Co-funded by the Erasmus+ Programme of the European Union

EACEA 586029-EPP-1-2017-1-RS-EPPKA2-CBHE-SP
IMPLEMENTATION OF DUAL EDUCATION IN HIGHER EDUCATION OF SERBIA

DualEdu
Erasmus+

Presentation of results from DualEdu project

Academy of Technical and Art Applied Studies

Scholl of Electrical anad Computer Engineering

dr Goran Dikić

WP4, DEVELOPMENT

- **Title:** Pilot testing of the flexible and generic DHEM
- **Lead Organisation:** School of Electrical and Computer Engineering of Applied Studies [**VISER**], Serbia

WP4 Analysis (Prepared Report)

- ✓ 4.1 Identification and conceptual definition of specific DHEMs

Title of document:	Description and Concept of Specific DHEMs of HEIs
Work package:	WP 4: Pilot testing of the flexible and generic DHEM
Activity:	4.1. Documents on description and concept of specific DHEMS of HEIs
Last version date:	07/10/2019
File name:	Specific DHEM dveloped at VISER v3.0
Number of pages:	19
Dissemination level:	Consortium

WP4 Analysis (Prepared Report - Content)

✓ 4.1 Identification and conceptual definition of specific DHEMs

1.	**Introduction**	**P.7**
2.	**Implementation of the Dual Higher Education Model**	**P.8**
3.	**Legal conditions for the realisation of the DHEM**	**P.13**
3.1.	Defining relations between the student, the employer and the institution of higher education	P.14
3.1.1.	Agreement on the Dual Higher Education Model	P.14
3.1.2.	Agreement on learning through work	P.16
3.2.	Register of agreements	P.17
3.3.	Mentoring at the employer's	P.18
3.4.	Grading and exams in the Dual Higher Education Model	P.18
3.5.	Material and financial support for students	P.18
3.6.	Supervision and penalties	P.19

WP4 Analysis

✓ 4.1 Identification and conceptual definition of specific DHEMs

Completed activity

In accordance with Article 6 of the Law on Dual Model of Higher Education, it is envisaged to study through work with at least 450 hours a year, on average, at the level of the entire study program.

Specific DHEM has been developed at VISER (P11). Dual education at VISER (Master level) is organised in form of

Student Intership 1	- 6 ESPB	(first year)
Student Intership 2	- 6 ESPB	(second year)
Applied Research Work	- 8 ESPB	(second year)
Master Thesis Work	- 16 ESPB	(second year)

WP4 Analysis

✓ 4.1 Identification and conceptual definition of specific DHEMs

Course	Semester:	Number of active classes (hours)
Student Internship 1	2nd	180
Student Internship 2	3rd	180
Applied Research Work	4th	240
Master Thesis Work	4th	480
TOTAL:		**1080**

WP4 Analysis (Course strucuture)

- ✓ 4.1 Identification and conceptual definition of specific DHEMs

Course	Status (compulsory or elective)	Lectures (no.)	Practical classes (no.)	ECTS
FIRST YEAR				
1st semester				
Research methods	C	2	2	6
Students choose three of the electives offered				
Automotive Transmissions	E	3	3	8
Energy Sources in Power Systems	E	3	3	8
Measuring Information Systems	E	4	3	8
Design of Electrical Power Converters	E	3	3	8
Design of Electronic Devices	E	3	3	8
Gasoline Direct Injection Systems	E	3	3	8
2nd semester				
Students choose three of the electives offered				
Digital Systems Using Programmable Logic	E	3	3	8
Diagnostics of Diesel Injection Systems	E	4	3	8
Smart Grids	E	4	3	8
Signal Processing	E	4	3	8
Control of Power Quality	E	4	3	8
Process Control	E	4	3	8
Internship 1	C			6
Total ECTS per year				**60**

WP4 Analysis (Course strucuture)

- ✓ 4.1 Identification and conceptual definition of specific DHEMs

Course	Status (compulsory or elective)	Lectures (no.)	Practical classes (no.)	ECTS
SECOND YEAR				
3rd semester				
Students choose three of the electives offered				
Communications Standards and Technologies	E	3	3	8
Automated System Design and Implementation	E	4	3	8
Computer-Aided Design of Electric Power Substations	E	4	3	8
Special Electrical Installations	E	4	3	8
Telecommunication Measurements	E	4	3	8
Hybrid and Electric Vehicles	E	4	3	8
Internship 2	C			6
4th semester				
Entrepreneurship and Incentives in the Field of Electrical and Computer Engineering	C	3	3	6
Applied Research	C			8
Master Thesis	C			16
Total ECTS per year				**60**

WP4 Analysis

✓ 4.1 Identification and conceptual definition of specific DHEMs

Table. The structure of students' work with the employers

	2nd semester								3rd semester				4th semester							
Month	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	I	II	III	IV	V	VI	VII	VIII	IX
Hours spent at the employer's		60	60	60					60	60	60		60	130	130	130	130 170*	140 100*		
Total		180							180				240+480=720							

* alternatively

The complete prepared reports can be viewed at the following links:
Specific DHEM, VISER,eng. and Specific DHEM, VISER, srb.

WP4 Analysis

- ✓ 4.4 Purchase of equipment;
- All equipment has been purchased, delivered and installed :

Nature, type and specifications of the item	Amount charged to the project (in EUR)
HIOKI PQ3100 ANALYZER +SDHD MEM. CARD 2GB+HIOKI CT7736 CURRENT SENSOR +L9910	6.569,59
LARA-100 Power Box- (LARA 100 motherboard, LARA 100 card for pluging into network, LARA 100 card for power drive, LARA 100 communication board, LARA 100 general purpose card (GPIO), PERUN PowerDesk software - permanent licence)+Power part, inverter 5.5kW	6.278,20
LUCAS NUELLE LNEPR-1 Set of electric drives Lucas Nulle 1	9.275,59
LUCAS NUELLE LNEPO-2 Set of electric drives Lucas Nulle 2	19.076,28
	41.199,66

WP4 Analysis

- ✓ 4.4 Purchase of equipment:
- ✓ HIOKI PQ3100 ANALYZER +SDHD MEM. CARD 2GB+HIOKI CT7736 CURRENT SENSOR +L9910







WP4 Analysis

- ✓ 4.4 Purchase of equipment:
- ✓ LARA-100 Power Box+Power part, inverter 5.5kW





WP4 Analysis

✓ 4.4 Purchase of equipment

- ✓ LUCAS NUELLE LNEPR-1 Set of electric drives Lucas Nulle 1+2



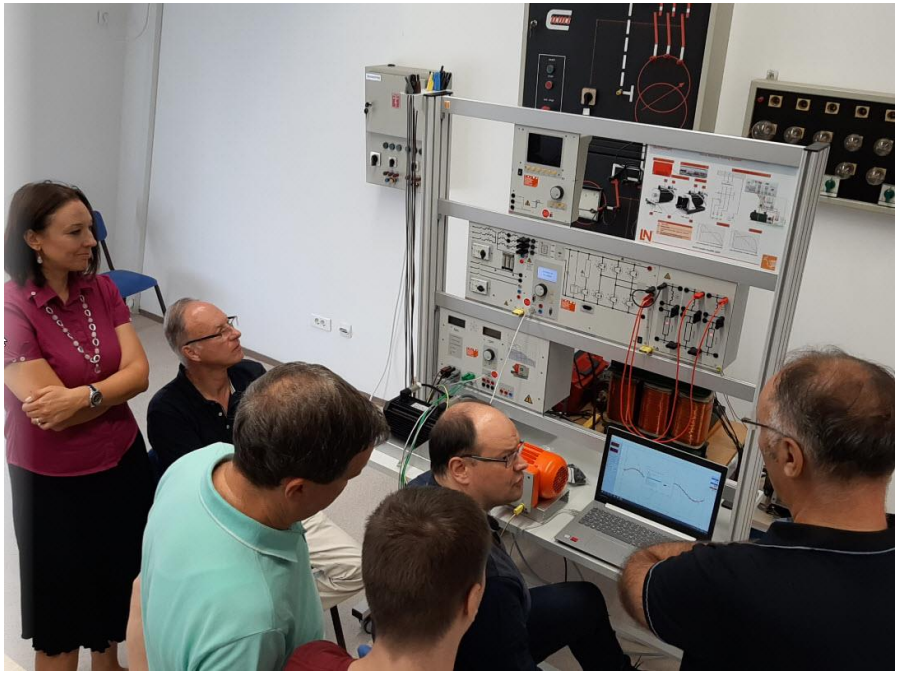


WP4 Analysis

✓ 4.4 Purchase of equipment

- ✓ Installation of the obtained equipment Lucas Nulle and training





WP4 Analysis

✓ 4.4 Purchase of equipment

- ✓ Installation of the obtained equipment Lucas Nulle and training



The complete prepared reports can be viewed at the following links:
Report Purchase of equipment v 2.0 eng. and Report Purchase of equipment v 2.0 srb.

WP4- Analysis

4.5 – Development of training materials



WP4- Analysis

4.5 – Development of training materials

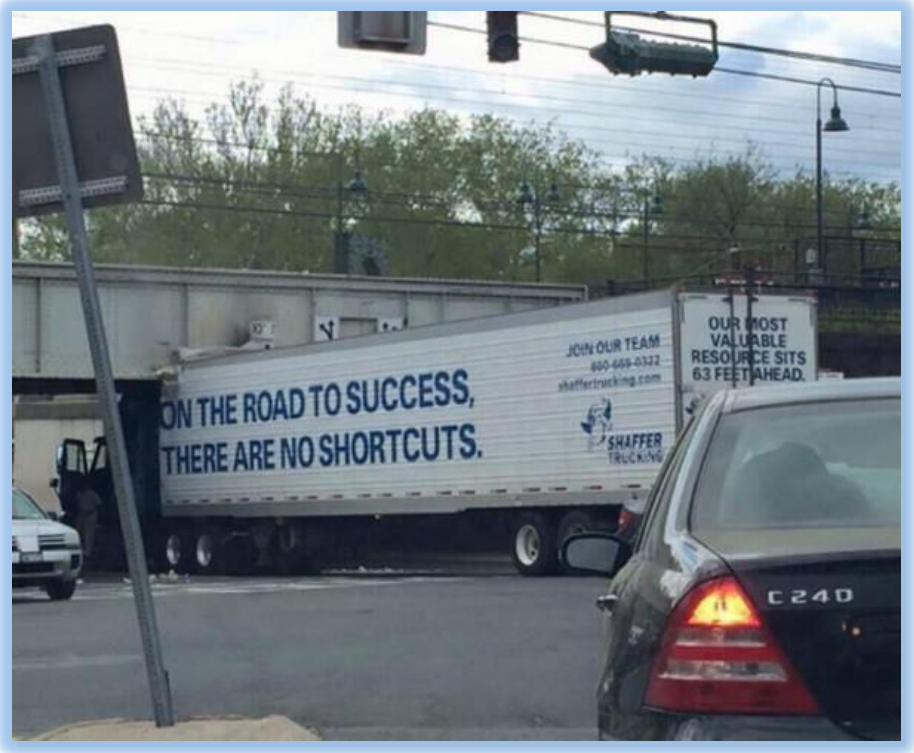


WP4 Analysis (Prepared Report)

- ✓ **4.7 Analysis of the results of pilot testing of each of specific DHEM of HEI partners from Serbia**

Title of document:	"Result of pilot testing of specific DHEM with HEI from Serbia".
Work package:	WP 4: Pilot testing of the flexible and generic DHEM
Activity:	4.7 Analysis of the results of pilot testing of each of specific DHEM of HEI partners from Serbia
Last version date:	28/06/2021
File name:	Report 4.7.1 ANALYSIS OF THE RESULTS OF PILOT TESTING OF EACH OF SPECIFIC **DHEM** OF **HEI** FROM SERBIA
Number of pages:	14
Dissemination level:	National and website

THANK YOU FOR YOUR ATTENTION!



Parole: ON THE ROAD TO SUCCESS, THERE ARE NO SHORTCUTS