ENG-629

Lecturing and Presenting in Engineering

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Cursus	Sem.	Type
EDOC General and external courses		Obl.

Language of teaching	English
Credits	2
Session	
Exam	Project report
Workload	60h
Hours	**35**
Lecture	15
Practical work	20
Number of positions	**35**

Frequency

Every year

Remark

For PhD via IS-Academia, for Master students https://go.epfl.ch/registering-courses-exams

Summary

Informed by contemporary research on teaching engineering, participants design and deliver lessons for specific audiences. This course is relevant to those who intend to make teaching science or engineering part of their career, in a formal or informal way.

Content

While research has established that learning is an effortful process, which requires students to process information, classroom practices in science and engineering have yet to undergo the transformation necessary to make active and collaborative learning the norm.
This course offers an opportunity to discover and practice effective research-supported strategies for lecturing and presenting in science and engineering. We will focus on techniques that enable students to effectively transfer their skills into practice, that address challenges inherent to different audiences and differences within audiences, and that make effective use of high tech or low tech presentation tools.
The goals of this course are:

- To present research-informed strategies for presenting and explaining in science and engineering.
- To offer intensive opportunities for students to practice interactive lecturing and to receive feedback.
- To provide a framework for continued progress towards personal goals for teaching science and engineering for diverse audiences.

The course has 4 components:
(a) interactive lectures on presenting and explaining in Engineering (15h),
(b) preparatory reading and online actitivites around research evidence on lecturing in Engineering (5h independent work),
(c) skills labs in which participants will give practice lessons and get feedback (20h), and
(d) preparation of 5 mini lessons and a project report describing the evidence base you employed (20h independent work).
This course focuses on lecturing in higher education, and does not lead to a recognized teaching qualification for primary or post-primary schools.
Format
Intensive course in runs for 5 days in March 2022: 3, 4, 11, 18 and 25 March. Each day consists of an interactive morning lecture and afternoon skill labs, preceded by preparatory reading assignment. The final project report is due 11.4.2022.

Keywords

teaching; lecturing; presenting; pedagogy; didactics; learning

Learning Outcomes

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

- Design and facilitate interactive essons using evidence-informed strategies
- Deliver teaching content effectively across different levels of study (Ba,Ma)
- Interpret , elicit, and manage student responses to improve learning
- Use slides/blackboard/paper to present information in a clear, organised manner
- Structure presentations to effectively communicate key messages, including a special focus on how to incorporate and visually represent data
- Differentiate one's own response to a presentation from the message of the presentation

Transversal skills

- Evaluate one's own performance in the team, receive and respond appropriately to feedback.
- Communicate effectively with professionals from other disciplines.
- Communicate effectively, being understood, including across different languages and cultures.
- Assess one's own level of skill acquisition, and plan their on-going learning goals.
- Demonstrate the capacity for critical thinking
- Take feedback (critique) and respond in an appropriate manner.
- Make an oral presentation.

Resources

Bibliography

Carter, M. Designing Science Presentations. eBook: http://www.sciencedirect.com/science/book/9780123859693

Ressources en bibliothèque

- Presence : Bringing Your Boldest Self to Your Biggest Challenges / Amy Cuddy
- Teaching for understanding at university : deep approaches and distinctive ways of thinking / Noel Entwistle
- The MIT guide to science and engineering communication / James G. Paradis, Muriel L. Zimmerman
- Understanding human communication / Ronald B. Adler
- McKeachie's teaching tips : strategies, research, and theory for college and university teachers / Marilla D. Svinicki and Wilbert J. McKeachie
- Learning to teach in higher education / Paul Ramsden ; [with a foreword by Sir David Watson]
- What's the use of lectures? / Donald A. Bligh
- Blindspot : hidden biases of good people / Mahzarin R. Banaji and Anthony G. Greenwald
- Reaching students : what research says about effective instruction in undergraduate science and engineering / Nancy Kober
- Human communication in society / Jess K. Alberts, Thomas K. Nakayama, Judith N. Martin
- Teaching at its best : a research-based resource for college instructors / Linda B. Nilson
- Designing Science Presentations / Matt Carter