ENG-633

Supervising Students in Projects

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Cursus	Sem.	Type
EDOC General and external courses		Opt.

Language of teaching	English
Credits	1
Session	
Exam	Oral
Workload	30h
Hours	**18**
Courses	4
Exercises	8
TP	6
Number of positions	**10**

Frequency

Every year

Remark

Next time: 2025-2026

Summary

The combination of practical and reflective activities in this course provide participants with evidence-informed teaching skills for supervising and evaluating students working on projects.

Content

Projects are an important component of the scientific and engineering curriculum, helping students to develop a wide range of important skills including design skills, team work, and project management. There is an increasing use of projects and labs to enable students to develop both technical and professional skills through complex practical tasks, frequently done in teams.
When supervising practical learning activities, teachers and teaching assistants face numerous challenges such as:

- finding the right balance between guiding students through the steps of an experiment or a project and giving them sufficient autonomy so that they develop into independent scientists or engineers
- supporting students when having to work with incomplete data or to cope with uncertainty in real-life projects
- assessing student work based on reports or presentations while taking into account both individual and group contributions
- helping students to acquire the skills to perform in teams when under pressure and having to meet deadlines

In addition, there is evidence that learning happens from undergoing practical work only if students are driven to reflect and step back from the task to think explicitly about the process. Efficiently supervising "learning-by-doing" activities in science and engineering therefore requires specific teaching skills applicable both to one-to-one interactions and to coaching teams.
Using evidence from research in learning sciences, this course will introduce participants to teaching techniques that address these challenges and specifically apply to project situations. Participants will use opportunities from their role supervising students in projects to practice these techniques and reflect on effective mechanisms for supporting students' learning.

Course structure:

• Experiential session on research-informed strategies for supporting and assessing students in "learning-by-doing" activities (**Feb 2024**; 8 h)

• Monthly online, asynchronous reflective exercises (**March-June 2024**; 8 h independent work)

• Individual coaching and preparing to collect observations for final report (2 h)

• Preparing the final report, including teaching goals, observations and analysis (**Deadline 1 July 2024**; 12 h independent work)

Keywords

teaching; projects; pedagogy; transversal skills

Learning Prerequisites

Required courses

You must be supervising students working on a project concurrent with this course (ie. February-June 2022).

Learning Outcomes

By the end of the course, the student must be able to:

• Formulate achievable/ambitious learning outcomes for students in practical learning contexts
• Design feedback mechanisms to support students' development
• Develop strategies to distinguish students' individual and group contributions to collaborative work
• Describe range of practical and transversal skills students are expected to develop during their projects
• Apply evidence-informed strategies (using questions, giving feedback, structured explamations) when interacting with students during their projects

Transversal skills

• Plan and carry out activities in a way which makes optimal use of available time and other resources.
• Give feedback (critique) in an appropriate fashion.
• Assess one's own level of skill acquisition, and plan their on-going learning goals.
• Take feedback (critique) and respond in an appropriate manner.
• Take account of the social and human dimensions of the engineering profession.

Assessment methods

• Online exercises during the semester 40%

• Final report (including observational data you will collect) 60%

Resources

Bibliography

• Tormey, R. and Isaac, S. (2022). **Facilitating Experiential Learning in Higher Education Teaching and Supervising in Labs, Fieldwork, Studios and Projects.** Routledge.
• Kober, N. (2015). Reaching Students: What Research Says about Effective Instruction in Undergraduate Science and Engineering. Washington, DC: National Academies Press.
• Stevens, Dannelle and Levi, Antonia (2005) Introduction to rubrics
• Svinicki, M.D. & W. J. McKeachie (2013) McKeachie's teaching tips, 14th edition. Independence, KY: Cengage Learning.
• Wakeford, R (2003) Principles of student assessment in Fry, Heather et al. (eds.) A handbook for teaching and learning in higher education, enhancing academic practice, 2nd edition.
• Nilson, L.B. (2010) Teaching at its best: a research-based resource for college instructors. Hoboken, NY: John Wiley & Sons, Inc.
• Cohen, E. (1994) Designing groupwork, 2nd edition.
• Crawley, E et al. (2014) Rethinking engineering education, the CDIO approach, 2nd edition

Ressources en bibliothèque

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• A handbook for teaching and learning in higher education, enhancing academic practice, 5th ed. (2020)
• Nilson, L.B. (2010) Teaching at its best: a research-based resource for college instructors
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Moodle Link

• https://go.epfl.ch/ENG-633