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UNITED

Engineering Knowledge Transfer Units to Increase Student´s Employability and Regional Development

Work Package 2 – Capacity Building

2.1 Training plans and materials development

WP 2. 1 Training Plan

Lecture Plan for the four trainings

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TRAINING PLAN

- **each number indicates one training with a duration of 4-5 days**
- **training content: 3 - 3 ½ days, depending on site visits and project management content**
- **~6 hours of presentations and/or workshops per day**

Title	Main topics	Trainers	Date	Venue
Electric Powertrain	Electric/Electrified powertrain concepts and system layout: ○ Components and design criteria ○ Energy management, supply and storage systems ○ EV design (standard and ways to test their performance) for small-medium vehicles for agricultural/logistic activities ○ Operational strategy	PTT	17.09 – 20.09.2019	UNUD – Denpasar, Bali (IND)
	Electric/Electrified powertrain embedded software systems: ○ Electronic systems and requirements engineering ○ Process models and development processes in the automotive industry	FHA		

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	○ Simulation model and software development and their fields of application ○ ADAS (Advanced Driver Assistance Systems) Overall IT connectivity: ○ Automation in modern automobile ○ Regulation ○ Communication ○ Standard Protocol (PTT)	PTT		
From ICE to Alternative Powertrain	Sustainable urban mobility planning (SUMP) ○ Traditional transport planning vs. SUMP ○ Objectives, Scope, main characteristics, benefits ○ "Planning Cycle" ○ Workshop session, how to make my city sustainable Low CO2 ICE efficiency: ○ Low fuel consumption ○ Combustion simulation	FHA FHA+PTT	04.11. – 8.11.2019	UTeM – Melaka (MYS)

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	○ Simulation tools (CAE) Hybrid and alternative fuels: ○ Alternative fuels (biodiesel, hydrogen energy / hydrogen powered vehicle) ○ Hybrid powertrain Project management meeting	 FHJ FHJ		
Vehicle Design + Dynamics	Vehicle Dynamics: ○ Longitudinal dynamics (Karl Reisinger) ○ Lateral dynamics (single track model) (Karl Reisinger) ○ Vehicle dynamics simulation (PTT) ○ Control systems (PTT) ○ Vertical dynamics (PTT) Future Mobility / Vehicle concepts / Body Design / Safety:	FHJ + PTT FHA	09.12 – 12.12.2019	USU – Medan (IND)

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	○ Future mobility ○ Vehicle conceptions ○ Automotive body engineering (structures & trim) ○ Body-practical session – section book and CAD ○ Vehicle safety & crashworthiness			
Mechatronic Systems in Automotive Engineering + Testing Bays	Development process for mechatronic systems: (1,5 days) ○ V-Model ○ Model-in-the-loop ○ Hardware-in-the-loop ○ Application by XCP on CAN-BUS Testing Bays: (2 days) ○ General Introduction ○ Chassis dynamometer ○ Exhaust gas measurements ○ Laboratory example: Accurate E-power measurement, efficiency map	FHJ + FHA	10.02. – 13.02.2020	MSU – Mahasarakham (THA)

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