated that the results of this project will lead to improvements in materials science practical sessions at both the EPFL in Switzerland and the University of Calgary in Canada. As such, future MSE234 students will benefit from an improved educational model and delivery of their practical sessions.

6. Risks (What are the possible risks and constraints of my participation?)

As your participation is entirely anonymous and no personally identifying information is collected, there are no risks involved in participating in the questionnaires.

7. Participants' rights (What are my rights?)

Your participation is entirely voluntary. You are free to accept or refuse to participate in the project. However, because the questionnaires are anonymous you cannot choose to withdraw later, as we will not be able to identify your data.

If you choose not to participate, you do not have to justify your decision. This will not put you at a disadvantage in any way. You can ask any questions about the study at any time. Please contact the person listed at the end of this information sheet.

8. Information about the results of the research (Will I be informed about the results of the research?)

You will not be informed about the results of the research, as the anonymous nature of your participation makes it impossible for the researchers to contact you. Of course you can always request more information by sending an email to the Principal Investigator: siara.isaac@epfl.ch.

9. Withdrawal from the project (What if I want to stop participating? What will be the consequences?)

Participation is completely voluntary and you can choose to withdraw from the study at any time before submitting your survey responses; withdrawal will not have any negative effects on you. Due to the anonymous nature of your participation, it will not be possible to identify your questionnaire after submittal, and it is therefore impossible to withdraw after submitting your responses.

10. Compensation for participants (Will I be reimbursed for my participation?)

You will not be remunerated for participating in this project.

11. Contact person(s)

If you have any doubts, concerns or emergencies during or after the study, you can contact one of the following people at any time:

Project manager: Dr. Siara Isaac, +41 21 693 52 89, siara.isaac@epfl.ch
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