

Report WP 2 – Results of questionnaires

Author(s)	Wolfgang Streicher, Martin Hauer		
Organisation name(s)	University of Innsbruck, Unit for Energy Efficient Buildings		
WP Number	WP 2: Scoping and training needs		
Task Number	T2.1/T2.2/T2.3		
WP Leader	University of Innsbruck		
Due date of delivery	01.07.2017	Project month	05
Submission date	26.10.2017	Project month	08
Total number of pages			

Project co-ordinator

Prof Ahmed Al-Salaymeh,

The University of Jordan (UJ)

Queen Rania Street | Amman 11942, Jordan

Tel: +962-6-53 55 000 Ext. 22816 | Mob: +962-777-64 4364 | Fax: +962-6-53 00 237

Email: egreen@ju.edu.jo

Project website: <http://sites.ju.edu.jo/en/egreen/home.aspx>



TABLE OF CONTENT

1	INTRODUCTION.....	4
1.1	Egreen Objectives	4
1.2	Scope of the first questionnaire and procedure	5
1.3	Environmental laws and policies in Syria	5
1.4	Organization of WP2.....	6
2	COMPLEMENTARY QUESTIONNAIRE	7
2.1	Participants overview	7
2.2	Results analysis.....	8
3	QUESTIONNAIRE 1 – ANALYSIS	9
3.1	Feedback Branches and Stakeholder mix.....	9
3.1.1	Stakeholders distribution	9
3.1.2	Number on employees.....	11
3.2	Analysis of employment status in JORDAN – Actual and planned.....	12
3.2.1	Employees working in the different branches	12
3.2.2	Planned headcounts per branch	14
3.3	Analysis of employment status in SYRIA – Actual and planned.....	16
3.3.1	Employees working in the different branches	16
3.3.2	Planned headcounts per branch	19
3.4	General questions about employee status and recruitment in Jordan and Syria	21
3.5	Actual structure of the working headcounts in Jordan and Syria	27
3.6	PART B: Requirement and competencies.....	29
3.6.1	Results from JORDANIAN stakeholders.....	29
3.6.2	Results from SYRIAN stakeholders	35

3.7	PART C: Relevance of the planned Bachelor program.....	41
4	QUESTIONNAIRE 2 – ANALYSIS	43
4.1	Results for JORDANIAN universities	43
4.1.1	Existing study programs	43
4.1.2	Existing courses	45
4.2	Results for SYRIAN universities.....	49
4.2.1	Existing study programs	49
4.2.2	Existing courses	51
5	GENERAL CONCLUSIONS.....	55
5.1	First stakeholder questionnaire.....	55
5.1.1	Branch evaluation and headcounts.....	55
5.1.2	Lecture contents.....	56
5.1.3	Study program.....	57
5.2	Second stakeholder questionnaire	57
5.2.1	Summarizing results from Jordan.....	57
5.2.2	Summarizing results from Syria.....	57
6	APPENDIX A	58
7	APPENDIX B.....	62
8	APPENDIX B: QUESTIONNAIRE 1 (ANALYSING MARKET NEEDS)	67
9	APPENDIX C: QUESTIONNAIRE 2 (ANALYSE OF INSTITUTION INFRASTRUCTURE)..	75

1 INTRODUCTION

Jordan and Syria face serious problems pertaining to available water resources, climate change and environmental quality. These problems require innovative engineering approaches that take into consideration the uniqueness of local situations where projects are to be implemented. Moreover, under conditions of scarcity it is important to manage physical resources in ways that achieve the optimal outcome for all stakeholders.

The EGREEN project aims to ensure that the universities in Jordan and Syria can offer a high quality education compatible with European standards and meets the market needs of the emerging knowledge-based society by strengthening environmental teaching. Also, EGREEN aims to introduce the concept of climate change in order to graduate professional leaders who can meet market needs of the country as well as it will Develop and integrate a bachelor degree program with an appropriate laboratory component in environment jointly taught by universities in Jordan and Syria and brought into line with the Bologna requirements.

This project will engage faculty in the development of interactive instruction techniques for lectures and laboratory courses and sharing experiences with EU partner universities and it will develop and implement course content for undergraduate students.

Project direct aim is to enhance the capacity and enable Jordanian and Syrian partner universities to develop courses to environmental component for undergraduate programs with state of the-art educational technologies. EGREEN will thus contribute to a sustainable outcome that will promote curriculum reform in engineering education and leave a longer-term legacy for Jordanian and Syrian universities.

All project's partners have rich experience and successful track record and active participation in Tempus projects which will ensure that the consortium will achieve EGREEN objectives.

It is envisaged that these specific objectives will contribute to a sustainable outcome that will promote curriculum reform in environmental engineering education and leave a longer-term legacy for both Jordanian and Syrian universities.

1.1 Egreen Objectives

1. Develop, integrate, accredit and evaluate environment related modules with an appropriate laboratory component to be integrated in existing courses jointly taught by universities in Jordan and Syria and brought into line with the Bologna requirements.
2. Engage faculty in the development of interactive instruction techniques for lectures and laboratory courses and sharing experiences with EU partner universities.
3. Develop and implement course content using e-learning.
4. Introduce a climate change into selected course.

1.2 Scope of the first questionnaire and procedure

The major activity of the project is to design, deliver, accredit and adapt 7 state-of-the-art Environmental Engineering and climate change courses which will add value to the existing undergraduate programs at partner universities and have technological and economical impact on the environmental and climate change sector in Jordan.

The project will commence in a scoping and needs analysis exercise to investigate the current status of Environmental Engineering and climate change in Jordan and Syria. The investigation will commence with:

- Survey and interviews with appropriate stakeholder, including enterprises and governmental bodies as well as international projects and initiatives, focusing on all academic programs being in offer in Jordan and Syria in the field of environmental and climate change issues, actual market demands, trends and needs as well as government policies and regulations.
- Survey on teaching and management facilities and on the structure of the partner universities to make sure that the project training content can be carried out successfully.
- Integration of the first & second survey analysis results about the training needs and partner management facilities with the European methodology and experience and then drafting a final report about the methodology. This is a crucial document to elaborate the didactic contents and select the environmental and climate change course.

1.3 Environmental laws and policies in Syria

The Syrian Arab Republic is one of the first Arab countries which established a separate ministry for environment and introduced environmental considerations in development plans, the structure of the environmental institution in Syria consists of three levels. The first level is protection council of the environment, which is considered the highest body responsible for Environmental Policy Development in Syria. The second level is the State Ministry for the environment. While the directorates of environment in the governorates come in third level.

Syria joined and approved 20 international and regional environmental agreements, and has taken many actions in the area of application, and prepared the environmental strategy, and issued many laws and legislation concerning environmental issues, also, a great attention is given to the environmental impact assessment studies and adopting environmental management systems and activate popular participation.

ERASMUS PLUS Programme–EGREEN Project Number: 573927-EPP-1-2016-1-JO-EPPKA2-CBHE-JP

DISCLAIMER: *This project has been funded with support from the European Commission. This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.*

Syria has issued the Environment Law No. (50) for the year 2002, and issued a set of legislative decrees and laws aimed to protect environment and organize the usage and investment of natural resources and management of solid waste.

In the phase of analyzing the market needs in Syria, this legislative paragraphs has also been screened. In establishing the lecture contents for injecting subjects to Climate Change and Renewable Energy, this aspect will therefore also take influence on the final curriculum design.

1.4 Organization of WP2

The Team of the University of Innsbruck was defined as leader for the whole work package 2.

A first draft of both questionnaires was set up by the team of University of Innsbruck and distributed for a first feedback round to all partners. Changes and improvements were implemented for the final versions of both questionnaires.

For distribution of the questionnaires in Jordan and Syria, the University of Jordan (UOJ) and the Tishreen University (TU) were defined as leaders for distribution to all stakeholder partners.

Both questionnaires have been translated from English into Arabic by the group of Tishreen University. The partner Universities in Jordan and Syria collected the returned and filled questionnaires and provided them to Innsbruck University as WP leader. The analysis and reporting of the results was done by Innsbruck University.

2 COMPLEMENTARY QUESTIONNAIRE

In addition to the developed questionnaires within EGREEN for analysing the actual market needs (Questionnaire 1) as well as the existing course and laboratory infrastructure (Questionnaire 2), a complementary questionnaire has been distributed by all included Jordan and Syrian universities. The included questions covered 10 more general questions about the topic of Renewable Energies and Climate change.

2.1 Participants overview

You were invited to fill this form by

196 Antworten

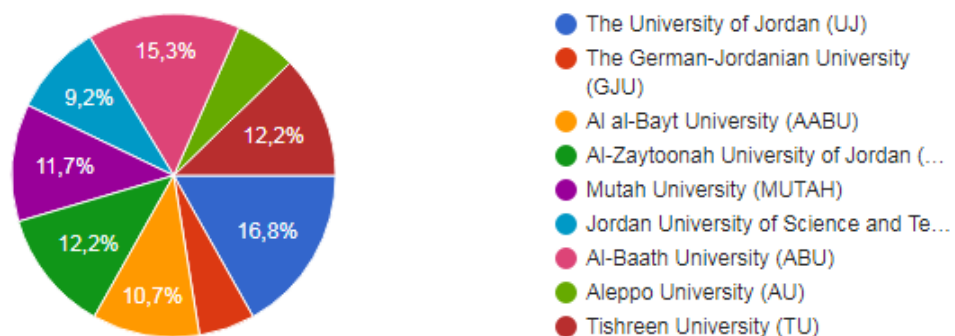


Figure 2-1: Distribution of filled complementary questionnaires

By describing as a Google online questionnaire, a high number of participants (in sum 196 filled examples) could be reached which gives a representative outcome of the general opinions and needs to highlight relevant aspects. In Figure 2-1 the total distribution of the filled questionnaires is shown. Therefore, an equal number of filled questionnaires from each university is shown.

In the questionnaire, the participants could vote for each question in five criteria's between:

- Not relevant (1)
- Less relevant (2)
- Moderately relevant (3)
- Very relevant (4)
- Highly relevant (5)

ERASMUS PLUS Programme–EGREEN Project Number: 573927-EPP-1-2016-1-JO-EPPKA2-CBHE-JP

DISCLAIMER: This project has been funded with support from the European Commission. This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

2.2 Results analysis

In following table, the named questions are listed and their given distribution of the votes is shown.

Table 1: Questions and results from the complementary questionnaire

Questions	1	2	3	4	5
Understand basic concepts to climate change	6 (3,1%)	18 (9,2%)	33 (16,8%)	56 (28,6%)	83 (42,3%)
Understand how the Earth's Climate system works	7 (3,6%)	24 (12,2%)	43 (21,9%)	68 (34,7%)	54 (27,6%)
Understand general atmosphere circulation patterns, ocean circulation	13 (6,6%)	30 (15,3%)	59 (30,1%)	54 (27,6%)	40 (20,4%)
Understand climate oscillations like El Nino and upwelling	33 (16,8%)	33 (16,8%)	55 (28,1%)	49 (25,0%)	26 (13,3%)
Illustrate components of the Earth's carbon cycle	12 (6,1%)	21 (10,7%)	49 (25,0%)	69 (35,2%)	45 (23,0%)
Describe how addition of greenhouse gases will influence the climate	6 (3,1%)	23 (11,7%)	40 (20,4%)	67 (34,2%)	60 (30,6%)
Understand and quantify CO2 mitigation by Renewables and Energy Efficiency	3 (1,5%)	20 (10,2%)	46 (23,5%)	74 (37,8%)	53 (27,0%)
Understand the main concept of green buildings and their main components	5 (2,6%)	19 (9,4%)	42 (21,4%)	78 (39,8%)	52 (26,5%)
Gain the scientific basis to analyse and understand policy issues related to global warming	8 (4,1%)	19 (9,7%)	56 (28,6%)	63 (32,1%)	50 (25,5%)
Understand ozone depletion phenomena	4 (2,0%)	32 (16,3%)	56 (28,6%)	65 (33,2%)	39 (19,9%)

Bold letters for each question always highlight the highest voted criteria. Therefore, most of the questions are voted with high relevance ('4'), the first question also with very high relevance ('5'). The result diagrams to each question are attached in the appendix.

ERASMUS PLUS Programme—EGREEN Project Number: 573927-EPP-1-2016-1-JO-EPPKA2-CBHE-JP

DISCLAIMER: This project has been funded with support from the European Commission. This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

3 QUESTIONNAIRE 1 – ANALYSIS

3.1 Feedback Branches and Stakeholder mix

In sum, 103 filled stakeholder-questionnaires have been collected from different branches in Jordan and Syria. Out of them, 52 valid questionnaires from Jordan (6 questionnaires were not filled properly) and 45 valid questionnaires from Syria has been included in the following analysis.

The data evaluation was done separately for each country to identify their different needs. The difference of 7 questionnaires in the overall amount of collected examples between both countries is acceptable in order to guarantee comparable results. In the beginning, a minimum requirement on filled questionnaires was defined with 10 questionnaires per Partner University in each country. According to this, Jordan had to come up with 60 filled examples (actual 58) and Syria with 30 filled examples minimum (actual 45). Therefore, both partner countries fulfilled this requirement.

3.1.1 Stakeholders distribution

In Figure 3-1 the distribution of included stakeholders is shown separately for Jordan, Syria, and their different branches.

In both countries, governmental institutions show a major participation. Additionally, Jordan has quite high numbers of stakeholders from Industrial production as well as engineering consultancy. The trade industry, research sector as well as lawyers and policy consultancy cover minor parts.

Furthermore, Syria shows an equal distribution on educational institutions, trade industry and engineering consultants.

In overall, the stakeholder surveys from both countries show a good mix on different branches and allow therefore achieving representative results out of the questionnaire analysis.

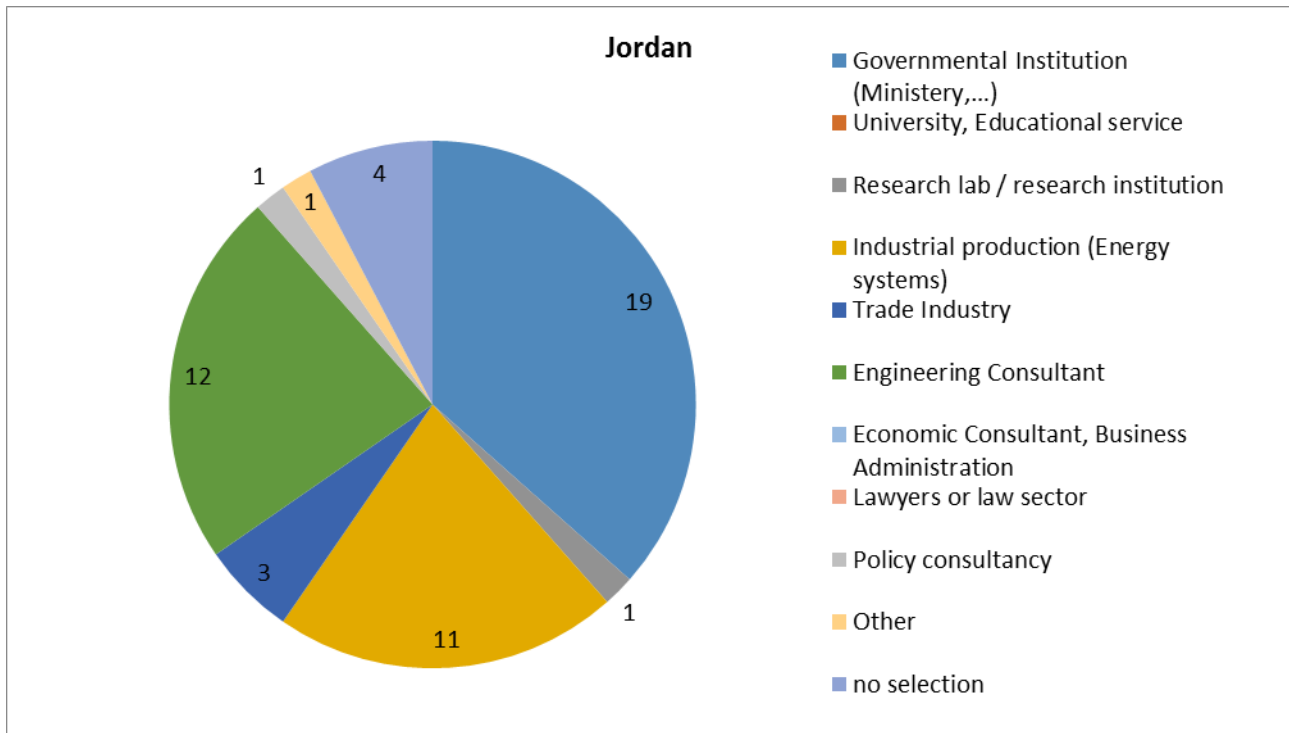


Figure 3-1: Stakeholder mix from Jordan

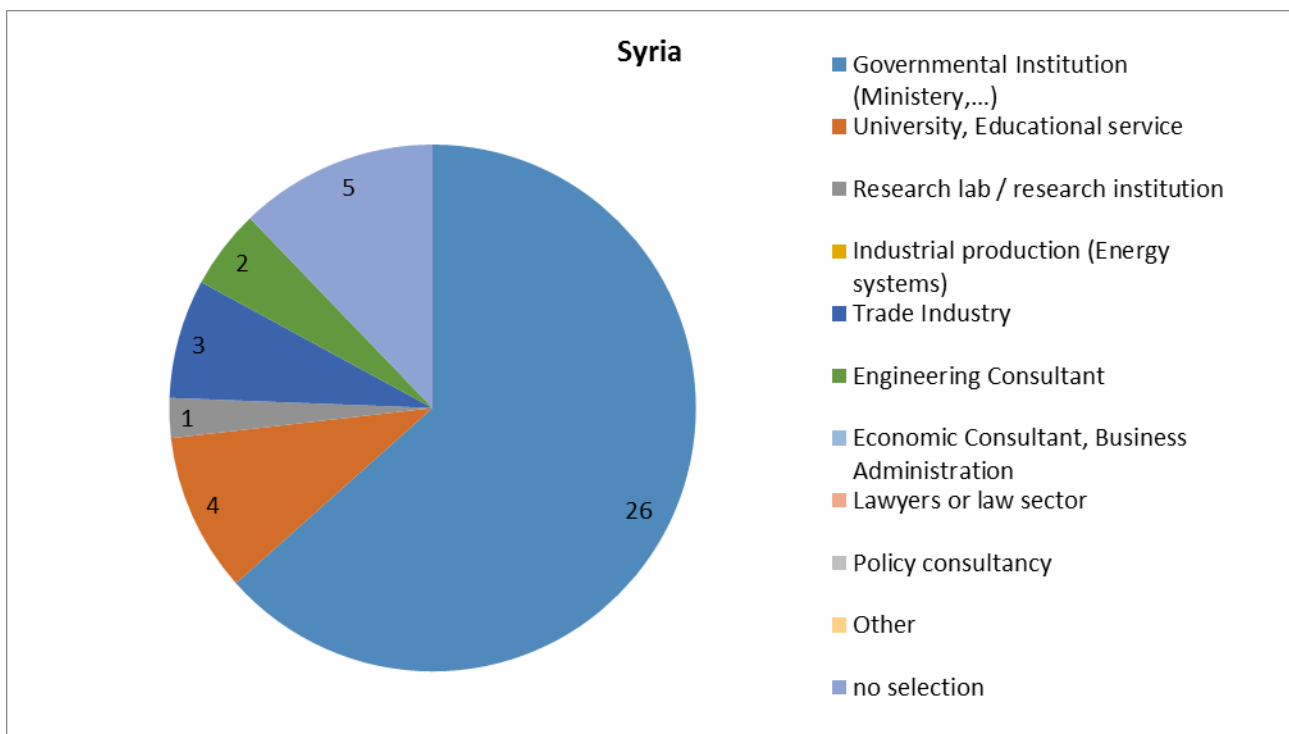


Figure 3-2: Stakeholder mix from Syria

3.1.2 Number on employees

For Jordan as well for Syria, the majority of stakeholders have employees more than 200. This of course is also related to the fact, that Governmental institutions (with takes the main part in both countries) are mostly have a high number of employees.

In fact, the given percentage corresponds in both cases to the percentage of governmental stateholders involved in the survey. Second biggest part are headcounts between 101 and 200 employees, which is still quite big. Therefore, more than a half of the involved stakeholders in Jordan have a stock of more than 100 employees. In case of Syria more than three quarters represent a stock of more than 100 employees.

For Jordan, a equal distribution for the lower headcounts (between 1-100 employees) is shown. In the stakeholder suvery of Syria, smaller companies may be less represented, as they take a minor part. This aspect should be taken into acount for interpreting the outcomes.

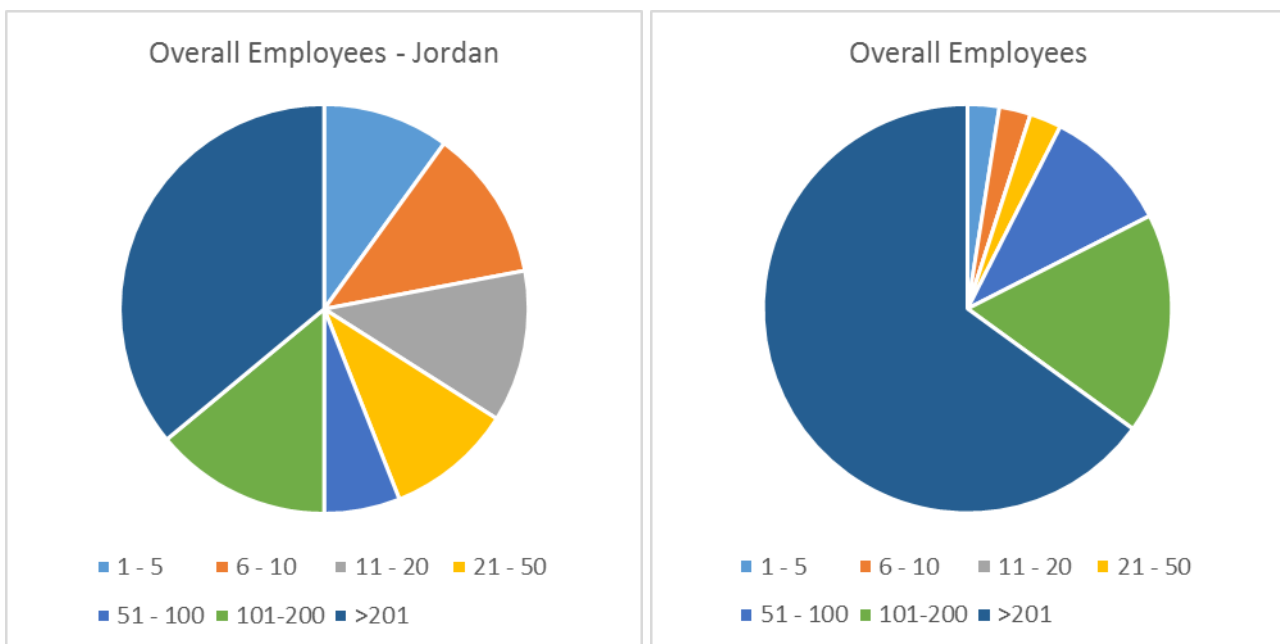


Figure 3-3: Distribution of employees from the included stakeholders

3.2 Analysis of employment status in JORDAN – Actual and planned

3.2.1 Employees working in the different branches

In Table 2, an overview is given on the distribution of employees for the Jordan stakeholders. It separates for each branch into the overall headcounts and those only belonging to R&D. The possibilities of answers were ranging from 0 to more than 10 employees actually working.

Table 2: Employees working in the different branches, Result for Jordan

Employee distribution (by number of choices)		0	1 - 5	6-10	>10	no choice
Drinking water treatment and Distribution systems	Overall	22	19	0	9	2
	R&D	11	5	0	2	34
Water resources engineering	Overall	19	17	4	8	4
	R&D	10	4	1	0	37
Water management	Overall	21	15	4	5	7
	R&D	11	2	4	0	35
Non-conventional water resources	Overall	20	18	4	4	6
	R&D	9	7	2	0	34
Environmental quality control Engineering	Overall	23	19	4	1	5
	R&D	8	10	0	0	34
Energy Efficiency	Overall	12	29	6	3	2
	R&D	6	12	0	0	34
Energy efficient building services	Overall	15	25	7	1	4
	R&D	8	7	1	1	35
Energy distribution	Overall	24	18	3	3	4
	R&D	10	7	1	0	34
Renewable Energy Production	Overall	14	23	5	8	2
	R&D	9	6	1	3	33
Climate issues	Overall	25	17	5	2	3
	R&D	10	6	1	0	35
Environmental Assessment	Overall	15	28	5	1	3
Economic issues	Overall	19	23	6	0	4
Political issues	Overall	32	16	1	0	3
Law issues	Overall	22	23	2	0	5

In Figure 3-4, the distribution of the headcounts (overall) is shown according to Table 2. On the horizontal axis the different branches are listed, the y-axis shows the distribution always in relation to 100%. The values shown in the different bars represent the absolute number of choices within the survey. In contrast to the overall headcount distribution, it identifies clearly, that within the programme-relevant working fields only smaller groups of 1-5 people are employed. Smaller working groups mostly cover especially non-technical fields (economic, law and policy).

Working groups of more than 10 employees (marked in green) are mainly in the field of Water distribution, treatment and water resource engineering. Also, renewable energy production shows a high contribution of big working groups. The working groups with a size of 6-10 employees mainly exist in the fields of energy efficiency and building services, environmental engineering and climate change as well as energy distributions and parts within water engineering.

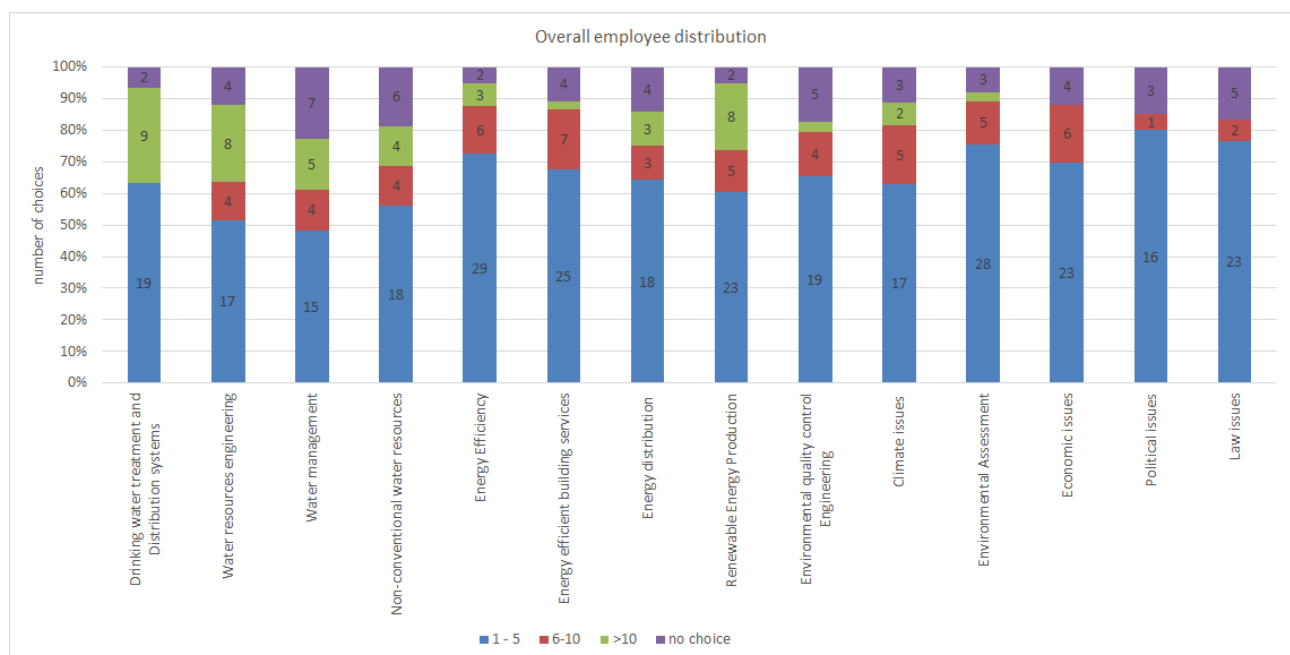


Figure 3-4: Overall result (including R&D) of employers working in following branches, Result from Jordan

In Figure 3-5 the distribution of employees working in the different R&D branches in Jordan are shown. A very high of “no choices” (marked in violet) underlines, that R&D departments within the different branches in general are less established and focus is more on production work. Higher R&D activities are shown for the branches of Drinking water treatment and Renewable energy production as well as water management. The rest is quite equal distributed and on low level.

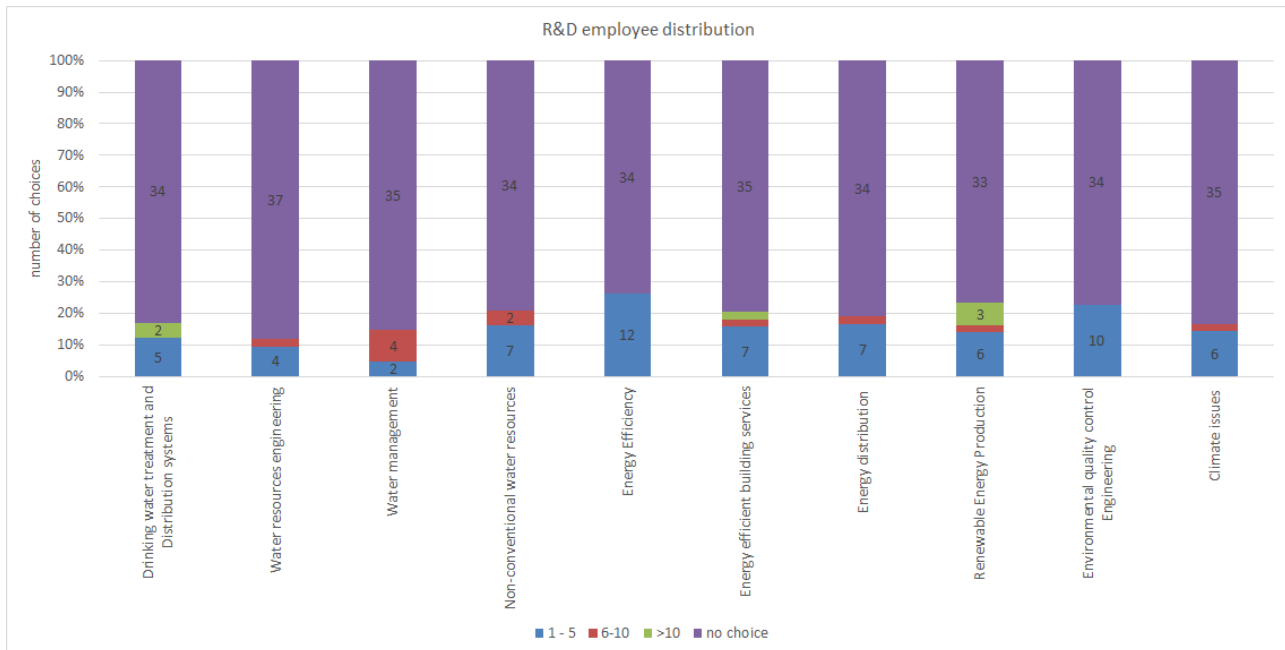


Figure 3-5: Result (only R&D) of employers working in following branches, Result from Jordan

3.2.2 Planned headcounts per branch

According to Figure 3-6, in Jordan the highest employment recruitment (>10 employees) is planned for the sectors of renewable energy production, energy distribution and drinking water treatment and distribution. Moderately high employment recruitment (6-10 employees) is also planned for the branch of water resource engineering, non-conventional water resource engineering, climate change and environmental assessment. The branch of energy efficient buildings and energy efficient building services also plans to expand moderately.

In contrast, in the R&D sector only minor increase of the headcounts in almost all sectors is planned. Except the field of renewable energy production and energy distribution are marked with high investments in new employees.

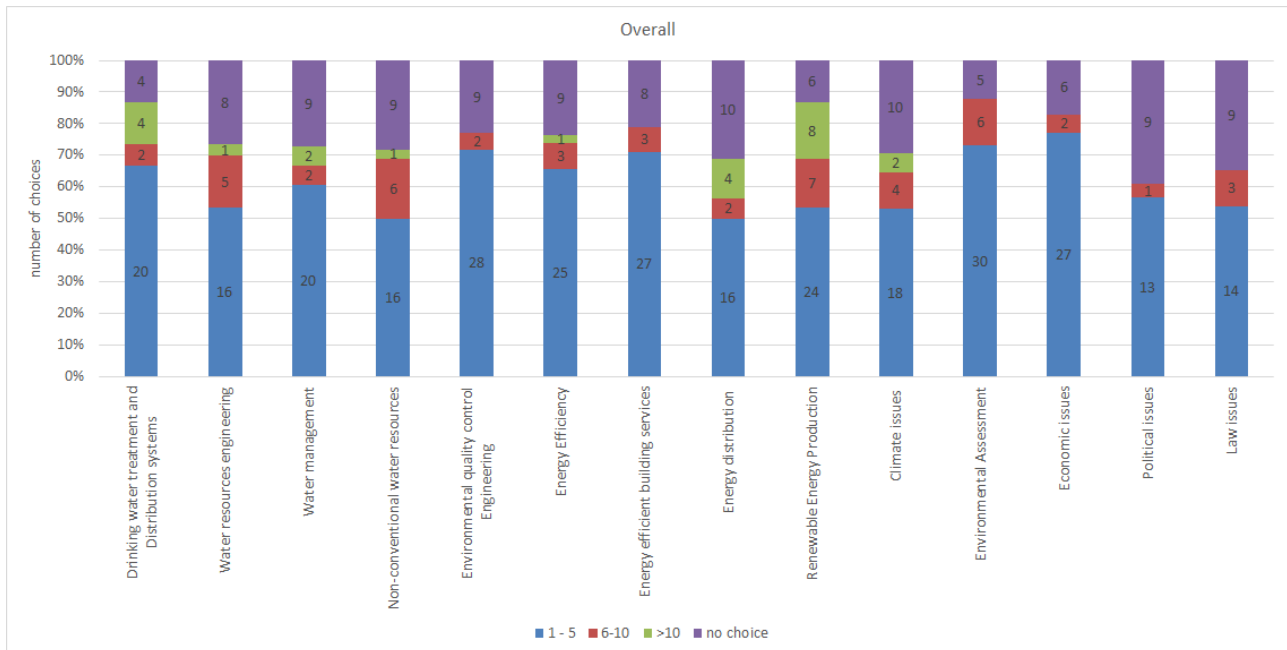


Figure 3-6: Employment needs (overall stock) of the specific branches in Jordan

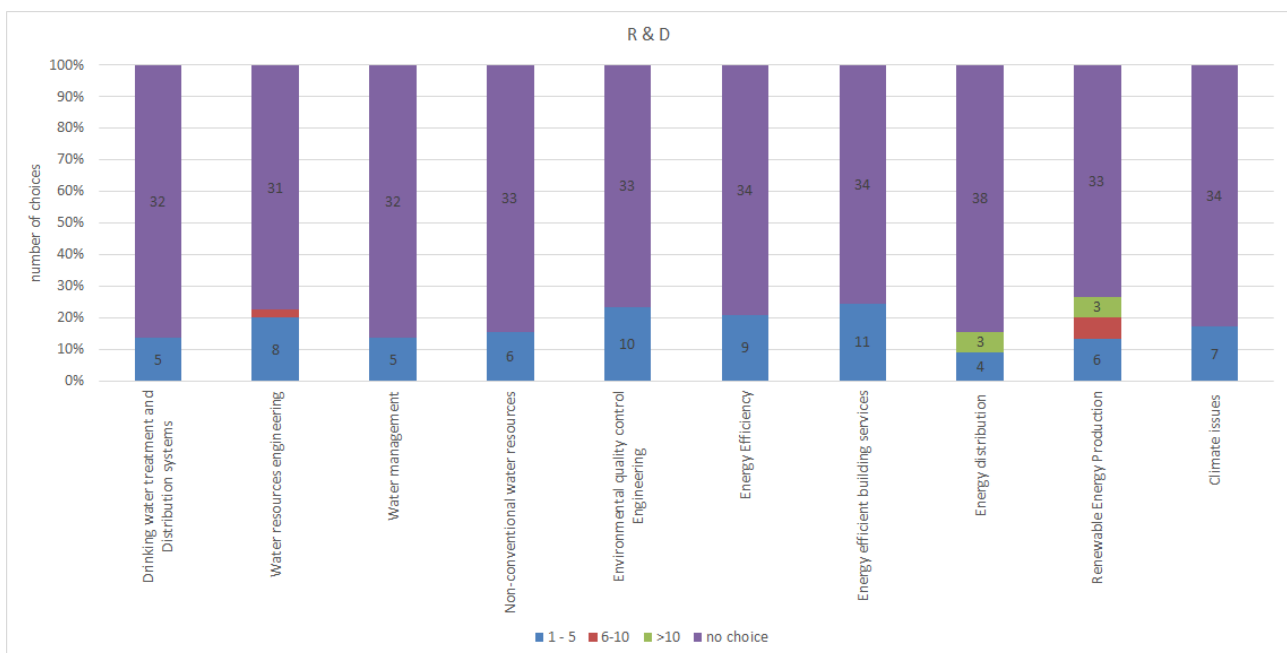


Figure 3-7: Employment needs (R&D stock) of the specific branches in Jordan

3.3 Analysis of employment status in SYRIA – Actual and planned

3.3.1 Employees working in the different branches

In Table 3 the result of employment stock is shown as overview for the different branches, including the separated values for the R&D sector.

Table 3: Employees working in the different branches, Result for Syria

Employee distribution (by number of choices)		0	1 - 5	6-10	>10	no choice
Drinking water treatment and Distribution systems	Overall	6	7	3	8	7
	R&D	7	10	1	1	12
Water resources engineering	Overall	4	7	5	1	14
	R&D	9	5	0	4	13
Water management	Overall	10	6	0	1	14
	R&D	7	3	0	2	19
Non-conventional water resources	Overall	10	3	0	2	16
	R&D	4	6	2	0	19
Environmental quality control Engineering	Overall	5	6	5	1	14
	R&D	8	6	1	3	13
Energy Efficiency	Overall	4	9	2	2	14
	R&D	7	3	2	3	16
Energy efficient building services	Overall	3	7	5	1	15
	R&D	7	2	3	3	16
Energy distribution	Overall	5	10	1	1	14
	R&D	8	2	2	2	17
Renewable Energy Production	Overall	8	6	2	1	14
	R&D	9	3	4	0	15
Climate issues	Overall	14	2	0	0	15
	R&D	5	7	1	1	17
Environmental Assessment	Overall	6	17	4	1	3
Economic issues	Overall	8	11	4	2	6
Political issues	Overall	9	11	2	1	8
Law issues	Overall	6	11	4	3	7

In contrast to the results from Jordan, a high number of “no choice” is shown also in the figures for the overall headcount (ref Figure 3-8), although the amount of collected questionnaires is relatively equal. As an interpretation, the companies in Syria tend to be more focused on individual branches, while Jordan companies include a wider range of different branches.

In contrast to the results in Jordan, the differences between the different branches are much higher. Also in Syria, the majority is covered by smaller working groups working in the relevant field of the program, the highest value for small working groups (1-5 employees) is reported for environmental assessment. The drinking water treatment shows clearly the highest headcount represented in the survey and seems to be an established field in both countries. Also relatively high headcounts are reported for the branches of energy efficiency including building services and energy distribution. Also employees working in the non-technical fields are highly represented within the survey.

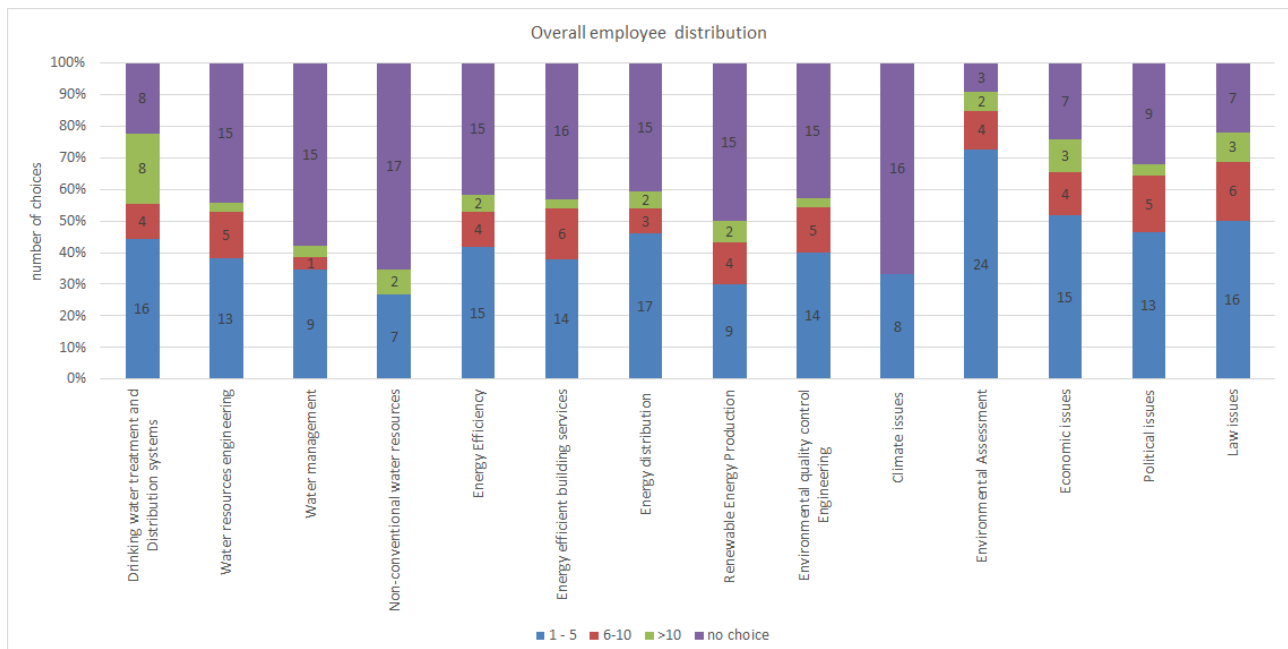


Figure 3-8: Overall result (including R&D) of employers working in following branches, Result from Syria

Although a similar result is shown for the R&D field in Syria (ref Figure 3-9) with high value on “no choices”, in direct comparison to Jordan higher activities in R&D are evaluated by the stakeholder questionnaires. In almost each branch research groups consisting of more than 10 employees are shown. Highest headcounts in R&D in Syria are shown for the branches of water resource engineering, energy efficiency, energy efficient building services, energy distribution and environmental quality control engineering. renewable energy production shows the highest value for the working group of 6-10 employees.

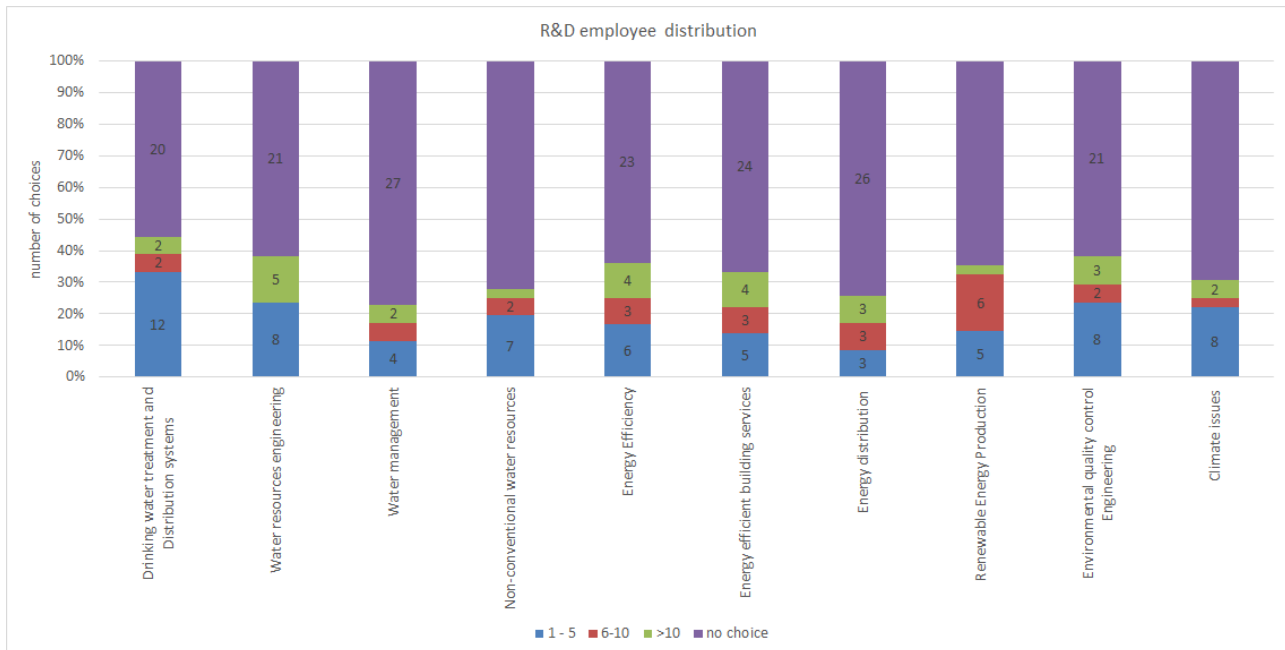


Figure 3-9: Result (only R&D) of employers working in following branches, Result from Syria

Following **conclusive statements** can be made concerning the actual employee headcounts:

- Working groups in Syria in the field of the EGREEN course program are in majority relatively small with 1-5 employees (except of the branch of Drinking water treatment)
- Working groups in Jordan in the field of the EGREEN course program include headcounts with more than 10 members especially in the Water branches as well as the Renewable energy production, other branches are smaller in their actual headcounts
- Jordan shows a quite stable headcounts throughout all included branches
- Syria shows within this survey a very low number of headcounts in the branches of Non-conventional water resources and Climate issues
- Except of the Renewable Energy Production sector, the actual headcounts in the R&D sectors in Jordan is relatively low.
- Syria shows in general higher employment rates in the R&D sector throughout almost all included branches.

3.3.2 Planned headcounts per branch

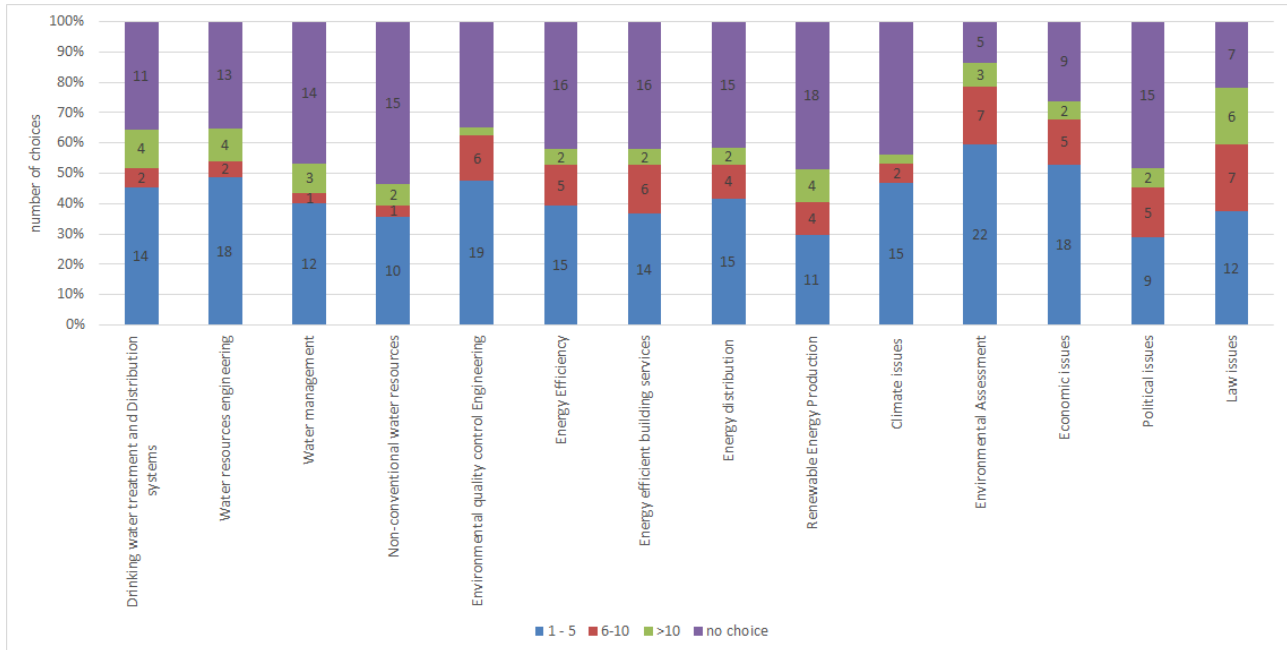


Figure 3-10: Employment needs (overall stock) of the specific branches in Syria

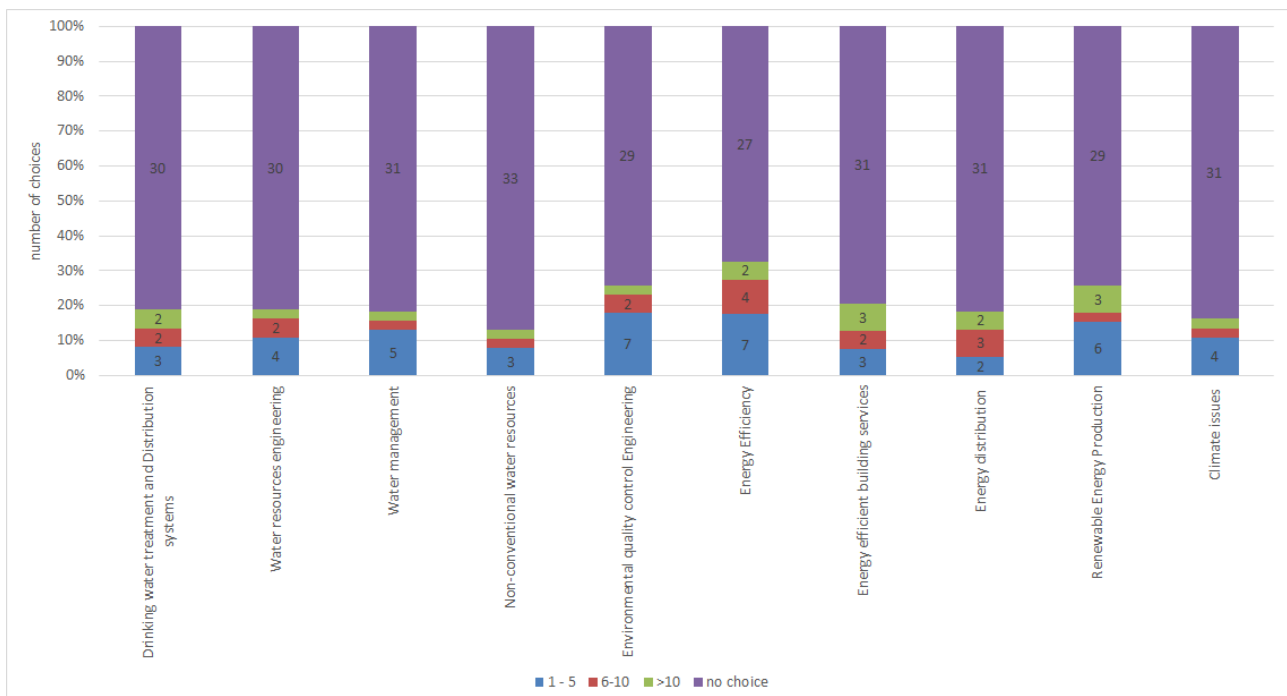


Figure 3-11: Employment needs (R&D stock) of the specific branches in Syria

ERASMUS PLUS Programme–EGREEN Project Number: 573927-EPP-1-2016-1-JO-EPPKA2-CBHE-JP

DISCLAIMER: This project has been funded with support from the European Commission. This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

In Figure 3-10 the development of the employment recruitment in Syria is shown. Also in here the sectors of drinking water treatment and drinking water distribution systems as well as water resource engineering plan higher investigations into new employees.

Also the sectors of renewable energy production and energy distribution show a higher demand. Branches of energy efficiency and energy efficient building services as well as environmental assessment plan to investigate in a moderate level (6-10 employees within the next 5 years). In contrast to Jordan, Syria also plans to investigate more to employees from the field of economic and law issues. In contrast to Jordan employment needs, the results for Syria show a constant investigation into new employees within almost all evaluated branches.

In the R&D-sector (shown in Figure 3-11), Syria plans to investigate more intensively into new employees compared to Jordan. In here, renewable energy production is the highest ranked branch for new employees recruitment. In addition, energy efficient building services show a higher demand on employees in research. The rest plan to increase the headcount moderately, but almost in each branch. Therefore, the investments in R&D are reported higher compared to Jordan in this report.

3.4 General questions about employee status and recruitment in Jordan and Syria

Question A2	How difficult is it for your Company/ Institution now to get qualified employees in the specific branches the new Master program is dealing with?
Question A3	Does your Company/ Institution have an urgent need of graduates in the field of Environmental Engineering and Climate Change?
Question A5	General employee requirements
Question B4	Are there skills that are lacking in your company/institution?
Question A5	General employee requirements
Question B4	Are there skills that are lacking in your company/institution?
Question B7	In which areas do you expect an increased demand in your company in the coming years?

Question A2: How difficult is it for your Company/ Institution now to get qualified employees in the specific branches the new Master program is dealing with?

According to the overall results from question A2, Syrian stakeholders are facing less problems in hiring qualified employees than Jordanian stakeholders. Nevertheless, in the end more stakeholders in Syria, which stands in contrast to the overall result, have chosen the aspect “very difficult”.



Figure 3-12: Status in hiring qualified personal in Jordan and Syria

Question A3: Does your Company/ Institution have an urgent need of graduates in the field of Environmental Engineering and Climate Change?

According the result by question A3 (ref Figure 3-13), both countries plan to expand their headcounts in the near future between a level of moderate and strong increase. While 4 Syrian stakeholders did choose any answer, 4 stakeholders from Jordan claim even to reduce the actual number of employees.

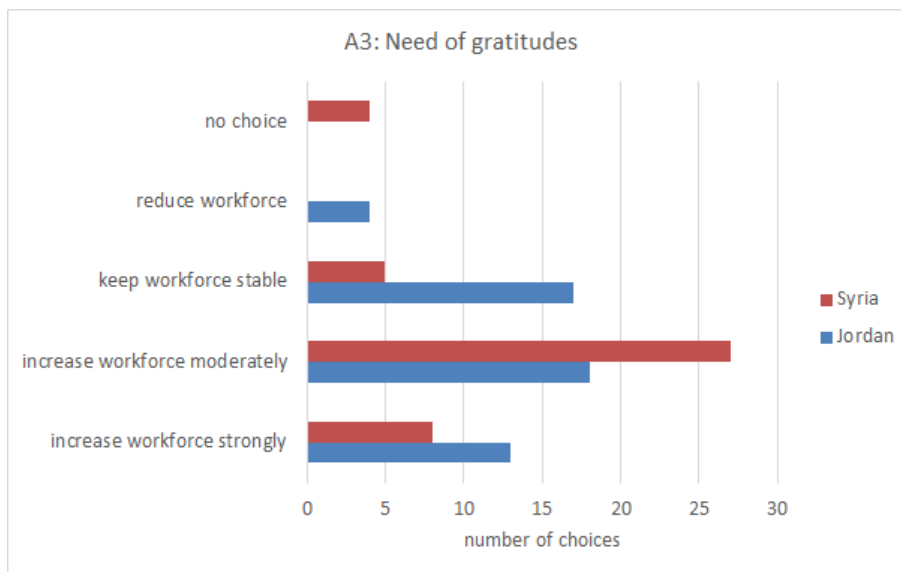


Figure 3-13: Near-future plans in expanding the headcount in Jordan and Syria

Question A5: General employee requirements

In looking more general on the required expertise for hired employees, Jordan and Syria are highly demanding in graduates with a strong specialisation in the technical field. Technical students with additional background in economics are also quite highly requested. Moderate demand in only shown for graduates with focus on economics, law or politics and some additional background in technical subjects.

Therefore, both countries require similar expertise from future graduates.

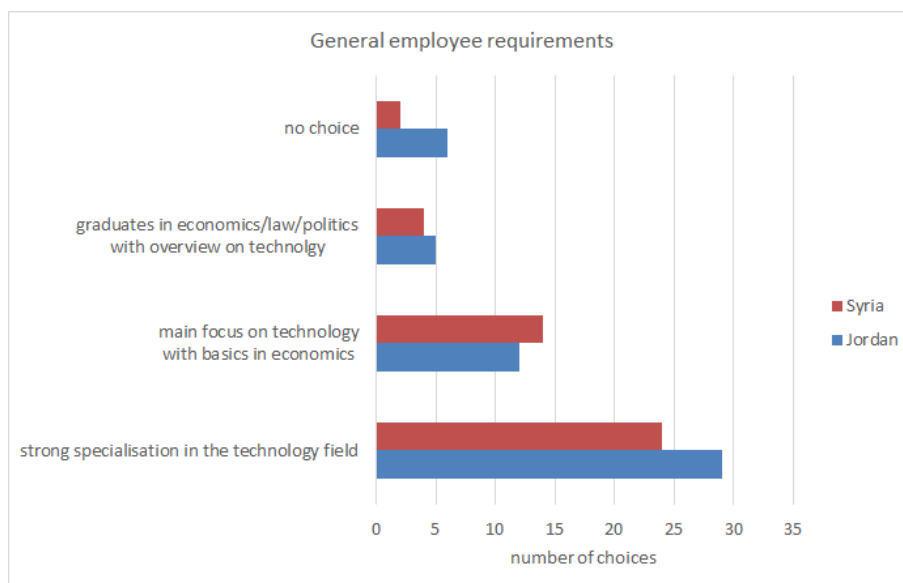


Figure 3-14: General employee requirement

Question B4: Are there skills that are lacking in your company/institution?

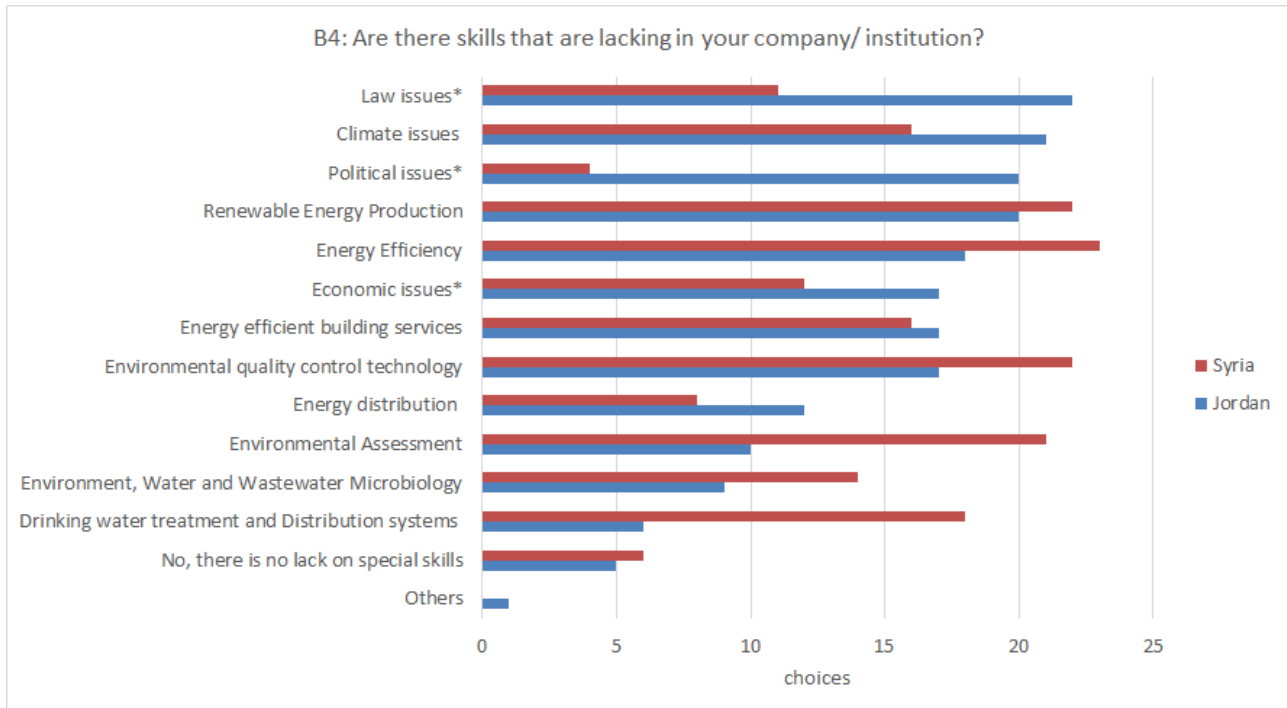


Figure 3-15: Actual lack of skills by the included stakeholders

By Question B4, in more specific lacking skills at the moment in companies are asked individually for each evaluated branch. In Figure 3-15 the gained results for Jordan and Syria are plotted in parallel. This result can also be analysed in comparison to the results by Figure 3-6 and Figure 3-10, describing the actual employment need for the next 5 years. To be consistent in their results, the outcomes between both questions should correspond in their conclusions.

According to Figure 3-15, Jordan is in need of expertise in law, climate issues and political issues. From the technical point of view, renewable energy production, energy efficiency, building services and environmental quality are requested. In contrary to new employee requirements, the branches of energy distribution and environment and especially drinking water treatment are less voted. A conclusion for this can be, that the companies request more employees, but the knowledge itself is already existing (for example the field of water treatment is a long established technology in both countries, therefore less lack of knowledge can be realistic).

For Syria, highest lack of skills are shown in the technical field (renewable energy production, energy efficiency, environmental quality control, environmental assessment, drinking water treatment). Less lack of skills is shown in the non-technical fields (economics, laws, and politics) and in climate issues. The results correspond well with the need for new employees (Figure 3-10).

Question B7: In which areas do you expect an increased demand in your company in the coming years?

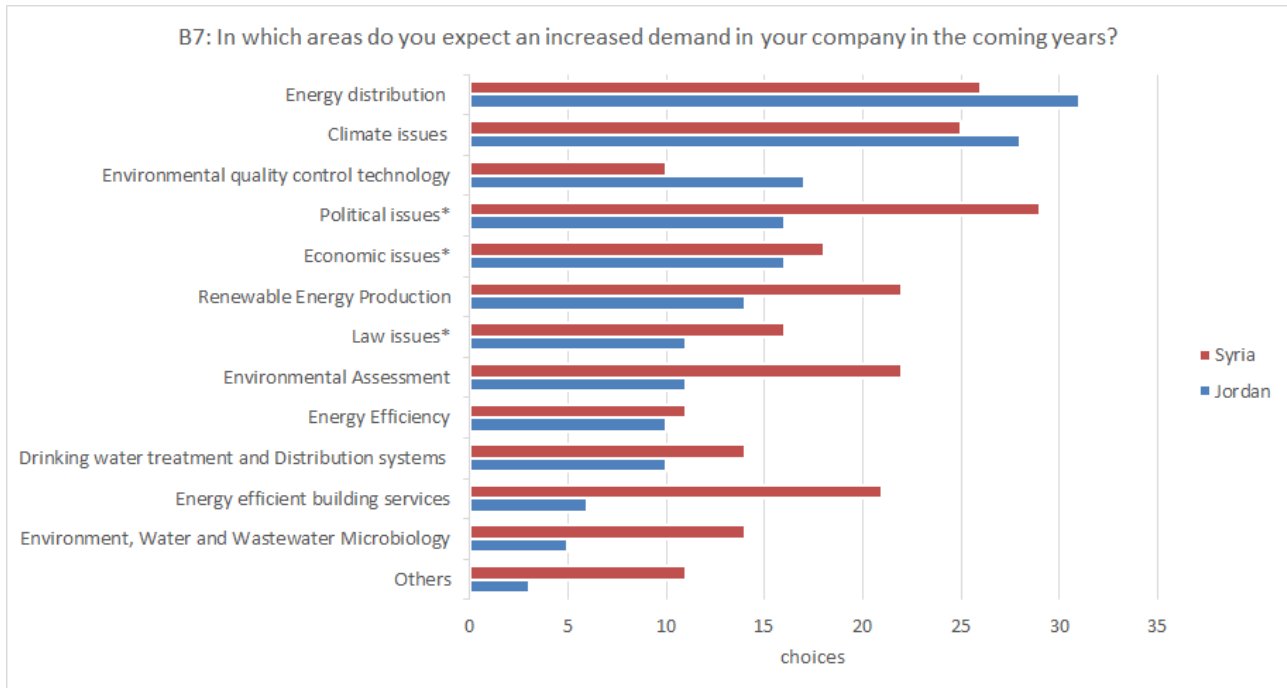


Figure 3-16: Expectations on increasing demand on employees in the next years

More correspondence within both countries is shown in the question about the expected knowledge demand in the coming years. In here, both countries evaluate energy distribution, climate change to highly demanded topics. Syria expect high demand also in political issues, renewable energy production, environmental assessment and energy efficient building services.

By concluding the results gained from the expected need from the stakeholders in new employees and their actually lack in skills, following branches claim the need for more graduates:

In Jordan:

1. Energy distribution
2. Environmental quality control climate issues
3. Renewable energy production
4. Economics, political and law issues
5. Energy efficiency

In Syria:

1. Energy distribution
2. Environmental assessment and climate issues
3. Renewable energy production
4. Economics, political and law issues
5. Energy efficient building services

It is recommended to include these contents as a part also in the new developed bachelor studies in EGREEN. The ordering starts with the branch of highest priority. The results clearly figures out the topic of **energy distribution** as the major topic in the next years. Beside **climate issues** also **renewable energy production** is figured out as one of the three main topics. Also the fields of economics, politics and law as well as energy efficiency can be identified as fields of requested future demand.

Although a major topic in both countries since many years, the branches of Drinking water treatment and distribution systems is not voted very high in Figure 3-17 and Figure 3-18, although in the above evaluation about the number of employees requested (Figure 3-6 and Figure 3-10) shows a higher demand also in this branches. Reason for this can be, that a majority of included stakeholders are out of this branches, which means a constant need of graduates also in this field, but without a major lacking of expertise in general, as this branch is quite good established.

3.5 Actual structure of the working headcounts in Jordan and Syria

Question A6: From which training facilities are your qualified employees mainly coming from?

For the Jordan stakeholders, graduates are mainly (93%) coming from University. The nationality of the employees are Jordanians (87%) as a majority (ref Figure 3-17), 2% are from abroad.

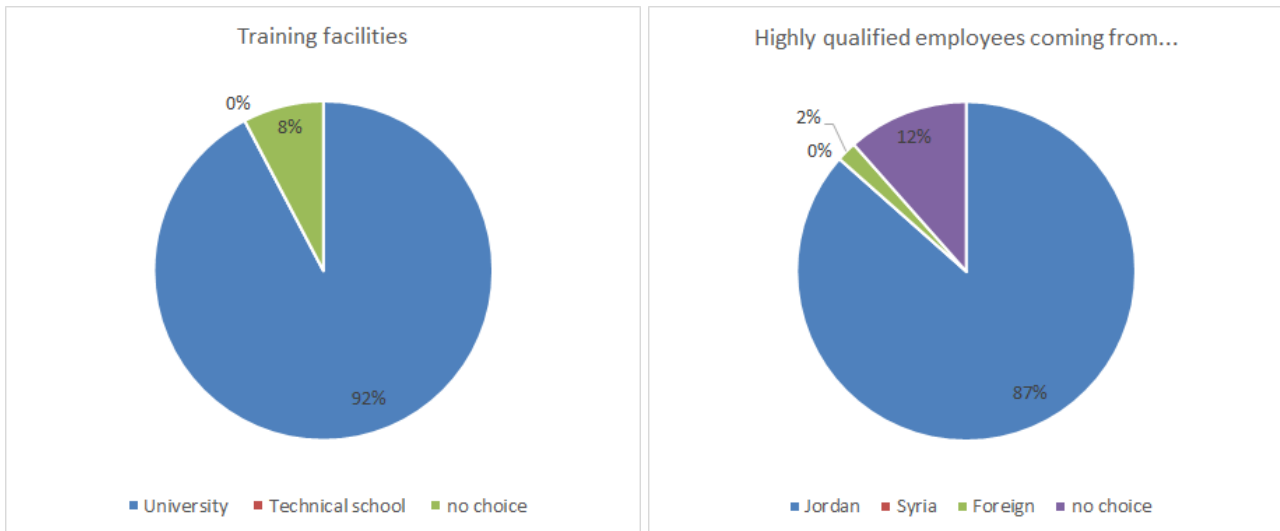


Figure 3-17: Status of actual headcounts at Jordan stakeholders

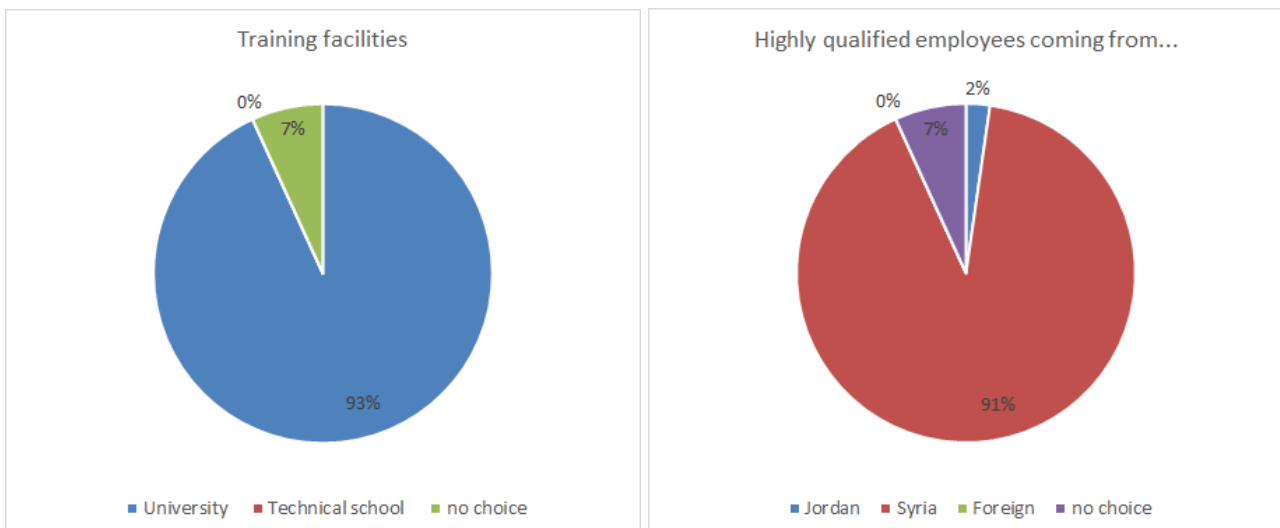


Figure 3-18: Status of actual headcounts at Syrian stakeholders

A similar situation is shown for Syria. The majority of highly qualified employees is coming from Universities. National employees are also mainly from Syria. Only 2% are coming from abroad.

ERASMUS PLUS Programme–EGREEN Project Number: 573927-EPP-1-2016-1-JO-EPPKA2-CBHE-JP

DISCLAIMER: This project has been funded with support from the European Commission. This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Question B5: Do you offer your employees in-house training / training to compensate for a lack of skills?

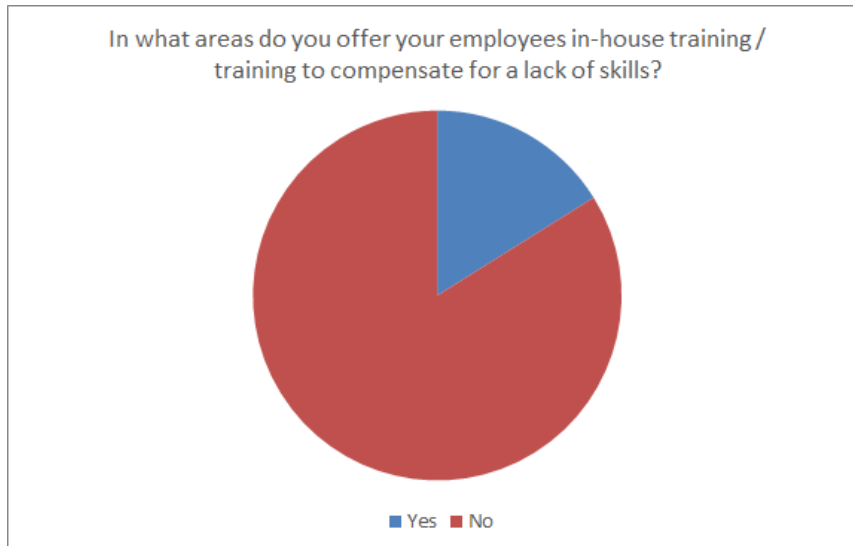


Figure 3-19: In-house training results for Jordan and Syria

For this question, an identical result was achieved in both countries. A majority of the stakeholder companies do not offer appropriate in-house trainings to train employees on specific topics with lack of skills. They are dependent in available study programs at university to meet a certain lack of skills.

3.6 PART B: Requirement and competencies

The aim of Part B in the undertaken questionnaire was to evaluate and identify, which competencies are in special interest for the involved stakeholders. In Table 4, an overview about all included competencies for Jordan is shown. It is sorted into the different areas of competencies.

In Table 4 the values are sorted within each section, starting with the “most relevant” rated competence in the top. The best ranked ranked subjects in the table are always highlighted with bold typing. Subjects of less relevance, which main votings for “less relevance” are greyed out.

3.6.1 Results from JORDANIAN stakeholders

Table 4: Requirements and competencies for Jordanian stakeholders

	very relevant	more relevant	less relevant	not relevant	no choice
Fundamental knowledge in natural science					
Ecology	15	16	9	3	9
Meteorology, Climate	13	20	8	2	9
Chemistry	11	14	11	9	7
Physics	10	9	20	6	7
Mathematics	7	17	16	4	8
Informatics	6	21	15	1	9
Biology, Microbiology	6	10	16	10	10
Geography	4	15	12	12	9
Fundamental technical knowledge					
Engineering design	15	11	13	4	9
Electrical engineering	15	10	10	9	8
Thermodynamics	12	13	12	8	7
Material Sciences	11	13	14	7	7
Mechanics, Fluid Mechanics	10	20	8	7	7
Heat Transfer	7	11	12	15	7
Process engineering	6	15	14	10	7

	very relevant	more relevant	less relevant	not relevant	no choice
Applied technical knowledge					
Renewable Energies	20	19	6	0	7
Water Resource engineering	13	24	6	1	8
Heating, Ventilation, Air Conditioning	13	18	8	5	8
Non-conventional water resources	11	19	8	7	7
Environmental engineering	10	16	12	5	9
Building Physics	7	13	15	9	8
Knowledge in system management					
Measurement-, Regulation and Control technology	21	14	7	3	7
Maintenance and Operation	19	13	7	5	8
Environmental assessment	16	16	12	1	7
Environmental management	14	13	15	1	9
Construction, Infrastructure, Road, Rail, Water engineering	10	10	16	9	7
Building management	8	8	19	10	7
Facility management	3	9	24	8	8
Fundamental economical knowledge					
Business administration	14	11	11	8	8
Energy economics and market	13	10	7	4	18
Investment and Finance	13	7	9	11	12
Logistics	12	11	10	10	9
Statistics	11	17	8	8	8
Fundamental knowledge in law					
Energy law	12	12	6	5	17
Environmental law	8	14	8	6	16
Water law	6	12	5	12	17

	very relevant	more relevant	less relevant	not relevant	no choice
Fundamental knowledge in politics					
Energy politics	12	10	11	5	14
Environmental politics	10	14	7	8	13
Water politics	9	9	13	8	13
Methodical competencies (Programming and Modelling)					
CAD (Catia, ProEngineer, Solid Works ...)	12	9	11	7	13
Control (SPS, LabView,...)	9	12	5	14	12
Modelling (Matlab, Simulink,...)	7	19	9	5	12
Programming and Simulation	7	18	7	5	15
Thermal Building Simulation (TRNSYS, E+)	5	13	10	13	11
Basic (VB, C++, Fortran,...)	2	12	18	9	11
Computational fluid dynamics	2	12	17	9	12
Building physics and moisture simulation	2	10	16	13	11
Structural analysis (FEM,...)	2	9	11	17	13
Chemical Modelling	0	11	17	12	12
Methodical competencies (Management)					
Project management and Controlling	20	15	2	4	11
Consulting	20	10	4	7	11
Technical English	19	13	3	5	12
Quality management (ISO 9001)	18	14	4	5	11
Environmental management (ISO 14001)	17	15	4	5	11
Scientific work	15	15	5	5	12
Waste management	11	14	8	8	11
Personal competencies					
Presentation techniques	30	8	6	0	8
Team work	29	12	2	0	9
Communication skills	27	13	2	0	10
Negotiation skills	22	13	8	0	9
Social skills and Flexibility	20	19	3	0	10

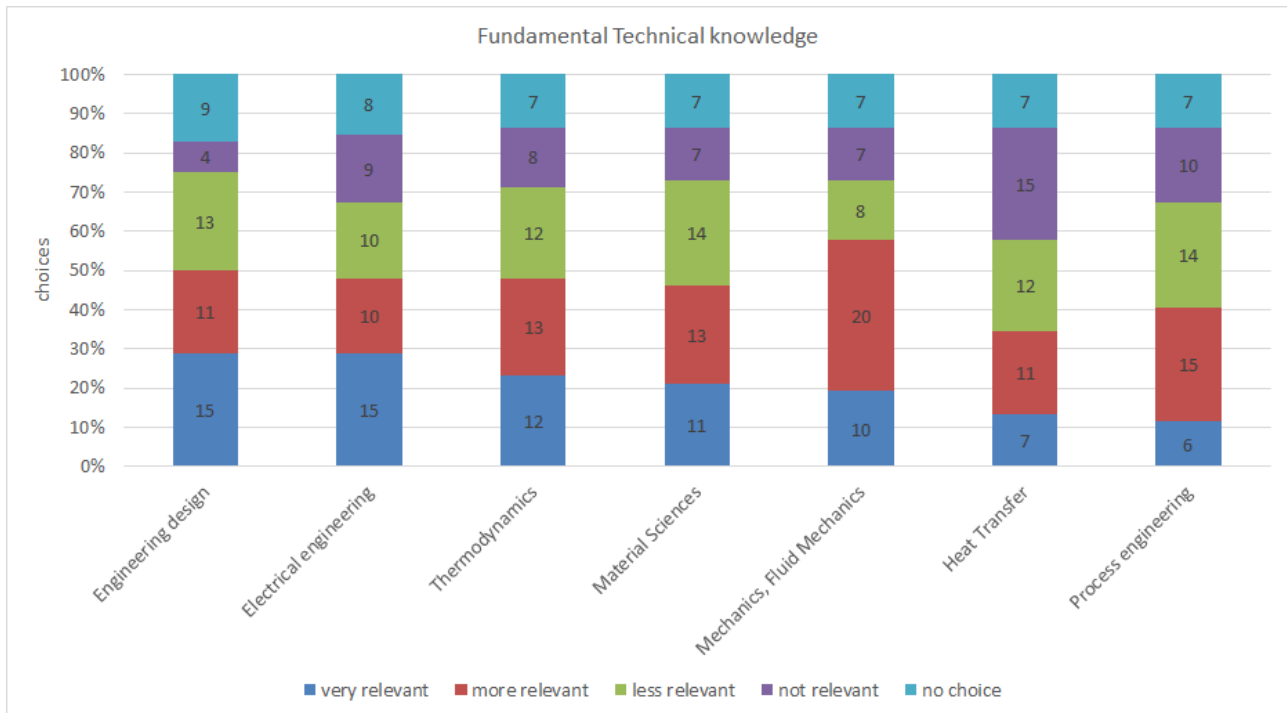


Figure 3-20: Competency requirements for Fundamental Technical knowledge in Jordan

Fundamental technical knowledge is evaluated quite similar for Jordan. A slight focus on electrical engineering and engineering design. The topic of heat transfer is less voted (ref Figure 3-20). For the applied technologies, a strong request is shown for the renewable energies. Also HVAC and water resource engineering got a high evaluation (ref Figure 3-21).

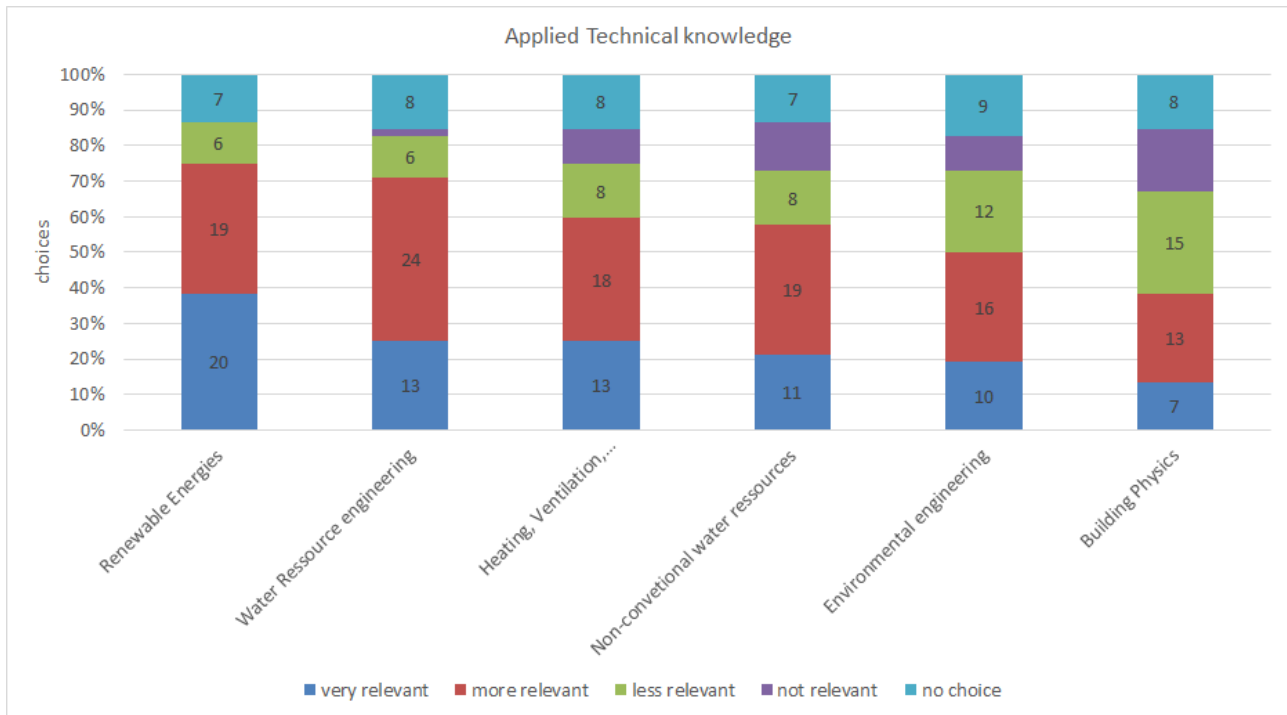


Figure 3-21: Competency requirements for Applied Technical knowledge in Jordan

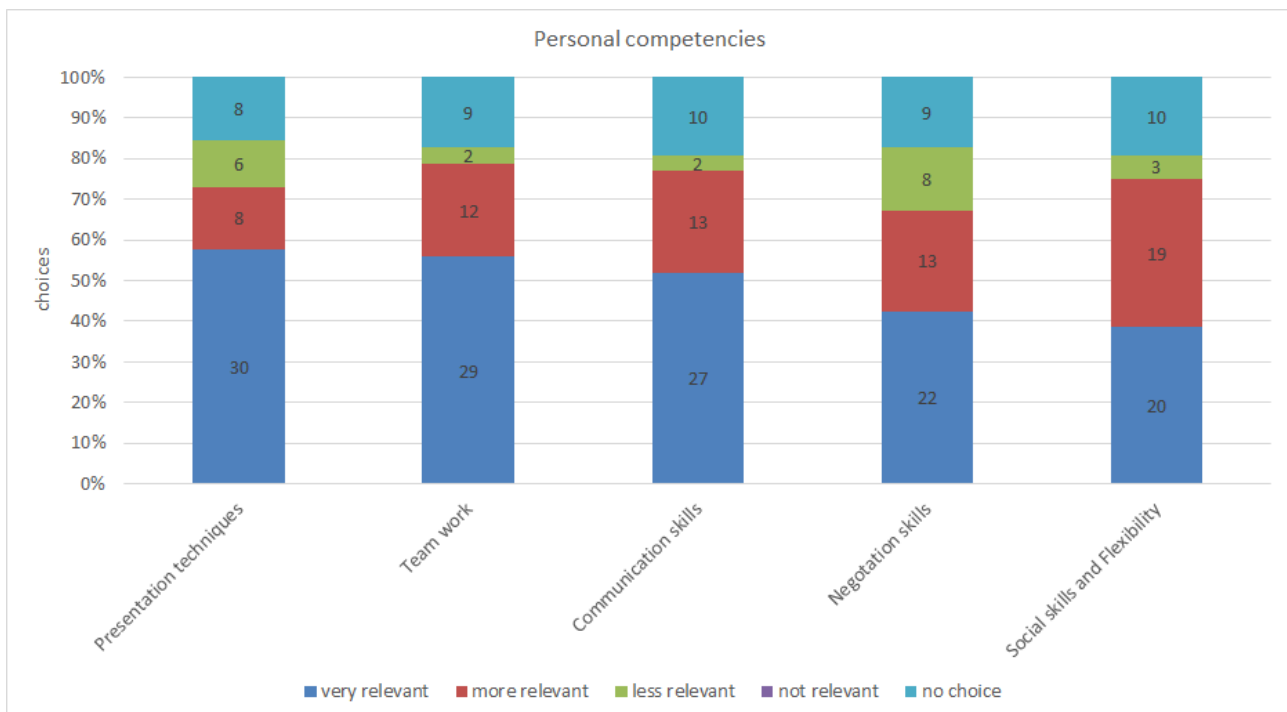


Figure 3-22: Competency requirements for Personal skills in Jordan

High votings are shown for all subjects in the field of personal competencies (ref Figure 3-22).

Requirements in system management are mainly focusing on maintenance and operation, measurement-, regulation and control technology as well as environmental assessment. In economics the subject of business Administration is high voted. Politics and laws is mainly requested in connection to energy topics. Main topics in the methodological hard skills are CAD rawing and controls programming (like SPS, LabView).

Further evaluation charts for this are shown in the appendix.

In following the subjects of special interest for companies in Jordan are summarized:

Natural Sciences:	Ecology, meteorology & climate, chemistry
Fundamental technics:	Electrical engineering, engineering design, thermodynamics
Applied Technics:	Renewable energies, HVAC, water resource engineering
System management:	Operation and maintenance, measurement, regulation & control, environmental assessment
Economics:	Business administration
Law:	Energy law
Politics:	Energy politics, environmental politics
Methodical competence:	CAD, control programming
General:	Methodological soft skills, personal skills

3.6.2 Results from SYRIAN stakeholders

Table 5: Requirements and competencies for Syrian stakeholders

	very relevant	more relevant	less relevant	not relevant	no choice
Fundamental knowledge in natural science					
Informatics	26	10	3	4	1
Ecology	18	12	8	4	2
Chemistry	16	14	6	6	2
Biology, Microbiology	13	13	2	11	5
Physics	12	7	9	13	3
Meteorology, Climate	9	13	11	8	3
Mathematics	9	8	7	14	6
Geography	5	10	2	19	8
Fundamental technical knowledge					
Electrical engineering	22	14	3	4	1
Engineering design	19	8	10	5	2
Material Sciences	17	15	6	4	2
Mechanics, Fluid Mechanics	14	16	3	9	2
Thermodynamics	13	12	8	9	2
Process engineering	11	11	12	8	2
Heat Transfer	11	10	10	11	2
Applied technical knowledge					
Renewable Energies	24	12	3	4	1
Water Resource engineering	20	15	4	4	1
Heating, Ventilation, Air Conditioning	17	13	7	4	3
Environmental engineering	14	10	10	6	4
Non-conventional water resources	14	10	6	13	1
Building Physics	11	10	10	11	2

	very relevant	more relevant	less relevant	not relevant	no choice
--	---------------	---------------	---------------	--------------	-----------

Knowledge in system management					
Maintenance and Operation	23	12	6	1	2
Measurement-, Regulation and Control technology	20	16	4	2	2
Environmental assessment	14	18	5	6	1
Environmental management	14	18	6	6	0
Construction, Infrastructure, Road, Rail, Water engineering	13	15	5	9	2
Building management	10	10	5	13	6
Facility management	4	8	11	11	10
Fundamental economical knowledge					
Energy economics and market	18	10	9	5	2
Business administration	13	14	12	2	3
Investment and Finance	13	10	10	7	4
Statistics	12	12	9	3	8
Logistics	10	12	11	6	5
Fundamental knowledge in law					
Environmental law	12	13	7	6	6
Water law	11	11	8	6	8
Energy law	11	9	9	5	10
Fundamental knowledge in politics					
Environmental politics	14	19	5	5	1
Water politics	13	13	7	8	3
Energy politics	12	15	9	4	4

	very relevant	more relevant	less relevant	not relevant	no choice
--	---------------	---------------	---------------	--------------	-----------

Methodical competencies (Programming and Modelling)					
Programming and Simulation	19	12	7	4	2
Modelling (Matlab, Simulink,...)	17	11	8	5	3
CAD (Catia, ProEngineer, Solid Works ...)	15	11	7	9	2
Control (SPS, LabView,...)	14	10	8	5	7
Basic (VB, C++, Fortran,...)	13	10	12	6	3
Computational fluid dynamics	11	8	11	11	3
Building physics and moisture simulation	10	7	7	17	3
Thermal Building Simulation (TRNSYS, E+)	9	9	5	15	6
Structural analysis (FEM,...)	8	6	8	19	3
Chemical Modelling	7	9	10	14	4
Methodical competencies (Management)					
Technical English	24	10	3	5	2
Quality management (ISO 9001)	22	14	3	4	1
Environmental management (ISO 14001)	19	15	4	5	1
Consulting	18	14	4	6	2
Waste management	18	10	5	7	4
Project management and Controlling	16	17	3	5	3
Scientific work	15	17	4	5	3
Personal competencies					
Team work	29	13	1	0	1
Communication skills	25	12	6	0	1
Negotiation skills	22	9	8	5	0
Presentation techniques	21	13	5	4	1
Social skills and Flexibility	19	16	5	3	1

Against the results in Jordan, Syria shows a high demand on informatic studies in the branch of natural science. Beside them, also chemistry and ecology plays a major role in natural sciences.

A high evaluation in the field of fundamental technical knowledge is shown for electrical engineering and material sciences. Also engineering design is high ranked, similar to Jordan. Less relevance is shown for the topics of heat transfer, process engineering and thermodynamics (ref Figure 3-23).

For the applied technologies, again renewable energies, HVAC and water resource engineering are highly demanded. This request is identical to the result in Jordan (Figure 3-24)

Also in Syria, the subjects in the field of personal competencies and methodical soft skills are highly voted (Figure 3-25). Against the result in Jordan, all economic subjects highly are voted for.

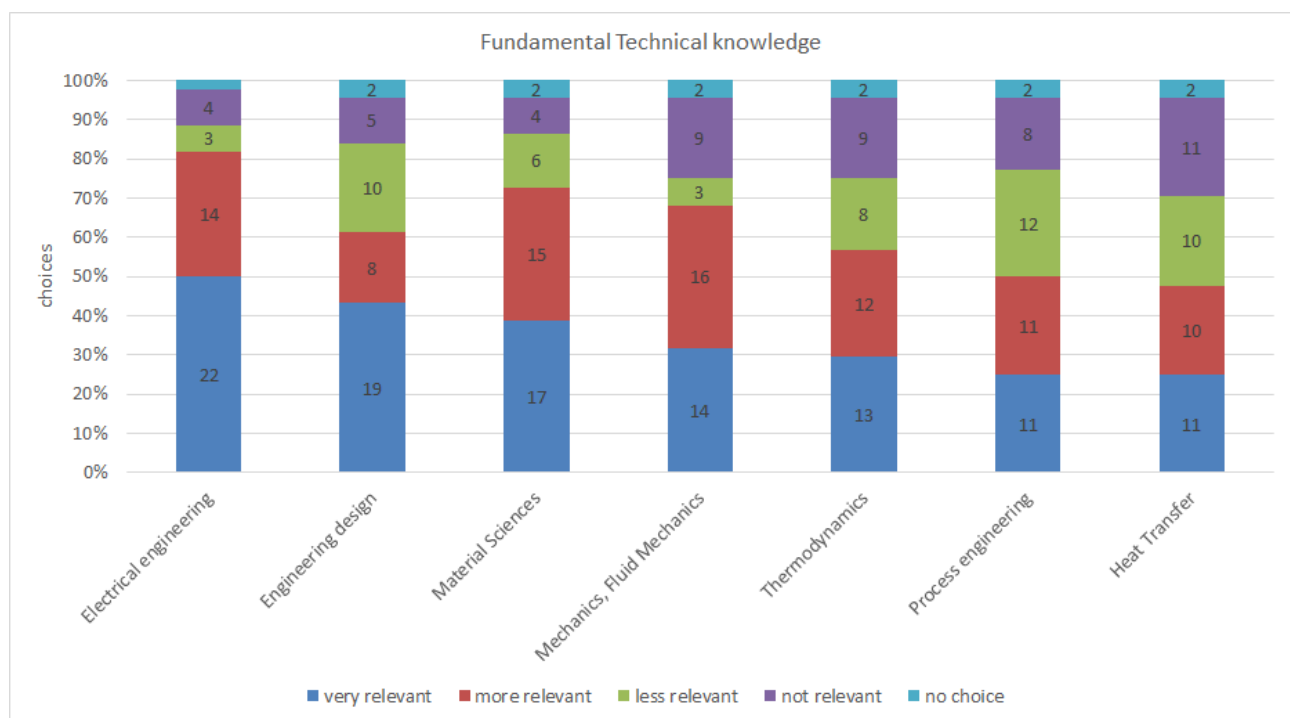


Figure 3-23: Competency requirements for Fundamental Technical knowledge in Syria

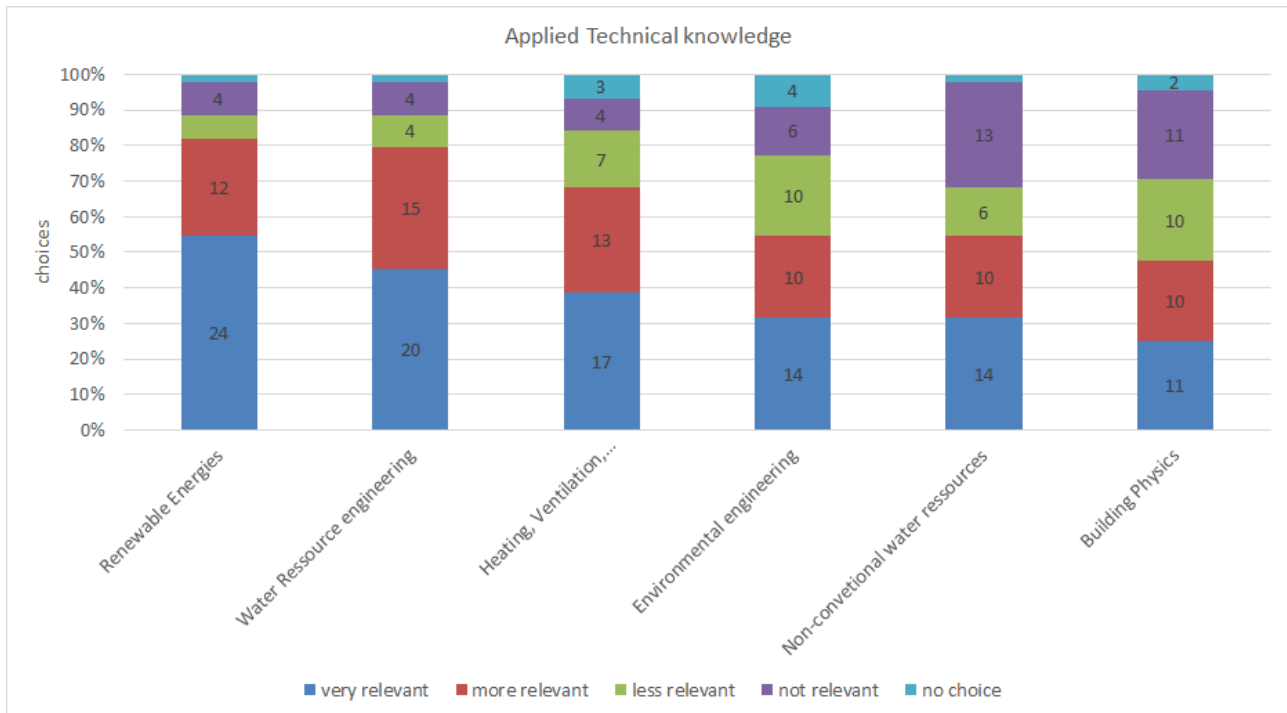


Figure 3-24: Competency requirements for Applied Technical knowledge in Syria

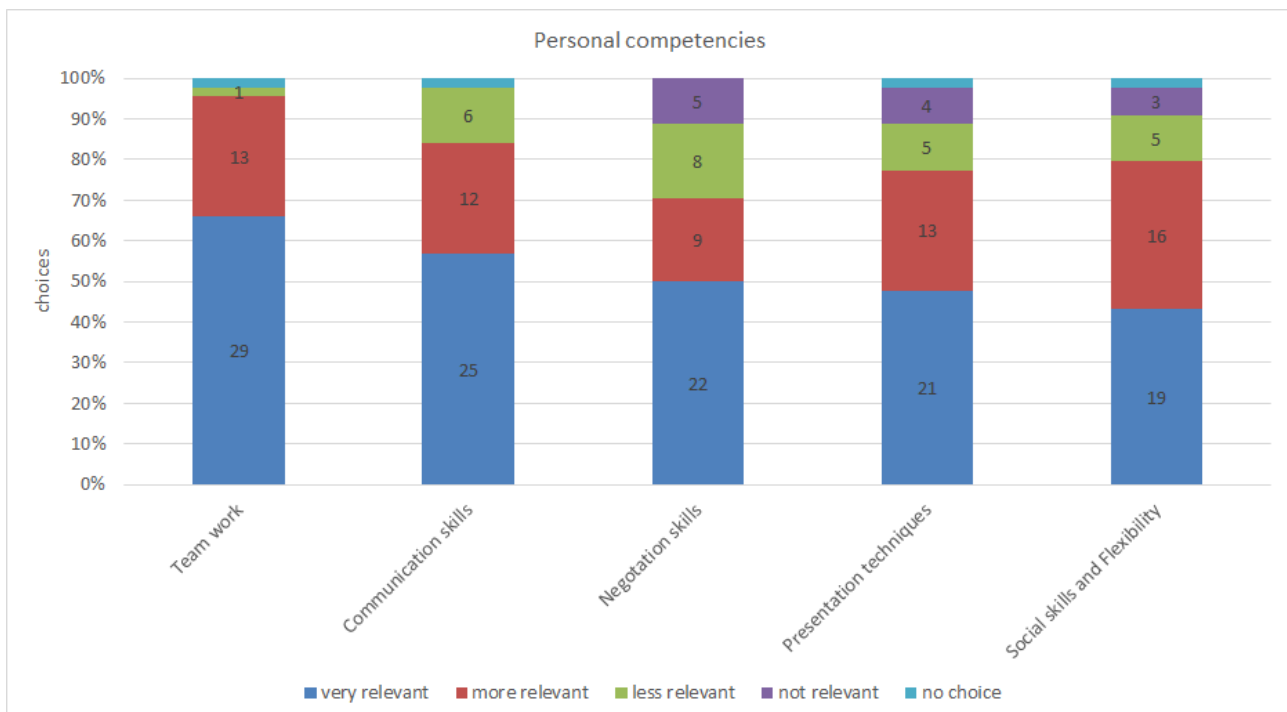


Figure 3-25: Competency requirements for Personal skills in Syria

In following the subjects of special interest for companies in Syria are summarized:

Natural Sciences:	Informatics, ecology, chemistry
Fundamental technics:	Electrical engineering, engineering, material science
Applied Technics:	Renewable energies, HVAC, water resource engineering
System management:	Operation and maintenance, measurement, regulation & control, environmental assessment
Economics:	All business subjects
Law:	Water law
Politics:	Environmental politics
Methodical competence:	Programming, modelling CAD, CFD
General	Methodological soft skills, personal skills

3.7 PART C: Relevance of the planned Bachelor program

In the final part of the questionnaire, the stakeholders were asked to evaluate the planned bachelor program in more general by following to questions A7 and C1.

Question A7: The planned Bachelor Courses on Environmental Engineering and Climate Change on university level is of Interest for your company/ institution.

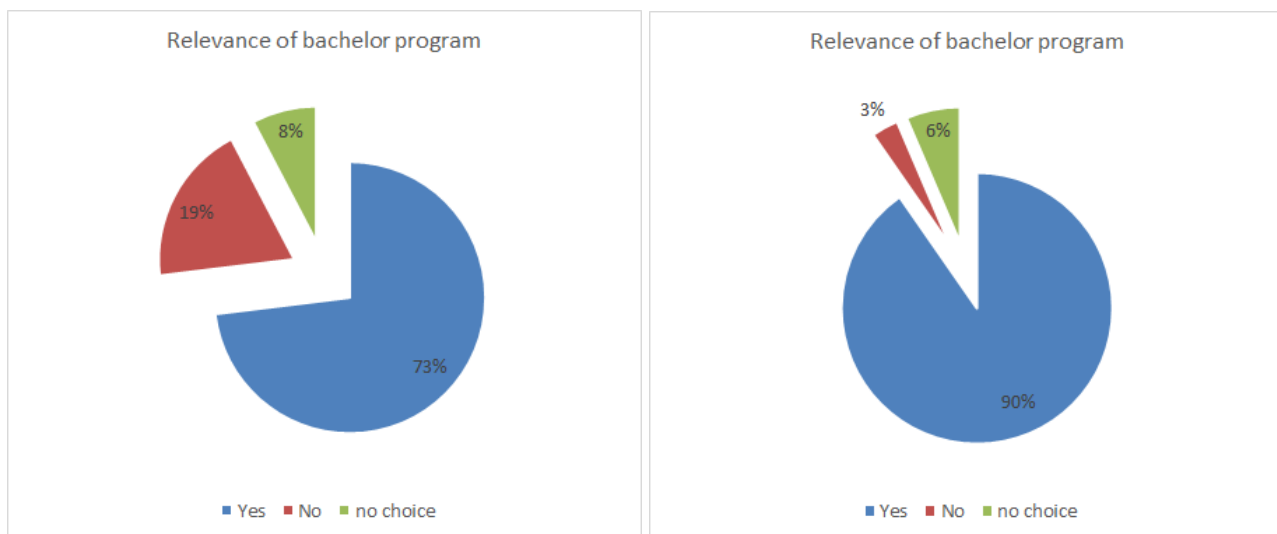


Figure 3-26: Relevance of the bachelor program to stakeholders for Jordan (left) and Syria (right)

In Figure 3-26, the relevance of the planned bachelor program developed in EGREEN is shown for the involved stakeholders in the questionnaire. In Jordan 73% of the stakeholders vote the program with high relevance, 19% with no relevance. In contrast, Syrian stakeholders give highly relevance to the proposed program with more than 90%, the 3% value with no relevance is neglectable.

Question C1: Please evaluate the planned bachelor program

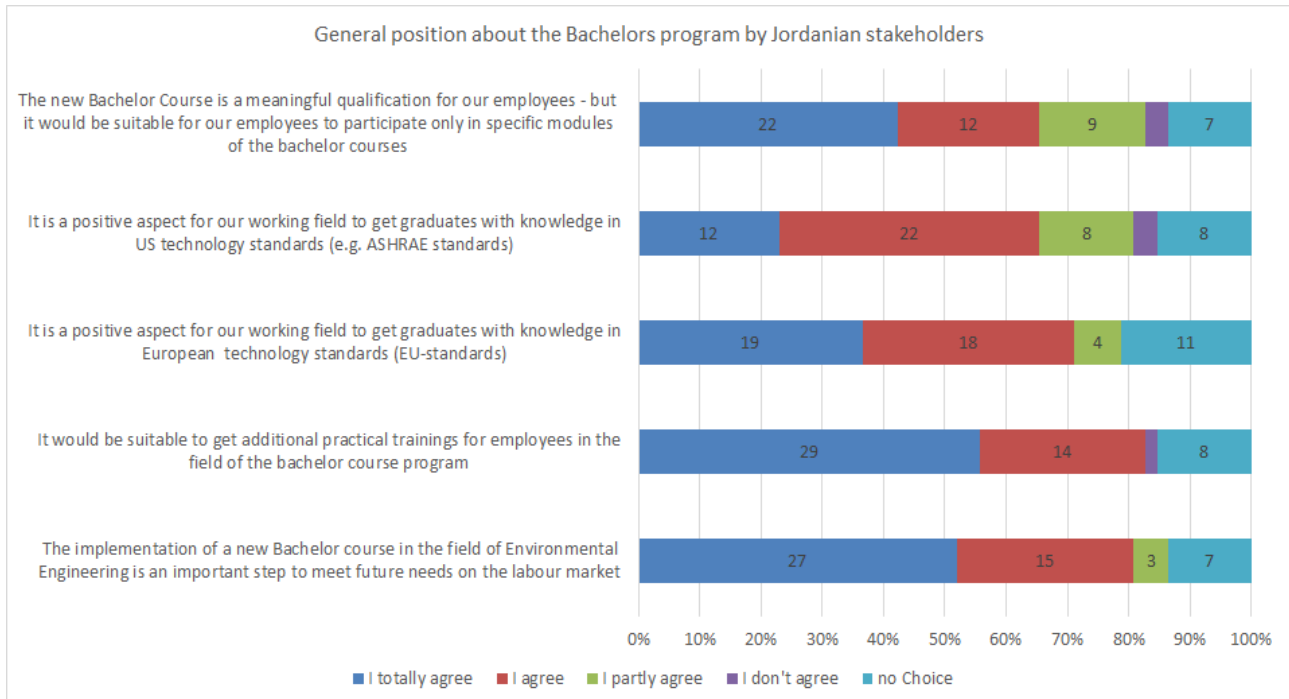


Figure 3-27: General positions about the bachelor program from Jordanian stakeholders

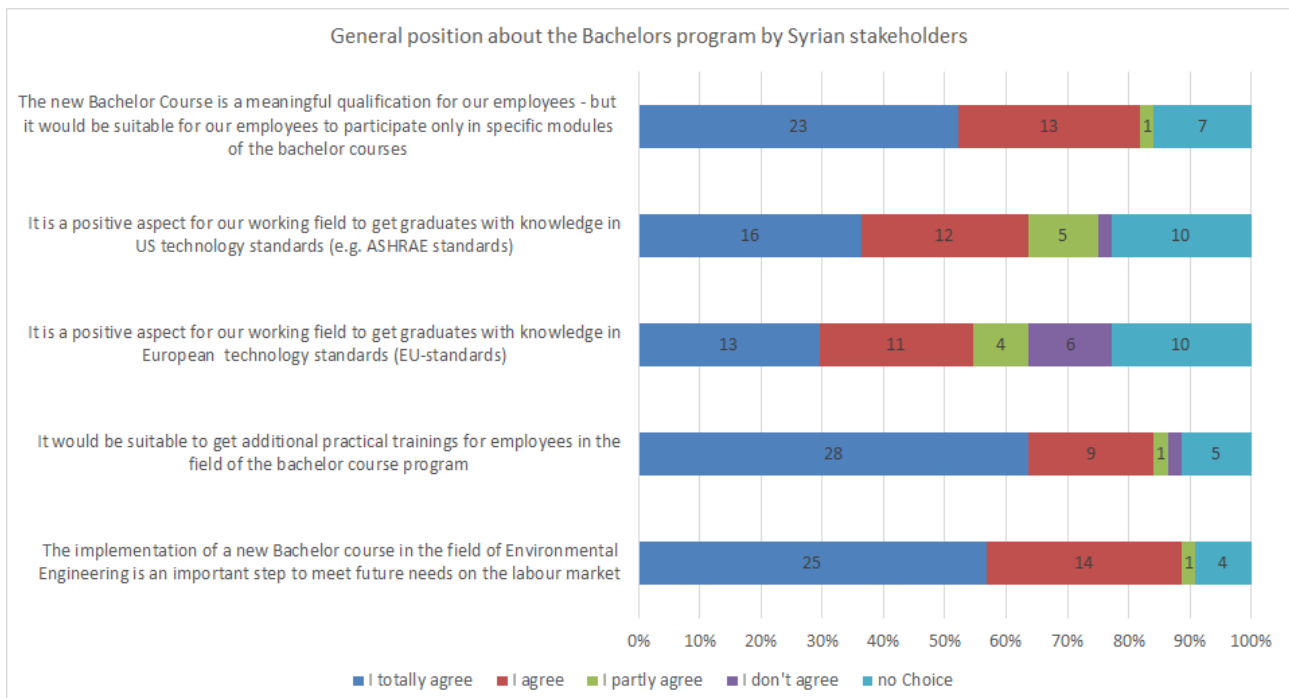


Figure 3-28: General positions about the bachelor program from Syrian stakeholders

Within question C1, detailed aspects are asked, which can be of high relevance for the planned bachelor program. The results gained for both countries are in general similar and the same conclusions out of it can be made.

Therefore, the majority of the stakeholders in Jordan and Syria totally agree or agree in the question, that it would be also suitable for their employees to join only a part of the program, which can be done in parallel to an ongoing employment.

A difference in both countries is shown for the relevance of EU-standards and ASHRAE-standards. While Jordanian stakeholders vote it as a positive aspect to go for EU-standards in the studies, the Syrian stakeholders tend to go for ASHRAE-standards.

Highly recommended are offerings of practical trainings within the course program. For both countries, this aspect was voted highest. Additionally, the implementation of such a bachelor program was mainly voted with “total agreement” in terms of their relevance and importance to meet the future needs on the market.

4 QUESTIONNAIRE 2 – ANALYSIS

In following subchapter the results of questionnaire 2 are presented. The aim of this questionnaire was to screen the already existing study structure as well as to evaluate the existing teaching and lab infrastructure. The questionnaires have been distributed to each participating Jordanian and Syrian Partner University. By direct comparison of all participating Universities within each country, existing infrastructure and lectures can be highlighted. In terms of “injecting” new EGREEN-lecture contents into already existing study programs, the results out of this questionnaire are of fundamental basis for further steps.

4.1 Results for JORDANIAN universities

4.1.1 Existing study programs

In Table 6, existing study programs (bachelor and master) are shown for all participating Universities from Jordan. Addition study programs and topics of specialization are mentioned in case.

The **Areas of Faculties** show a broad offer in Natural Science and Technology studies. Law and Business studies are also offered in almost each university. The GJU is offering specific studies mainly in the field of technology. All Universities offer Lab infrastructure in general. Their research activities are mostly coupled to the existing areas of faculties.

ERASMUS PLUS Programme–EGREEN Project Number: 573927-EPP-1-2016-1-JO-EPPKA2-CBHE-JP

DISCLAIMER: *This project has been funded with support from the European Commission. This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.*

Table 6: List of existing study programs in Jordanian universities

Study programs	AABU	GJU	JU	JUST	MUTAH	ZUJ	
	Jordan	Jordan	Jordan	Jordan	Jordan	Jordan	
Country							
Areas of Faculties	Natural Science						
	Technology						
	Economics						
	Laws						
	others	Humanities	Engineering	Engineering		Agriculture	Nursing
		Engineering	Business and Finance			Vetinary	Pharmacy
Lab	Laboratories at University						
Areas of Research	Natural Science						
	Technology						
	Economics						
	Laws						
	others	Engineering	Engineering			Agriculture	Nursing
			Business and Finance			Vetinary	Pharmacy
Natural Sciences	Agricultural Science						
	Geology, Soil Science						
	Biology, Ecology						
	Chemistry						
	Physics						
	others 1		Engineering	Mathmatices			
Engineering Sciences	Mechanical Eng.						
	Civil Engineering						
	Electrical Eng.						
	Power Engineering						
	Infrastructure Eng.						
	Process Engineering						
others 1	Architcture	Architcture Engineering	Chemical Engineering	Environ Eng, Industrial Waste Manage, Water Desalination			
	Suervey	Applied Medical Sciences School	Industrial Engineering	Quality Control, Manufacturing Processes, Corrosion			
Economics	Business Economics						
	National-, Makroecon.						
	Finance and Management						
	International Economics						
	Logistics						
	Human ressources						
others 1			Accountaing	Business Administration (MBA)Accounting,			
			Business management	Management, Business Administration			
Law	Law of procedure						
	International law						
	Civil law						
	Financial law						
	others 1			Public Law			
				Private Law	Intellectual Property Law		

ERASMUS PLUS Programme–EGREEN Project Number: 573927-EPP-1-2016-1-JO-EPPKA2-CBHE-JP

DISCLAIMER: This project has been funded with support from the European Commission. This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

In the field of **Natural Sciences**, most of the Universities are offering study programs. Except GJU is focussing on engineering studies (Mechanical-, Electrical- and Civil-Engineering). Also a strong specialization on **Engineering studies** is shown by JUST, UJ and MUTAH. MUTAH and AABU are the only ones, who offer Power engineering in their existing programs.

Also the field of **Business studies** is well established in almost all Universities. JUST offers in more specific a program for Business administration (MBA). UJ and JUST also include studies in their actual lectures about Accounting and Business management.

In the field of **Law**, only the Universities AABU and MUTAH are offering basic programs. Furthermore, UJ offers specialization in public and private law as well as Intellectual property law.

4.1.2 Existing courses

Table 7 highlights, in which filed an “injection” of further lectures is beneficial. Cells marked with green show already existing lectures at the University. Cells marked with red show a lack of existing lectures in these fields. Therefore, lectures in the **fundamental technical field** as well as in the **applied technical field** are already well established in the different universities.

Main lacking of lectures are highlighted in the field of **law** and **political studies, personal competencies** as well as partly in **Natural sciences** and **Ecology**. In addition, studies about **Knowledge in System Management** show a lack of expertise especially for the ZUJ.

Nevertheless, there is no lecture, which is not covered by any of the participating universities – therefore an exchange in knowledge and information sharing between the participating universities is possible.

Table 7: List of the status of existing/ non-existing lectures in Jordanian universities

Area of study	Course list	AABU Jordan	GJU Jordan	UJ Jordan	JUST Jordan	MUTAH Jordan	ZUJ Jordan	
								Legend
		<ul style="list-style-type: none"> very relevant relevant less relevant not evaluated in questionnaire 1 already offered in Bachelor studies already offered in Master studies currently not offered, but planned currently not offered, and not planned no choice 						
Natural Sciences	Mathematics							
	Physics							
	Chemistry							
	Biology, Microbiology							
	Geography							
	Ecology							
	Meteorology, Climate and Climate Change							
	Informatics							
Fundamental Technical knowledge	Thermodynamics							
	Mechanics, Fluid Mechanics							
	Thermal engineering, heat transfer							
	Process engineering							
	Electrical engineering							
	Engineering design							
	Material Sciences							
	Chemical Engineering							
Applied Technical knowledge	Energy Systems and Energy Economy							
	Power Plant Technology							
	Renewable Energies							
	Heating, Ventilation, Air Conditioning							
	Building Physics							
	Energy Efficiency in Buildings							
	Rational Use of Energy							
	Hydraulic engineering							
	Environmental engineering							
	Drinking Water treatment, supply and distribution							
	Sanitation, Sewage Systems, Wastewater Microbiology							
	Irrigation							
	Clean Production							
Knowledge in System Management	Maintenance and Operation							
	Measurement-, Regulation and Control technology							
	Construction, Infrastructure, Road, Rail, Water engineering							
	Building management							
	Facility management							
	Environmental management							

Fundamental Economic knowledge	Business administration						
	Statistics						
	Logistics						
	Investment and Finance						
	Energy economics and market						
Fundamental knowledge in Ecology	Environmental quality control technology						
	Environmental Impact Assessment						
	Simulation of Environment Phenomena						
	Air Quality Management						
	Air Pollution Control						
	Strategic Planning for Adaptation to Climate Change						
Law	Environmental law						
	Water law						
	Energy law						
Politics	Environmental politics						
	Energy politics						
	Water politics						
Methodical Hard Skills	Thermal Simulation (TRNSYS, EPlus,...)						
	Control (SPS, LabView,...)						
	Basic (VB, C++, Fortran,...)						
	Computational fluid dynamics						
	Modelling (Matlab, Simulink,...)						
	Chemical Modelling						
	Building physics and moisture simulations						
	CAD (Catia, ProEngineer, Solid Works ...)						
	Structural analysis (FEM,...)						
Methodical Soft Skills	Technical English						
	Waste management						
	Project management and Controlling						
	Consulting						
	Environmental management (ISO 14001)						
	Scientific work						
	Quality management (ISO 9001)						
Personal Skills	Team work						
	Communication skills						
	Social skills and Flexibility						
	Negotiation skills						
	Presentation techniques						

In Table 8 the existing lab infrastructure for all Jordanian universities is shown, separated in Research labs and student labs for teaching purposes. Except of JUST, all universities have still capacities to extend their labs with additional infrastructure within the EGREEN program.

Most universities show a wide spread of different laboratories existing. Most laboratories are available for students. In the Research field more specific measuring instruments (eg Gaschromatography, Spectrometers...) are documented.

Table 8: List of existing Lab infrastructure in Jordanian universities

Labs	AABU	GJU	UJ	JUST	MUTAH	ZUJ
Student Labs	most of engineering labs, such as heat transfer, mass transfer, fluid mechanics, mechatronics...	Physics (Mechanics, E&M), all basic labs for engineering (Electric Circuits, Analog and Digital Electronics, power electronics, Machines and Drives, Digital Logic, Control, etc..)	Waterchemistry, Water microbiology, hydraulics, fluid mechanics, Sanitray engineering	Chemistry	In many scientific fields such as chemistry biology, physics , agricultural fields GIS,.....etc.	Educational laps for natural sciences as biology , chemistry
Research Labs	Gaschromatography, spectrophometers, atomic absorbtion	BET, gas and liquid chromatograph, UV spectrometer, but still we need more	Water chemistry, water microbiology	Environmental pollutants	Engineering	Research & Testing labs for many fields: water , soil , plants , GIS.....etc
Ressources for new laboratories						

4.2 Results for SYRIAN universities

4.2.1 Existing study programs

Table 9: Overview on existing Faculties and Research areas in Syrian universities

	Study programs	ABU	TU	AU
	Country	Syria	Syria	Syria
Areas of Faculties	Natural Science			
	Technology			
	Economics			
	Laws			
	others	Engineering	Engineering	Electrical Eng
		Human Sciences	Midicine	Telecom Eng
		Midicine	Technical institution	Mechanical Eng
	Pharmacy	0		
	Agriculture	0		
Lab	Laboratories at University			
Areas of Research	Natural Science			
	Technology			
	Economics			
	Laws			
	others	Engineering	Engineering	Electronics
		0 Midicine	Control & Automation	
		0 Technical institution	Mechanics	

In Results for SYRIAN universities

4.2.2 Existing study programs

Table 9 an overview on the existing Faculties and Research areas are shown. Therefore, all involved universities from Syria are offering study programs in the fields of Natural Science, Engineering, Economics and Laws. Furthermore specializations are shown in the field of Engineering, Human Sciences, Medicine and Agriculture.

ERASMUS PLUS Programme–EGREEN Project Number: 573927-EPP-1-2016-1-JO-EPPKA2-CBHE-JP

DISCLAIMER: This project has been funded with support from the European Commission. This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

All universities are equipped with laboratories. Also all universities are doing active research in most fields where are also study programs offered.

Table 10: Detailed list of existing Study programs in Syrian universities

	Study programs	ABU	TU	AU
Natural Sciences	Agricultural Science			
	Geology, Soil Science			
	Biology, Ecology			
	Chemistry			
	Physics			
	others 1	Statistic		Nerves physiology ,
	others 2	0		Plant science
	others 3	0		Chemistry
Engineering Sciences	Mechanical Eng.			
	Civil Engineering			
	Electrical Eng.			
	Power Engineering			
	Infrastructure Eng.			
	Process Engineering			
	others 1		Mechatronic engineering	
			Informatic engineering	
			Computer Science and Robotik	
Economics	Business Economics			
	National-, Makroecon.			
	Finance and Management			
	International Economics			
	Logistics			
	Human ressources			
	others 1		Accounting	
			Statistics and programming	
Law	Law of procedure			
	International law			
	Civil law			
	Financial law			
	others 1		Cords precedures law	
			Rights and Dependence	

ERASMUS PLUS Programme–EGREEN Project Number: 573927-EPP-1-2016-1-JO-EPPKA2-CBHE-JP

DISCLAIMER: This project has been funded with support from the European Commission. This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

In Table 10, a more detailed list is given on existing bachelors and master programs. Therefore, all mentioned fields in **Natural science** and **Engineering science** is covered by each university. Several additional programs are mentioned.

All study programs in **Economics** are offered by ABU. TU and AU are lacking in Logistics and later also in International economics. Law is again very good covered by all universities; TU is showing fields of specialisation in Code procedures and Rights.

4.2.3 Existing courses

In the field of **Natural Sciences** Tishreen University (TU) is offering courses in all mentioned fields. Instead Al-Baath university (ABU) and Aleppo university (AU) offer less courses in Natural Sciences, although according to Table 11 Natural Science studies are widely offered. While ABU does not plan to investigate in such study fields in future, AU is planning to investigate in several fields from Natural Sciences.

In the field of **fundamental Technical knowledge** all three universities offer almost all mentioned subjects. Only AU did not define their status in Process Engineering, Engineering Design and Chemical Engineering. While TU and AU offering all subjects already in the Bachelor studies, ABU is offering all courses of this branch in Master courses, although they are of fundamental aspect. It can therefore be, that ABU is offering technical studies especially for the Master field.

In **applied technical knowledge**, ABU is just offering some of the subjects relevant for EGREEN. Nevertheless, most of the missing subjects are planned to implement. TU are lacking in subjects for Building Physics and Energy Efficiency in Buildings. TU also has not planned to implement these subjects in near future. AU provides all subjects in their bachelor programs.

Most subjects in System management, Economics and Ecology are either offered or planned to be offered. Some single courses are lacking at TU, which are also not planned to be implemented.

TU also doesn't offer subjects in **Law** at all. **Politics** are offered by TU and AU. ABU is it not offering so far, but is planning to implement it.

In **Methodological competencies**, TU is not offering chemical modelling as well as Building Physics and Moisture simulation. Both subjects are not planned to be implemented. ABU is planning to implement most of the mentioned subjects.

Studies in **Personal skills** are not offered at all by ABU, although according to the Needs analysis from questionnaire, those aspects are highly requested by stakeholders. Therefore, these subjects should be implemented in future.

Table 11: List of the status of existing/ non-existing lectures in Syrian universities

Area of study	Course list	ABU	TU	AU
		Syria	Syria	Syria
Natural Sciences	Mathematics	very relevant	already offered in Bachelor studies	currently not offered, but planned
	Physics	very relevant	already offered in Bachelor studies	currently not offered, but planned
	Chemistry	very relevant	already offered in Bachelor studies	currently not offered, but planned
	Biology, Microbiology	very relevant	already offered in Bachelor studies	currently not offered, but planned
	Geography	very relevant	already offered in Bachelor studies	already offered in Master studies
	Ecology	very relevant	already offered in Bachelor studies	no choice
	Meteorology, Climate and Climate Change	currently not offered, but planned	already offered in Bachelor studies	already offered in Bachelor studies
	Informatics	currently not offered, but planned	already offered in Bachelor studies	already offered in Bachelor studies
Fundamental Technical knowledge	Thermodynamics	currently not offered, but planned	already offered in Bachelor studies	already offered in Bachelor studies
	Mechanics, Fluid Mechanics	currently not offered, but planned	already offered in Bachelor studies	already offered in Bachelor studies
	Thermal engineering, heat transfer	currently not offered, but planned	already offered in Bachelor studies	already offered in Bachelor studies
	Process engineering	currently not offered, but planned	already offered in Bachelor studies	no choice
	Electrical engineering	currently not offered, but planned	already offered in Bachelor studies	already offered in Bachelor studies
	Engineering design	currently not offered, but planned	already offered in Bachelor studies	no choice
	Material Sciences	currently not offered, but planned	already offered in Bachelor studies	already offered in Bachelor studies
	Chemical Engineering	currently not offered, but planned	already offered in Bachelor studies	no choice
Applied Technical knowledge	Energy Systems and Energy Economy	currently not offered, but planned	already offered in Bachelor studies	already offered in Bachelor studies
	Power Plant Technology	currently not offered, but planned	already offered in Bachelor studies	already offered in Bachelor studies
	Renewable Energies	currently not offered, but planned	already offered in Bachelor studies	already offered in Bachelor studies
	Heating, Ventilation, Air Conditioning	currently not offered, but planned	already offered in Bachelor studies	already offered in Bachelor studies
	Building Physics	currently not offered, but planned	currently not offered, and not planned	already offered in Bachelor studies
	Energy Efficiency in Buildings	currently not offered, but planned	currently not offered, and not planned	already offered in Bachelor studies
	Rational Use of Energy	currently not offered, but planned	already offered in Bachelor studies	already offered in Bachelor studies
	Hydraulic engineering	currently not offered, but planned	already offered in Bachelor studies	already offered in Bachelor studies
	Environmental engineering	currently not offered, but planned	already offered in Bachelor studies	already offered in Bachelor studies
	Drinking Water treatment, supply and distribution	currently not offered, but planned	no choice	already offered in Bachelor studies
	Sanitation, Sewage Systems, Wastewater Microbiology	currently not offered, but planned	already offered in Bachelor studies	already offered in Bachelor studies
	Irrigation	currently not offered, but planned	already offered in Bachelor studies	already offered in Bachelor studies
	Clean Production	currently not offered, but planned	already offered in Bachelor studies	already offered in Bachelor studies

Knowledge in System Management	Maintenance and Operation			
	Measurement-, Regulation and Control technology			
	Construction, Infrastructure, Road, Rail, Water engineering			
	Building management			
	Facility management			
	Environmental management			
Fundamental Economical knowledge	Business administration			
	Statistics			
	Logistics			
	Investment and Finance			
	Energy economics and market			
Fundamental knowledge in Ecology	Environmental quality control technology			
	Environmental Impact Assessment			
	Simulation of Environment Phenomena			
	Air Quality Management			
	Air Pollution Control			
	Strategic Planning for Adaptaiton to Climate Change			
Law	Environmental law			
	Water law			
	Energy law			
Politics	Environmental politics			
	Energy politics			
	Water politics			
Methodical Hard Skills	Thermal Simulation (TRNSYS, EPlus,...)			
	Control (SPS, LabView,...)			
	Basic (VB, C++, Fortran,...)			
	Computational fluid dynamics			
	Modelling (Matlab, Simulink,...)			
	Chemical Modelling			
	Building physics and moisture simulations			
	CAD (Catia, ProEngineer, Solid Works ...)			
Strucutral analysis (FEM,...)				
Methodical Soft Skills	Technical English			
	Waste management			
	Project management and Controlling			
	Consulting			
	Environmental management (ISO 14001)			
	Scientific work			
Personal Skills	Quality management (ISO 9001)			
	Team work			
	Communication skills			
	Social skills and Flexibility			
	Negotiation skills			
Presentation techniques				

Table 12: List of existing Lab infrastructure in Syrian universities

Labs	ABU	TU	AU
Student Labs	Technical,Civil Eng., Environmental, Agricultural Sciences ,basic Chemical, physical,mechanical,electrical,food,textile	electrical engineering - agriculture engineering- environment - energy engineering- civil - geography	in all fields of chemistry, physics, mechanics, power, biology, environment and life science
Research Labs	Chemical,Mechanical,Electrical,Food,Textile,Environment	in the most faculties	in field of science, agriculture and environment
Resources for new laboratories			

All Syrian universities are offering a broad field of laboratories for student teaching as well as Research labs. Also all universities have the possibilities and space to investigate in new laboratories in terms of the EGREEN programme.

5 General conclusions

This report deals with results of two different questionnaires. Questionnaire 1 evaluates on the one hand market demands, trends and needs of stakeholders in Jordan and Syria in the field of environmental and climate change issues. Questionnaire 2 evaluates the existing teaching and management facilities and the structure of the partner universities to make sure that the planned teaching content can be carried out successfully.

The University of Innsbruck set up a first draft of both questionnaires. This was distributed for a first feedback within all partners. Changes and improvements were implemented for the final versions of both questionnaires.

For distribution of the questionnaires in Jordan and Syria, the University of Jordan (UJ) and the Tishreen University (TU) were defined as leaders for distribution to all stakeholder partners.

The group of Tishreen University has also translated both questionnaires from English into Arabic. Both supporting Universities (UJ/TU) coordinated data collection of the returned and filled questionnaires within Jordan and Syria. University of Innsbruck did the analysis and final reporting of the results.

5.1 First stakeholder questionnaire

103 filled stakeholder-questionnaires have been collected from different branches in Jordan and Syria. Out of them, 52 valid questionnaires from Jordan (6 questionnaires were not filled properly) and 45 valid questionnaires from Syria has been included in the following analysis. The data evaluation is done separately for each country due to their different needs. Both partner countries fulfilled the requirements described in the project proposal. The following main conclusions can be drawn.

5.1.1 Branch evaluation and headcounts

- Jordan stakeholders plan to hire new employees extensively in the next 5 years in the branches of (ref Figure 3-6):
 - Renewable Energy Production
 - Energy Distribution
 - Drinking water treatment and Distribution systems

- In the field of R&D Jordan plans to investigate in less numbers of headcounts, except of following branches (ref Figure 3-7)
 - Renewable Energy Production
 - Energy distribution
- Although Jordan also claims to lack in skills of Law issues, Climate issues and Law issues, it is not planned to increase the number of headcounts intensively (ref Figure 3-15)
- The Results for the expected increase in demands in general (ref Figure 3-16) show partly discrepancies in comparing the results with the numbers of new headcounts.
- Syria shows a high Employment need in almost all branches. Highest demand is shown for following branches:
 - Drinking water treatment and Water resource engineering
 - Renewable Energy production
 - Law issues
- Also in the field of R&D, Syria plans to investigate more headcounts in all branches compared to Jordan, most in Renewable Energy Production

5.1.2 Lecture contents

- The mainly required lecture subjects (always top 3 listed) in the field of Natural Science, Fundamental and Applied Technics as well as System management are almost equal – individual differences are shown in the ranking
- Syria claims for more focus on programming and modelling, while Jordan evaluates CAD drawing and Controls programming as the major topics in the Methodological competencies
- Both countries evaluate soft skills and personal skills with a very high value – therefore it should be included in the new study plans
- Both countries are demanding for graduates with strong specialization in Technology

5.1.3 Study program

- For the asked stakeholders from both countries, the planned study program is of very high relevance
- Part-time studies and individual trainings for employees are highly requested

5.2 Second stakeholder questionnaire

5.2.1 Summarizing results from Jordan

The analysis of the available infrastructure and study contents show a clear focus by the participating universities on Engineering studies. Also Natural Sciences as well as applied Engineering studies are quite well implemented.

Instead, it is also clear shown, that the participating universities have less focus on non-technical fields (eg economics, laws and politics). In case there are actually subjects missing, they are widely also not planned to be implemented. Therefore, Jordan universities are supposed to keep their Engineering focus ongoing.

Also Personal knowledge is also in several universities just partly implemented so far.

According to the market analysis results from questionnaire 1, those aspects as well as non-technical fields are more requested by the stakeholders. Therefore, Jordan universities should put more focus also on these non-technical aspects.

5.2.2 Summarizing results from Syria

All major relevant Faculties and Research institutions are well represented by all Universities. ABU includes only some aspects from in the field of Natural Sciences and has also not planned to investigate in more. All universities mostly show also a good coverage of non-technical fields in their actual course program. Also soft skills like Personal knowledge is well established in two universities, while one university has not planned to do future investigations in this field.

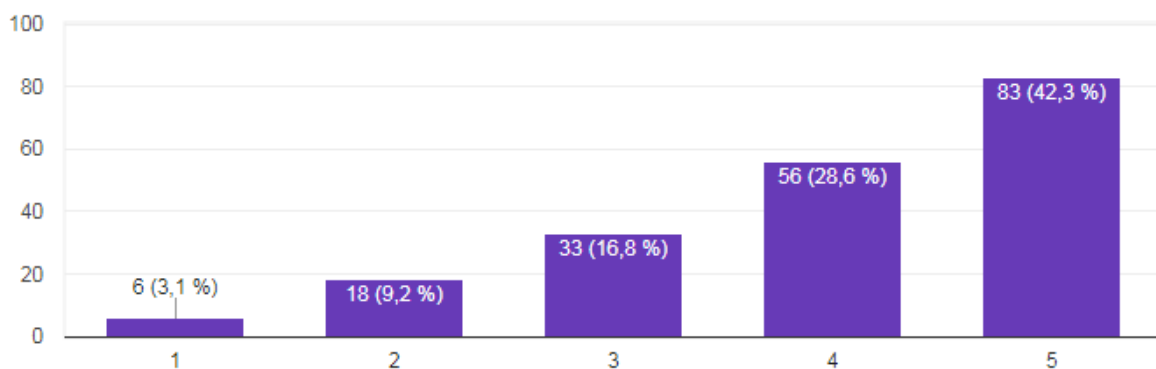
Compared to Jordanian results, the Syrian universities show a wider distribution in different study fields, especially in terms of including non-technical subjects like economics, laws, politics as well as soft skills. Therefore, it could be easier for them to broaden the study contents by including non-technical courses by already existing ones.

6 APPENDIX A

The following chapter includes all result graphs from the 10 questions included in the complementary questionnaire.

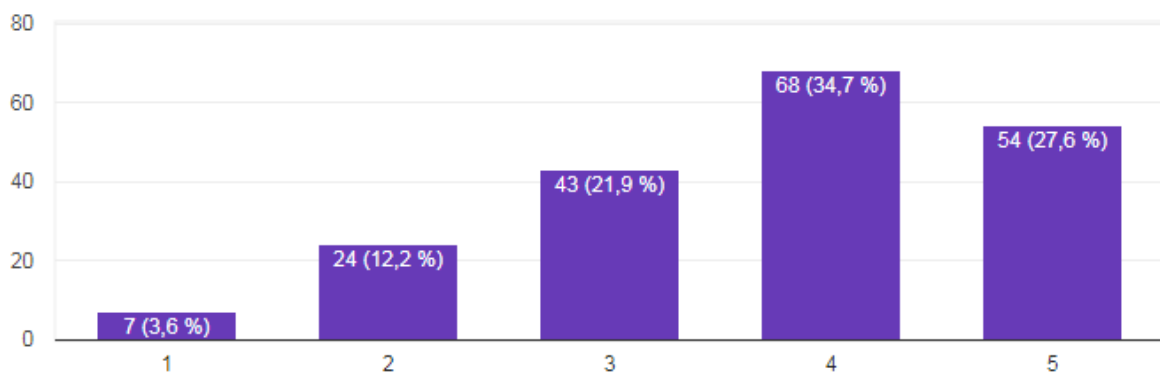
1. Understand basic concepts related to climate change

196 Antworten



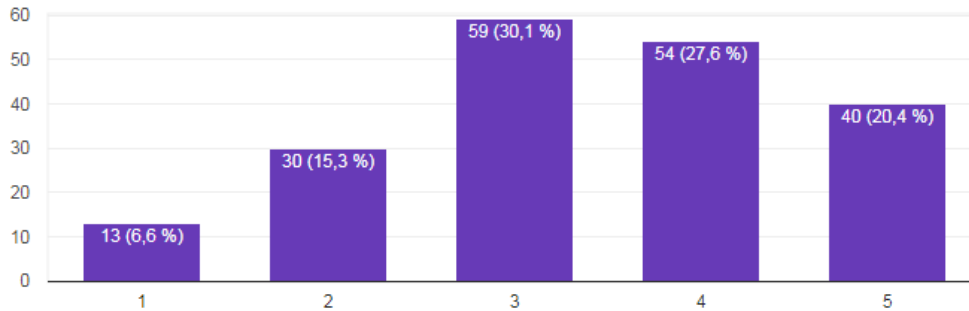
2. Understand how the Earth's climate system works

196 Antworten



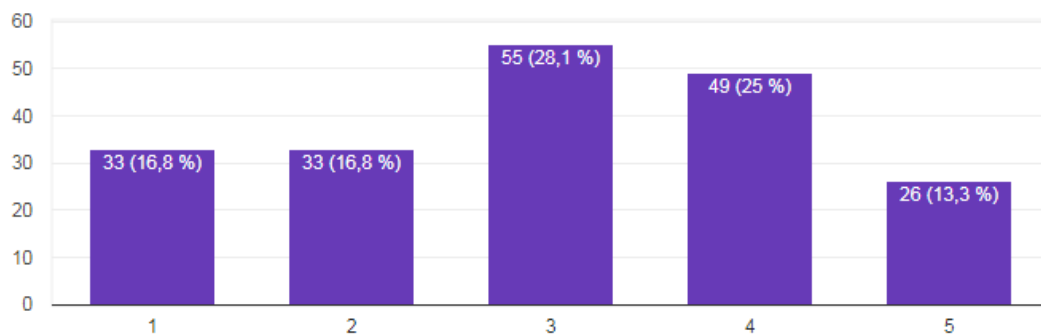
3. Understand general atmosphere circulation patterns, ocean circulation patterns

196 Antworten



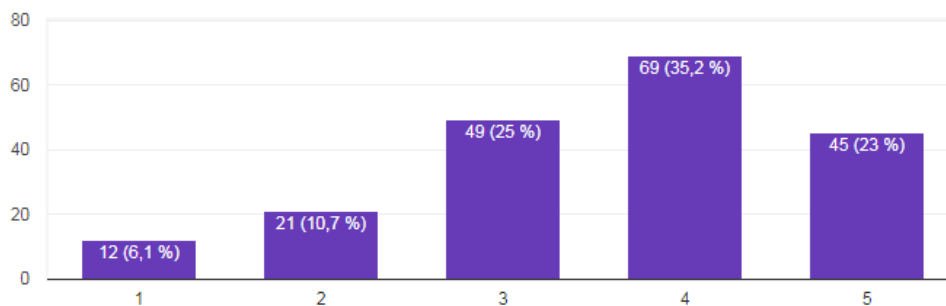
4. Understand climate oscillations such as the El-Niño and Upwelling

196 Antworten



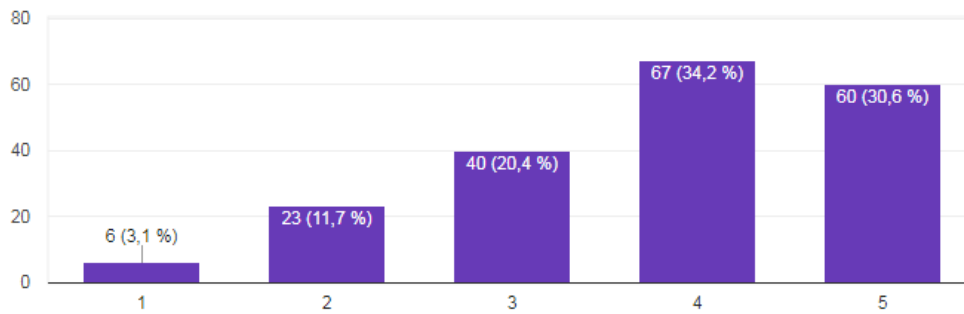
5. Illustrate components of the Earth's carbon cycle

196 Antworten



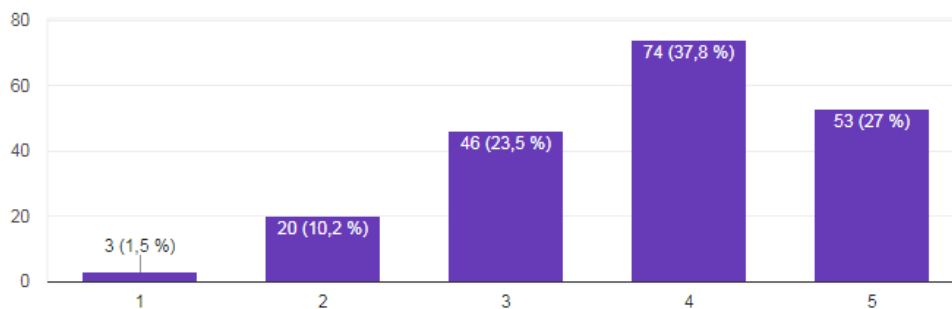
6. Quantitatively describe how addition of greenhouse gases GHG to the atmosphere through burning fossil fuels will influence the climate

196 Antworten



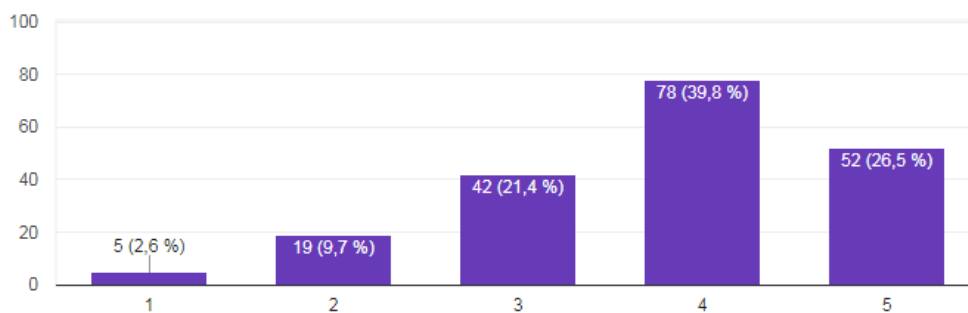
7. Understand and quantify CO2 mitigation influenced by applying energy efficiency measures and using Renewable Energy systems

196 Antworten



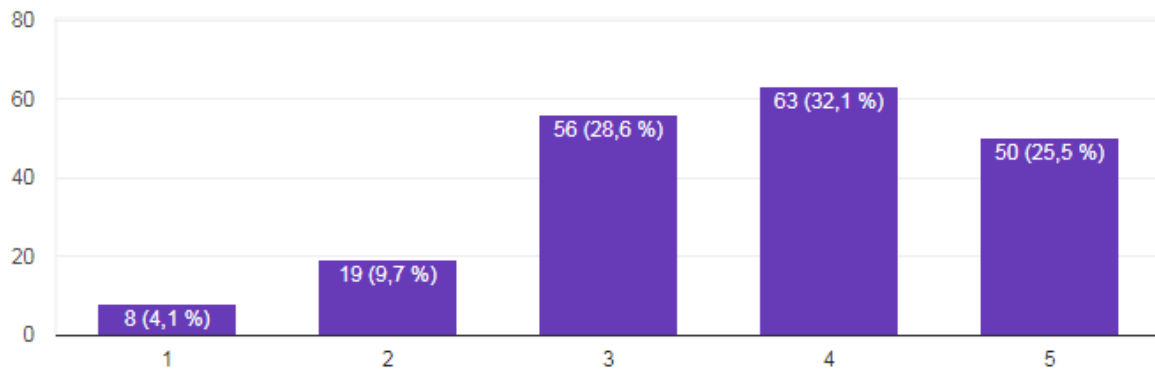
8. Understand the concept of green buildings and their main components

196 Antworten



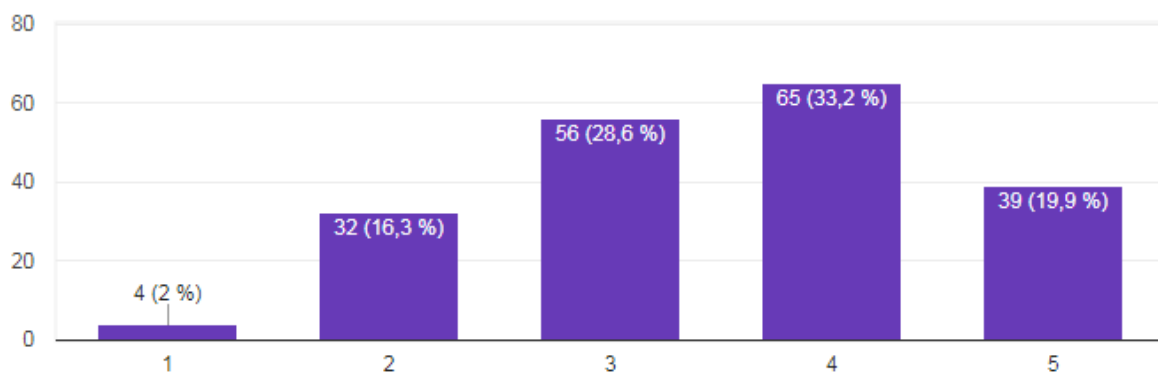
9. Gain the scientific basis to analyse and understand policy issues related to global warming

196 Antworten



10. Understand Ozone depletion phenomena

196 Antworten



7 APPENDIX B

The following chapter includes additional graphs showing the evaluation of the different lecture contents for Jordan and Syria and in the field of:

- Fundamentals in Natural Science
- Fundamentals in System Management
- Methodical Soft Skills
- Methodical Hard Skills

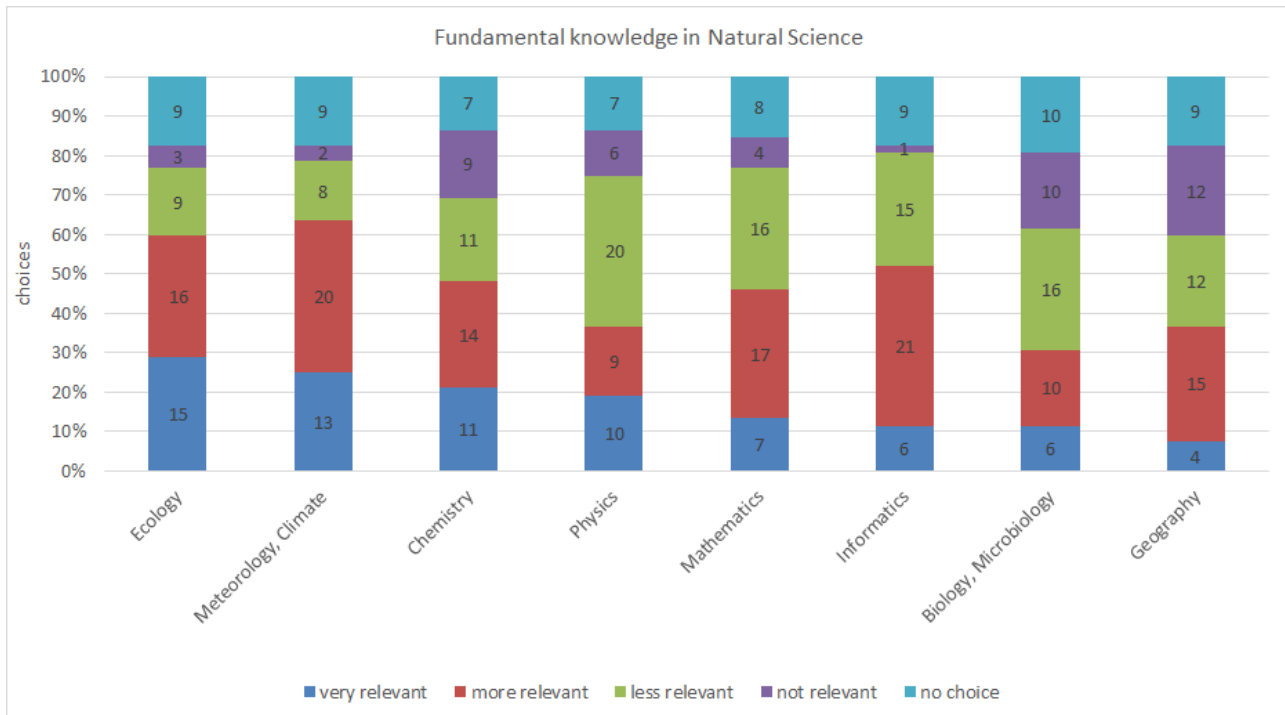


Figure 7-1: Competency requirements for Fundamental knowledge in Natural Science in Jordan

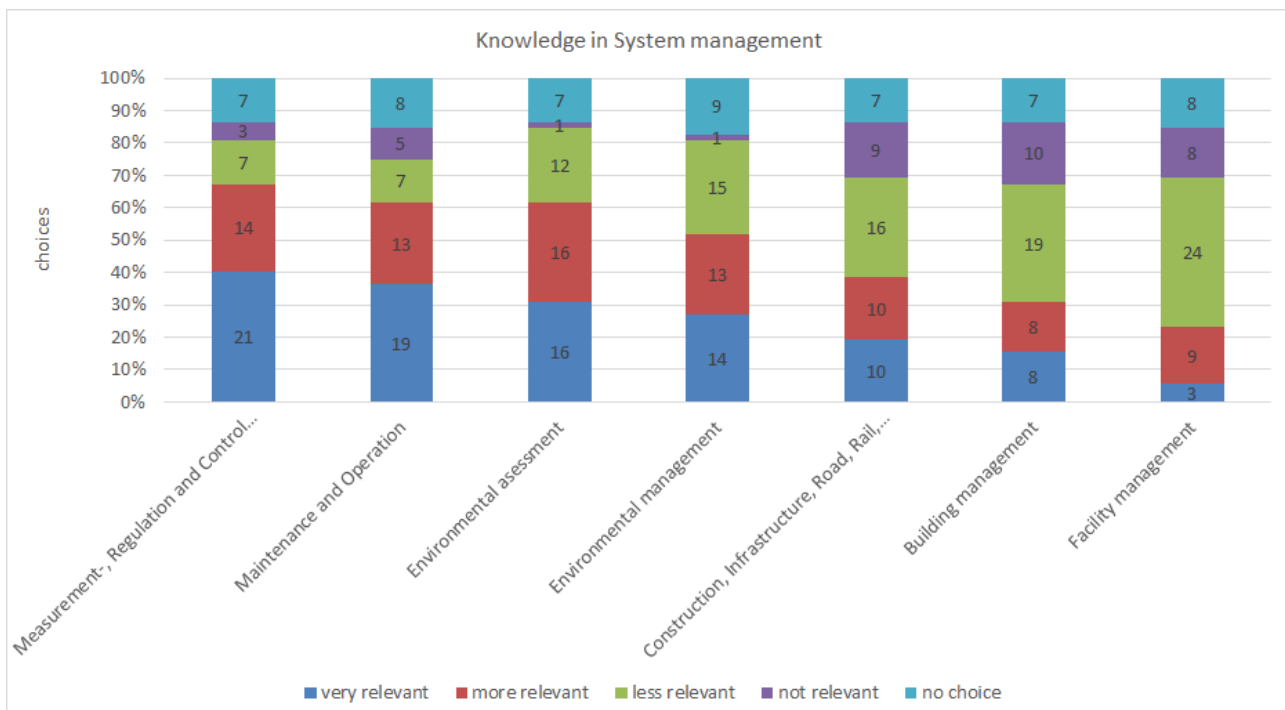


Figure 7-2: Competency requirements for knowledge in System management in Jordan

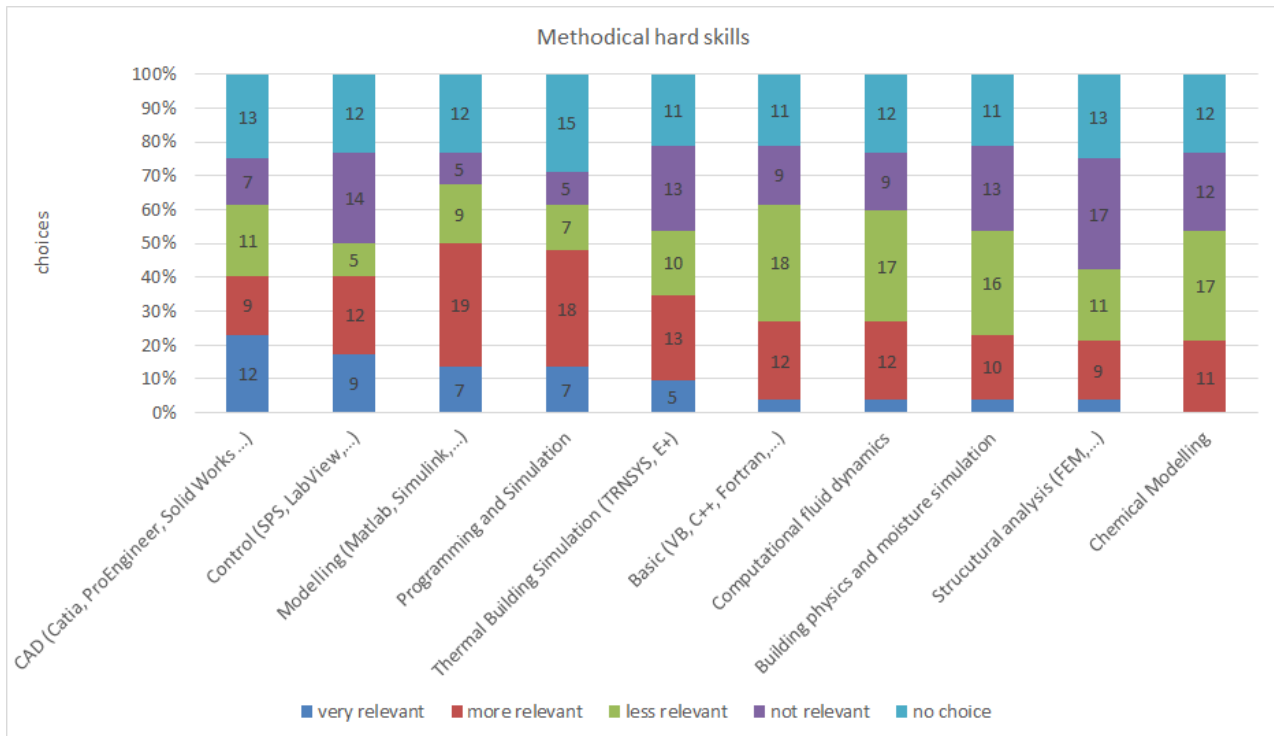


Figure 7-3: Competency requirements for knowledge in methodical hard skills in Jordan

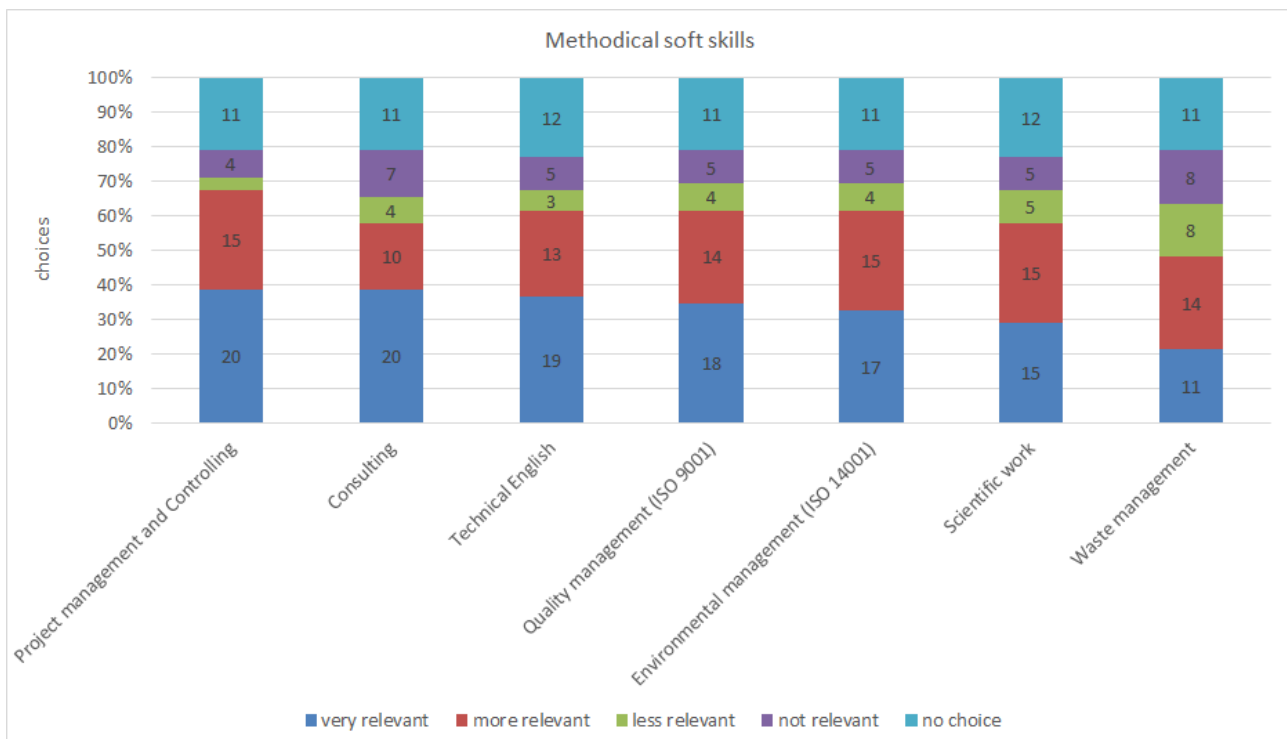


Figure 7-4: Competency requirements for knowledge in methodical soft skills in Jordan

ERASMUS PLUS Programme–EGREEN Project Number: 573927-EPP-1-2016-1-JO-EPPKA2-CBHE-JP

DISCLAIMER: This project has been funded with support from the European Commission. This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

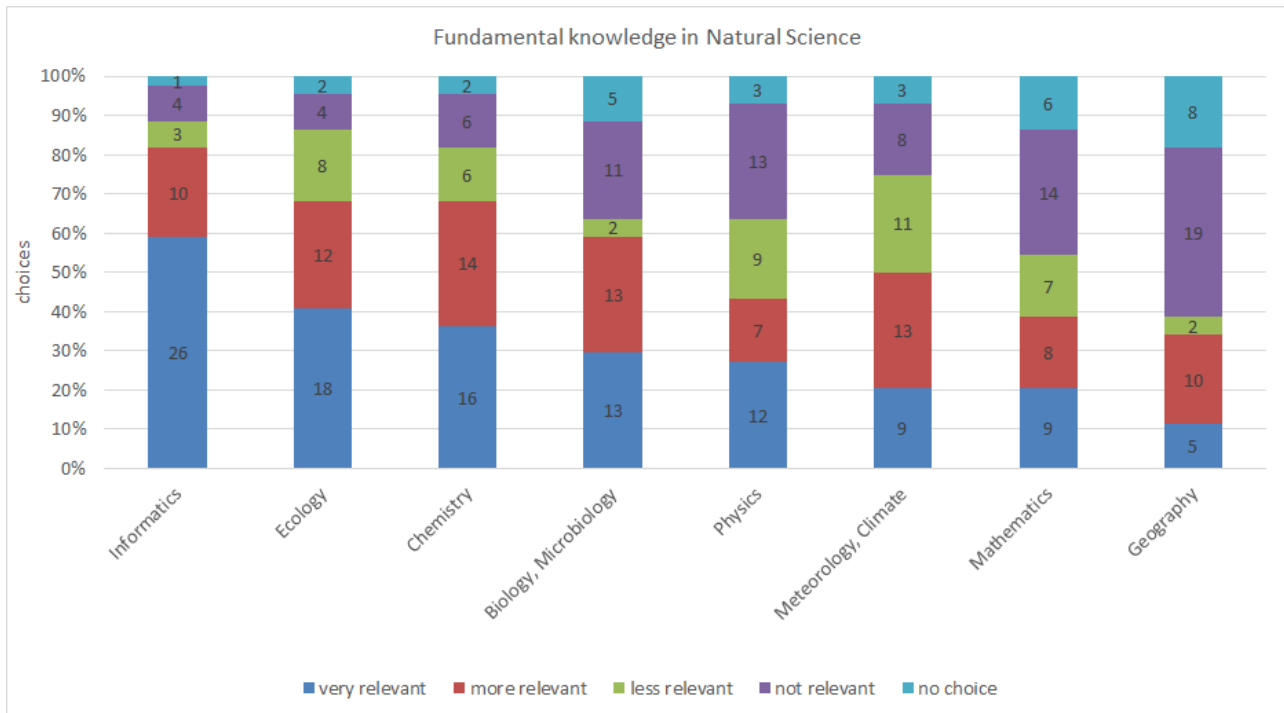


Figure 7-5: Competency requirements for Fundamental knowledge in Natural Science in Syria

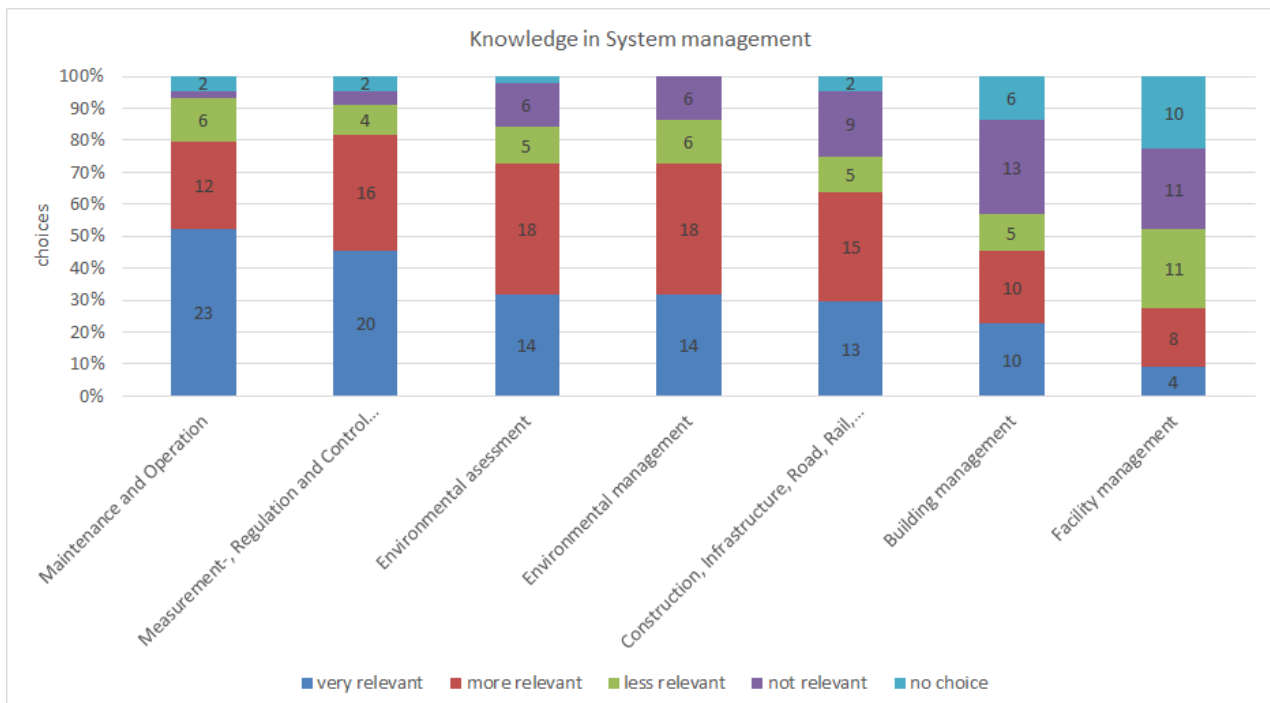


Figure 7-6: Competency requirements for knowledge in System management in Syria

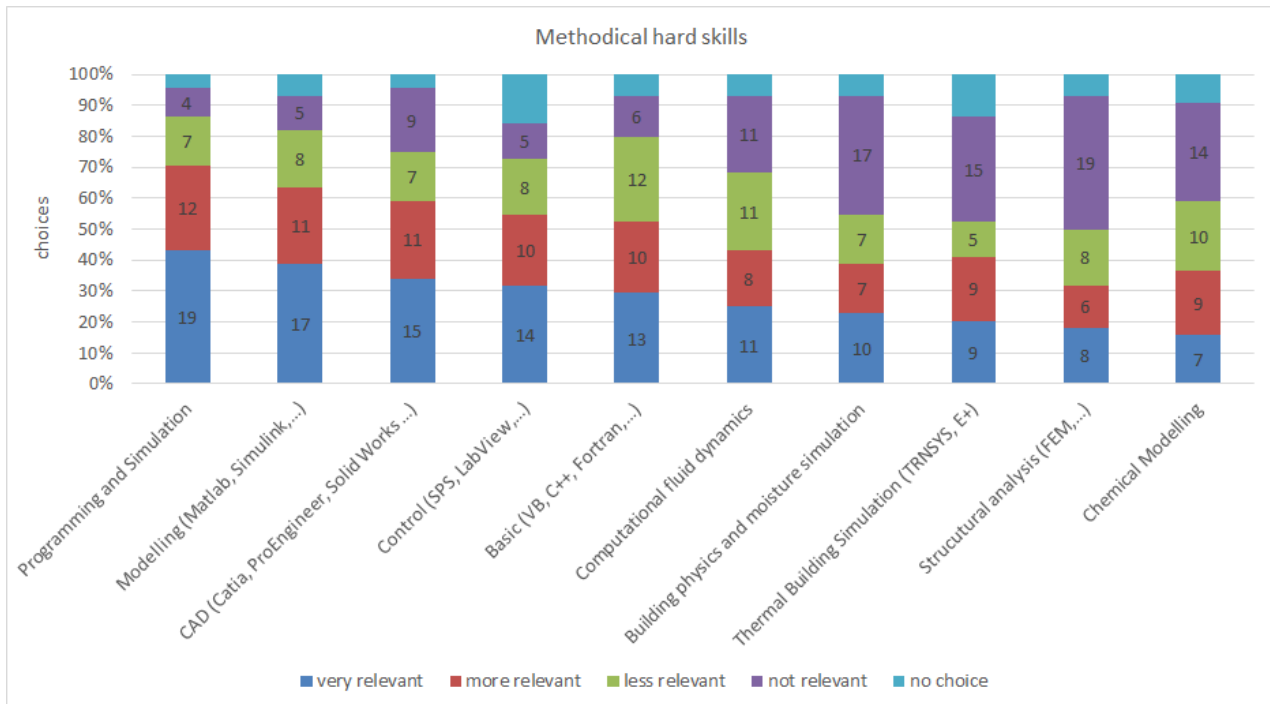


Figure 7-7: Competency requirements for knowledge in methodical hard skills in Syria

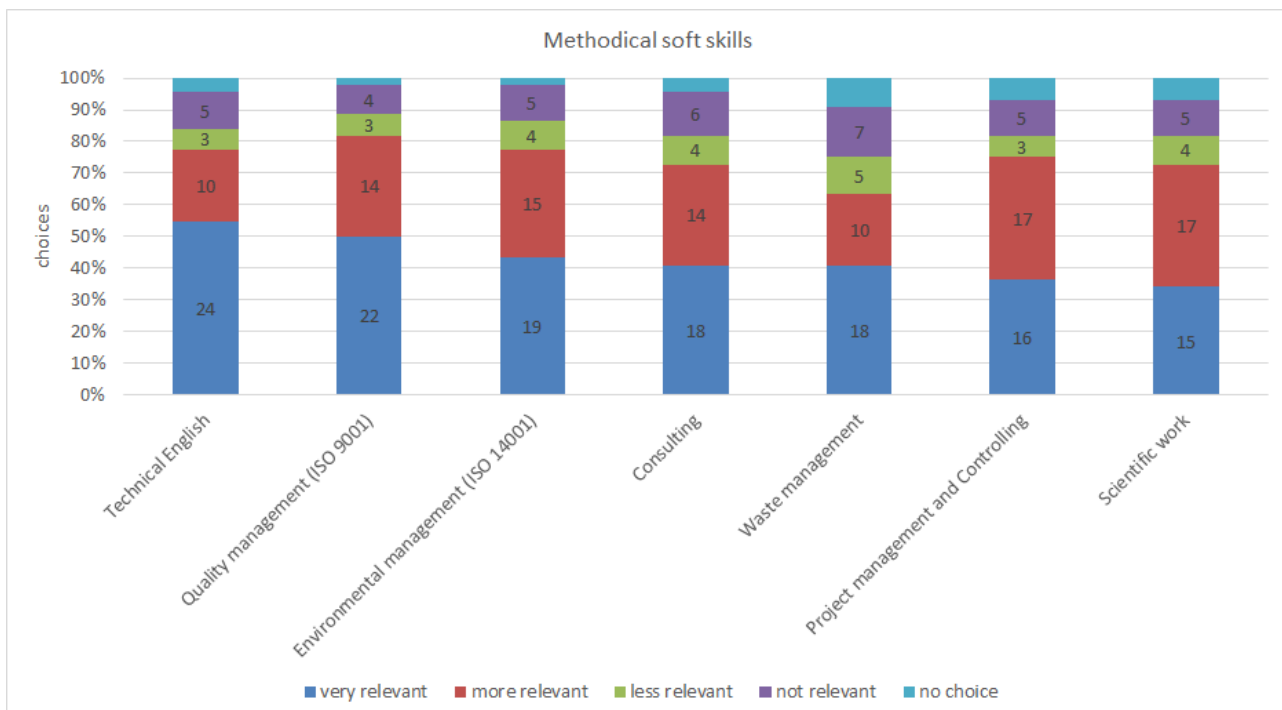


Figure 7-8: Competency requirements for knowledge in methodical soft skills in Syria

8 APPENDIX B: Questionnaire 1 (Analysing market needs)

Part A - Needs

Notes:

- Please activate by **clicking x** in the cell of the circle, **UNDO** for re-clicking
Use supplementary statements for any comments

A 1 How many Employees are **actually working** in your Company/ Institution in the following fields

		0	1 - 5	6 - 10	>10	employees
○ Drinking water treatment and Distribution systems	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	thereof in R&D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
○ Environment, Water and Wastewater Microbiology	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	thereof in R&D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
○ Water resources engineering (management, protection and economics)	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	thereof in R&D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
○ Non-conventional water resources (reuse, harvesting, desalinization, ...)	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	thereof in R&D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
○ Environmental quality control Engineering	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	thereof in R&D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
○ Energy Efficient Buildings (Building physics, solar buildings,...)	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	thereof in R&D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
○ Energy Efficiency and Renewable Energy (e.g. industry, solar PV, Solar thermal, Wind, Biogas ..)	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	thereof in R&D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
○ Climate issues (phenomenology, dynamics, climate change, Sustainability)	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	thereof in R&D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
○ Environmental Assessment	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
○ Economic issues*	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
○ Political issues*	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
○ Law issues*	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

* related to Energy and Environmental topics

A 2 How difficult is it for your Company/ Institution at the moment to get qualified employees in the specific branches the new Master program is dealing with

- very difficult
- difficult
- less difficult
- not difficult
- no definition

Supplementary statement

A 3 Does your Company/ Institution have an **urgent need of graduates** in the field of Environmental Engineering and Climate Change

- Yes, we want to increase our workforce strongly
- Yes, we want to increase our workforce moderately
- We are actually not looking for new employees in these fields
- No, we want to reduce our workforce in these fields

Supplementary statement

A 4 How many positions are planned to add in the **next 5 years** with graduates in one of the mentioned fields

		0	1 - 5	6 - 10	>10	employees
<input type="radio"/> Drinking water treatment and Distribution systems	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	thereof in R&D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
<input type="radio"/> Environment, Water and Wastewater Microbiology	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	thereof in R&D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
<input type="radio"/> Water resources engineering (management, protection and economics)	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	thereof in R&D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
<input type="radio"/> Non-conventional water resources (reuse, harvesting, desalinization, ...)	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	thereof in R&D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
<input type="radio"/> Environmental quality control Engineering	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	thereof in R&D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
<input type="radio"/> Energy Efficient Buildings (Building physics, solar buildings,...)	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	thereof in R&D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
<input type="radio"/> Energy Efficiency and Renewable Energy (e.g. industry, solar PV, Solar thermal, Wind, Biogas ..)	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	thereof in R&D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
<input type="radio"/> Climate issues (phenomenology, dynamics, climate change, Sustainability)	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	thereof in R&D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
<input type="radio"/> Environmental Assessment	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
<input type="radio"/> Economic issues*	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
<input type="radio"/> Political issues*	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
<input type="radio"/> Law issues*	Overall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Other fields:						
<input type="text"/>						

* related to Energy and Environmental topics

A 5 General employee **requirements**

- our working needs are focused on technology - it is important to get graduates with a strong specialisation on the technology field
- our working field involves different requirements - it is helpful to get graduates with a main focus on technology, but also a basic knowledge in economics laws and/or politics
- our working field is not technology driven - it is more important to get graduates in economics, laws and/or politics with an overview on technologies in Environmental Engineering and Climate Change

Supplementary statement

A 6 From which training facilities are your highly qualified employees **mainly coming from?**

- | | |
|--|---|
| <input type="radio"/> University | <input type="radio"/> Jordan |
| <input type="radio"/> Technical school | <input type="radio"/> Syria |
| | <input type="radio"/> Foreign countries: <input type="text"/> |

A 7 The planned Bachelor Courses on Environmental Engineering and Climate Change "on University level" is **of Interest** for your Company/ Institution

- Yes
- No

Supplementary statement

Part B - Requirement and competencies

What requirements to graduates are for your company of the master program
"Environmental engineering and climate change" of interest?

Please distinguish between professional, methodological and personal competencies.

B 1	Professional competencies:	very relevant	more relevant	less relevant	not relevant
B 1.1	Fundamental knowledge in natural science				
	Chemistry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Physics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Biology, Microbiology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Geography	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Ecology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Meteorology, Climate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Mathematics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Informatics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B 1.2	Fundamental technical knowledge				
	Thermodynamics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Mechanics, Fluid Mechanics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Thermal engineering, heat transfer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Process engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Electrical engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Engineering design	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Material Sciences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B 1.3	Applied technical knowledge				
	Renewable Energies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Heating, Ventilation, Air Conditioning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Building Physics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Hydraulic engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Environmental engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Water resources engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Non-conventional water resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B 1.4	Knowledge in system management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Maintenance and Operation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Measurement-, Regulation and Control technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Construction, Infrastructure, Road, Rail, Water engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Building management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Facility management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Environmental management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Environmental Assessment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B 1.5	Fundamental economical knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Business administration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Statistics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Logistics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Investment and Finance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Energy economics and market	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B 1.6	Fundamental knowledge in law	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Energy law	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Water law	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Environmental law	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B 1.7	Fundamental knowledge in politics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Energy politics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Water politics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Environmental politics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B 1.8	Other professional competencies not listed above:				
	1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B 2	Methodical competencies:	very relevant	more relevant	less relevant	not relevant
	Programming and Simulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Basic (VB, C++, Fortran,...)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Modelling (Matlab, Simulink,...)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Control (SPS, LabView,...)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Thermal Simulation (TRNSYS, EPlus, Solar systems, PV,...)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Building physics and moisture simulations (Comsol, Delphin...)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Chemical Modelling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Computational fluid dynamics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Structural analysis (FEM,...)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	CAD (Catia, ProEngineer, Solid Works ...)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B 3	Personal competencies:	very relevant	more relevant	less relevant	not relevant
	Team work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Communication skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Negotiation skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Presentation techniques	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Social skills and Flexibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Other methodical competencies not listed above:				
	1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B 4 Are there **skills that are lacking** in your company/ institution? (multiple selection possible)

Yes, especially competencies in the field of:

- Drinking water treatment and Distribution systems
 - Environment, Water and Wastewater Microbiology
 - Environmental quality control technology
 - Energy Efficient Buildings
 - Energy Efficiency and Renewable Energy
 - Climate issues

 - Economic issues*
 - Political issues*
 - Law issues*
- * related to Energy and Environmental topics

Others:

- No, there is no lack on special skills

B 5 In what areas do you offer your employees **in-house training / training** to compensate for a lack of skills?

Yes

There are no internal trainings

B 6 Are in your company **new business units** planned?

Yes

What kind of new business units are planned

No, no other business units are planned

B 7 In which areas do you expect an **increased demand** in your company **in the coming years?**

- Energy systems (SDHW, PV, Wind, Water, Biomass)
- Energy Efficient Buildings
- Water pollution prevention
- Water treatment
- Environmental Technology

- Economic issues*
- Political issues*
- Law issues*

* related to Energy and Environmental topics

Others:

Part C: General positions about the new Bachelor Program

C 1 Please evaluate:

	I totally agree	I agree	I partly agree	I don't agree
The implementation of a new bachelor courses in the field of Environmental Engineering is an important step to meet future needs on the labour market	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is a positive aspect for our working field to get graduates with knowledge in European technology standards (EU-standards)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is a positive aspect for our working field to get graduates with knowledge in US technology standards (e.g. ASHRAE standards)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The new bachelor courses are a meaningful qualification for our employees - but it would be suitable for our employees to participate only in specific modules of the master courses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It would be suitable to get additional practical trainings for employees in the field of the bachelor courses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

C 2 Is your company/ institution interested in a cooperation in terms of providing practical internship positions or offering possibilities for thesis works for the students

- Yes
- No

Supplementary statement

Part D - Information about the Institution/ Company

D 1 Type of Institution (one option)

- Governmental Institution (Ministry,...)
- University, Educational service
- Research lab / research institution
- Industrial production (Energy systems)
- Trade Industry
- Engineering Consultant
- Economic Consultant, Business Administration
- Lawyers or law sector
- Policy consultancy

Other:

D 2 Branch (several options)

- Waste Water Treatment
- Water pollution prevention
- Civil Engineering/ Architecture/ Building Industry
- Heating-, Ventilation and Air Conditioning
- Building equipment (fenestration, lighting, etc...)
- Environmental/ Biotechnical Engineering (Air Pollution, Soil Treatment...)
- Chemical Industry
- Power plant Engineering
- Plant engineering and construction
- Manufactural Industry (food, textiles, metal, electrical equipment,...)
- Communal supplier (Energy, Water, Waste management,...)
- Health Care and Social Assistance
- Automotive developer
- Transportation and Warehousing
- Agriculture
- Food production
- Wood industrie
- Traffic, Mobility

Others:

D 3 Overall Employees

- 1 - 5
- 6 - 10
- 11 - 20
- 21 - 50
- 51 - 100
- 101 - 200
- > 201

9 APPENDIX C: Questionnaire 2 (Analyse of Institution Infrastructure)

Part A - Structure of the University and Education

Notes:

- Please activate by clicking **x** in the cell of the circle, **UNDO** for re-clicking
- Use supplementary statements for any comments

A 1 University Structure

Name of University

Location/ Nation

Students (overall)

	Number / Capacity					
	< 3.000	3.001 - 5.000	5.001 - 10.000	10.001 - 20.000	20.001 - 30.000	> 30.000
Students (overall)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professors (Faculty members)	< 60 <input type="radio"/>	61 - 105 <input type="radio"/>	106 - 210 <input type="radio"/>	211 - 420 <input type="radio"/>	> 420 - 630 <input type="radio"/>	> 630 <input type="radio"/>
Faculties at the University/ school	< 2 <input type="radio"/>	3 - 5 <input type="radio"/>	6 - 10 <input type="radio"/>	11 - 15 <input type="radio"/>	15 - 20 <input type="radio"/>	> 15 <input type="radio"/>

Type of Education institution

- University
 Technical school
 Jordan
 Syria
 Foreign country:
 Town:

Areas of Faculties at the University

- Natural Sciences
 Technology
 Economics
 Laws
 others:

Laboratories at your University

- Yes**, we have different laboratories for our practical education work
 (continue later at Part C)
 No, currently we have no laboratories installed
 (in this case you dont have to continue on Part C)

Research institutes at your University on the field of:

- Natural Sciences
 Technology
 Economics
 Laws
 others:

for futher details on the research sector please continue on Part D

A 2 Educational structure

Number of Bachelor study programs

- < 2
 2 - 5
 6 - 10
 11 - 20
 > 20

Average Duration of Bachelor study

 years

Number of Master study programs

- < 2
 2 - 5
 6 - 10
 11 - 20
 > 20

Average Duration of Master study

 years

ERASMUS PLUS Programme–EGREEN Project Number: 573927-EPP-1-2016-1-JO-EPPKA2-CBHE-JP

DISCLAIMER: This project has been funded with support from the European Commission. This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Offered Bachelor studies in		
Natural Sciences:	Basic groups	→ List your specialisation fields for each group:
<input type="radio"/>	Agricultural Sciences:	
<input type="radio"/>	Geology, Soil Science	
<input type="radio"/>	Biology, Ecology:	
<input type="radio"/>	Chemistry:	
<input type="radio"/>	Physics:	
	others:	
<input type="radio"/>		
<input type="radio"/>		
<input type="radio"/>		
	Other Specialisation fields:	
<input type="radio"/>		
<input type="radio"/>		
<input type="radio"/>		
<input type="radio"/>		

Technology:		
Basic groups	→	List your specialisation fields for each group:
<input type="radio"/>	Mechanical Engineering:	
<input type="radio"/>	Civil Engineering:	
<input type="radio"/>	Electrical Engineering:	
<input type="radio"/>	Power Engineering:	
<input type="radio"/>	Infrastructural Engineering:	
<input type="radio"/>	Process Engineering:	
	others:	
<input type="radio"/>		
<input type="radio"/>		
<input type="radio"/>		
	Other Specialisation fields (e.g. Mechatronics,...):	
<input type="radio"/>		
<input type="radio"/>		
<input type="radio"/>		
<input type="radio"/>		

Economics		
Basic groups	→	List your specialisation fields for each group:
<input type="radio"/>	Business economics	
<input type="radio"/>	National- and Makroeconomics	
<input type="radio"/>	Finance and Management	
<input type="radio"/>	International Marketing International Economics	
<input type="radio"/>	Logistics	
<input type="radio"/>	Human resources	

Law	Basic groups	→	List your specialisation fields for each group:
	<input type="radio"/> Law of procedure		
	<input type="radio"/> International law		
	<input type="radio"/> Civil law		
	<input type="radio"/> Financial law		
	others:		
	<input type="radio"/>		
	<input type="radio"/>		
	<input type="radio"/>		
	Other Specialisation fields (e.g. Environmental law,...):		
	<input type="radio"/>		
	<input type="radio"/>		
	<input type="radio"/>		
	<input type="radio"/>		

other Bachelor Studying-fields (e.g. Politics,...):	Basic groups	→	List your specialisation fields for each group:
	<input type="radio"/>		
	<input type="radio"/>		
	<input type="radio"/>		
	<input type="radio"/>		

A 3 Are currently new Bachelor programs at your University planned?

- Yes
in what field
-
- No

A 4 Are currently new Master programs at your University planned?

- Yes
in what field
-
- No

Part B - Offered Course programs (Bachelor- / Master degree)

What courses are mainly offered in your bachelor and Masters programs? - especially in the field of Environmental engineering and Climate Change

B 1	Lecture content	offered in Bachelor study	offered in Master study	currently not offered, but planned	not offered and not planned
B 1.1	Fundamental knowledge in natural science				
	Mathematics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Physics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Chemistry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Biology, Microbiology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Geography	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Ecology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Meteorology, Climate and Climate Change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Informatics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	other:				
	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B 1.2	Fundamental technical knowledge				
	Thermodynamics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Mechanics, Fluid Mechanics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Thermal engineering, heat transfer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Process engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Electrical engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Engineering design	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Material Sciences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Chemical Engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	other:				
	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B 1.3	Applied technical knowledge				
	Energy Systems and Energy Economy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Power Plant Technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Renewable Energies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Heating, Ventilation, Air Conditioning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Building Physics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Energy Efficiency in Buildings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Rational Use of Energy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Hydraulic engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Environmental engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Drinking Water treatment, supply and distribution	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Sanitation, Sewage Systems, Wastewater Microbiolog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Irrigation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Clean Production	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	other:				
	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B 1.4 Knowledge in system management				
Maintenance and Operation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Measurement-, Regulation and Control technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Construction, Infrastructure, Road, Rail, Water engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Building management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facility management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
other:				
<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B 1.5 Fundamental economical knowledge				
Business administration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Statistics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Logistics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Investment and Finance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energy economics and market	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
other:				
<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B 1.6 Fundamental knowledge in ecology				
Environmental quality control technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental Impact Assessment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Simulation of Environment Phenomena	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Air Quality Management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Air Pollution Control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strategic Planning for Adaptation to Climate Change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
other:				
<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B 1.7 Fundamental knowledge in law				
Energy law	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Water law	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental law	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
other:				
<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B 1.8 Fundamental knowledge in politics				
Energy politics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Water politics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental politics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B 2	Methodical competencies:	offered in Bachelor study	offered in Master study	currently not offered, but planned	not offered and not planned
	Programming and Simulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Basic (VB, C++, Fortran,...)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Modelling (Matlab, Simulink,...)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Control (SPS, LabView,...)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Thermal Simulation (TRNSYS, EPlus, Solar systems, PV,...)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Building physics and moisture simulations (Comsol, Delphin...)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Chemical Modelling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Computational fluid dynamics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Structural analysis (FEM,...)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	CAD (Catia, ProEngineer, Solid Works ...)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Technical English	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Scientific work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Project management and Controlling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Quality management (ISO 9001)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Environmental management (ISO 14001)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Waste management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Consulting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	other:				
	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

For a overall information about your studying programs please enclose a curricula document !

B 3	Personal competencies:	offered in Bachelor study	offered in Master study	currently not offered, but planned	not offered and not planned
	Team work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Communication skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Negotiation skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Presentation techniques	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Social skills and Flexibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B 4 If currently not offered, do you plan to implement lectures on following fields:

- Energy systems (Solar Domestic Hot Water, PV, Wind, Water, Biomass)
- Energy Efficient Buildings
- Water treatment
- Water management
- Water pollution prevention
- Sewage systems
- Wastewater treatment
- Wastewater and sludge management
- Environmental Technology

- Economic issues*
- Political issues*
- Law issues*
- * related to Energy and Environmental topics

- Currently there are no plans to implemenent such courses, but we are interested in

- Yes, the above mentioned fields fits quite well to our current lectures in our curricula
- There are no similarities to our current lectures in the curricula

Part C: Laboratories

C 1 What kind of laboratories in the technical field do you actually have at your university?

- Student labs

If yes, in what field:

- Research and Testing labs (equipment testings e.g. Materials, components, product development, research ...)

If yes, in what field:

- Actually we have no labs

C2 Resources for new laboratories

- Are there available rooms/ areas to built up new laboratories at your university
- There are no more rooms available for new laboratories

C3 Description of laboratories

- Yes, we have a detailed description of our laboratories
- No, we have no descriptions

If you have any description or folder of the laboratories, please attach them (as file or in paper) !

Part D - Research fields / International relations

D 1 Are there official research fields installed in your University?

- Yes

in what field:

- No, no official research fields

D 2 Are there research activities in the following fields?

Yes, especially competencies in the field of:

- Energy systems (Solar Domestic Hot Water, PV, Wind, Water, Biomass)
- Energy Efficient Buildings
- Water treatment
- Water management
- Water pollution prevention
- Sewage systems
- Wastewater treatment
- Wastewater and sludge management
- Environmental Technology

- Economic issues*
- Political issues*
- Law issues*

* related to Energy and Environmental topics