



## Programme of workshops for partner's participants involving in realization of ICE\_EDUPAND Project October, 25 - 28, 2021

	Day	Subject (temat)	Meeting leader (prowadzący)	Time and place (termin i miejsce)
I	25.10.2021 Monday (poniedziałek)	Changing the culture of higher engineering education - <i>an overview of education innovation in the first two years of electronic studies at NTNU.</i>	Teachers' team from NTNU (zespół nauczycieli z NTNU)	14.15 - 16.00 TEAMS WE-110
II		Toolbox for innovative engineering education - <i>different methods we use to improve our education</i>		16.00 - 18.00 TEAMS WE-110
III	27.10.2021 Wednesday (środa)	Early innovation project in engineering studies - <i>practical details around planning and organization of innovation project that starts in 1st semester, and continues in 4th semester</i>	Teachers' team from NTNU (zespół nauczycieli z NTNU)	15.15 - 17.00 TEAMS WE-110
	28.10.2021 Thursday (czwartek)	<i>for Polish teachers :</i> Budowanie zespołu. Aspekty komunikacyjne i etyczne pracy w zespole. Metody rozwiązywania konfliktów i problemów.	Joanna Szydło, WIZ	10.15 - 14.00 WE-224
IV		Changing Engineering Mathematics	Teachers' team from NTNU (zespół nauczycieli z NTNU)	14.15 - 16.00 TEAMS WE-110
	29.10.2021 Friday (piątek)	<i>for Polish teachers:</i> Planowanie i organizacja pracy w zespole. Kreatywne narzędzia i metody pracy w zespole.	Aleksandra Gulc, WIZ	9.00 - 13.00 WE-007

# Workshops on education innovation

Department of Electronic Systems at Norwegian University of Science and Technology

We will share our experience with changing the culture of higher education and implementing innovative education methods making our study programme the most attractive engineering programme for students in Norway.

## Workshop I: Changing the culture of higher engineering education (Monday 2-4 pm)

In this workshop we draw a big picture of our ongoing educational journey from traditional teaching to student-active learning based on modern learning theories, technology tools and team-work.

We present different perspectives on the culture change that has evolved, and point out the main success factors.

The participants will have opportunity to discuss issues of interest with our team members, both professors, teaching assistants and students, and to reflect over their own teaching practice and possibilities for its improvement.

Main contributors: Associate Professor Bojana Gajić, Professor Lars Lundheim, Assistant Professor Carl Richard Steen Fosse, PhD fellow Pauline Hardeberg Zimmermann, teaching assistants and students Elias Ørrem and Aria Alinejad

## Workshop II: Toolbox for innovative engineering education (Monday 4-6 pm)

In this workshop we present in more details main methods and tools we have used in order to transform our teaching practice:

- Flipped classroom: video lectures and concept discussions with student response system
- Personal lab equipment opens new possibilities
- One-week design problems, technical reports and peer assesment
- Experience, reflection and training sessions in focus
- Gemification: an alternative approach to basic programming skills



The participants will have opportunity to discuss issues of interest with our team members, and reflect over possible use of presented methods and tools in their own teaching practice.

Main contributors: Associate Professor Bojana Gajić, Professor Lars Lundheim, PhD fellow Pauline Hardeberg Zimmermann, Assistant Professor Arne Midjø

### Workshop III: Early innovation project in engineering education (Wednesday 3.15-5 pm)

In this workshop we present practical details related to the planning, organization, and implementation of the innovation project that our students carry out during the 1st and 4th semester. The project is based on an actual need of an external partner. Each year we choose a new partner with a completely new problem.

The participants will have opportunity to discuss practical aspects of project-based learning with our team members, and reflect over the possible use of this approach in their own teaching practice.

Main contributors: PhD fellow Anders Strømberg, Associate Professor Bjørn Barstad Larsen, Associated Professor Milica Orlandić

### Workshop IV: Changing Engineering Mathematics (Thursday 2-4 pm)

In this workshop we will present our ongoing work with transformation of basic mathematical courses in engineering education in order to enhance their relevance and student motivation. We will present the TIME concept – Thematically Integrated Motivating Examples, and demonstrate the importance of shared responsibility for engineering mathematics courses design between mathematics and engineering departments.

We invite interesting mathematics and engineering teachers to come together to this workshop in order to reflect over possibilities for improving engineering mathematics courses by working together.

Main contributors: Professor Lars Lundheim (Department for Electronic Systems) and Assistant Professor Morten Andreas Nome (Department of Mathematics)