

Training of Trainers Workshop at the Technische Hochschule Ostwestfalen-Lippe (TH OWL)

Event type	Workshop
WP Number	WP3
WP Leader	NTUA
Event date	08.05.2023-12.05.2022
Number of Participants	15
Total number of pages	14

Project Coordinator

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1 Event Description

The training workshop at the TH-OWL was focused on the fundamentals and the application of electrical machines and drivers, as well as on Hydrogen production and use. The workshop included theoretical lectures and practical investigations in the laboratories of TH OWL.

On the first day, after welcoming word, the participants were introduced to the week's program and the courses of cluster 8 (electrical machines and drivers). This was followed with lectures about the fundamentals of electrical machines (function principles, components and control devices). The day was closed with free time to visit the city Höxter and the event "flower exhibition Höxter 2023". The second day started with a Trip from Höxter to Lemgo. In Lemgo the participants were welcomed by the vice President of the University, Prof. Stefan Witte, who presented the University and its departments, research focus and its international cooperation. After a short coffee break, the innovation campus Lemgo was Introduced and the participants have visited the laboratories of the innovation campus Lemgo, including the process automation center, presentation of the project Monocab (automated driven electrical vehicle), as well as energy storage laboratory (Power to Gas and Hydrogen plants). The day was closed with the travel back to Höxter.

On the third day, the participants travelled again to Lemgo. There, some lectures about **fuel cells, charge systems and hydrogen production** have been held and the participants could get an insight into the challenges of the operation of charge station systems. Afterward, 2 lectures about smart Factory and Future Food Factory and Innovation center have been held. A visit to the mentioned centers followed the lectures, so the participants could have a real idea of the practical set ups. The day was closed with the travel back to Höxter.

During the fourth day, 2 interactive Lectures about the types of practical electrical machines with examples and exercises have been held. The participants could be active participate the discussion of the demonstrated examples. In the afternoon, the participants started with execution of experiments in the laboratory of the department of renewable energies and decentralized energy supplying. Participants could get information on the infrastructure required for conducting research and teaching on different aspects of electro-mobility, fuel cells and smart grids.

On the last day, the participants could continue the execution of experiments in the Department of renewable energies laboratory and decentralized energy supplying (production of Hydrogen with fuel cells and investigation of the effectiveness of different batteries). The detailed agenda and some photos follow in the next paragraphs.

2 Agenda

Below, the agenda of the workshop can be found.

Agenda of the Workshop

Venue: The Seminar Room 3105 at TH-OWL - Höxter / Ground floor and partly in Lemgo

Day 1: Monday, May, 08 th , 2023	
9:00 – 9:30	Registration
9:30 – 10:30	<ul style="list-style-type: none"> - Welcome by the local Coordinator, Prof. Salman Ajib and by Prof. Martin Oldenburg, vice dean of Faculty of environmental engineering and Applied informatics-TH-OWL. - Presentation of the workshop training program by Prof. Salman Ajib
10:30 – 11:00	Coffee break
11:30 – 13:00	Presentation and discussion of the courses of Cluster 8 (presentation and discussion of the prepared contents of the courses; Prof. Salman Ajib): <ul style="list-style-type: none"> - FG 1 (Electrical Machine and Drives, Power Electronics and Charging Systems, ...) - FG 2 (Electrical Machine and Drives) - FG 3 (Control System)
13:00 – 14:00	Lunch break
14:00 – 16:30	Lectures about the electrical machines and drivers (Prof. Salman Ajib)
16:30-17:00	Summary of the first day (Prof. Salman Ajib)

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Agenda of the Workshop

Day 2: Tuesday, May, 09 th , 2023	
08:30 – 10:00	Travel from Höxter to Lemgo
10:00 – 12:30	<ul style="list-style-type: none"> - Welcome by vice President of TH OWL, Prof. Stefan Witte - Introduction of innovation campus Lemgo - Visit of the departments (laboratories) of the innovation campus Lemgo, M.Sc. Timo Broeker.
12:30-13:30	Lunch break
13:30-14:00	Travel to the location of Monocab project (in the near of Lemgo).
14:00 – 15:00	Introduction of the project Monocab (automated driven electrical vehicle), M.Sc. Martin Gries,
15:00 – 17:00	Visit of power plant center (Power to Gas and Hydrogen plants), M.Sc. Timo Broeker.
17:00	Travel back to Höxter

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Agenda of the Workshop

Day 3: Wednesday, May, 10 th , 2023	
08:00 – 09:30	Travel from Höxter to Lemgo
9:30 – 12:30	Lectures at the fields of fuel cells, charge systems and hydrogen production
12:30-13:30	Lunch break
13:30-15:00	Visit and introduction of smart Factory in Lemgo (Mr. Timo Broecker)
15:00 – 15:30	Coffee break
15:30 – 17:00	Visit of Future Food Factory and Innovation center, M.Sc. Timo Broecker,
17:00	Travel back to Höxter

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Agenda of the Workshop

Day 4: Thursday, May, 11 th , 2023	
9:00 – 9:30	Welcome, registration and feed back
09:30 - 12:30	Lectures and exercises about the electrical machines and drivers (Prof. Salman Ajib)
12:30-13:30	Lunch break
13:30-16:00	Execution of experimental Investigations in the laboratory of the department of renewable energies and decentralized energy supplying.

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Agenda of the Workshop

Venue: The Seminar Room 3105 at TH-OWL - Höxter

Day 5: Friday, May, 12 th , 2023	
9:00 – 09:30	Welcome, registration and feed back
09:30 – 11:30	Execution of experimental Investigations in the laboratory of the departement of renewable energies and decentralized energy supplying.
11:30 – 12:00	Coffee break
12:00 – 13:00	Continuing of of experimental investigations in the laboratory of the departement of renewable energies and decentralized energy supplying.
13:00 – 14:00	Lunch break and finalization of the workshop.

3 Attendance sheet





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ERASMUS+ PROGRAMME
Project Number: 618509-EPP-1-2020-1-JO-EPPKA2-CBHE-JP
ECO-CAR Project
"Vocational Training Diploma on Electrical and Hybrid Vehicles"
Staff Training Workshop – at Technische Hochschule Ostwestfalen-Lippe (TH-OWL)
May 8th – 12th, 2023

No.	Participant Name	Institution	Signatures				
			Mon. 08.05.23	Tues. 09.05.23	Wed. 10.05.23	Thurs. 11.05.23	Fri. 12.05.23
1.	Prof. Mahmoud Irshidat	UJ					
2.	Dr. Mohammad AlRba'i	UJ					
3.	Eng. Muneer Tarad	JUST					
4.	Dr. Hesham Al Salem	TTU					
5.	Dr. Wail Adaileh	TTU					



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No.	Participant Name	Institution	Signatures				
			Mon. 08.05.23	Tues. 09.05.23	Wed. 10.05.23	Thurs. 11.05.23	Fri. 12.05.23
6.	Eng. Radi Al-Rashed	HTU					
7.	Eng. Ahmad Azzam	HTU					
8.	Eng. Ayham Alra'oush	ASU					
9.	Mr. Ahmad Alshibli	ASU					
10.	Dr. Mohammad Alfrihat	BAU					
11.	Eng. Imad Addous	BAU					
12.	Eng. George Al-Ghishan	ZUJ					
13.	Dr. Najat Al-Masarwah	MU					
14.	Eng. Bashar Altarawneh	MU					



The table is a handwritten schedule with 7 columns representing days and 7 rows representing dates. The columns are labeled: '7', 'Frid. 12.5.', 'Mond 8', 'Tues. 9.5.23', 'Wed. 10.5.23', and 'Thursday 11.5.23'. The rows are numbered 15 to 21. Row 15 contains the name 'Timo BREKER'. Row 16 contains the name 'M. Nour Bakr'. Row 17 contains the name 'Wolfgang Lanjme' and the text 'TH OWL' followed by 'Uhr' in each of the remaining columns. The table is signed with large handwritten signatures across the top right. Logos for ECO-CAR, TH OWL, and the Erasmus+ Programme are visible at the top of the page.

	7	Frid. 12.5.	Mond 8	Tues. 9.5.23	Wed. 10.5.23	Thursday 11.5.23
15.	Timo BREKER					
16.	M. Nour Bakr					
17.	Wolfgang Lanjme	TH OWL	Uhr	Uhr	Uhr	Uhr
18.						
19.						
20.						
21.						

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4 PPTs for training material

<https://drive.google.com/drive/folders/1IsZSO90LZtrn0-iX9XUhhWWqCt4c6Y8J?usp=sharing>

5 Photos

An excerpt of photos is shown below:



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