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University of Belgrade

Implementation of Dual Education in Higher Education of Serbia

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Faculty of Mechanical Engineering

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REPORT

TRANSFER OF KNOWLEDGE AND SKILLS FROM PROGRAMME COUNTRIES INSTITUTIONS TO SERBIAN HEIs

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Abstract	This report represents the minutes of all the study visits to programme countries institutions due to the transfer of knowledge and experience in the field of DHE.

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Activity Date: 03/19-20/2018; 04/18-19/2018; 05/03-04/2018; 05/21-22/2018, 09/23-24/2019, 07/12-14/2021

Organizer: University of Belgrade

Location: various

Present: Persons form Serbian HEI

Report:

It is conducted 6 study visits to programme countries institutions according to following order and dates:

1. FORMASUP NORD PAS-DE-CALAIS, FRANCE: 03/19-20/2018
2. University of Lieida, Spain: 04/18-19/2018
3. FH JOANNEUM, Graz, Austria: 05/03-04/2018
4. University of Social Sciences, Lodz, Poland: 05/21-22/2018
5. POWMIO company, Karlsruhe, Germany: 09/23-24/2019
6. University of Lieida, Spain: 07/12-14/2021

The representatives of following Serbian institutions took part in study visits: University of Belgrade, University of Novi Sad, The School of Electrical and Computer Engineering of Applied Studies, Belgrade Metropolitan University, University of Kragujevac, NiCAT Cluster, State University of Novi Pazar.

The representatives from Serbian partner institutions carried out visits to programme countries institutions where every visit has lasted at least for 2 days. The aim of visits was to acquaint Serbian representatives with practice in dual education system in higher education in EU.

The first visit happened to FORMASUP in France, as it was leading organization in European Project by writing a Handbook on Cooperative and Work Integrated Hidher Education, along with the fact that it represents 4800 co-op (dual education) students. The organizer was Nathalie Leroy.

The Serbian representatives had chance to get acquinted with French model of dual education in the high education with emphasis on student work integrated learning under contract, with

presentations of experience from FORMASUP partners and network. Specifically, the relations between the student-company-university, as involved actors, was decribed with following:

- Presentation of the PBL (Problem based learning) in schools for engineers by Mr Fabrice MAERTEN, from the CESI School located in Arras
- Presentation of the interculturalism in the engineering institutes IMT by Mrs Andréa HEMBISE & Mr Alan WARE, from the IMT Lille-Douai (Institut Mines Télécom)
- Presentation of "the english's learning by the peer" process at university by Mr Pierre-Loup LESAFFRE, from the IUT of Lille (Institute of Technology)
- Presentation of the Regional Council's place for the apprenticeship's establishment of apprenticeship trainings by Mr Nicolas BOISSEL & Mr Boussad HADDADI
- Presentation of the IUT/training (Institution of technology) and PBL process by Mr Philippe BODART, from the IUT of Lille.
- Presentation of the model of apprenticeship in a business school , with the EDHEC example, by Mrs Elodie DESRUMAUX
- Presentation of a coop learning in an engineering school and concerning research and innovation, with the case of the ENSIAME school, by Mr Dominique DENEUX
- Presentation of the engineering school ENSAIT and coaching by a school tutor by Mr Vladan KONCAR
- Presentation by Mr Ertan GOK, former apprentice of IMT and project manager at "Lille Métropole"

Also, the Serbian representatives had chance to get insight in dual education system on spot, by visiting companies which recruit students from high education in order to hear needs and benefits of companies involved in co-op system. Thus, it was visited companies:

- EDF BOUCHAIN EDF site in Bouchain (EDF, Bouchain's thermal site : Alley of the Vigilence, 59111 Bouchain
- Euratechnologies site by Mrs Clémence CHIQUET and the CITC by Mrs Karima MOUHEB

Afterwards, the key actors-students/apprentices (Miss Marion LAOUADI, Sciences Po Lille, Miss Céline LESTARQUIT, Sciences Po Lille, Mr Alexandre COURANT, Télécom Lille, Mr Dylan LELIEVRE, IAE Lille) had shared their experience with co-op system.

The second visit was conducted at University of Lleida, as institution which began with dual education (coop education) some years ago. The organizer was Ferran Badia.

The study visit was performed within the form of the workshop which was focussed in presenting 4 experiencies with coop education: the master in industrial engineering, master in informatics engineering, the industrial doctorate program, and the degree in primary education.

For each program, there has been a general presentation given by the coordinator of the program who is, at the same time, academic tutor of students. There has been also a presentation of one student for having also their point of view. The involved persons are given in following table.

1.	Industrial Engineering	Albert Castell, Program coordinator, EPS Pol Vaque, student, Sorigue
2.	Informatics Engineering	Josep Lluís Lérida, Program coordinator, EPS Josep R, Freixanet, GFT Jordi Sapés, Student, Sallen
3.	Industrial Doctorate	Olga Martín, Director. Doctorate School Vitor da Silva, PhD student, Lleida.Net
4.	Primary Education	David Aguilar, FEPTS Mar Melé, Student

Finally, there has been a presentation by one responsible person of one of the companies participating in each program, given below.

The program has been completed with two visits to two companies participating in coop education at the University of Lleida:

- Payper *(Joan Arjó - Tutor, Andreu Canut - Student)*
- BonÀrea (*Xavier Moreno- Human Resources, Viviana Dajer-Tutor)*

There, the Serbian representatives were informed by the representatives of companies, as well as students involved, about coop system with accompanied discussion.

The third visit took place in Graz at FH JOANNEUM, University of Applied Sciences. The organizers were Johannes Haas and Maja Dragan and visit was welcomed by the Head of the Institute Georg Wagner.

The visit started with visit of the company Fuchshofer Präzisionstechnik GmbH (responsible person was Mrs. Bäck) near Graz where Serbian representatives had chance to see, on spot, engagement of 1 student (Mr. Schein, studying Production Technology and Organization) in relation to company and his tutor-Dr. Georg Wagner who was also present. The discussion with open questions from Serbian representatives was performed with involved actors in relation

student-company-univesity where owner of the company Mr. Fuchshofer had presented good opinion and experience of dual study system. Also, the Serbian group had chance to visit company PIA Automation GmbH in Grambach, near Graz. The head of their HR, alond with dual education student Mr. Haar, answered many questions.

After the visits of companies, there was conducted presentations and discussion at FH JOANNEUM about their experience with dual education, with following topics:

- Concepts of dual higher education – characterization and differentiation of models
- Getting started with dual higher education – Success factors and barriers

The leading presenter was DI Johannes Haas, as highly experienced person in the field of dual education system. Along with Mr. Hochrinner, he descibed, in detail, possible issues when dual education is to be introduced at University level. At the end, the student of master program Mr. Manuel Pichler has described his experience on the dual study education.

The forth visit was done at University of Social Sciences (UoSS) Spoleczna Akademia Nauk, Lodz, Poland. This institution organized a Seminar for the presentation of good practices and exchange of experience on conducting studies in cooperation with employers, performed by speakers from Poland invited by UoSS. They represented Polish universities providing dual education and companies participating in this type of higher education programs. Among the invited speakers there were representatives with following topics:

- Łukasz Prysiński, Vice Dean in UoSS, gave the speech: *Cooperation with the economic environment as a way to improve the quality of education in the University of Social Sciences*
- Professor Krzysztof Krysieniel, representing WSB Universities in Chorzow, presented the speech: *Dual studies in Poland - main problems and challenges*
- Professor Katarzyna Szczepańska-Woszczyna, as a representant of WSB University in Dabrowa Gornicza, presented speech: *Dual studies - strategy, quality, models – case study of the WSB University*
- Wioletta Cichla from Sitech Sp. z o.o. presented speech: *Dual studies in SITECH Company. Benefits for the organization.*
- Agnieszka Kociałkowska from State School of Higher Vocational Education in Leszno presented the speech: *The concept of dual studies in PWSZ Leszno.*
- Adrian Wilisz, LINK Sp. z o.o., gave a presentation: *Educational program - specialization „Coordinator of Autonomous Vehicles" in the Logistics field of studies in UoSS*

The University of Social Sciences presented its model of practical higher education and cooperation with business and also the model of diploma projects realized by students in enterprises, on the example of Capstone Projects, prepared as an element of the Clark University study programme.

The speakers' presentations during the Seminar allowed the Serbian participants of the meeting to gather basic information related to the implementation of dual studies in Poland and to compare different models of such education used by Polish Universities. A valuable source of information on the Polish model of dual studies were presentations of representatives of enterprises cooperating with universities. They allowed to get to know the employers' perspective and basic problems and benefits resulting from participation in dual education programs.

Afterwards, guests from Serbia had chance to visit company:

- Hortex Production Plant in Skierniewice,

where Mr. Radosław Płotkowiak - the Plant Director and, at the same time, the UoSS student, gave the practical aspects of student projects developed and implemented in the workplace (Capstone Projects).

The fifth visit was held by POWMIO company from Karlsruhe, Germany. On the opening of the study visit, Mr. Dejan Ilić from POWMIO greeted all participants and gave introduction of the planned activities. Afterwards, study visit participants from Serbia were also greeted by the Ms. Rebecca Schnell from K3 – she also gave brief introduction of the K3 activities in the area of dual education in Germany. After the break, prof. dr Schnekel from DHBW Karlsruhe presented basic principles of dual education models in higher education in Germany. He also discussed the main objectives and advantages of dual education proposed by the German government. Prof. dr Terzidis from KIT EnTechnon presented different perspective of dual education system – from the side of Karlsruhe Institute of Technology. He discussed the difficulties which should be overcome in order to achieve successful dual education system in higher education on the state level.

At the second day of the study visit, the experience of the POWMIO company in dual education in Germany was presented and discussed in details by Tirdad Rahmani (employee of the POWMIO). After that, presentations from Serbian partners were presented to hosts – including in-depth discussion of challenges the partners are facing in Serbia with the implementation of the dual education principles in higher education system.

The study visit was completed by the visit to the technological park in Karlsruhe, where different companies have shown their capacities and shared their experience in dual education with visitors from Serbia.

The final (sixth) study visit was organised again by the University of Lleida (UDL) in Lleida, Spain. It was originaly planned that this visit will be held by the FORMASUP (France), but, because of the COVID-19 pandemic, the original plan was changed.

At the beginning of the study visit on July 12th 2021, after the registration of the present participants, professor Ferran Badia Pascal welcomed all with the brief introduction of activities UDL performed within DualEdu project. He also presented main research and scientific capacities of UDL, as well as some interesting projects UDL performed in the previous period in the area of dual education in Spain.

After that, prof. Nenad Zrnić (Project Coordinator) introduced present participants to the DualEdu project progress and activities which need to be successfully finished before the end of the project realisation. He also emphasized the importance of the final steps which will provide the sustainability of the DualEdu project results. The future accreditation of dual studies in Republic of Serbia was also discussed in details – where all partners from Republic of Serbia presented the pilot study programmes, they developed and piloted. The very important advices for successful implementation of future dual education study programmes implementation in Serbia were given by the prof. Helge H. Hochrinner (FH Joanneum Gesellschaft M.B.H) – who was also present during the meeting.

On the second day of the study visit (July 13th 2021), the challenges off accreditation of dual study programs in Spain were presented to participants by prof. Ferran Badia Pascal and prof. Margarita Molto (UDL). The key challenge they identified was to establish solid connection between companies and universities – according to the relevant national legislation. Also, Albert Castell, Margarita Molto and Miguel Nogues discussed the role of tutors in dual education (both industrial and educational) as a key factor which affects the quality of performed dual studies. After that, the Director of the Doctorate School from UDL – prof. M. Angels Balcells presented the dual education on the Ph.D. level in Spain. The special attention was paid to industrial doctorates – an approach different from traditional education system, where Ph.D. degree is obtained based on the experience Ph.D. student gathered from the industry sector.

The final day of the study visit (July 14th 2021) was dedicated to the DualEdu project implementation. Namely, project administrator and co-administrator (Žarko Mišković and Sanja Šešlija – from UB) analysed financial aspects of the project as well as the activities which should be finished in order to successfully prepare the Final Report in time. The full list of supplementary documents was also presented with explanation how they should be prepared. This was very important for partners without extensive experience in the international projects administration as they got the chance to clear the potential dilemmas in time - during the following discussion.

The study visit was completed by the visit to the laboratory for robotics of UDL where new technology – developed by UDL in cooperation with industry was presented to present participants.

During all listed study visits, joint lunch/dinners were organised with all the engaged representatives where plan for future activities within the project agenda were discussed in details.

Reports on every study visit is given as a report of the meeting, in separate files.