

## Second Train-the Trainer Module at Polytechnic University of Tirana, Tirana

# Agenda

**Project title:** International Engineering Competence Centres to push Sustainable  
Mobility Development in Albania and Montenegro

**Acronym:** INTEC

Work package	Title
<b>WP6</b>	<b>Train-the-trainer Modules &amp; Internal Train-the-trainer Sessions</b>
TASK	Title
6.2	Train-the trainer Module - Training 2

<b>Dates</b>	14 <sup>th</sup> - 16 <sup>th</sup> May 2024 (Arrival date: 13 <sup>th</sup> May, Departure date: 17 <sup>th</sup> May afternoon)
<b>City</b>	Tirana, Albania
<b>Meeting venue</b>	Polytechnic University of Tirana, Tirana
<b>Address</b>	SHESHI NENE TEREZA 4, Tirane, Albania

Tuesday, 14 <sup>th</sup> May 2024		
Venue: Polytechnic University of Tirana, Faculty of Mechanical Engineering, 2nd floor, Room 210		
09:00-09:30	participants registration	
<b>Opening (Open for academic public and press)</b>		
09:30-10:00	Welcome speeches	Prof dr Genti Guxho Dean of Faculty of Mechanical Engineering, PUT
<b>First Session – Train the Trainers Module 2</b>		
10:00-11:30	<ul style="list-style-type: none"> <li>General introduction in electric motors</li> <li>Inverters</li> <li>Speed-Torque diagram</li> <li>Efficiency Curve</li> <li>Basic design of drivetrain</li> </ul>	Martin Gossar – PART 1
11:30-12:00	Open discussion and questions, break	
<b>Second Session – Train the Trainers Module 2</b>		
12:00-13:30	<ul style="list-style-type: none"> <li>General introduction in electric motors</li> <li>Inverters</li> </ul>	Martin Gossar – PART 2

	<ul style="list-style-type: none"> <li>• Speed-Torque diagram</li> <li>• Efficiency Curve</li> <li>• Basic design of drivetrain</li> </ul>	
13:30-14:30	Lunch break 2nd floor	
<b>Third Session Train the Trainer Module 2</b>		
14:30-15:30	<ul style="list-style-type: none"> <li>• EQUATIONS, APPROACHES TO FORECAST ENERGY CONSUMPTION OF EV'S</li> <li>• Motivation</li> <li>• Methods</li> <li>• Longitudinal Models for Mechanics</li> <li>• Modelling electric components</li> </ul>	Karl Reisinger – PART 1
15:30-16:00	Open discussion and questions, break	Coffee break
<b>Fourth Session Train the Trainer Module 2</b>		
16:00-17:00	<ul style="list-style-type: none"> <li>• EQUATIONS, APPROACHES TO FORECAST ENERGY CONSUMPTION OF EV'S</li> <li>• Motivation</li> <li>• Methods</li> <li>• Longitudinal Models for Mechanics</li> <li>• Modelling electric components</li> </ul>	Karl Reisinger – PART 2
19:30	Network Dinner	

<b>Wednesday, 15<sup>th</sup> May 2024</b>		
Venue: Polytechnic University of Tirana, Faculty of Mechanical Engineering, 2nd floor, Room 210		
09:00 - 09:30	INTEC participants registration	
<b>Fifth Session – Train the Trainers Module 2</b>		
09:30 – 11:00	BACKWARDS AND FORWARD SIMULATION TO FORECAST EV'S CONSUMPTION AND RANGE <ul style="list-style-type: none"> <li>• Introduction to Backwards Simulation</li> <li>• Introduction to Forwards Simulation</li> <li>• Comparison, Pro's and Con's, Commercial Simulation Products</li> <li>• Wrap Up</li> </ul>	Karl Reisinger – PART 1
11:00 – 11:30	Open discussion and questions, break	Coffee break
<b>Sixth Session – Train the Trainers Module 2</b>		
11:30 – 13:00	BACKWARDS AND FORWARD SIMULATION TO FORECAST EV'S CONSUMPTION AND RANGE	Karl Reisinger – PART 2

	<ul style="list-style-type: none"> <li>• Introduction to Backwards Simulation</li> <li>• Introduction to Forwards Simulation</li> <li>• Comparison, Pro's and Con's, Commercial Simulation Products</li> <li>• Wrap Up</li> </ul>	
13:00-14:00	Lunch break:	
<b>Seventh Session - Train the Trainers Module 2</b>		
14:00- 15:00	<ul style="list-style-type: none"> <li>• Introduction to testing bays (virtual tour through FHJ testing bay, required infrastructure, measurands and sensors,...)</li> <li>• Chassis dynamo testing rig (structure, standard and laws, measurement procedure for ICE, HEV, PHEV, EV)</li> </ul>	Thomas Lechner – PART 1
15:00-15:30	Open discussion, questions	
<b>Eighth Session - Train the Trainers Module 2</b>		
15:30- 17:00	<ul style="list-style-type: none"> <li>• Introduction to testing bays (virtual tour through FHJ testing bay, required infrastructure, measurands and sensors,...)</li> <li>• Chassis dynamo testing rig (structure, standard and laws, measurement procedure for ICE, HEV, PHEV, EV)</li> </ul>	Thomas Lechner – PART 2

<b>Thursday, 16<sup>th</sup> May 2024</b>		
Venue: Polytechnic University of Tirana, Faculty of Mechanical Engineering, 2nd floor, Room 210		
<b>Ninth Session - Train the Trainers Module 2</b>		
09:00-09:30	Participants registration	
09:30 - 11:00	<ul style="list-style-type: none"> <li>• Portable emissions measurement system (PEMS): Structure, standard and laws, measurement procedure, calculation of results</li> <li>• Forecast to EURO 7•</li> </ul>	Thomas Lechner – PART 1
11:00-11:30	Open discussion, questions, coffee break	
11:30-13:00	<ul style="list-style-type: none"> <li>• Portable emissions measurement system (PEMS):</li> </ul>	Thomas Lechner – PART 2

	Structure, standard and laws, measurement procedure, calculation of results • Forecast to EURO 7	
13:00 – 14:00	Lunch break:	
<b>Tenth Session - Train the Trainer Module 2</b>		
14:00 - 14:30	Survey, feedback on the training	Trainers explain how the survey is done
14:30 – 15:30	INTRODUCTION TO MECHATRONICS • Motivation to use Embedded Systems • Development Process • SPICE, Requirements Management • Functional Safety, ISO 26262, fail operating / fail silent • Bus Systems • Introducing Mechatronics at FHJ on example clutch control • Wrap Up	Karl Reisinger – PART 1
15:30 - 16:00	Open discussion, questions, break	Coffee break
<b>Eleventh Session - Train the Trainer Module 2</b>		
16:00 – 17:00	INTRODUCTION TO MECHATRONICS • Motivation to use Embedded Systems • Development Process • SPICE, Requirements Management • Functional Safety, ISO 26262, fail operating / fail silent • Bus Systems • Introducing Mechatronics at FHJ on example clutch control • Wrap Up	Karl Reisinger – PART2
17:00 – 17:30	Discussion and conclusions of the Third Train-the Trainer Module	All participants

<b>Friday, 17<sup>th</sup> May 2024</b>	
Venue: Polytechnic University of Tirana, Faculty of Mechanical Engineering, 2nd floor, Room 210	
<b>Site visit</b>	
09:00–12:00	Participants registration and site visit in Tirana – DPSHTRR

### Polytechnic University of Tirana

