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Quality Report on Project Deliverables

Report of "Check of curriculum"

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Abstract	Report and feedback of the development of the joint curricula with recommendations.

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Work package:	WP 5: Quality plan
Activity:	5.3 Internal control and monitoring report
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Introduction

The 3 Kazakh Universities (Universities of Agrarian-Technical University (WKATU) Uralski, KEnEU Kostanay and INEU Pavlodar) agreed to develop a new common study program in the subjects of “robotic and automatization”.

The curricula have common core subjects in “General educational disciplines with optional components (electives)”, “university components” in basic and profile subjects which are the same for all 3 universities. Additionally, “optional components” in basic and profile subjects are offered with special focuses at the different universities.

It was planned that the program will be established in the scheme of dual education in HE as it is known from European countries like Austria, Germany and Switzerland (and others).

This check of the curricula shall give an evaluation in concern of workload, content, duration and dual character.

The organizational structure and division of the study year is deviating from the central European scheme in years and not in semesters.

The following evaluation is exemplarily done with the curriculum of KEnEU University.

The curricula of INEU and WKATU are more or less of the same structure.

Study times and workload

Table 1 shows that the study program lasts over 198 months meaning nearly 4 years (8 semesters).

The times of internship start after the first year of theoretical education at the university.
This seems useful as the students come with a first basic knowledge and (hopefully knowing what is expected from them) to the companies.

Table 1 Distribution of weeks over the 4 years (8 semesters)

			universitiy [week]					company [weeks]				=
year	semester		teach	M	ES	∑	other	M	I	I/SS	∑	=
1	1		13	2	3	18		0	0	0	0	2
	2		13	2	3	18		1	0	0	1	13
2	3		9	1	3	13		1	4	0	5	2
	4		8	1	3	12		1	5	3	9	11
3	5		3	0	3	6		10	2	0	12	2
	6		3	0	3	6		2	10	5	17	9
4	7		4	0	2	6		3	10	0	13	1
	8		7	0	2	9	2	0	11		11	
sum I						88	2				68	40
sum II						158						40
sum III						198						

legend

	times at university
	times in industry
=	holiday

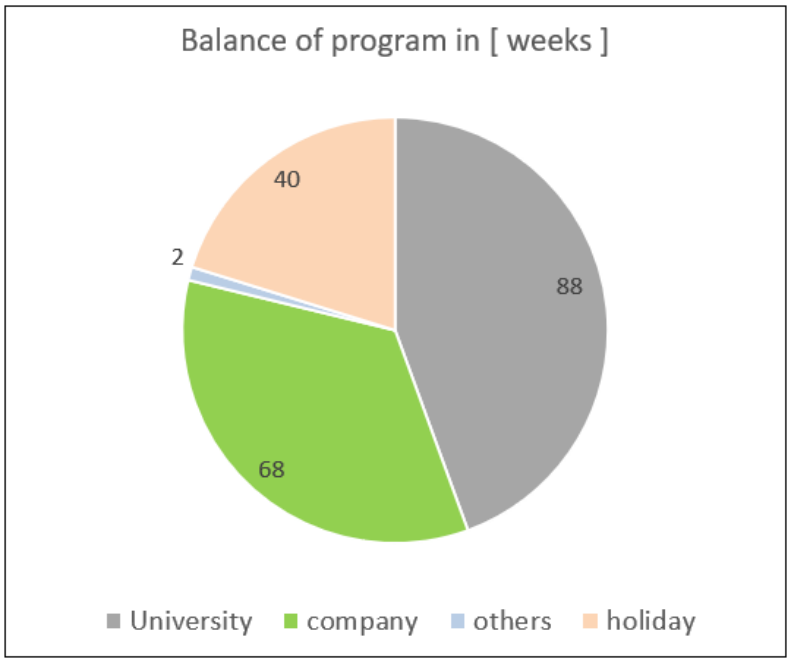
M	Midterm
ES	Examination session
I	Educational practice
M	Midterm in internship times
PI	Pregraduation internship

Picture 1 shows the distribution (balance) of weeks the students spent for different obligations. Respective the whole duration of the nearly 4 years (exactly 198 weeks) of the study program the students spent

88 weeks (44%) at university,
68 weeks (43%) at the company,
1 week of other times and have
40 weeks (20%) of holidays.

Balance of the study program according [weeks]

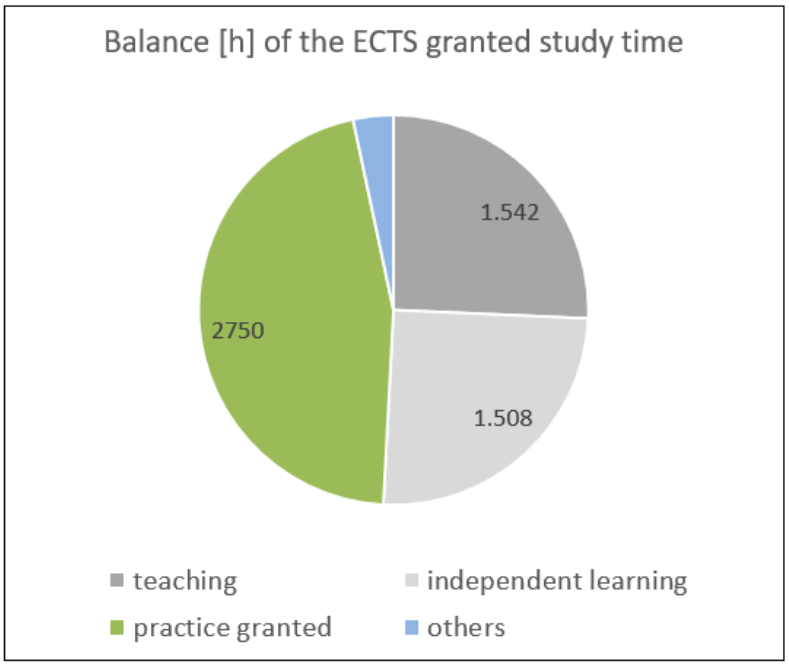
	[weeks]
University	88
company	68
others	2
holiday	40
sum	198



Picture 1 Balance of program in [weeks]

Seen under the aspect of the pure time which is dedicated to learning of teaching the distribution of the time of teaching at university, independent learning and other is distributed the way as shown in picture 2.

Balance [h] of the pure ects granted study time	
teaching	1.542
independer	1.508
practice gr	2750
others	200
sum	6.000



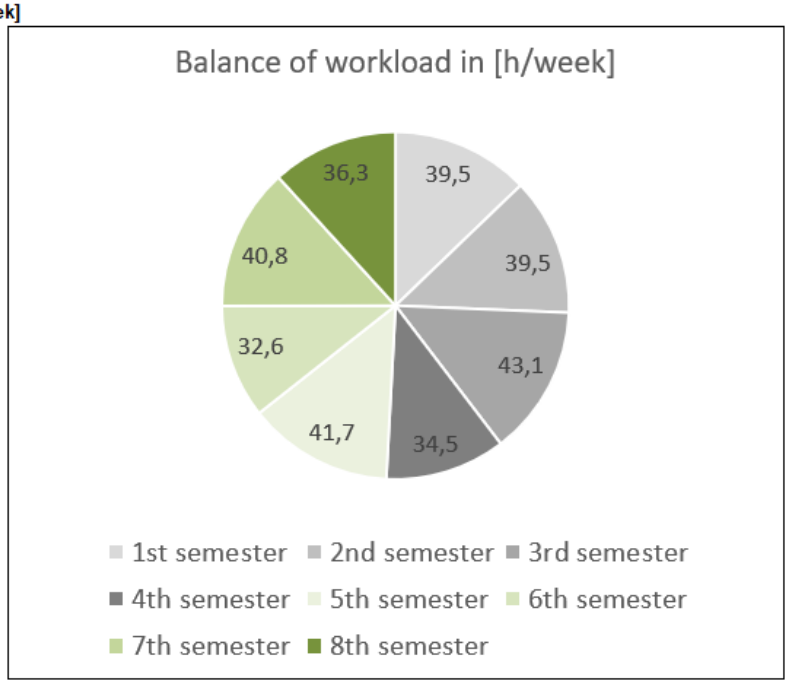
Picture 2 Balance of program in [h]

The weekly workload for the students is shown in picture 3.

The average workload over the whole study program of 4 years (8 semesters) including the practical phases is about 38.5 [h/week].

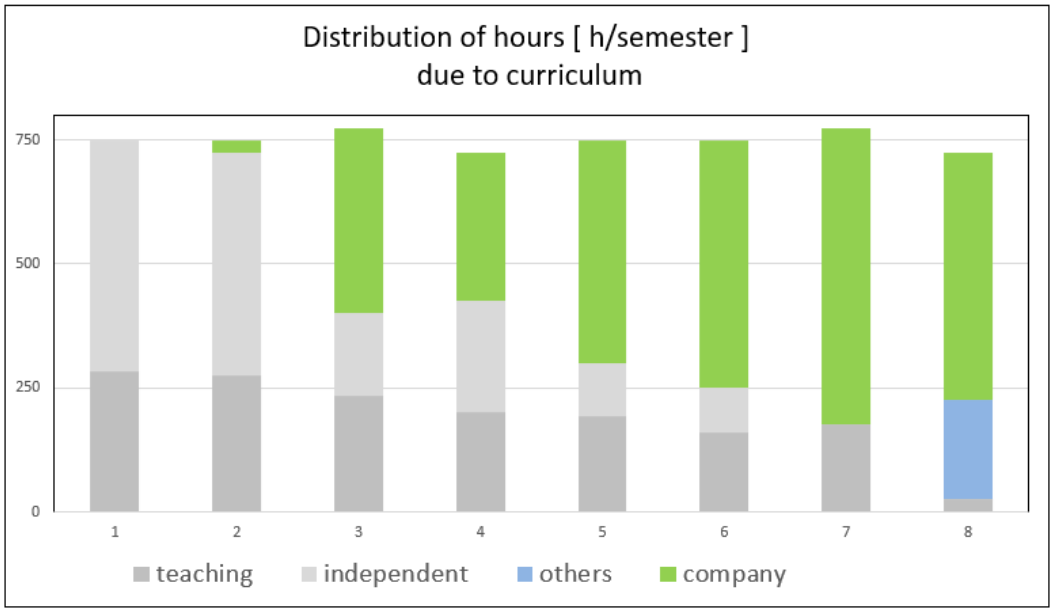
The third 43.1 [h/week] and fifth 42.7 [h /week] semesters seem to be significantly over the average.

Balance of workload in [h/week]	
1st semes	39,5
2nd semes	39,5
3rd semes	43,1
4th semes	34,5
5th semes	41,7
6th semes	32,6
7th semes	40,8
8th semes	36,3
ø [h/week]	38,5



Picture 3 Balance of weekly workload in [h/week]

Picture 4 shows that all times of calculated study times hours (teaching, independent learning and company practice) are granted with ECTS credits.
There are no times which are an ungranted hours (overhang).
The whole study program with its 6,000 [h] is granted with 240 ECTS credits.
In Europe a bachelor study program according to level EQF6 needs a minimum amount of 180 ECTS credits, and a Master program EQF7 requires 120 ECTS.
1 ECTS credit is equivalent to a workload of 25 [h] of 60 [min].

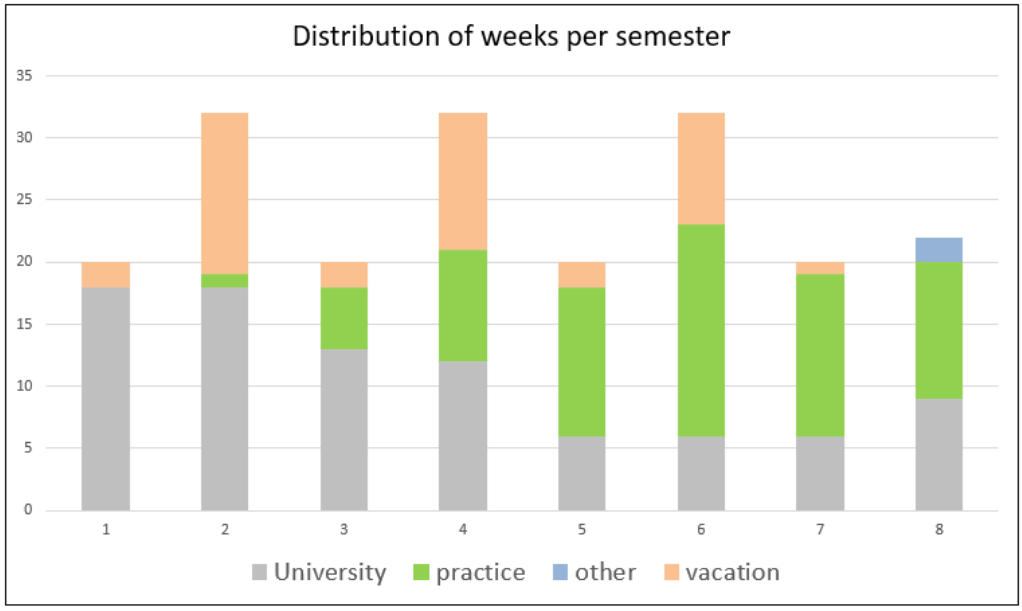


Picture 4 Balance of ECTS granted study time hours

Picture 5 gives an overview about the distribution of content and hours over all 4 years (8 semesters)

As all teaching, learning and company hours seem to be covered by ECTS credits in a nearly homogeneous distribution of hours over all semesters.

The whole program takes 6,000 [h] the semesters take 750 [h] according to 30 [ECTS /semester].



Picture 5 overview

Findings, Recommendations and Conclusion

1. Findings

The project started in the year 2019 and the corona pandemic was an unwelcome partner in the progress of the project.

It took some efforts to overcome the hurdles which were set up by this companion in the project. Erasmus+ projects always need a deep trust and an open communication between the partners.

In our case some of the partners (FHJ, DHBW, University of Novi Sad) know each other from former projects quite well, speak a common language and have same cultural roots. Enough similarities to be able to communicate in a direct open way and knowing well what is demanded from each other.

There was not such a common understanding with the new partners from Kazakhstan (Universities of Agrarian-Technical University (WKATU) Uralski, KEnEU Kostanay and INEU Pavlodar) from the start. The western partners have had some contact with Asian Universities but in the beginning, it needed to install a common understanding of the way of communicating, clearing the interests and roles in the project. In the years before covid face-to-face kick-off meetings and mutual visits at the partner universities contributed to develop this common understanding, clear content of tasks and trust for a fruitful cooperation.

The times of travel restrictions, quarantine, lack of language knowledge and distant communication by MS Teams, Zoom, … did not really contribute to instant clarifying of issues. It needed a lot of additional efforts in data exchange and communication to find a common base for the demanded results.

At the one hand it was the straight willingness of our Kazakh partner universities to introduce the system of Dual Education in HE for the rising demand of qualified academics in Kazakh labor market and at the other hand it was the engagement and patience of the Kazakh coordinator Zhanat Jabassova who was bridging the gaps of culture, language and understanding between all partners.

2. Recommendations

<u>Study program content</u>

It is not easy to understand whether physical training has to take place in a technical study program.

It would be recommended to use these hours for teambuilding activities, coaching and mentoring activities as there are no hours explicitly shown for the supervision of the students from university side in their company internships.

There are no obvious times for preparation and supervision of students in and after their internships. Teaching staff will need time to support students and companies in dealing with students and evaluate in the practice reports. This takes time but the respective workload is not shown and calculated in the curriculum.

Holidays

The number of holidays (ø 12 weeks/year) (see also attachment 2: “Summarized schedule overview”) in the first three years seems high and also might be better used for practical training in the internships.

The average weekly workload of 38.5 [h/week] for the students during the study time (exclusively holidays!) over the whole study program is appropriate and endurable.

It is desirable that the students spend half their time at the university and the other half of their time in the company.

Vacation should be divided equally between the two learning locations.

Extent of exams

It is hard to concentrate and learn for the exams of all courses in 3 weeks.

It is recommended to have more and smaller exams or just change the general way of exams during the teaching time.

This would take pressure out of the last 3 weeks of semester and probably even rise the quality.

The period of 3 weeks shall be shortened, and the saved time used for company internship.

If sooner or later the systems of microcredentials will be installed also in Kazakhstan it will be a hurdle to offer courses to industry or life-long-learners over a time span of 15 weeks (see appendix 1, “schedule of 4 years of study program”)

3. Conclusions

The curriculum generally seen seems to be balanced besides the high number of holidays and missing time for supervision in and after the internship.

The idea to develop a curriculum with a common basic structure and different focuses in the three university locations is a good idea and can be in accordance with the idea of microcredentialing.

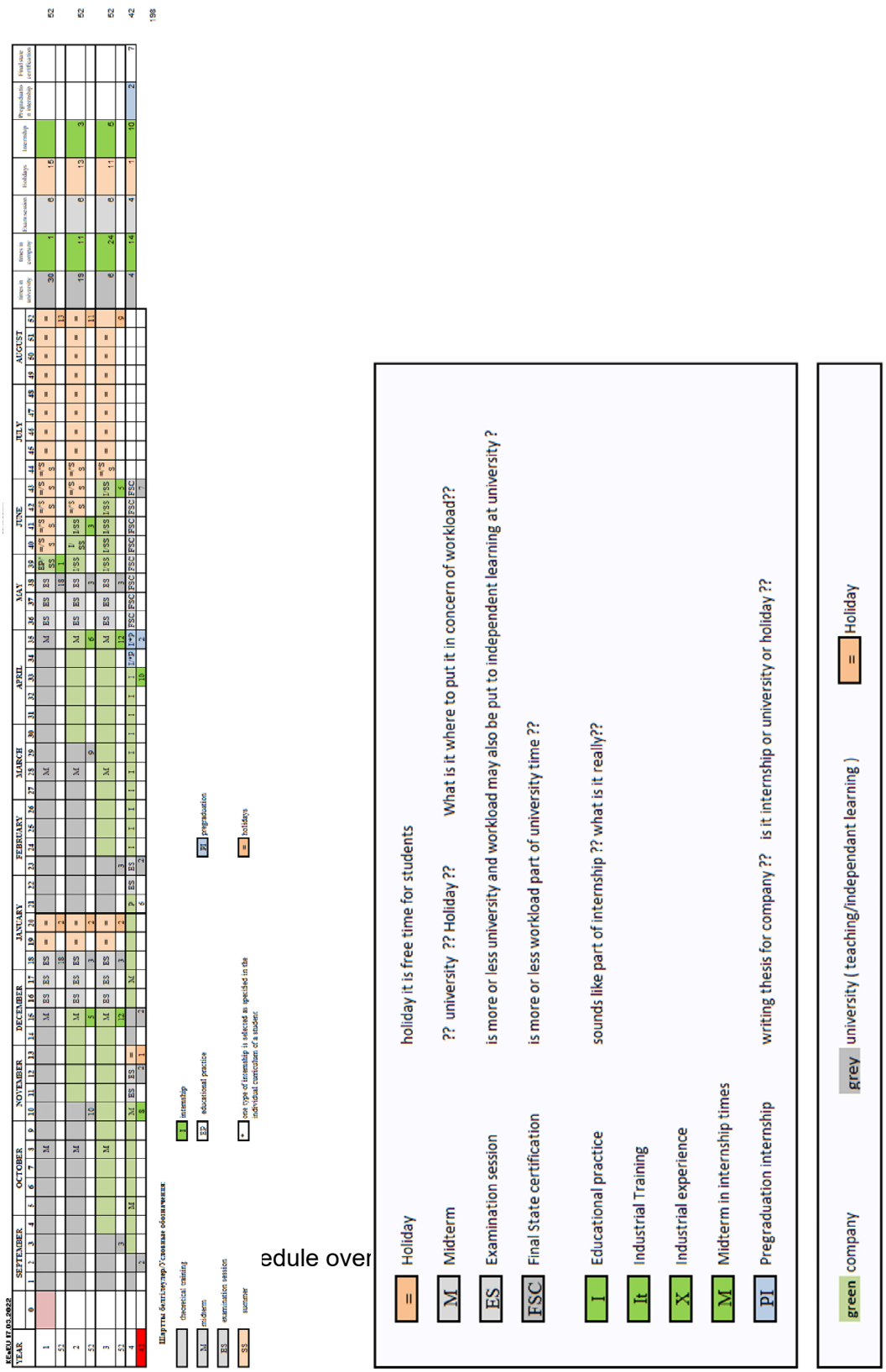
It gives students the chance for choosing their individual path of education and focus on the field of robotics and automatisation.

There are some trend-setting ideas in this curriculum as e.g. integration of social and political sciences in a technical oriented curriculum. In dependency of the lecture content the social and environmental (green) responsibility of later engineers will be developed.

The Framework for Qualifications of the European Higher Education Area (QF-EHEA) defines the degree level according to the ECTS system.
First cycle qualifications (Bachelor) typically include 180 or 240 ECTS credits.
Second cycle qualifications (Master) typically include 90 or 120 ECTS credits, with a minimum of 60 ECTS credits at the level of the second cycle. (Source: ECTS user's guide ISBN 978-92-79-43559-1)

Attachments:

1. Schedule of the 4 years of study program



KEnEU 17.03.2022

			university [week]					company [weeks]				=	sum
year	semester		teach	M	ES	∑	other	M	I	I/SS	∑	=	/sem.
1	1		13	2	3	18		0	0	0	0	2	20
	2		13	2	3	18		1	0	0	1	13	32
2	3		9	1	3	13		1	4	0	5	2	20
	4		8	1	3	12		1	5	3	9	11	32
3	5		3	0	3	6		10	2	0	12	2	20
	6		3	0	3	6		2	10	5	17	9	32
4	7		4	0	2	6		3	10	0	13	1	20
	8		7	0	2	9	2	0	11		11		22
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