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1. Introduction

This report communicates the results of the evaluation of the Innovative Courses on Renewable Energies delivered during the second semester in four of the five Jordanian Universities involved in MUREE project: Princess Sumaya University for Technology (PSUT), University of Jordan (UJ), Mutah University (Mutah), Hashemite University (HU). Information has been collected through an online questionnaire which was designed and planned to evaluate the learning outcomes of the delivered courses, laboratories and eLearning courses, at mid-term and at the end.

2. Lessons Incoming from the First Semester

The first set of student evaluations were analysed in DEV2.7. Key issues noted were variable response rates (and action would be needed to maximise responses for the second semester courses), a new culture of student evaluation (hitherto active and independent student participation was not present in many Jordanian universities) with a lack of a culture of evaluation and its consequences (for example how staff react to evaluation, how evaluation is linked explicitly to course improvements, and how the plans for improvement are actively and openly shared with the students who responded to the surveys). The first report specifically noted the following issues relating to the Semester 1 courses:

The report summarizes the results of the student evaluation of the 4 courses (Electric Machines Drives, Solar Energy, Energy Conversion and Renewable Energy Systems) delivered at four Jordanian Universities involved in MUREE project: Princess Sumaya University for Technology (PSUT), University of Jordan (UJ), Jordan University of Science and Technology (JUST) and Hashemite University (HU).

For the three universities where there were enough responses, the student views show a strong start to what is a radically new teaching and learning offer across Jordanian HE. A modernised curriculum with strong European influence through the Bologna process and through state-of-the-art pedagogy is

being adapted collaboratively across Jordanian universities at a level of transparency not hitherto experiences by both teachers and learners.

The survey has registered a good participation of the students which has overpassed the 87% of the total students enrolled in the courses. The only exception is represented by JUST, where only the 8.8% of students participated in the survey. This result has invalidated any analysis for JUST, not providing interesting information for the improving of the course in term of quality, didactic contents and instructors' competences.

It is desirable, for the usefulness of the analysis, in the next editions of the courses, the partner universities should:

- *Encourage the participation of students in the course survey*
- *Increase the number of answers in order to make effective the analysis*
- *Encourage the submission of the questionnaire to the students*
- *Communicate clearly to students how their responses are important, and how the analysis of their responses will contribute to the further improvement of the courses.*

The analysis of the results of the received surveys recommends the universities to work in the following direction:

- *To improve the learning environment and to create, if possible, a positive atmosphere of "learning together" in the lectures;*
- *To strengthen the collaboration between universities and national (and international) stakeholders working in the energy fields, elaborating courses which answer to the real needs of labour market;*
- *To clarify the objectives and structure of proposed courses;*
- *To encourage the continuous training of trainers through a close collaboration with the European partners, the mobility of staff and the self-learning.*

It should be noted formally in this report that JUST provided no evidence of any corrective action after concerns were noted about the unsatisfactory response rate.

3. Student Participation in the Semester 2 Survey

In total there were 23 courses delivered across the two semesters, with 624 students participating overall. In the second semester 12 courses were delivered by four partners, with most being at PSUT. Response rates were overall very positive, with the exception of only 54% at the Mutah course.

Course	University	Semester	Students	Responses	Response Rate	Students per Univ		
Principles of Renewable Energy Systems	Hashemite University	First	20	x		50		
Principles of Renewable Energy Systems		Second	30	23	77			
Sustainable Energy Conversion	Jordan University for Science and Technology	First	102	x		102		
Selected Topics in Energy	Mutah University	Second	26	14	54	26		
Electric Machines Drives	Princess Sumaya University for Technonlogy	First	16	x		239		
Energy Conversion		First	39	x				
Renewable Energy System		First	18	x				
Power Systems Protection Lab		First	7	x				
Power Systems Lab		First	15	x				
Electric Machines Lab		First	16	x				
Power Electronics Lab		First	15	x				
Renewable Energy System		Second	17	17	100			
Energy Conversion		Second	21	21	100			
Machines Drives		Second	12	12	100			
Power Systems Protection Lab		Second	12	12	100			
Power Systems Lab		Second	12	10	83			
Power Electronic		Second	14	13	93			
Electric Machines Lab		Second	12	11	92			
Power Systems Lab		Second	13	13	100			
Special Topics (Renewable Energy Systems)		The University of Jordan	First	50	x			207
Solar Energy			First	55	x			
Energy Conversion	Second		52	42	81			
Solar Energy	Second		50	35	70			
No Of Courses : 23		Total	624					

4. The Evaluation Questions

The overall observations based on the survey responses are presented in this section. The graphs for each of the courses are provided in the Annexes.

Students were asked to respond to the following questions, and to express their opinions 5 levels of satisfaction (Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree):

**Modernising Undergraduate Renewable Energy Education:
EU Experience for Jordan
MUREE
Project Number: 530332-TEMPUS-1-2012-1-JO-TEMPUS-JPCR
Student Evaluation of Courses**

(Privacy Statement: Your responses to this questionnaire are anonymous, and your identity will not be linked to any of the responses)

Mark the space provided with a cross to indicate the grade you consider is most appropriate. (1 = strongly disagree to 5 = strongly agree)
The Course Design and Structure
The objectives of the course are clear
The course is well-structured
The practical part of the content is supported well with relevant examples
Links with relevant disciplines (Engineering and non-engineering) is clear

Lecture and non-lecture content is well integrated
Workload and Content
The workload of the course is appropriate for the assigned credit hours.
I am confident that the subject content of the course is up-to-date
Prerequisites to take the course are appropriate
There is not overlap with other courses in the program
Resources
Handouts are effectively designed to complement each lecture
The teaching resources (textbooks, handouts, and Web resources) are appropriate for the course
Reading lists and references are linked to reading resources that are readily available
Instructors
The instructor times the presentation of lectures effectively
The topics covered are explained well
The use of teaching aids and media is appropriate
The instructor displayed a good knowledge of the subjects covered
The instructor motivates my interest in the subject.
The instructor communicates the material effectively
The instructor is easily approachable following the lecture to answer questions (e.g. personally or via email)
Overall Quality
I would recommend this course to other students
The course has motivated me to continue exploring the subject area
There is a positive atmosphere of 'learning together' in the lectures
This course is important for my career
The physical teaching and learning environment (lecture rooms, laboratories etc.) were of high quality
The course has significantly increased my knowledge in the subject area
I am confident that I can apply what I have learned in the course
Examination standards were made clear in the lecture.
I was well-motivated to attend all lectures and activities on this course
Working and learning collaboratively in groups was actively encouraged
Summary
The quality of the course was high
I have increased my knowledge substantially
I think I can apply what I learned
Examination standards were clear
Assimilated knowledge through lecture, exercises, handouts, reading, working in groups

Thank you for responding to the questions. We have two further areas where we would value your written comments.

1. What recommendations would you make to further improve the course?

2. What aspects of this course were most useful for you?



5. The Results

The detailed graphs are annexed to this document. The following table is a graphical summary of the key results by each course. A broad 'traffic light' approach has been taken to visualise the student opinions, rather than trying to apply a statistical metric. While this is not a precise methodology it was applied by the Quality Advisor based on the outcomes of the first semester student evaluations, and with the objective of helping the consortium to prioritise future actions to help ensure the sustainability and improvement of the courses.

There are three colours used:

- **Green** – the student opinion is largely or substantially positive about the MUREE module.
- **Amber** – while student opinion seems generally positive there is still an opportunity for improvement in this context. Amber is therefore not a definitively bad statement of quality, but it is an area which would benefit from some attention.
- **Red** – there are potential issues of concern raised by the students, and the course leaders (along with the MUREE consortium members) should review issues and plan corrective action.



	PRE HU	STE MUT AH	RE PSU T	EC PSU T	MD PSU T	PSP PSU T	PSL PSU T	PE PSU T	EM PSU T	PS PSU T	EC UoJ	SE UoJ
The Course Design and Structure												
The objectives of the course are clear	Green	Yellow	Green	Green	Yellow	Green	Green	Green	Green	Green	Yellow	Green
The course is well-structured	Yellow	Green	Yellow	Yellow	Red	Green	Green	Yellow	Green	Green	Yellow	Green
The practical part of the content is supported well with relevant examples	Green	Yellow	Yellow	Red	Yellow	Green	Green	Green	Green	Green	Yellow	Green
Links with relevant disciplines (Engineering and non-engineering) is clear	Green	Yellow	Green	Yellow	Yellow	Green	Green	Green	Green	Yellow	Green	Green
Lecture and non-lecture content is well integrated	Yellow	Green	Green	Red	Yellow	Yellow	Green	Yellow	Green	Green	Red	Green
Workload and Content												
The workload of the course is appropriate for the assigned credit hours.	Green	Green	Yellow	Yellow	Red	Green	Green	Red	Green	Green	Yellow	Green
I am confident that the subject content of the course is up-to-date	Yellow	Green	Green	Yellow	Red	Green	Green	Green	Green	Green	Red	Green
Prerequisites to take the course are appropriate	Green	Green	Green	Green	Red	Green	Yellow	Red	Green	Green	Yellow	Green
There is not overlap with other courses in the program	Yellow	Yellow	Green	Green	Red	Red	Green	Red	Green	Green	Yellow	Yellow
Resources												
Handouts are effectively designed to complement each lecture	Yellow	Green	Green	Yellow	Yellow	Red	Green	Green	Yellow	Green	Yellow	Yellow
Teaching resources (textbooks, handouts, and Web resources) are appropriate for the course	Green	Green	Green	Yellow	Red	Red	Yellow	Red	Green	Green	Red	Green
Reading lists and references are linked to reading resources that are readily available	Green	Yellow	Yellow	Yellow	Red	Yellow	Green	Yellow	Green	Yellow	Yellow	Yellow
Instructors												
The instructor times the presentation of lectures effectively	Green	Green	Yellow	Green	Red	Green	Green	Red	Green	Green	Yellow	Green
The topics covered are explained well	Yellow	Green	Yellow	Yellow	Red	Green	Green	Green	Green	Green	Yellow	Green
The use of teaching aids and media is appropriate	Red	Yellow	Yellow	Green	Red	Green	Green	Green	Green	Green	Yellow	Yellow
The instructor displayed a good knowledge of the subjects covered	Green	Green	Yellow	Green	Yellow	Green	Green	Green	Green	Green	Yellow	Green
The instructor motivates my interest in the subject.	Green	Green	Red	Green	Red	Yellow	Green	Yellow	Green	Green	Yellow	Green
The instructor communicates the material effectively	Yellow	Green	Yellow	Green	Red	Yellow	Green	Green	Green	Green	Yellow	Green
Instructor approachable to answer questions (e.g. personally or via email)	Green	Green	Yellow	Green	Yellow	Green	Green	Green	Green	Green	Yellow	Green

7. The Results

With the caveat that the 'traffic lights' are partially subjective, there are some consistent patterns emerging from the student surveys. Furthermore, the amount of amber and red should not be regarded as simply 'bad'. The MUREE project is a journey towards excellence in teaching and learning across institutional, cultural, disciplinary and international borders. The starting base was limited- teaching and learning that was undertaken only within institutional and disciplinary borders. The extent to which there is 'green' shows how the journey towards excellence is progressing. However, there is still much to be done.

First, there are some clearly excellent courses. Three in particular have delivered excellence to the students: Power Systems Lab (PSUT), Electric Machines Lab (PSUT), and the second Power Systems Lab (PSUT).

Of serious concern are two courses where the student responses are consistently worrying: Energy Conversion (UJ) and Machines Drive (PSUT).

Courses where a systematic review of the quality issues is required are: Power Electronic (PSUT), Solar Energy (UJ), and Energy Conversion (PSUT).

Looking transversally across the course components there are some areas of concern that can be addressed by the MUREE consortium (improving the curriculum, the quality of teaching and learning etc.), and some that are outside the direct control of the consortium (resources etc.). In particular:

• For the attention of the MUREE consortium:

1. The internal structuring of courses, and ensuring that courses do not overlap with content;
2. Ensuring the courses are well provisioned with examples and case studies;
3. Integrating lecture and non-lecture content;
4. Balancing workload, and motivating students to work both individually and collaboratively;
5. Ensuring that teaching and learning materials are of high quality and that reading and learning resources are readily available;
6. Instructors are skilled in teaching and learning, and in motivating students;
7. Making it clear to students what are the examination and assessment methods and standards;
8. Issues for attention at the institutional levels;
9. Improving the overall teaching and learning environment.

8. Conclusions and Recommendations

As the period of European Commission funding comes to an end in 2015, it is the responsibility of the MUREE consortium to take forward the considerable investments into a dynamic and innovative curriculum. The review of student opinion shows that excellence exists. It is firmly recommended now that all consortium members develop a process of:

1. Peer learning (learning from those who are excellent in certain areas);
2. Peer assessment (a non-judgmental process where colleagues observe and assess other colleagues in their teaching activities, and provide objective peer support to them to help achieve excellence).

Annex – Detailed Course Survey Results

a) Energy Conversion

Princess Sumaya University for Technology (PSUT)

University of Jordan (UJ)

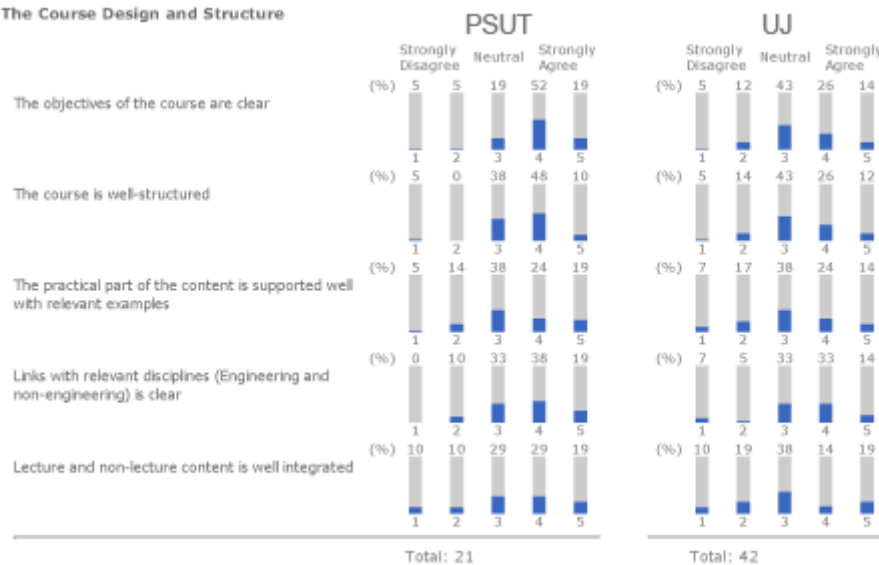
1. The Course Design and Structure

Energy Conversion Course has been provided at PSUT and UoJ.

The students' feedback in PSUT is positive (the evaluation include the answer "neutral"): 90% of students think the course' objectives are clear and 95% think the course is well-structured. 19% of students (n. 4 students on 21) critics the practical part asking for more examples, while the links with relevant disciplines is clear for 90 % of students and lecture and non-lecture content is well-integrated for 80% of them. In general, the opinion of students is Neutral oriented in the questions concerning the structure (38%), the practical part (38%) and the links with other disciplines (33%). 20% of students (n. 4 people) thinks lecture and non-lecture aren't well integrated in the course, suggesting to work in this direction. 5% of students (n. 1 person) totally disagrees with the course design and structure: this opinion, respectable, has a poor statistic value.

N. 42 students involved in the survey of UJ have preferred the answer "Neutral" to the questions concerning the course design and structure. 83% of students thinks objectives are clear (the percentage includes 43% of neutral), but n. 7 students on n. 42 disagree with this assertion. 19% of students declares the course isn't well-structured and 24% thinks more relevant examples could be included in the practical part. In general the links with other disciplines are clear, while the integration of lecture and non-lecture content should be improved (29%). The opinion of UJ's students on course design and structure is positive, but the high number of answers as "neutral" suggests there are wide margins of improving.

2. The Course Design and Structure

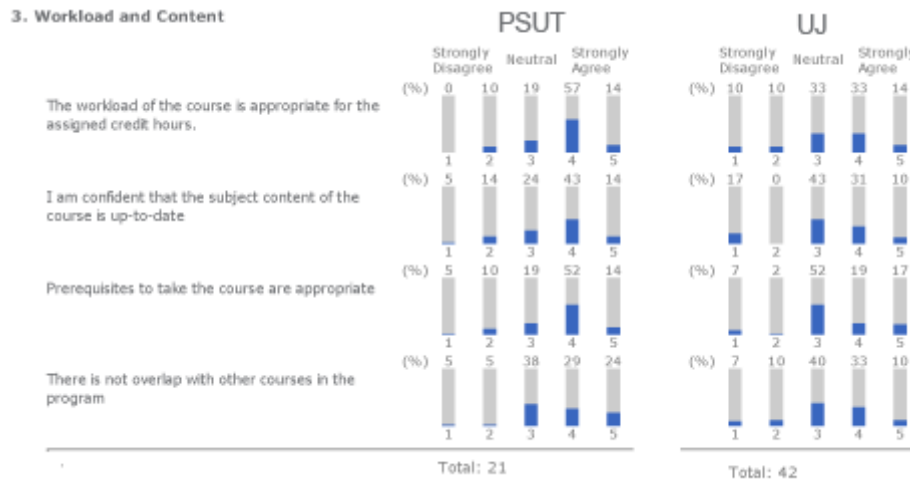


2. Workload and Content

PSUT's students seem to have appreciated workload and contents. 71% of them agrees the workload is appropriate to the credits and 57% thinks the subject content is up-to-date (the percentage doesn't include the "neutral"). N. 14 students on n. 21 (66%) agree the prerequisites are appropriate, but only 53% thinks there isn't overlap with other courses. Excluding the answers of n. 1 students who strongly disagreed with all, the opinion of students is certainly positive. The only topic, which the PSUT team is invited to work in, is the overlap with other courses, diversifying the contents.

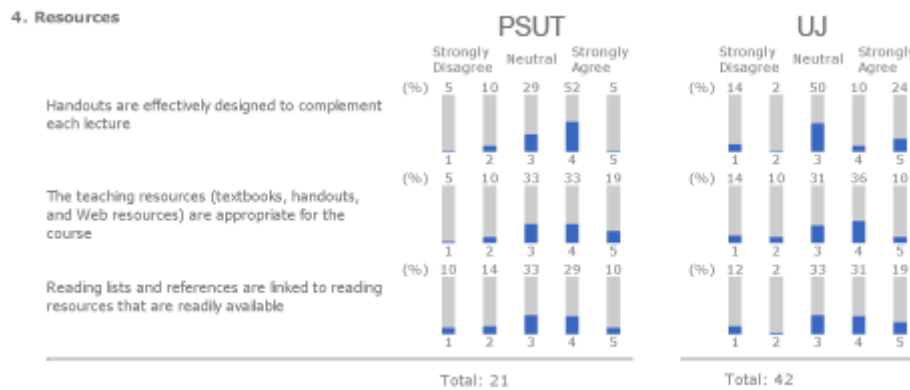
The opinions of UJ's students can be considered positive, but more "neutral oriented" than the evaluation of the course at PSUT. 47% of students agree the workload is appropriate (vs 71% of PSUT) and 41% thinks the subject is up-to-date. Only 36% agrees the prerequisites are appropriate, while 43% has a "neutral" opinion about this assertion. N. 18 students on n. 42 agree there isn't overlap with other

courses. UJ should work in order to zero the number of students who strongly disagree with the assertions: n. 4 students on n. 42 think the workload isn't appropriate to the credits and n. 3 students declare the prerequisites aren't appropriate and there is overlap with other courses. N. 7 students strongly disagree with the assertion concerning the up-to-dating of the contents, suggesting to work in the elaboration of new didactic materials and topics to include in the programme.



3. Resources

The topic “resources” aims at investigating the quality of didactic materials. While the opinion on handouts is positive (57% of PSUT’s students thinks they are designed to complement each lecture), the position of the students concerning the teaching resources and the reading list and references is more “neutral”. It is indicative as 15% of PSUT’s students disagrees with the first and second assertion (n. 3 students) and 24% thinks reading list and references aren’t readily available (n. 5 students).



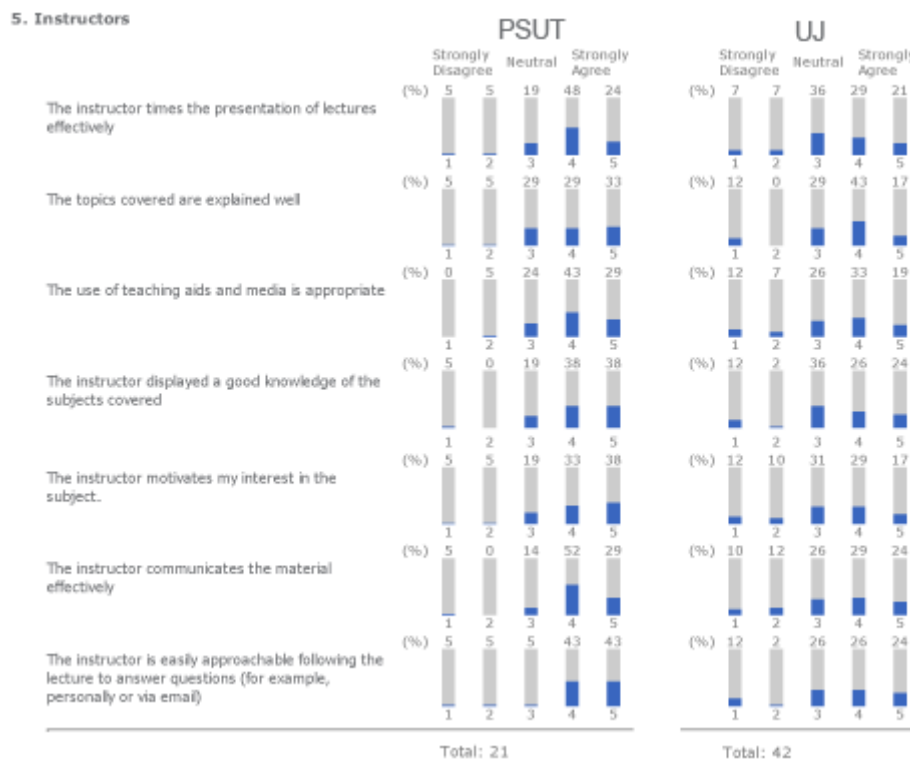
Also in this case, UJ’s students have preferred “neutral” as course’s evaluation. 50% of students has a “neutral” opinion in respect to the handouts, 34% agree they are designed to complement each lecture, while n. 7 students disagree with the assertion. 46% of UJ’s students agrees the teaching materials are appropriate for the course, 31% is neutral, but n. 10 students (24%) on n. 42 ask for a more appropriate teaching resources. In general the opinion on reading list and references is positive with 50% of students who agrees with the sentence, 33% is neutral and only n. 6 students disagree. The survey suggests to provide more appropriate materials among textbooks, handouts and web resources, elaborating the handouts in order to really complement each lecture.

4. Instructors

In general the opinion of PSUT’s students is positive. 90% of students (n. 19 on n. 21) declares the instructor times the presentation, the topics covered are explained well, he/she motivates the students

and he/she is easily approachable to answer questions. N. 20 students on n. 21 agree the use of teaching aids and media is appropriate, the instructor displayed a good knowledge of the subject and he/she communicates the materials effectively. Also in this case, only n. 1 student strongly disagrees with all assertion, but a poor static value should be given to this evaluation.

The opinion of UJ's students is positive, but less enthusiastic than PSUT's students. While the 86 % thinks the instructor times the presentation, n. 6 students disagree with the sentence. 88% appreciates the quality of explanation, but 12% thinks the topics aren't well explained. 19% declares the use of teaching aids is not appropriate, while 86 % declares the instructor displayed a good knowledge of the subject. 72% admits the instructor has motivated their interest and communicated the materials effectively. UJ's team should work in order to improve the quality of teaching aids and media and searching new training approach able to motivated the students and interest them in the topic.

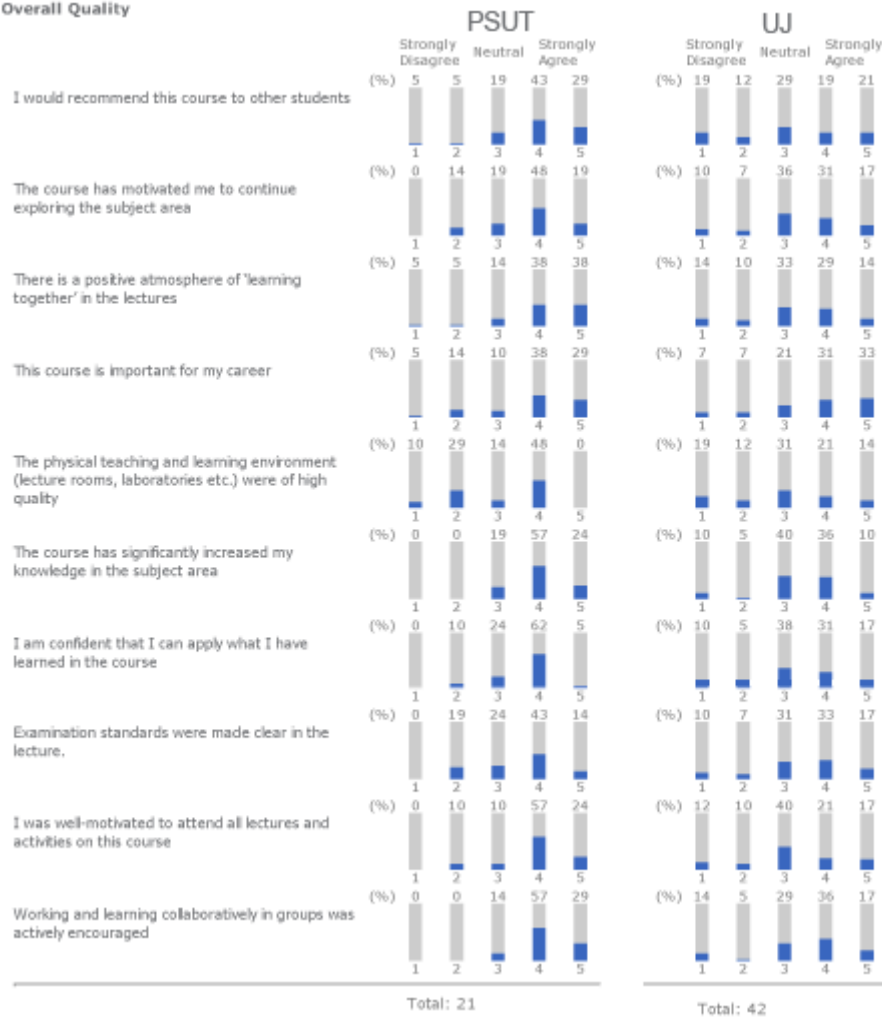


5. Overall Quality

90% of PSUT's students will recommend the course to others. 86% declares the course has motivated it to continue exploring the subject area. Enthusiastic is the opinion on the increase of student's knowledge (100 % positive). Also the atmosphere of learn has been considered positive by 90% of PSUT's students. Instead 39% of students disapproves the physical teaching and learning environment, which aren't considered of high quality. The PSUT's Team should work in the direction to improve the quality of lecture rooms, laboratories, video conference rooms.

Only 69% of UJ's students will recommend the course: the general opinion on the course is positive but more unbalanced toward the "neutral". N. 35 students on n. 42 have been motivated to continue in the same area, and n. 36 have declared the course has been important for their career. As for PSUT, also for UJ students have disappointed the physical teaching and learning environment: 31% has declared it wasn't of high quality. 22% of students wasn't motivated to attend lectures and this confirms the necessity to improve the training method and approach, as indicated in the paragraph 4. Also the learning in group should be more encouraged.

6. Overall Quality



6. Summary

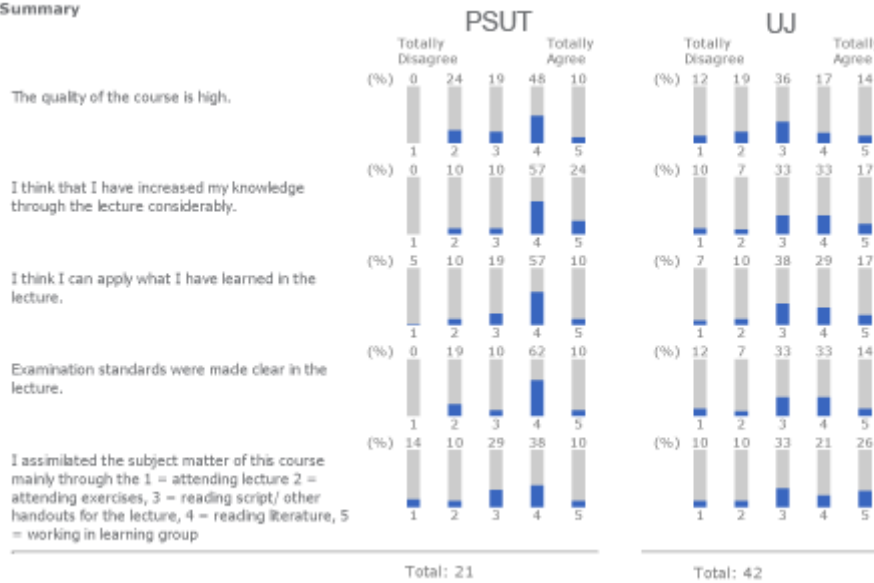
In general the opinion on Energy Conversion course is positive for both the universities, PSUT and UJ. In order to improve the course's level PSUT team could work in the following direction:

- 1) to include in the practical part more examples;
- 2) to diversify the contents avoiding the overlap with other courses;
- 3) to make the reading resources readily available;
- 4) to improve the quality of lecture rooms, laboratories, video conference rooms.

In order to improve the course's level UJ team could work in the following direction:

- 1) to integrate the lecture and non-lecture contents and to include more relevant example in the practical part;
- 2) to adapt the workload to the number of credits and to include more up-to-date contents in the programme;
- 3) to provide more appropriate materials among textbooks, handouts and web resources, elaborating the handouts in order to really complement each lecture;
- 4) to improve the quality of lecture rooms, laboratories, video conference rooms, to investigate new training approach in order to motivate students to attend the course, supporting, for example, the learning in group.

7. Summary



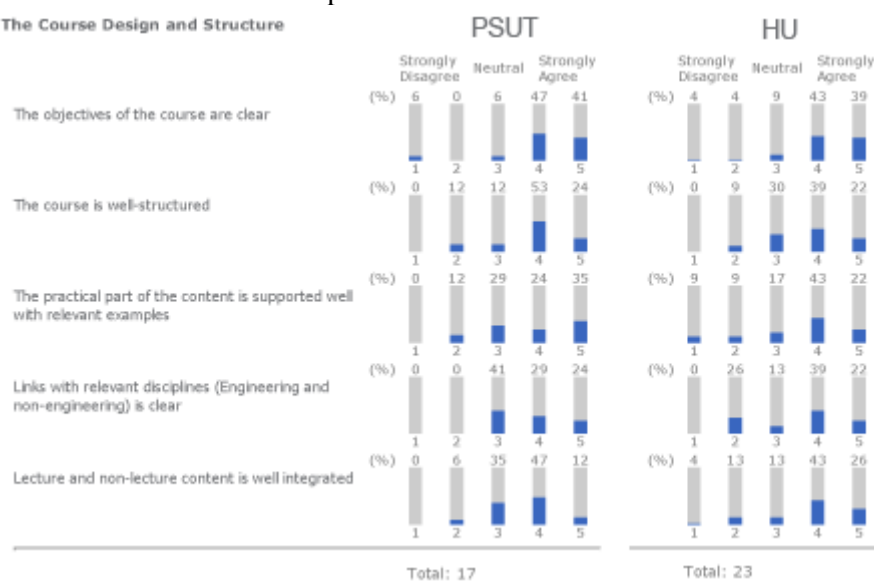
b) Renewable Energy
Princess Sumaya University for Technology (PSUT)
Hashemite University (HU)

1. The Course Design and Structure

94% of n. 17 PSUT's students interviewed declares the objectives of the course are clear. For the 88% the course is well-structured and the included practical part is supported by relevant examples. All students agree the links with other disciplines are clear and n. 20 students on n. 21 think lecture and non-lecture content is well structured. In general the opinion of PSUT's students on course design and structure is more than positive.

82% of HU's students agree the objectives are clear (92% if "neutral" answer is included). N. 21 students on n. 23 think the course is well-structured, but 18% asks for more examples in support of the practical part. Moreover 26% declares the links with other disciplines are not clear and 17% wishes a more integration between lecture and non-lecture contents. The feed-back of HU's students is positive, too. The quality of the course could be improved including more relevant examples in the practical part and defining the links with the other disciplines.

2. The Course Design and Structure



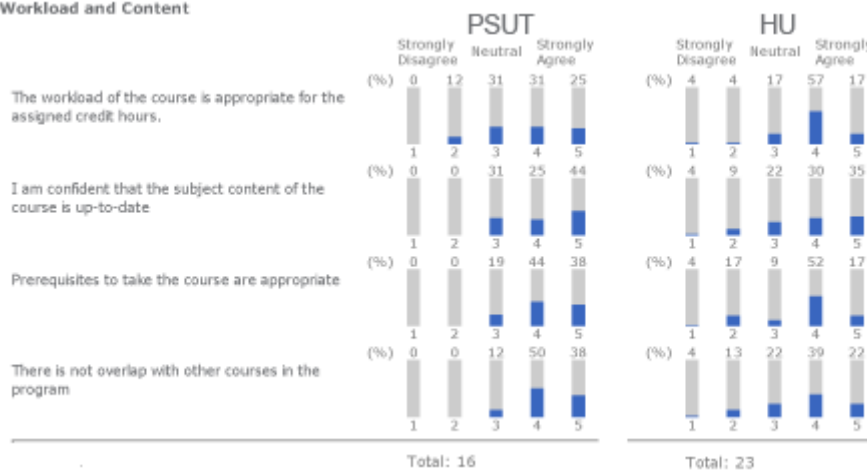
2. Workload and Content

The opinion of PSUT's students on Workload and content is certainly positive. Only n. 2 students on n. 16 think the workload isn't appropriate for the number of credits. The totality of interviewees declares the subject content of the course is up-to-date, the prerequisites are appropriate and there aren't overlap with other courses. PSUT team should work in order to preserve this students' opinion also in the next editions and to improve their enthusiasm reducing the number of people who will vote "neutral".

The evaluation of workload and content is also positive for HU. For 82% of interviewed students the workload is appropriate for the assigned credit hours. 87% of them think the subject content of the course is up-to-date and for 79% the prerequisites are appropriate. N. 19 students declare there isn't overlap with other courses.

For the next editions, the subject can be improved working directly with the students for the integration of innovative contents and prerequisites could be defined in a more appropriate way.

3. Workload and Content

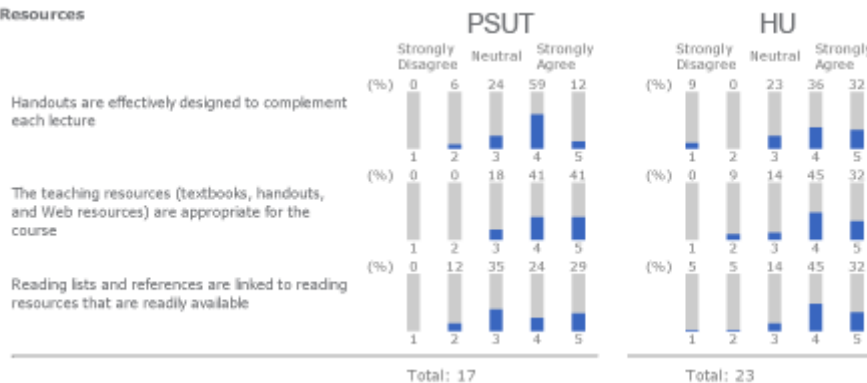


3. Resources

At PSUT, only n. 1 student declares the handouts aren't designed to complement each lecture, while 94% of participants agree with the assertion. 100% thinks the teaching resources are appropriate for the course and 88% considers readily available the reading resources.

91% of HU's students declares the handouts are designed to complement each lecture and the teaching resources are appropriate for the course. N. 21 students on n. 23 admit the reading resources are readily available.

4. Resources

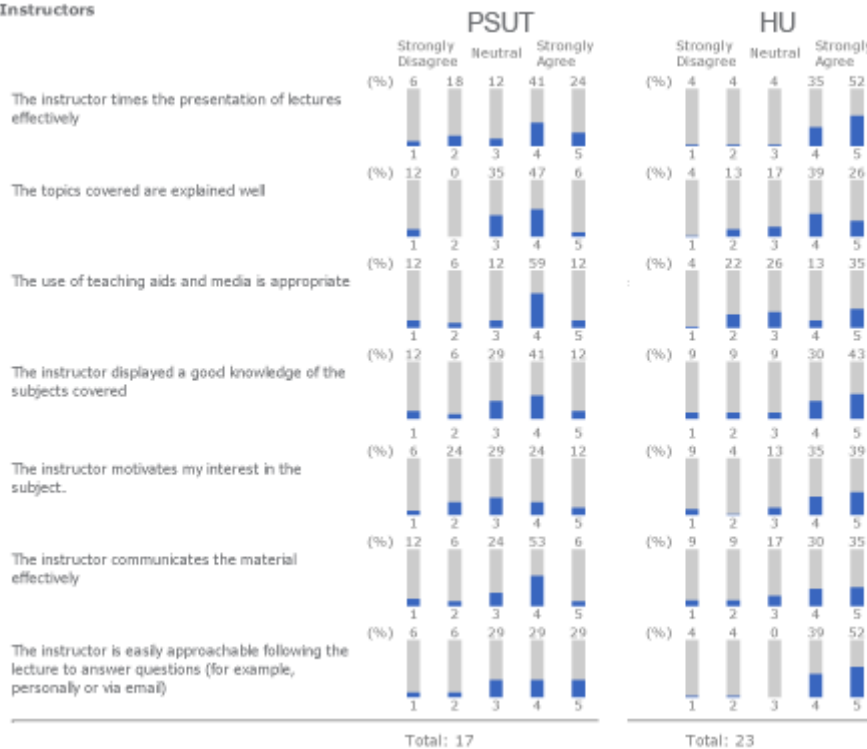


4. Instructors

The opinion of PSUT's students on instructors isn't totally positive and could be improved. 76% of them thinks the instructor timed the presentations and 88% declares he/she has explained well the topic (12%, n. 2 students, strongly disagree!). 82% considers the use of teaching aids and media appropriate, the instructor expert in the topic and able to communicate the materials effectively. Unfortunately the

interest of 30% of students hasn't be motivated in the subject, but the instructor has been considered available to meet students also after the lectures for questions. The instructor of Renewable Energy course should investigate new approach and training method to motivate and to attract students' interest. The instructor of HU has been evaluated competent and available toward the students. For 92% of students, instructor has timed the presentation of lectures effectively, explaining well the topic covered (83%) and has shown a good knowledge of the subjects delivered (82%). For the 74 % of participants, instructor has included in the training appropriate teaching aids and media, motivating their interest in the subjects (87%) and communicating the materials effectively (82%). The 8% of students has asked for a major availability of the instructors to answer questions also at the end of lectures. HU's instructor should include in more appropriate way, in the training, teaching aids and media. Moreover a continuous updating of instructor's competences and knowledge is required by the students.

5. Instructors



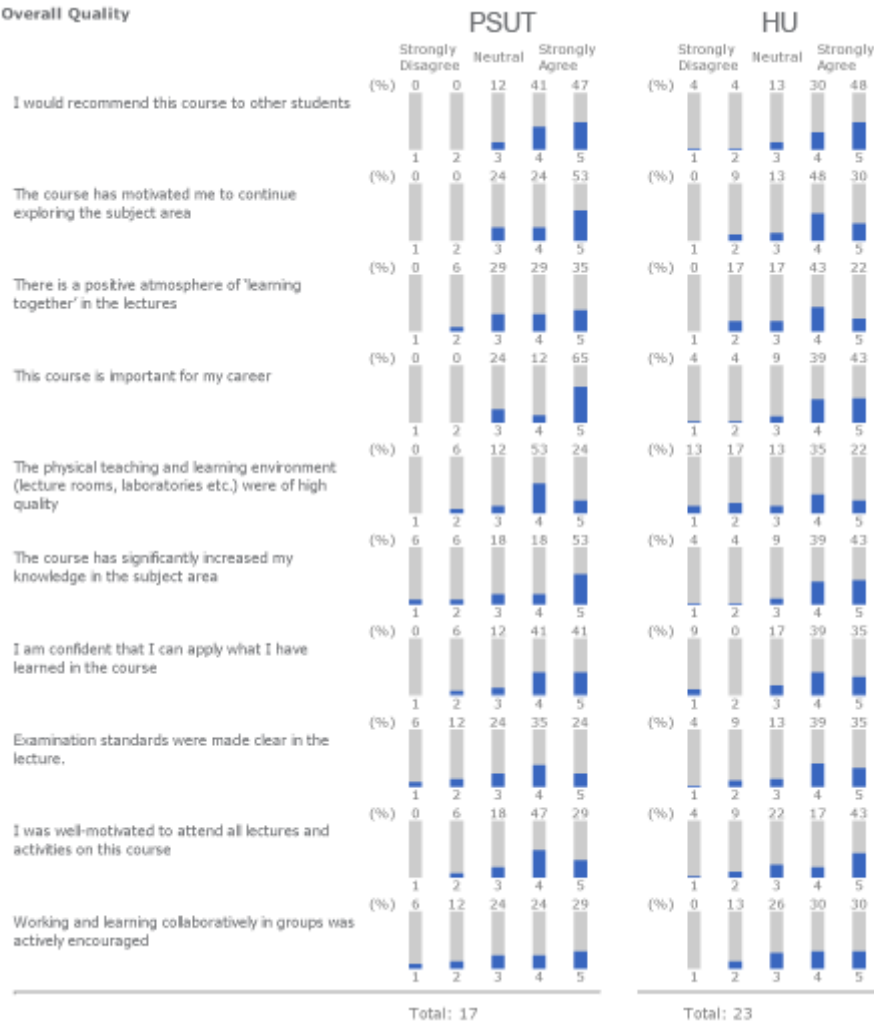
5. Overall Quality

The positive evaluation of the course at PSUT is confirmed also in overall quality section. 100% of students recommends the course to other students and confirms their interest in the topic. 96% have appreciate the "learning atmosphere" in the lectures and 100% think this topic is important for their future careers. 6% expresses some critics on physical teaching and learning environment, which could be improved for the future editions. Only 12% of students think to have not received new knowledge in the subject area and the 18% thinks the examination standards weren't made clear in the lecture. 94% is confident the acquired knowledge could be applied in the future and it has been well motivated to attend the lectures and the activities, during the semester.

The suggestion of students is to improve the working and learning collaboratively in groups, in fact 24% of them underlines this methodology should be encouraged in the course, and to clarify the examination standards also during the lectures.

N. 21 students on n. 23 recommend the course to the others at HU. In fact 91% of them has been motivated by the course to continue exploring the area and 92% thinks the course is important for the future career. 92% of students is confident the course has improved the competences in the subject area and it could apply them in the future. 87% declares the examination standards were made clear and was well-motivated to attend the lectures and activities. 30% of students doesn't consider the physical teaching and learning environment of high quality, HU's team is invited to work on it.

6. Overall Quality



6. Summary

At the end, 88% of PSUT students declares the quality of the course on Renewable Energy is high. 94% is confident the course has increased the knowledge and these competences could be used in the future. The main goal of PSUT team is to preserve this opinion working to guarantee the achieved high quality also in the next editions of Renewable Energy course.

In order to improve the course's level PSUT team could work in the following direction:

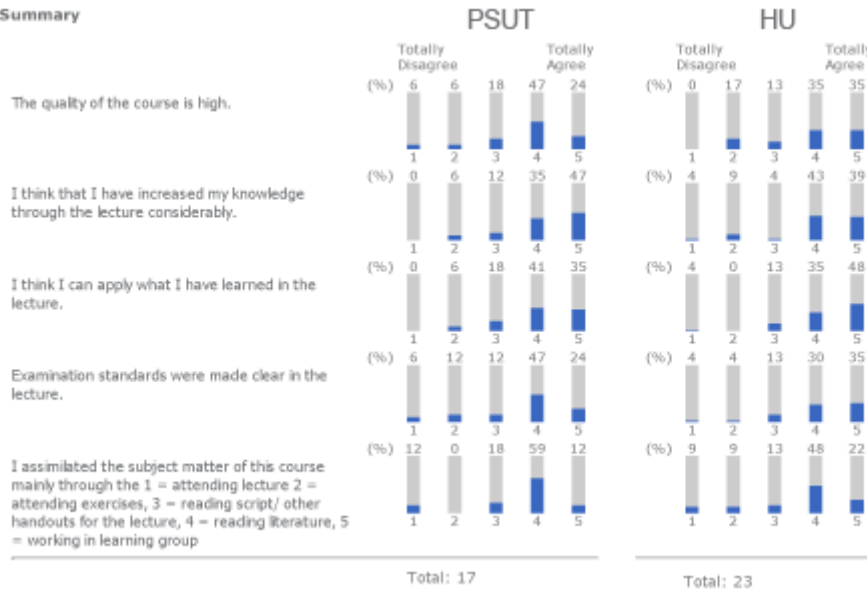
- 1) to apply new teaching approach in order to motivate the students to attend lectures and activities, attracting students' interest;
- 2) to improve the working and learning collaboratively in groups;
- 3) to clarify the examination standards also during the lectures.

83% of HU's students define the quality level of the course high. 87% admits the course has improved its level of knowledge and 96% is confident the acquired competences could be used in job.

In order to improve the course's level HU team could work in the following direction:

- 1) to integrate innovative contents, developing them in collaboration with the students;
- 2) to define the prerequisites in a more appropriate way;
- 3) HU's instructor should include teaching aids and media, in the training, in more appropriate way;
- 4) to pursue an updating of instructor's competences and knowledge;
- 5) to improve the quality of lecture rooms, laboratories, video conference room.

7. Summary



c) Machines Drive

Princess Sumaya University for Technology (PSUT)

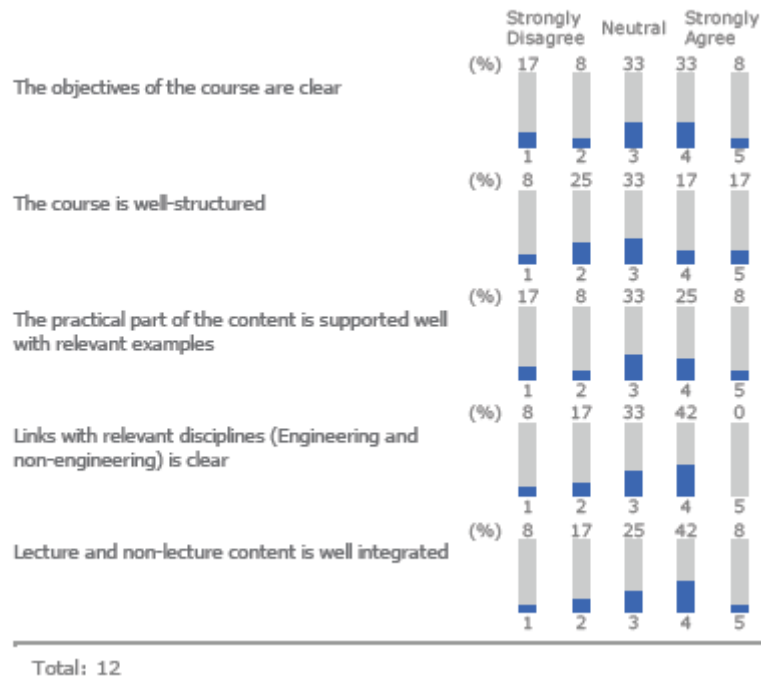
1. The Course Design and Structure

The students' feedback in PSUT is relative positive. In fact, even if 25% of the students think that the objectives of the course are not clear and 33% is neutral the majority (41%) expressed a positive assessment.

The 34% of students also think that the course is well structured, and the 33% remain neutral, while 33% think that the structure of the course must be improved. PSUT University should better investigate the reasons of these not positive opinion and take adequate correction actions. Some negative score (25%) are also related to the practical part of the contents and by the examples provided during the course, but the major part of the students (33%) expressed a positive opinion on this point and 33% are neutral. Regarding the link with other disciplines, 33% of students doesn't take a position (neutral), 42% are positive oriented and even 25% expressed a negative assessment. It demonstrate as an interdisciplinary approach must me strongly encouraged and included in such kind of courses.

Half of the students (6 on 12) expressed positive opinions regarding the lecture and no lecture content. The other half are divided in 3 students who are neutral and the other 3 who strongly disagree that the course offered a good balance among this kind of contents.

2. The Course Design and Structure



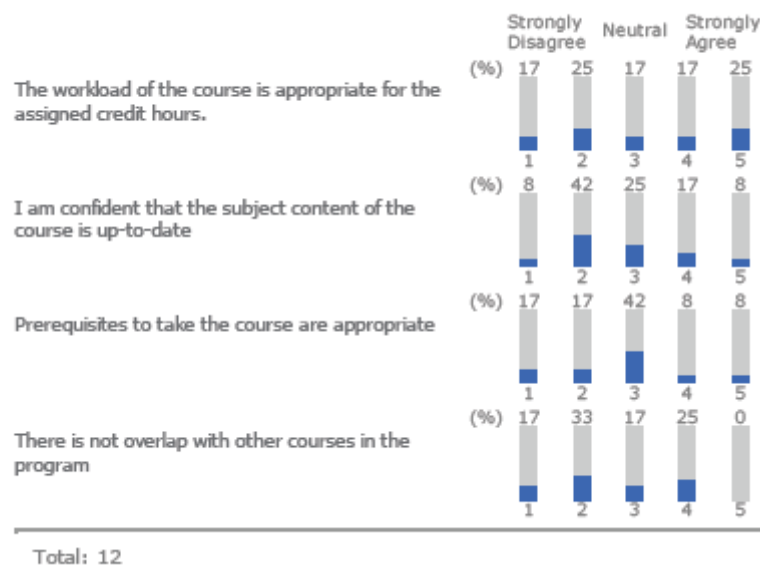
2. Workload and Content

PSUT's students opinions about workload and contents are very well balanced among positive positions (42%), neutral (17%) and negative ones (42%). This results must be taken into consideration when planning the next courses.

Regarding the confidence of the updating of the material, 25% of students (3 students) think the material is up-to-date, 25% is neutral but 50% don't consider the material up-to date. It is a high % that PSUT University should consider seriously. 16% of students consider the prerequisite to take the course adequate, nevertheless 42% are neutral about this point and 34% have a negative opinion.

Regarding the overlap with other courses, students seems to be not very satisfied, since 50% think that there are some overlap with other courses offered by the University, 17% are neutral and 25% consider the learning offer is not covered by other courses.

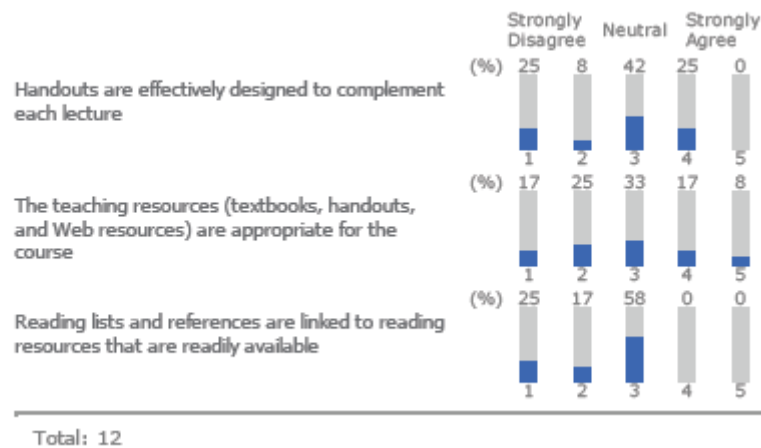
3. Workload and Content



3. Resources

Students have been asked to assess the quality of didactic materials distributed during the course. Regarding the handouts their opinion is mostly neutral, in fact only a quarter of the students gave a positive opinion (25%), 42% is neutral and 33% expressed a negative opinion. The position of the students concerning the teaching resources and the reading list and references is indeed well balanced among positive answers (25%), neutral (50%) and negative (42%). In general the opinion on reading list and references is negative with the 42% of students who disagree with the sentence and 58% is neutral. The survey suggests to provide more appropriate materials among textbooks, handouts and web resources, elaborating the handouts in order to really complement each lecture.

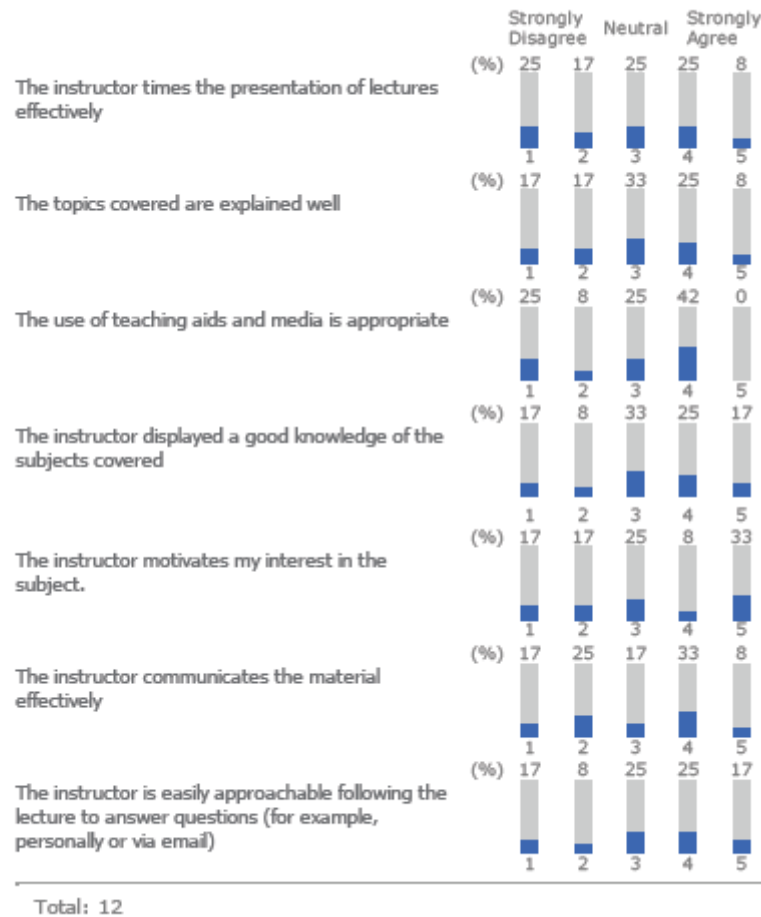
4. Resources



4. Instructors

From the survey emerges how the opinion of PSUT's students about the instructors is not that positive and something can be improved. In fact 45% of students declares the instructor times are not appropriate and 25% is neutral about this point, only 33% expressed a positive opinion. 34% of students is not satisfied about clearness of topics explained, 33% is neutral and 33% again is positive oriented. 4 students on 12 don't think that aids and media is appropriate, 3 are neutral, and the other 5 have a positive opinion about this point. 25% of interviewed think that the instructor didn't displayed a good knowledge, 33% is neutral but the major part of them (42%) are happy about this point. Regarding the motivation in order to stimulate the interest in the subject, 44% answered positively, 34% of students didn't feel stimulated enough, while 25% is neutral. For the 41% of students, instructors communicated the material effectively (17% of students are instead neutral) but 42% of them disagree with this affirmation. About the availability of the instructors to answer questions 45% of students assessed it positively, 25% is neutral and the other 25% declared to be not happy about this point. Considering the results of this survey about instructor, it is strongly suggested PSUT better investigate the reasons of the opinion of the students and according to them elaborate a new plan of selection of instructors.

5. Instructors



5. Overall Quality

The 41% of students would recommend the course to others while 25 would not and 33% is neutral. The 41% declares the course has motivated it to continue exploring the subject area, while 34% doesn't agree (the remaining 25% is neutral).

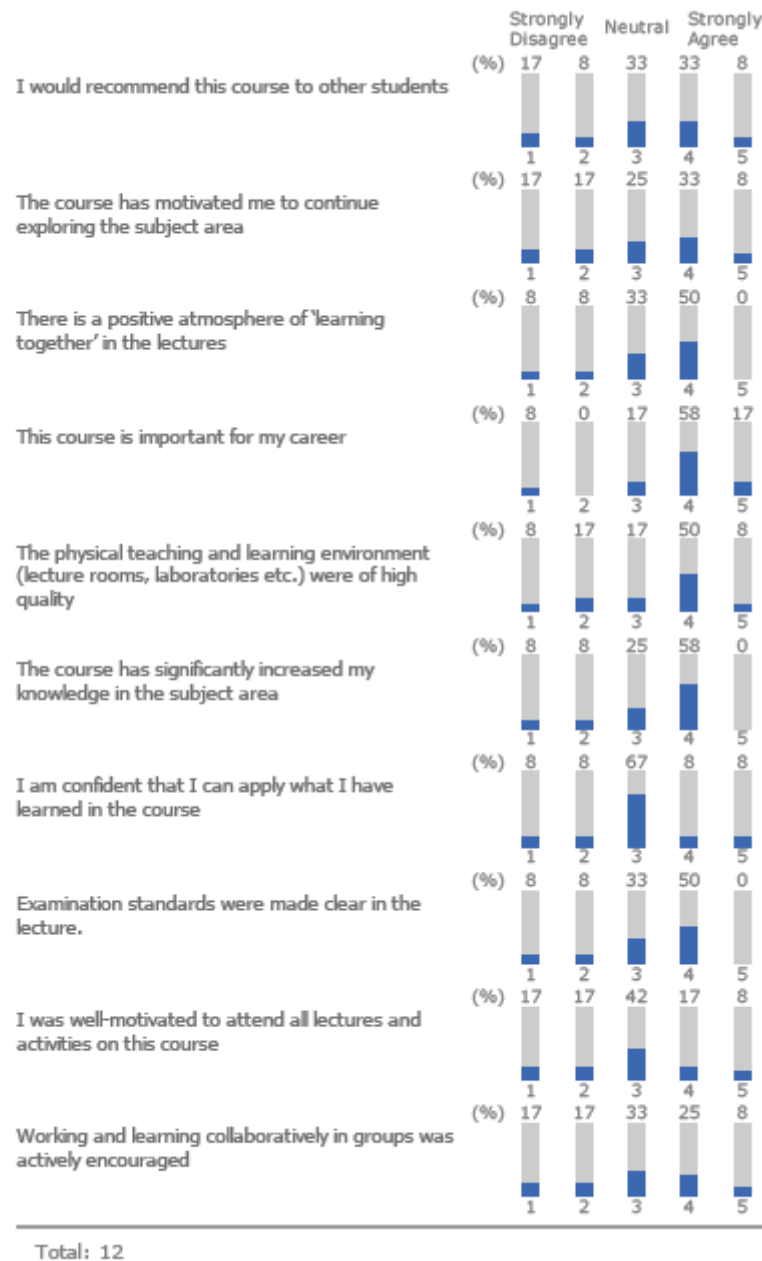
33% of students are neutral regarding the atmosphere of the course but the major part (50%) assessed it positively, even if 33% is neutral about this point. Nevertheless 75% of them consider the course important for their future career, 17% doesn't take a position and only 9% don't consider it relevant for their future.

25% of students consider the physical learning environment not adequate, even if the major part of them (58%) expressed positive opinions, 17% is neutral.

Very important results for the course are the ones related to the positive confidence of students about the know-how acquired (58% positive, 25% neutral, 16% negative). Regarding the future application of what they learned in a work environment the assessment seems to be quite balanced, with 16% of positive score and 16% of negative ones, but, what it is relevant is that in this case the majority of the students don't have a precise position, since the neutral are the 67%. Examination standards have been positively evaluated by 50% of students, while 33% are neutral and only 16% expressed negative comments.

Regarding the motivation of students in attending the course 24% of them think that this aspect can be improved, but 42% is neutral and 25% is positive oriented, while speaking about encouraging group activities the results are well balanced among 33% neutral, 33% positive and 34% negative opinions.

6. Overall Quality



6. Summary

In general the opinions expressed by interviewed about the level of quality of the course is positive (42%) but with a very short margin, since 25% of students remain neutral and 34% don't consider the level of the course adequate.

41% of students think that they increased their knowledge through the lecture considerably, 33% are neutral and only 25% disagree with this affirmation. Students are not confident that they can apply what learned in the lecture in their professional future (33%), 42% remain neutral about this possibility and only 25% expressed a positive opinion.

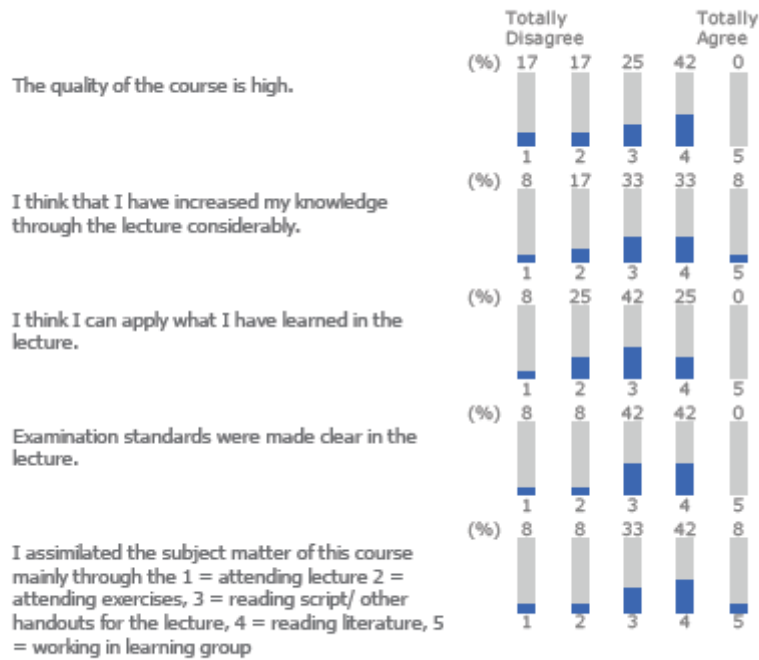
42% of students think that examination standards were made clear in the lecture, but the same % (42%) are neutral regarding this sentence, 16% of them assessed it negative.

Regarding how students assimilated the subject matter of this course, the answer are divided as follow: mainly through the 1 = attending lecture (8%) 2 = attending exercises, (8%) 3 = reading script/ other handouts for the lecture (33%), 4 = reading literature (42%), 5 = working in learning group (8%).

The students interviewed answered to the question related to what parts of this course need to be improved and they recommended to change the book and spend more time and to clarify better the contents related to motors and generation, power electronics and electrical machines. Moreover several negative comments were related to the instructors.

Among 11 students, 3 didn't find the topics useful at all, but in general the comments are positive and the most interesting parts are the one related to motors and generation, power electronics and electrical machines and machine drive system, dc/dc conversion.

7. Summary



Total: 12

d) Power Electronic

Princess Sumaya University for Technology (PSUT)

1. The Course Design and Structure

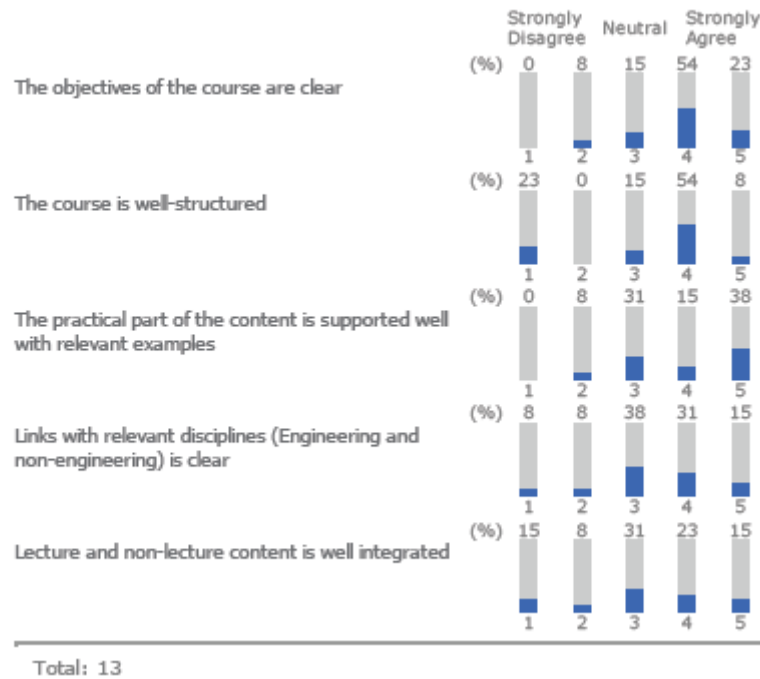
The students' feedback in PSUT is positive. In fact, only 8% of the students think that the objectives of the course are not clear and 15% is neutral, but the majority (77%) expressed a positive assessment. Moreover, 62% of students also think that the course is well structured, and the 15% remain neutral, while 23% think that the structure of the course must be improved.

Some negative score (8%) are related to the practical part of the contents and by the examples provided during the course, but the major part of the students (53%) expressed a positive opinion on this point and 31% is neutral.

Regarding the link with other disciplines, 38% of students doesn't take a position (neutral), 46% are positive oriented and only 16% expressed a negative assessment. It demonstrate as an interdisciplinary approach must be maybe more encouraged and included in such kind of courses.

38% of students expressed positive opinions regarding the lecture and no lecture content, 31% neutral and the other 23% who strongly disagree that the course offered a good balance among this kind of contents.

2. The Course Design and Structure



2. Workload and Content

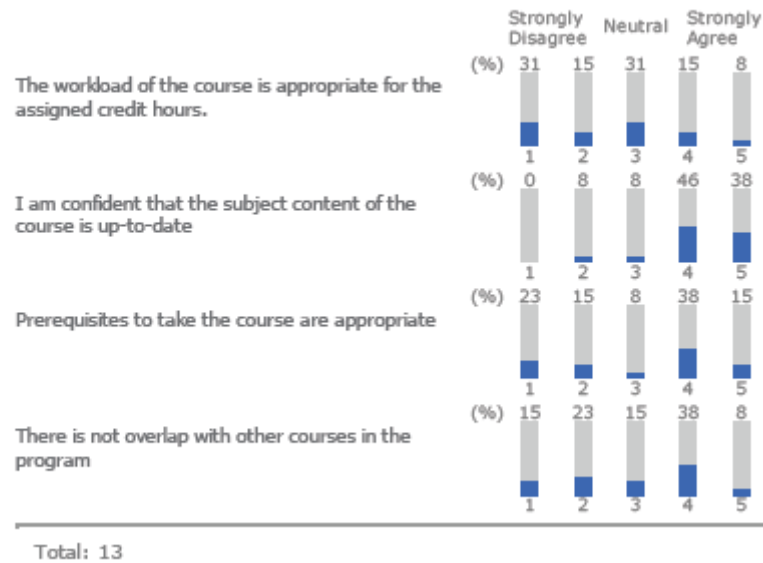
PSUT's students opinions about workload and contents are divided among positive positions (23%), neutral (31%) and negative ones (46%). This results must be taken into consideration when planning the next courses.

A very positive result is the one related to the confidence of the updating of the material, even 84% of students think the material is up-to-date, 8% is neutral and also 8% don't consider the material up-to date.

53% of students consider the prerequisite to take the course adequate, nevertheless 8% are neutral about this point and 38% have a negative opinion.

Regarding the overlap with other courses, students seems to be quite satisfied, since even if 38% think that there are some overlap with other courses offered by the University, and 15% are neutral, 46% consider the learning offer is not covered by other courses.

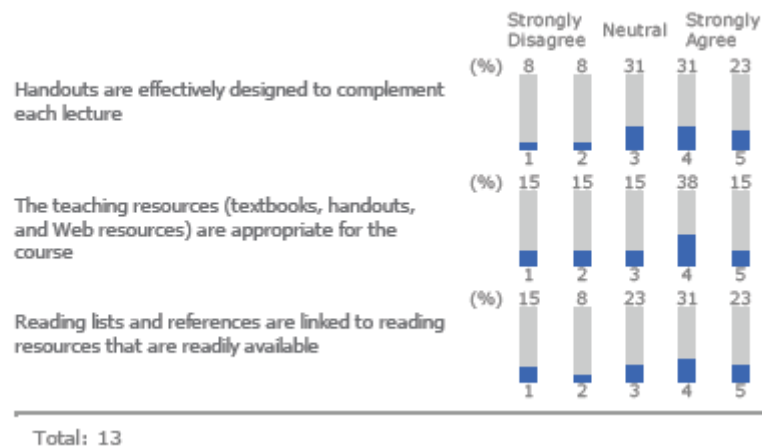
3. Workload and Content



3. Resources

Students have been asked to assess the quality of didactic materials distributed during the course. Regarding the handouts their opinion is mostly positive, in fact 54% of the students gave a positive opinion, 31% is neutral and only 16% expressed a negative opinion. The position of the students concerning the teaching resources and the reading list and references is indeed well balanced among positive answers (43%), neutral (15%) and negative (30%). In general the opinion on reading list and references is quite positive (54%), with the 23% of students who disagree with the sentence 23% is neutral.

4. Resources



4. Instructors

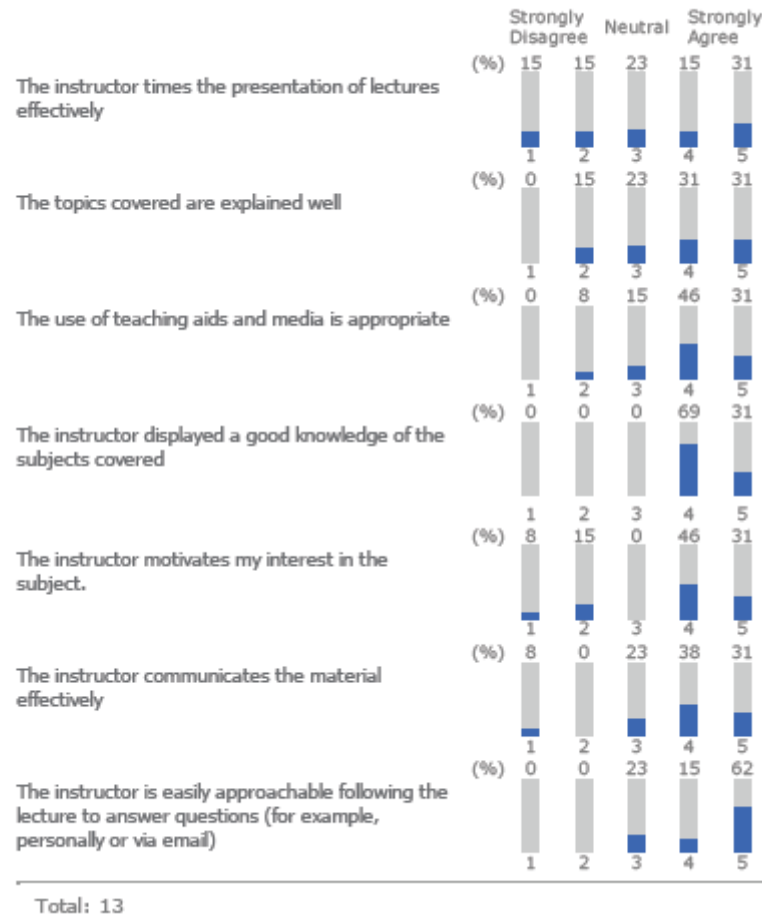
From the survey emerges how the opinion of PSUT's students about the instructors is quite positive. In fact 46% of students declares the instructor times are appropriate, 23% is neutral about this point, even if 30% expressed a negative opinion. 15% of students is not satisfied about clearness of topics explained, 23% is neutral but 62% is positive oriented.

8% of interviewed don't think that aids and media is appropriate, 15% are neutral, but 77% have a positive opinion about this point. A big success is represented by the quality of the knowledge displayed by the instructors, with a 100% of positive opinions. Regarding the motivation in order to stimulate the

interest in the subject, 77% answered positively, while the other 23% is neutral. For the 69% of students, instructors communicated the material effectively, 23% of students are instead neutral and only 8% of them disagree with this affirmation. About the availability of the instructors to answer questions 77% of students assessed it positively, 23% declared to be not happy about this point.

Considering the results of this survey about instructor, it seems that the selection criteria have been positively appreciated by the students and only few correction actions must be taken.

5. Instructors



5. Overall Quality

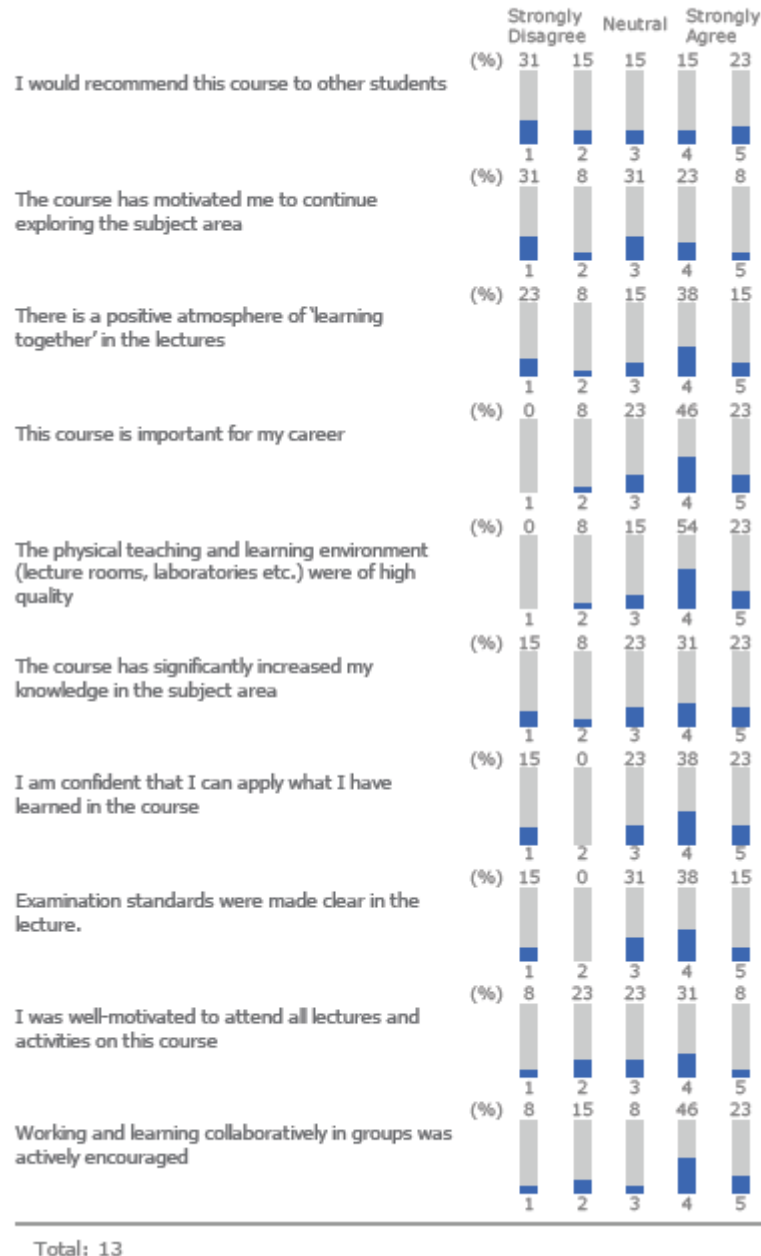
38% of students would recommend the course to others while 46 would not and 15% is neutral. 35% declares the course has motivated it to continue exploring the subject area, while 35% doesn't agree (the remaining 31% is neutral).

15% of students are neutral regarding the atmosphere of the course but the major part (53%) assessed it positively, even if 31% don't agree about this point. Nevertheless 63% of them consider the course important for their future career, 23% doesn't take a position and only 8% don't consider it relevant for their future.

8% of students consider the physical learning environment not adequate, even if the major part of them (77%) expressed positive opinions, 15% is neutral. Very important results for the course are the ones related to the positive confidence of students about the know-how acquired (54% positive, 23% neutral, 23% negative). Regarding the future application of what they learned in a work environment the assessment seems to be quite positive, with 61% of positive score and 15% of negative ones, the neutral are the 23%. Examination standards have been positively evaluated by 53% of students, while 31% are neutral and only 15% expressed negative comments.

Regarding the motivation of students in attending the course 31% of them think that this aspect can be improved, but 39% is positive oriented and 23% is neutral, while speaking about encouraging group activities the results are mostly positive 69% with 8% neutral, and 23% negative.

6. Overall Quality



6. Summary

In general the opinions expressed by interviewed about the level of quality of the course is positive (54%) but 38% of students remain neutral and 8% don't consider the level of the course adequate.

53% of students think that they increased their knowledge through the lecture considerably, 23% are neutral and the other 23% disagree with this affirmation. Students are confident that they can apply what learned in the lecture in their professional future (64%), 23% remain neutral about this possibility and only 15% expressed a positive opinion.

85% of students think that examination standards were made clear in the lecture, and only 16% of them assessed it negative.

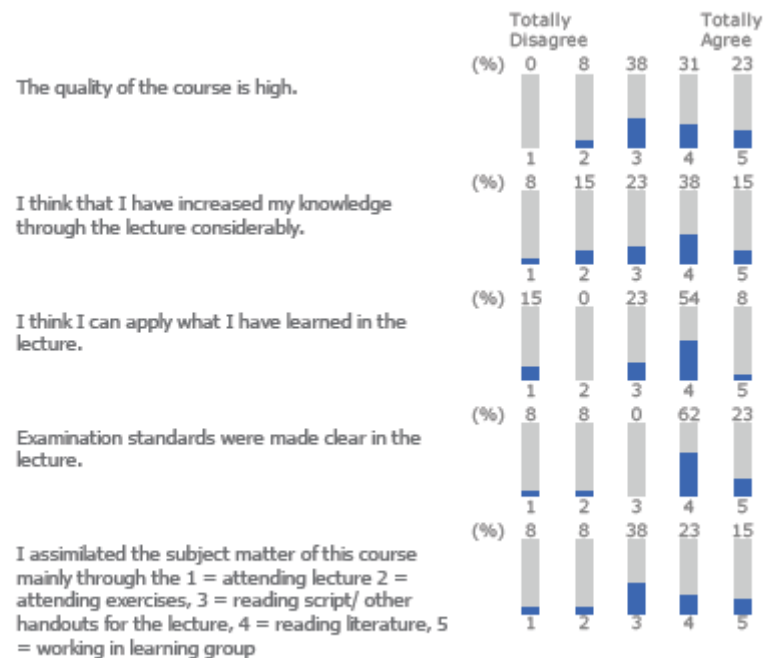
Regarding how students assimilated the subject matter of this course, the answer are divided as follow: mainly through the 1 = attending lecture (8%) 2 = attending exercises, (8%) 3 = reading script/ other handouts for the lecture (38%), 4 = reading literature (23%), 5 = working in learning group (15%).

The students interviewed answered to the question related to what parts of this course need to be improved.

They recommended to spend more time about theory of power electronics inside the lab, inverter operation with signal modulation, components, buck and boost part, the full-wave and half wave rectifier. Moreover, they suggested to reduce the pre-labs, dealing with the ripple and they also reported that the material should be synchronized with the Power Electronics course, the instruments need to be renewed,

Students have been asked which aspects of this course were most useful for them. In general the comments are positive, they appreciated the experience gained in using the lab equipment, the simulation softwares, the DCDC converter, the full-wave rectifier and the converting from AC to DC part. Moreover, some of them found the instructor very energetic and enthusiastic about the course, motivates the students, and explains everything very well.

7. Summary



Total: 13

e) Solar Energy

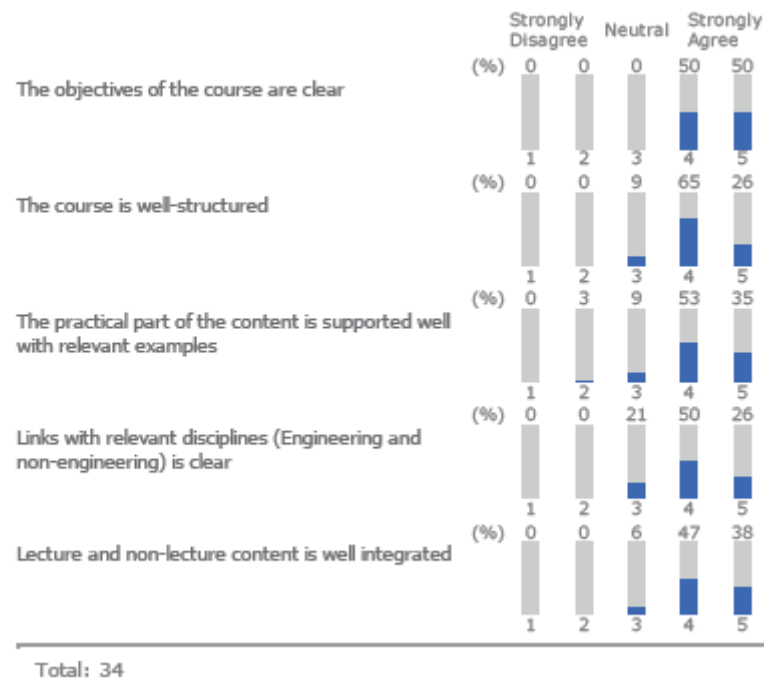
University of Jordan (UJ)

1. The Course Design and Structure

The students' feedback in UJ is very positive. 100 % of the students think that the objectives of the course are clear and among them, 50 % gave to this statement the maximum score. The 65% of students also think that the course is well structured, and the 25% strongly agree with this positive affirmation, while only 9% remain neutral. In general, students seems satisfied by the practical part of the contents and by the examples provided during the course. In fact, only the 3% think that this part has not been well delivered and 9% is neutral, while 88% strongly agree on a positive evaluation of this part of the course (53% with a score of 4 and 35% of 5).

Regarding the link with other disciplines, 21% of students doesn't take a position (neutral), 50% are positive oriented and even 26% expressed a very positive assessment. It demonstrate as an interdisciplinary approach must me strongly encouraged and included in such kind of courses. A positive opinion have been expressed by the students regarding the lecture and no lecture content. In fact only 6% is neutral, while 47% and 38% of the students involved strongly agree that the course offered a good balance among this kind of contents.

2. The Course Design and Structure



2. Workload and Content

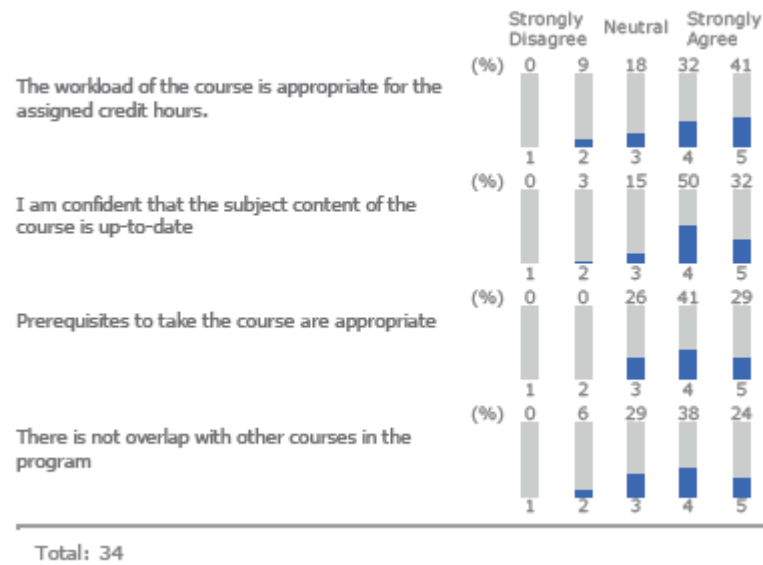
UJ's students seem to have appreciated workload and contents. The 73% of them agrees the workload is appropriate, nevertheless 18% remain neutral and 9% declare to be not satisfied. It could be interesting for UJ to better investigate the reason of dissatisfaction of this students and take appropriate correction measures.

The confidence about the up-to-date of the material is high, with a positive statement of the 82% of students, only 15% doesn't express an opinion, while 3% don't consider the learning material up-to-date enough.

24 students on 34 (70%) consider the prerequisite to take the course adequate, nevertheless 10 students (30%) are neutral about this point.

Regarding the overlap with other courses, students gave very different opinions, since 6% think that there are some overlap with other courses offered by the University, 29% are neutral and 38% (score 4) and 24% (score 5) consider the learning offer very new and not covered by other courses.

3. Workload and Content

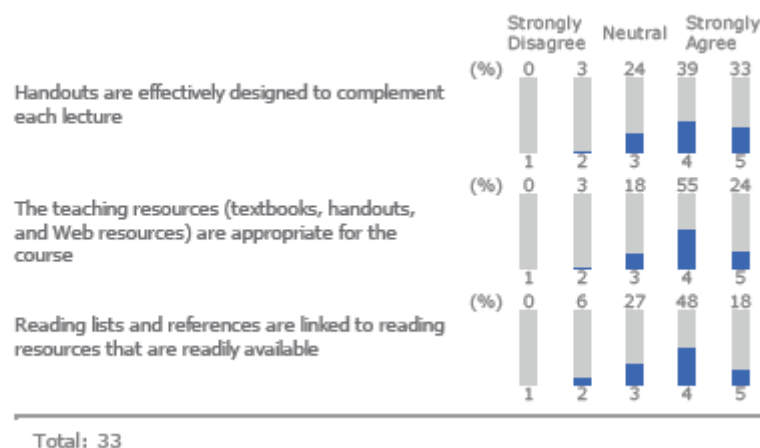


3. Resources

Students have been asked to assess the quality of didactic materials distributed during the course. Regarding the handouts their opinion is mostly positive (24 students on 33: 72%), 24% is neutral and only 3% expressed a negative opinion. The position of the students concerning the teaching resources and the reading list and references is very positive (79%), 18% don't express an opinion (neutral) and only 3% gave a negative assessment.

In general the opinion on reading list and references is positive with the 66% of students who agrees with the sentence, the 27% is neutral and only 6% disagree. The survey suggests to provide more appropriate materials among textbooks, handouts and web resources, elaborating the handouts in order to really complement each lecture.

4. Resources

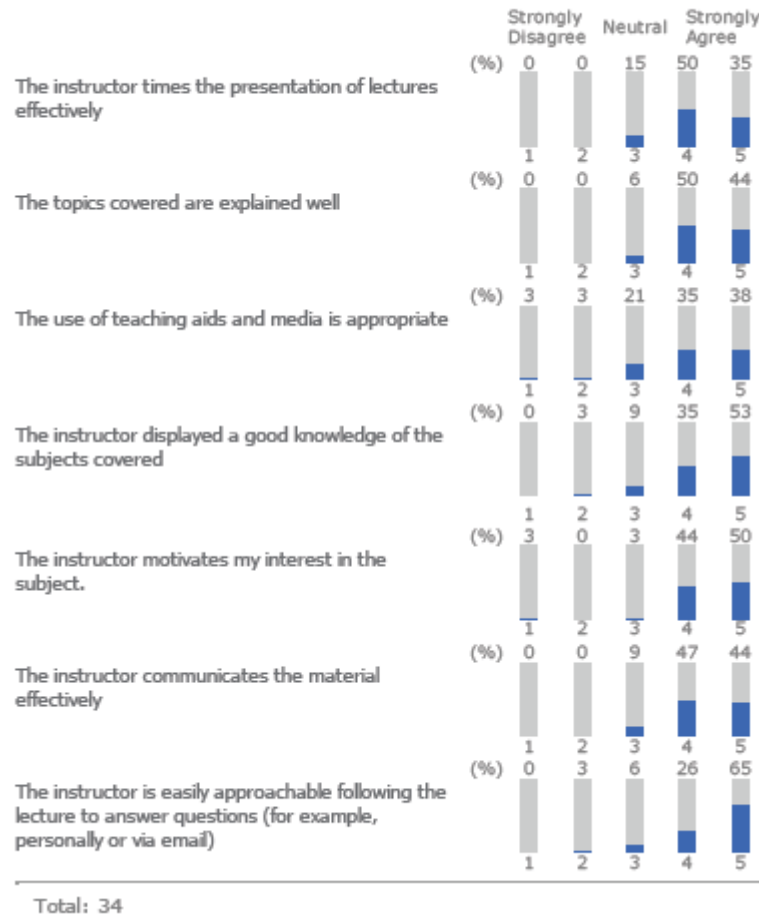


4. Instructors

The opinion of UJ's students is very positive. The 85% of students (n. 29 on n. 34) declares the instructor times are appropriate and only 15% is neutral about this point. No negative opinions have been expressed about the topics (94% positive, 6 % neutral), while 6% of students don't think that aids and media is appropriate, even if 21% is neutral and the major part of students (72%) have a positive opinion about this point.

Just 1 student on 34 think that the instructor didn't displayed a good knowledge of the subject and stimulated his/her interest in the subject. Nevertheless, a part of few neutral opinion (9% and 3%) the majority of students have been satisfy and motivated by the instructors, who, for the 91% of students communicated the material effectively (9% of students are instead neutral). About the availability of the instructors to answer questions 65% of students assessed the maximum score (5), 26% (4), only the 3% strongly disagree with this affirmation, while 6% is neutral.

5. Instructors

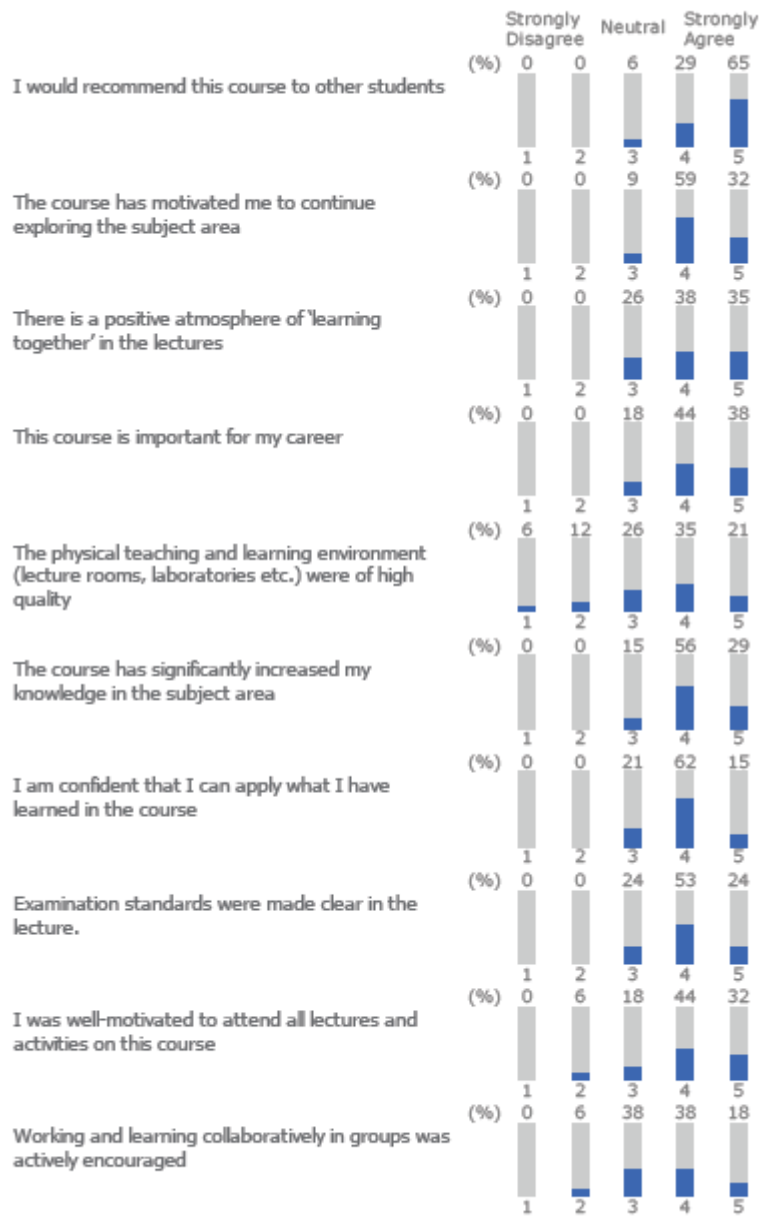


5. Overall Quality

The 94% of students (32 on 34) will recommend the course to others. The 91% declares the course has motivated it to continue exploring the subject area (the remaining 9% is neutral). 26% of students are neutral regarding the atmosphere of the course but the major part (73%) assessed it positively, as well as 82% of them consider the course important for their future career. The only negative comments about the general quality of the course are related to the physical learning environment, that 20% of students consider not adequate, even if the major part of them (56%) expressed positive opinions, 26% are neutral. Very important results for the course are the ones related to the positive confidence of students about the know-how acquired (85%) and the future application of what they learned in a work environment (77%). Only 15% and 21% of students are neutral about this. Examination standards have been positively evaluated by 77% of students, while 18% are neutral.

The opinion of UJ's students on overall quality is positive, but some margins of improving have to be taken into consideration regarding the motivation of students in attending the course and the encouraging group activities, in fact 6% of students think that this aspect can be improved, even if, a part some neutral position (18% and 38%) the comments are in general very positive (76% and 56%).

6. Overall Quality

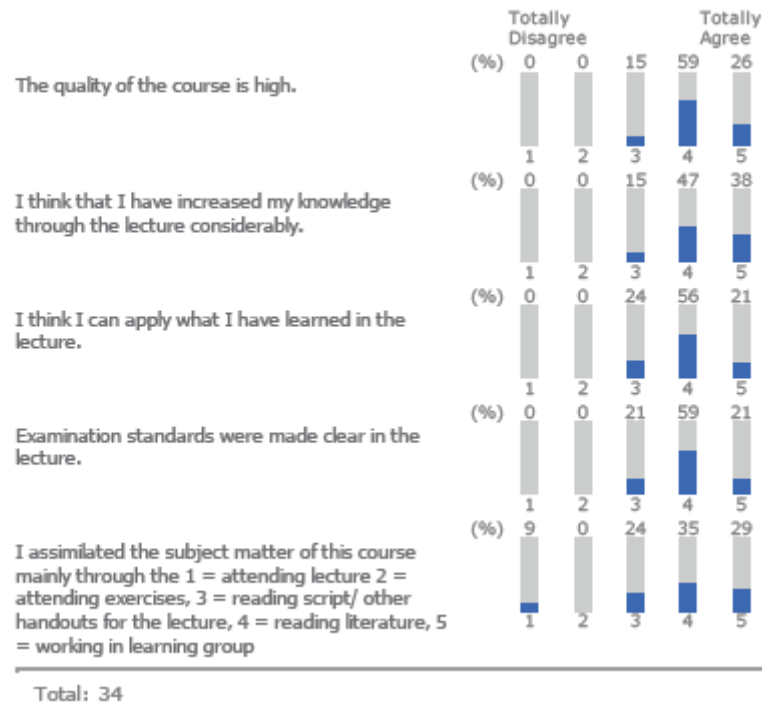


Total: 34

6. Summary

In general the course delivered at UJ can be considered as successful, since 85% of students expressed a positive assessment about its quality, only 15% (5 students) are neutral regarding the quality level of the course. Again, 85% of students think that they increased their knowledge through the lecture considerably (15% neutral). 26 students (77%) think they can apply what learned in the lecture in their professional future, but 21% (8 students) remain neutral about this possibility. 80% of students think that examination standards were made clear in the lecture, and 21% are neutral regarding this sentence, no negative comments have been done. Regarding how students assimilated the subject matter of this course, the answer are divided as follow: mainly through the 1 = attending lecture (9%) 2 = attending exercises, (0%) 3 = reading script/ other handouts for the lecture (24%), 4 = reading literature (35%), 5 = working in learning group (29%).

7. Summary



f) Selected Topics in Energy

Mutah University

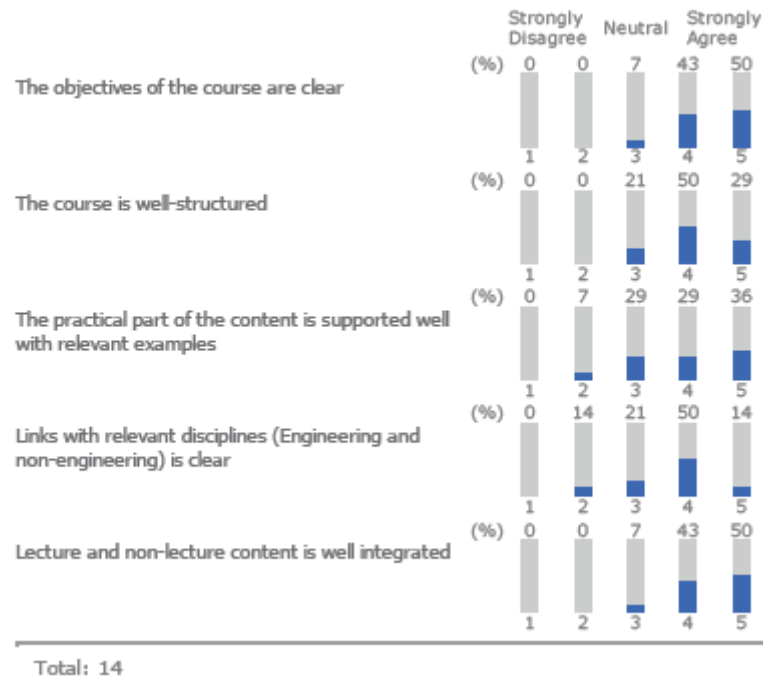
1. The Course Design and Structure

The students' feedback in MUTAH is very positive. In fact, even 93% of the students think that the objectives of the course are clear and only 7% is neutral, no negative comments on this point.

Moreover, 79% of students also think that the course is well structured, and the 21% remain neutral, also on this point we don't have any negative answer. The major part of the students (65%) expressed a positive opinion regarding the practical part of the contents and the examples provided during the course and 21% is neutral.

Regarding the link with other disciplines, 21% of students doesn't take a position (neutral), 64% are positive oriented and only 14% expressed a negative assessment. A very successful results is also the one that students expressed regarding the lecture and no lecture content, with 93% of positive opinions and 7% of neutral ones.

2. The Course Design and Structure

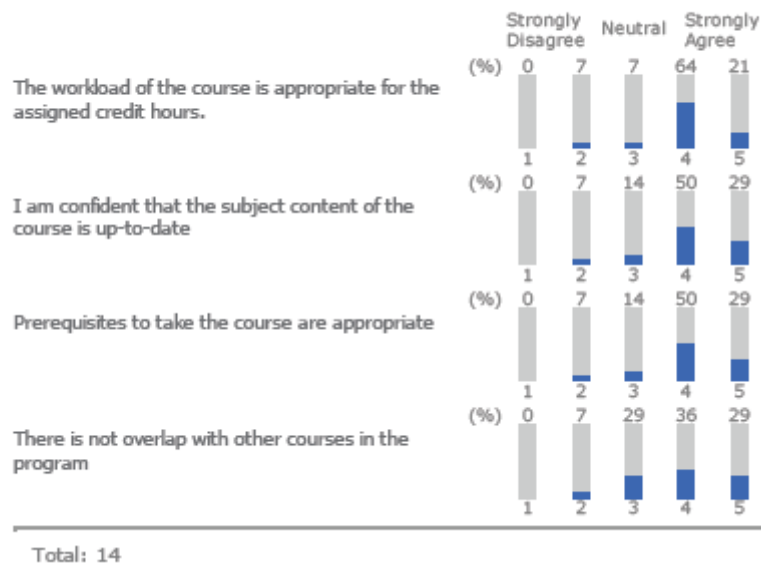


2. Workload and Content

MUTAH's students opinions about workload and contents are positive (85%), while neutral and negative positions are well balanced but not that relevant (75 both). A very positive result is the one related to the confidence of the updating of the material, even 79% of students think the material is up-to-date, 14% is neutral and only 7% don't consider the material up-to date. The same results is the one related to the fact that students consider the prerequisite to take the course adequate (79% positive, 14% neutral, 7% negative).

Regarding the overlap with other courses, students seems to be quite satisfied, since 65% think that there are no overlap with other courses offered by the University, and 29% are neutral, only 7% consider the learning offer is covered by other courses.

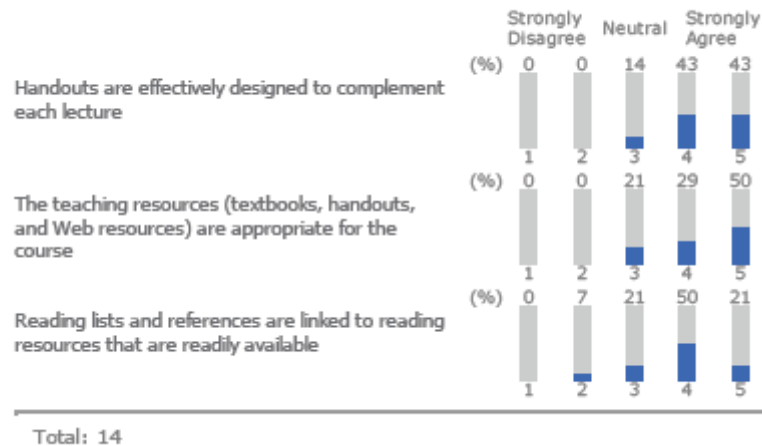
3. Workload and Content



3. Resources

Regarding the handouts the opinion of the interviewed is positive, in fact 86% of the students gave a positive opinion and only 14% is neutral, no negative opinions have been reported. The position of the students concerning the teaching resources and the reading list and references is indeed also positive (79%), (neutral 21%, 0% negative). In general the opinion on reading list and references is quite positive (71%), with only 7% of students who disagree with the sentence and 21% is neutral.

4. Resources



4. Instructors

From the survey emerges how the opinion of MUTAH students about the instructors is quite positive. In fact 86% of students declares the instructor times are appropriate, 14% is neutral about this point.

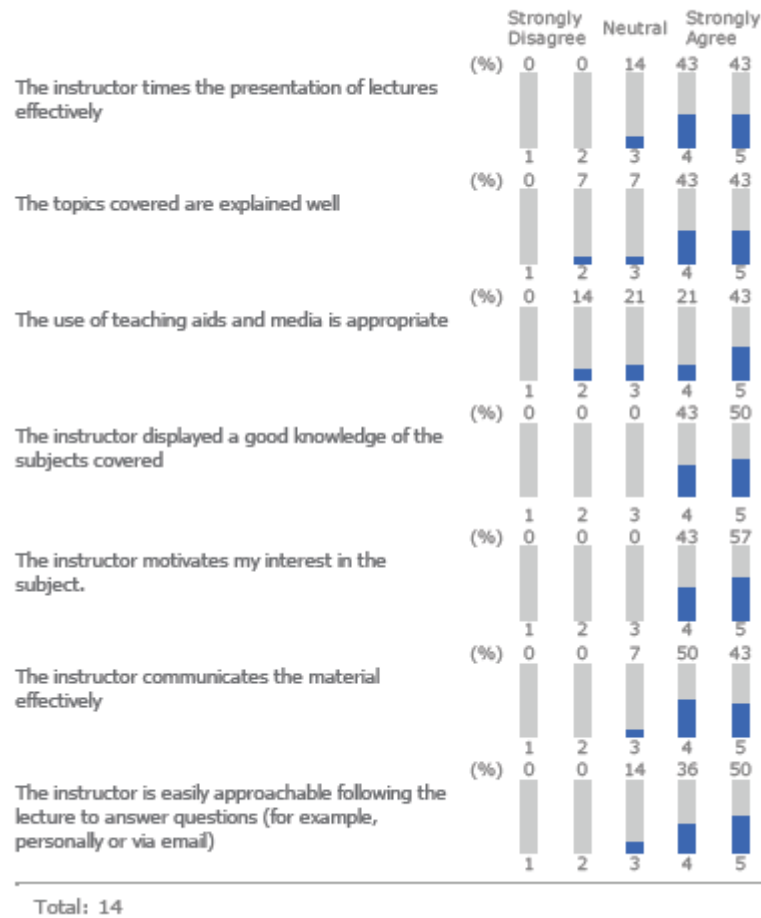
Only 7% of students is not satisfied about clearness of topics explained and other 7% is neutral but even 86% is positive oriented, which is a good result for the course. 14% of interviewed don't think that aids and media is appropriate, 21% are neutral, but 64% have a positive opinion about this point.

A big success is represented by the quality of the knowledge displayed by the instructors and the motivation in order to stimulate the interest in the subject, with a 100% of positive opinions for both questions.

For the 93% of students, instructors communicated the material effectively with only 7% of students are instead neutral on this affirmation. About the availability of the instructors to answer questions 86% of students assessed it positively, 14% declared to be not happy about this point.

Considering the results of this survey about instructor, it seems that the selection criteria have been positively appreciated by the students and only few correction actions must be taken.

5. Instructors



5. Overall Quality

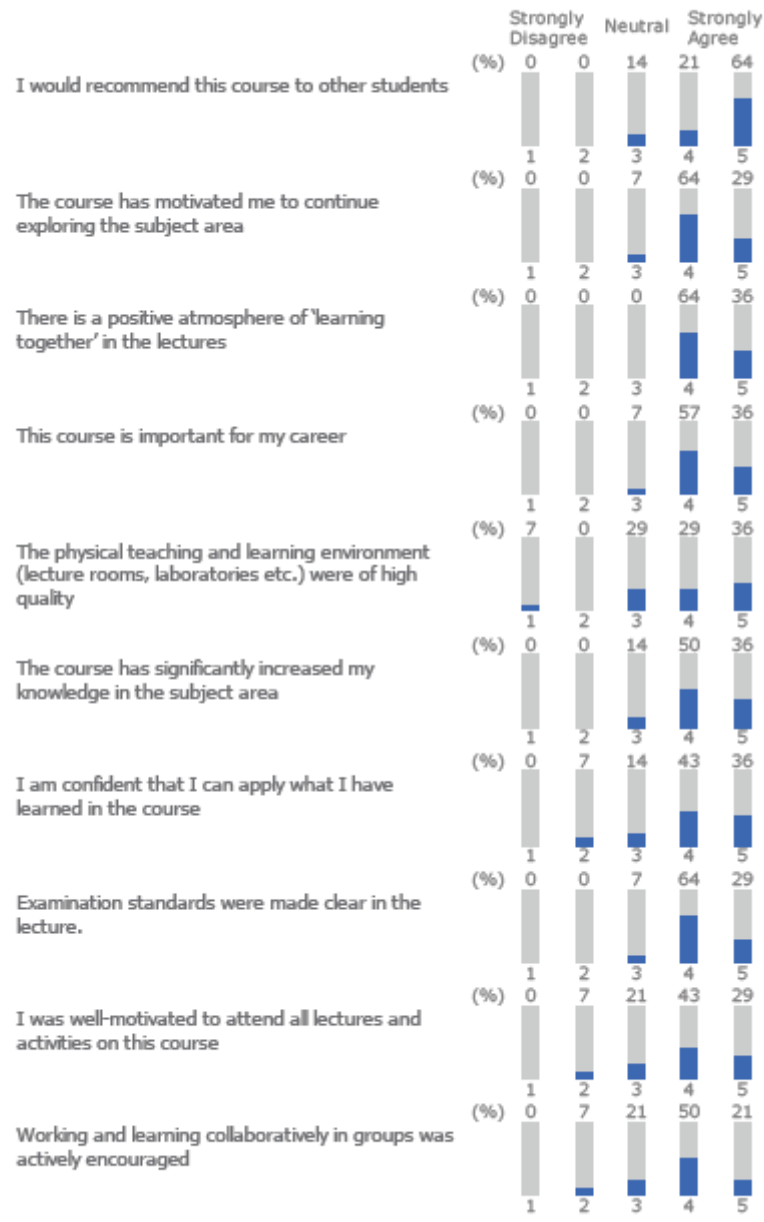
86% of students would recommend the course to others while 14% is neutral. 93% declares the course has motivated it to continue exploring the subject area (7% is neutral).

100% of students are positive regarding the atmosphere of the course and 93% of them consider the course important for their future career (87% neutral). 65% of students consider the physical learning environment adequate, only 7% expressed a not positive opinions, 29% is neutral.

Very important results for the course are the ones related to the positive confidence of students about the know-how acquired (86% positive, 14% neutral, and 0% negative). Regarding the future application of what they learned in a work environment the assessment seems to be quite positive, with 79% of positive score and 7% of negative ones, the neutral are the 14%. Examination standards have been positively evaluated by 93% of students, while only 7% are neutral.

Regarding the motivation of students in attending the course 7% of them think that this aspect can be improved, but, which is relevant, 72% is positive oriented and 21% is neutral, while speaking about encouraging group activities the results are mostly positive 71% with 21% neutral, and 7% negative.

6. Overall Quality



Total: 14

6. Summary

In general the opinions expressed by interviewed about the level of quality of the course is positive (79%) but 14% of students remain neutral and 7% don't consider the level of the course adequate.

86% of students think that they increased their knowledge through the lecture considerably, 14% are neutral. Students which are confident that they can apply what learned in the lecture in their professional future are 93%, the remaining 7% remain neutral about this possibility. 86% of students think that examination standards were made clear in the lecture, and only 14% of them assessed it neutrally.

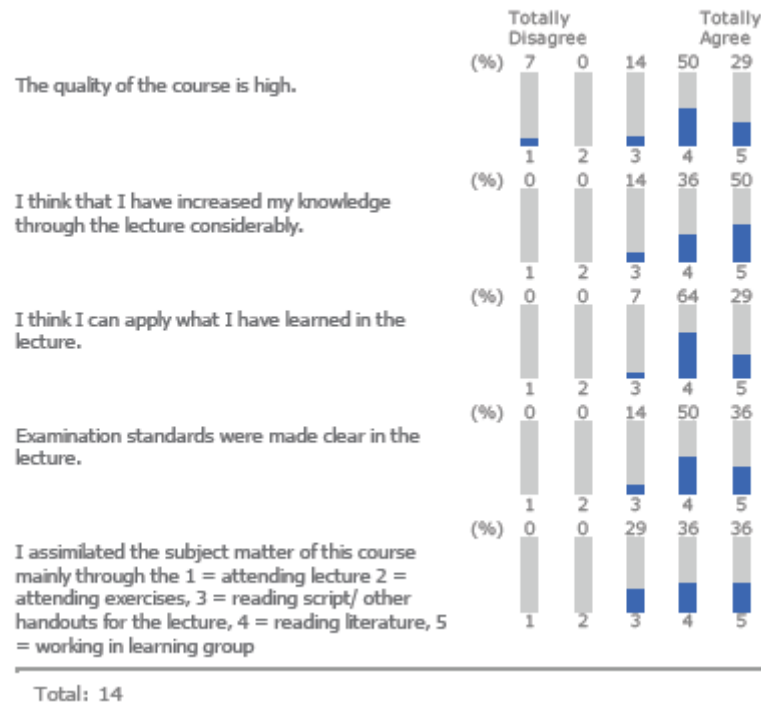
Regarding how students assimilated the subject matter of this course, the answer are divided as follow: mainly through the 1 = attending lecture (0%) 2 = attending exercises, (0%) 3 = reading script/ other handouts for the lecture (29%), 4 = reading literature (36%), 5 = working in learning group (36%).

The students interviewed answered to the question related to what parts of this course need to be improved.

They recommended to spend more time about wind energy and solar system and particularly appreciated the visit to workspace, the work in team, the Illustration of the practical application of scientific concepts, the visits to resources and renewable energy centres. The course need Moreover, they suggested to improve the contents of the course with more calculation.

Students have been asked which aspects of this course were most useful for them. In general the comments are positive, they appreciated the examples and applied projects in the different regions, the parts related to wind energy and solar energy. Moreover, they also appreciated the giving lectures and seminars which feeds students with sufficient information in the field of renewable energy.

7. Summary



g) Power Systems Laboratories

Princess Sumaya University for Technology (PSUT)

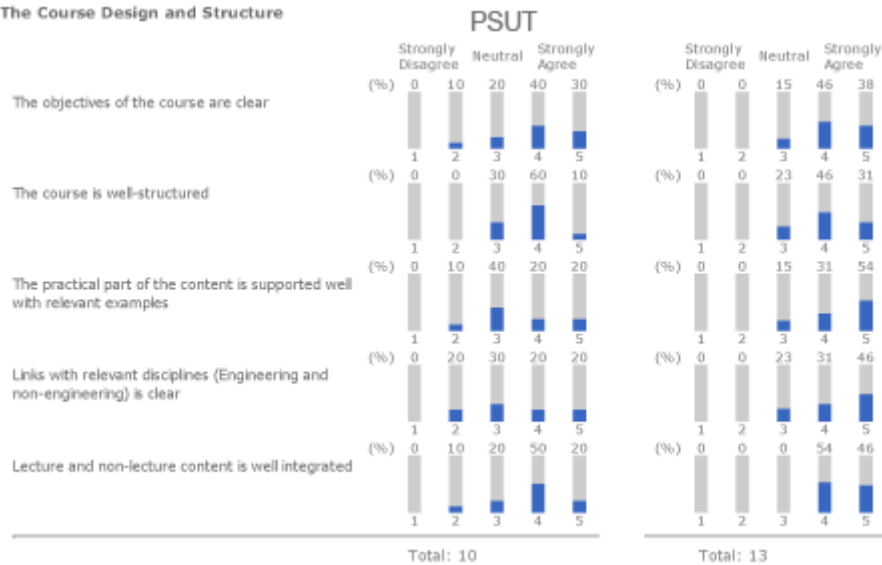
1. The Course Design and Structure

In order to improve students' competences and to provide technical and practical knowledge, Power Systems Laboratories have been included in PSUT programme.

The practical course has been appreciated by the students at PSUT. 90% has considered the course's objectives clear and the practical part well-supported by relevant examples. The totality of the participants has defined the course well structured, underlining the suitable integration between lecture and non-lecture contents.

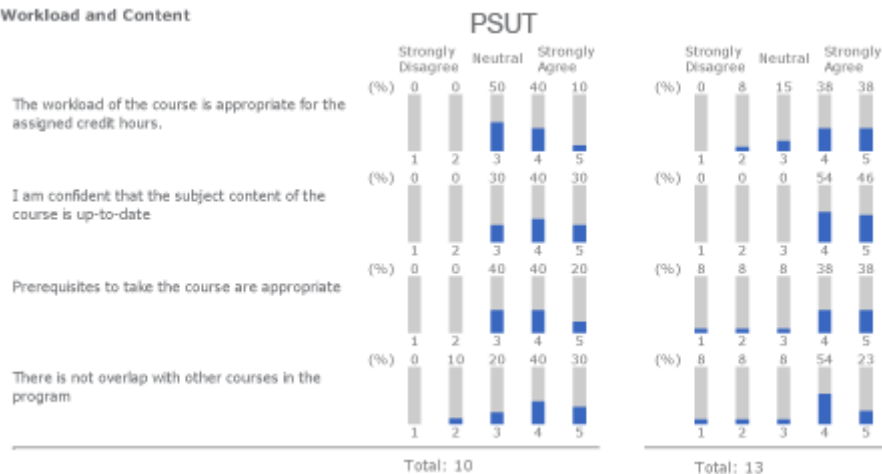
The opinion of students can be defined enthusiastic. All students don't disagree with the sentences: 84% thinks the objectives are clear, 77% approves the structure of the course, 85 % holds the practical part is well supported by examples. All students agree lecture and non-lecture content is well integrated.

2. The Course Design and Structure



2. Workload and Content

3. Workload and Content



The second group of questions of the students' survey seems to confirm the interest in a practical approach in training.

At PSUT, the 100% of interviewees doesn't disagree with the assumption. Only 10% (n. 1 person) thinks there is overlap of the course with others.

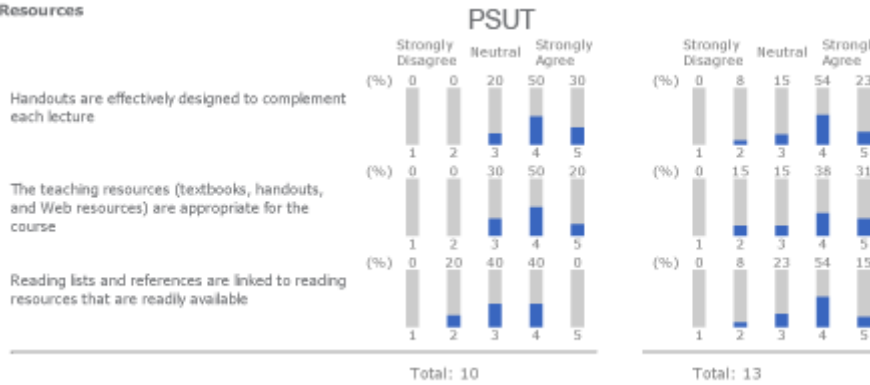
The opinion is in general positive, but few disapprovals are shown. N. 1 student thinks the workload isn't appropriate and n. 2 people claim prerequisites are not appropriate and there is overlap with other course.

3. Resources

In a general enthusiastic evaluation of the course, PSUT's students highlight the reading resources, linked to reading lists and references, aren't readily available (n. 2 students, 20%). PSUT should work in order to guarantee the availability of all reading resources.

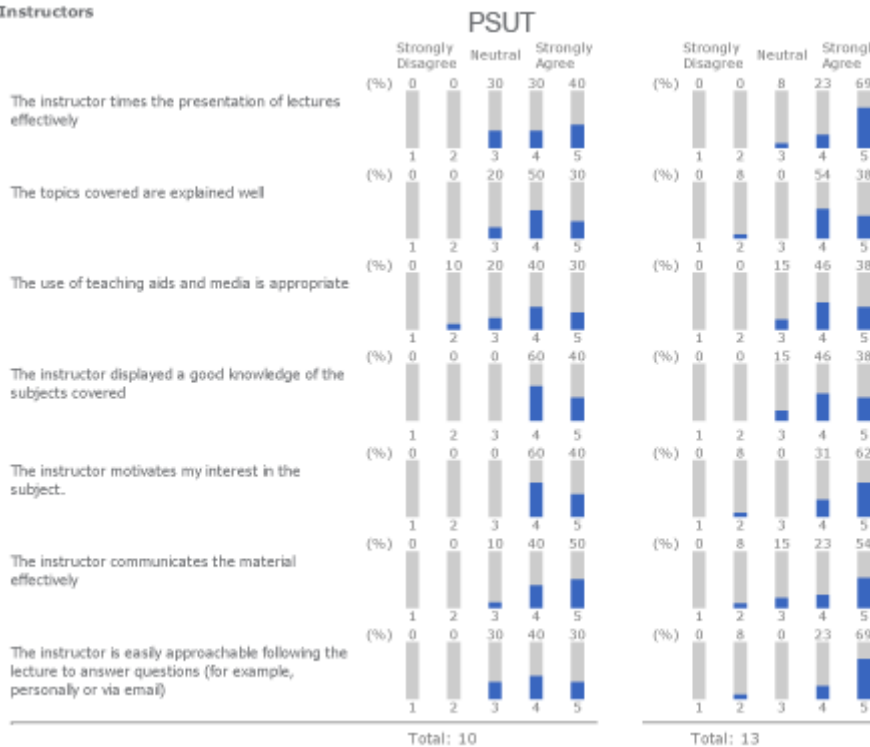
Only 1 student out of 13 thinks the handouts aren't designed to complement the lectures and the reading resources aren't readily available. While 2 students declare the teaching resources aren't appropriate for the course. PSUT should perfect the teaching resources making them more suitable to the provided course.

4. Resources



4. Instructors

5. Instructors



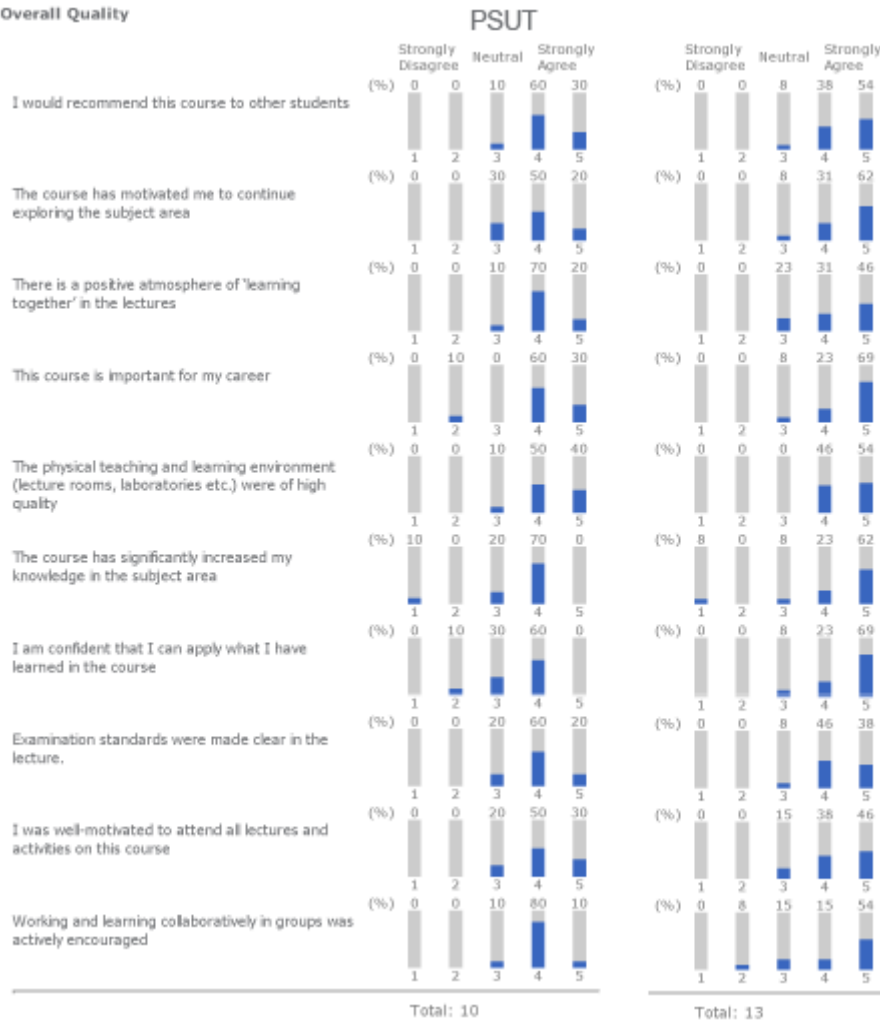
Also the evaluation of the instructor confirms the positive opinion of PSUT students on the laboratory. Only n. 1 student thinks the use of teaching aids and media isn't appropriate, 20% is neutral and 70% of participants agrees with the sentence.

If possible the opinion of students is more positive than the one of PSUT students. In particular the percentage of "strongly agree" is higher. Only 1 student thinks the topic isn't explained well, the instructor hasn't motivated his/her interest, the instructor hasn't communicated the materials effectively and he/she wasn't easily approachable for questions.

5. Overall Quality

The most frequent reply in "Overall Quality" topic is "Agree". The 90% of students at PSUT will recommend the course (the other 10% is neutral), 70% has been motivated to continue exploring the area (other 30% is neutral) and 90% thinks the course is important for the future career (other 10% is neutral). Only n. 1 students thinks the course will not be important for the career and he/she will not apply what he/she has learned in the future. Moreover n. 1 student has declared the course hasn't increased his/her competences on the topic. The evaluation of PSUT's students can be considered total positive.

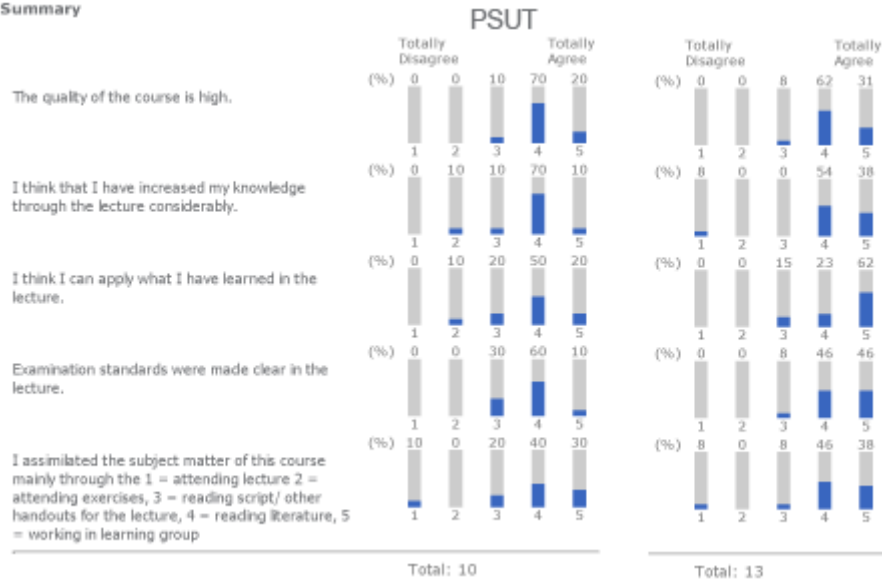
6. Overall Quality



The major part of the students of JAMAL “strongly agree” with the assumptions and the opinions are positive with the exclusion of n. 1 student who thinks the course hasn’t significantly increased his/her knowledge in the subject area. The general opinion is strongly positive and the only suggestion is to remain in the same high quality condition.

6. Summary

7. Summary



No recommendation can be done in the case of Power Systems laboratories. The course has been appreciated by the students and the invitation is to replicate the course preserving the same high quality and answering to the scientific curiosity of the students involved.

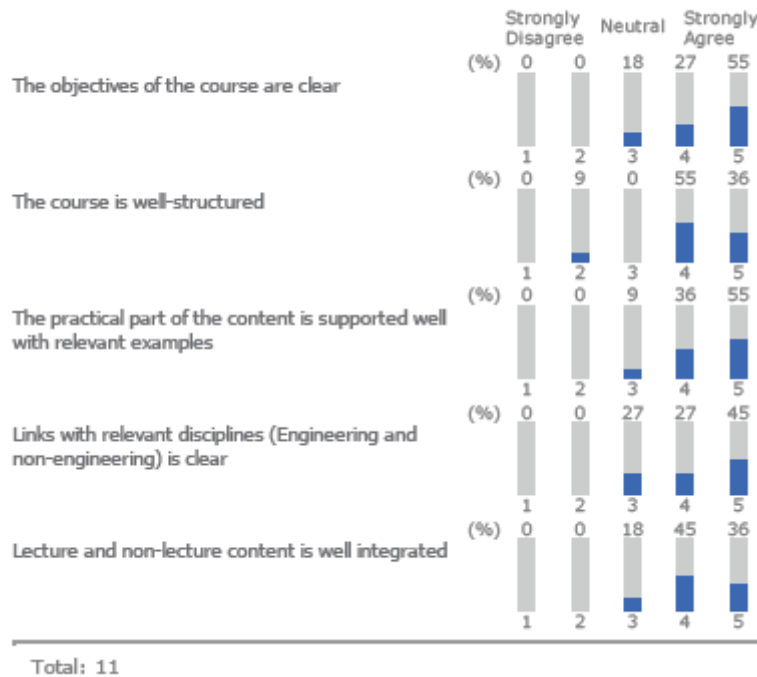
h) Electric Machines laboratory

Princess Sumaya University for Technology (PSUT)

1. The Course Design and Structure

The Electric Machines course confirms the positive opinion of students on laboratories. 82% of students thinks the objectives are clear (only 18% is neutral) and 91% confirms the course is well structured. Only n. 1 student disagrees asking for an improving of course's structure. The evaluation of the integration in the course of practical part with relevant examples follows the general trend: 91% agrees, while 9% is neutral. Totally positive is also the opinion on the links with other disciplines: 72% agree while 27% is neutral. 81% declares lecture and non lecture content is well integrated.

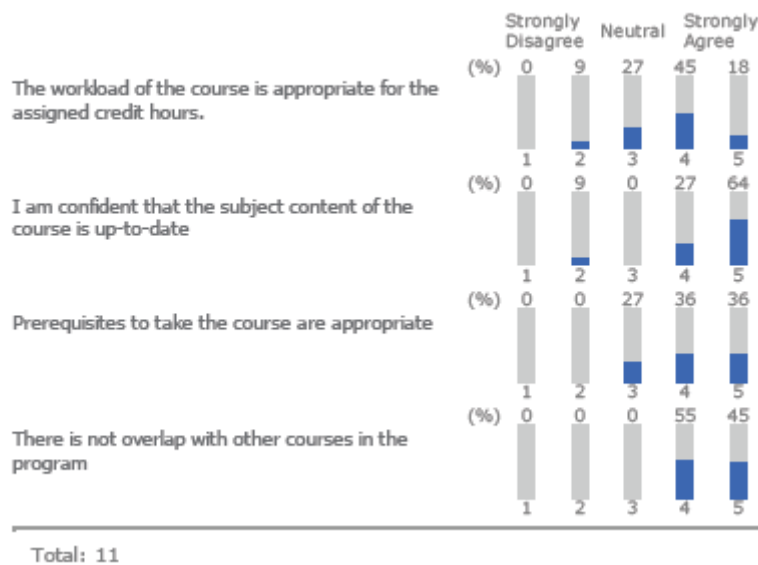
2. The Course Design and Structure



2. Workload and Content

For only n. 1 student the workload of the course isn't appropriate for the credit hours and the subject content isn't up-to-date. 91% declares the workload is suitable (27% of them is neutral) and 91% agrees the subject is up-to-date. Concerning the prerequisites request to the students to attend the course, they are appropriate for 72%, while 27% has a neutral position. The totality of the participants agrees there aren't overlap with other courses. Electric machine Laboratory seems to complete the didactic offer providing new contents and showing the practical part of what described in theory in other courses.

3. Workload and Content

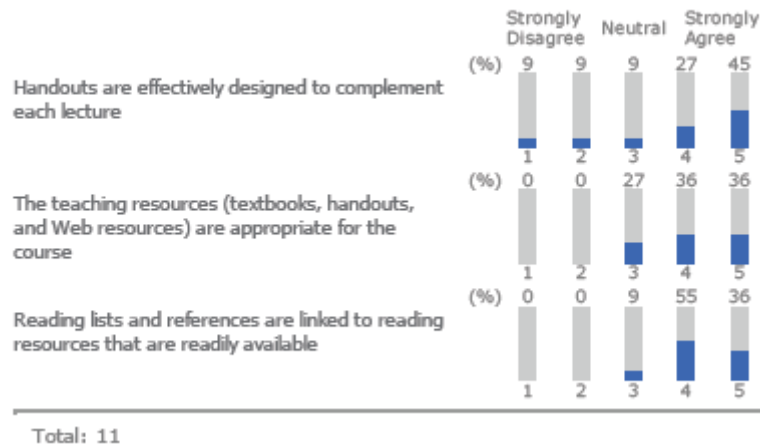


3. Resources

N. 11 students, who have participated in the survey, have been invited to express their opinion on the resources adopted during the course. 2 students out of 11 declare the handouts are not designed to

complement each lecture, while 72% agrees with the assertion. Concerning the textbooks, handouts and web resources, 100 % of students agree they are appropriate (27% is neutral), while the reading resources are readily available for the 100% of interviewees (only 9% has a neutral opinion on the matter). Further effort could be spent to improve the quality of didactic materials, designed them in order to explain the topic of each lecture.

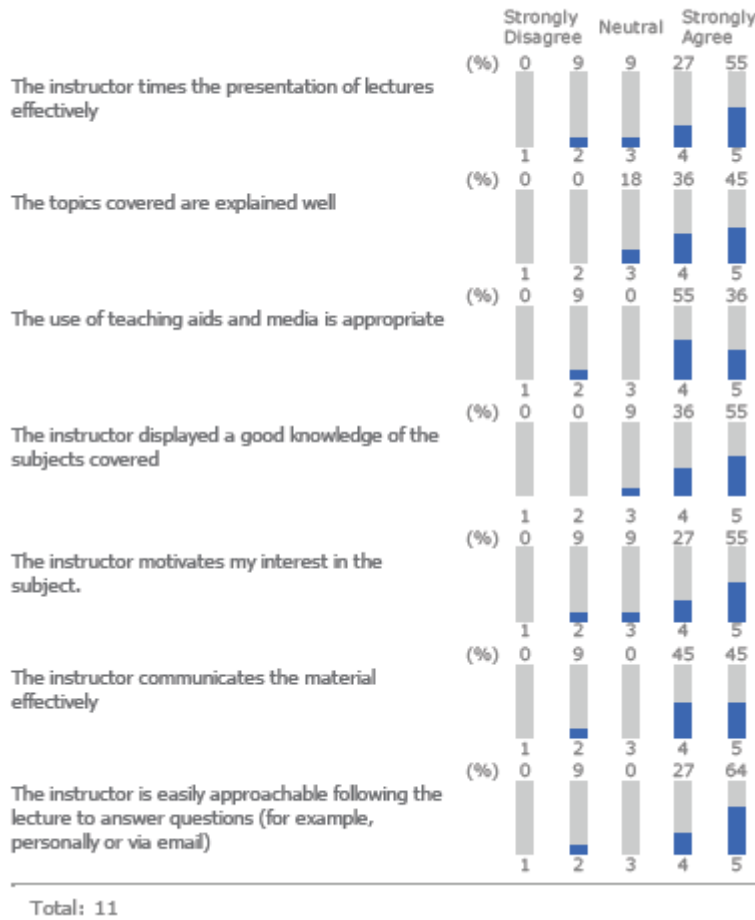
4. Resources



4. Instructors

The opinion of PSUT's students on the instructors is positive. 82% of students thinks the instructor has timed the presentations of lectures and for 81% the topic covered was well explained (18% doesn't express an opinion). 91% of interviewees agrees the instructor has displayed a good knowledge of the subject and n. 1 student doesn't express an opinion. The instructor has motivated the interest of n. 9 students on n. 11 and he/she has communicated the materials effectively for n. 10 students on n. 11. 91% declares the instructor was easily approachable to answer questions (personally or via e-mail). Only n. 1 student seems not to have appreciated the professor(s) involved in the course. The opinion doesn't take in consideration the instructor(s) competences, but the training method (timing of the presentations), the use of teaching aids and media, the capacity to motivate the students and the availability to meet them also after the lectures.

5. Instructors

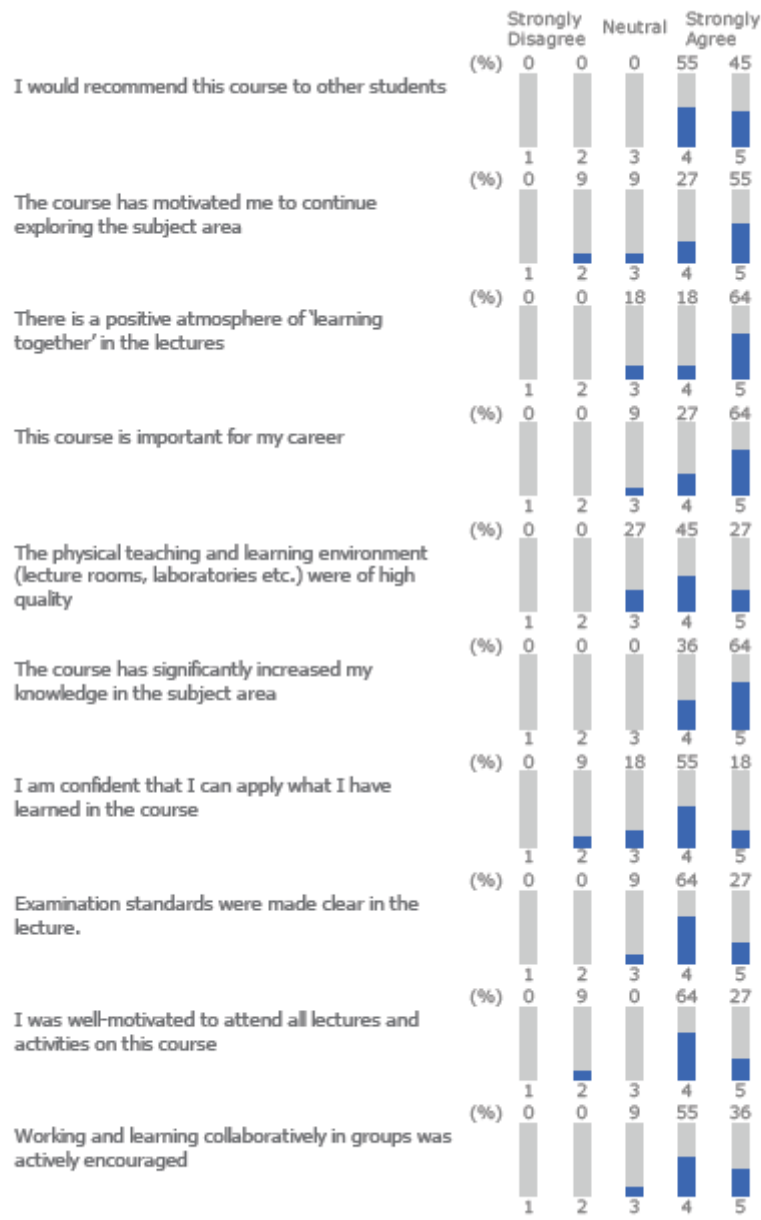


5. Overall Quality

Interviewees have been questioned on Overall Quality of Electric Machines Laboratories. The first assertion confirms the success of the course with 100% of students who will recommend it to the others. The course has motivated 82% of attendees to continue exploring the subject area. Also the atmosphere and the environment of the course have passed the selection: n. 9 students declares to have “breathed” a positive atmosphere of “learning together” in the lectures and n. 8 has evaluate the learning environment of high quality. 100% of students affirms the course has increased his/her knowledge and for 91% it will be important for the future career. The percentage of students who think could apply what they have learned reduces to 73% (18% doesn’t express an opinion).

In general the standards for the examination have been considered clear and 91% of students was well-motivated to attend lectures. One of the positive aspect of the course was the opportunity to work in groups for the 91% of interviewees.

6. Overall Quality



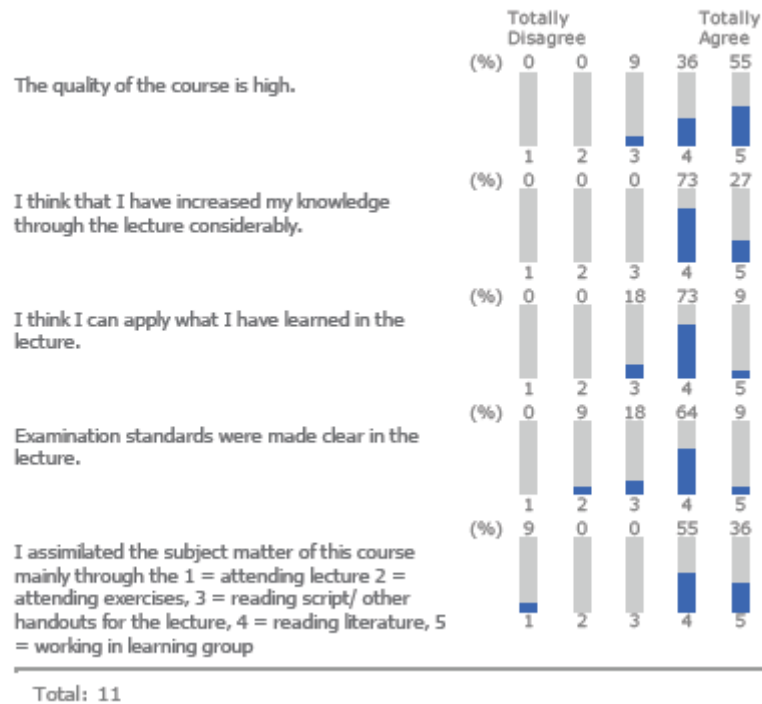
Total: 11

6. Summary

At the end of the survey it could be affirmed the course has received a positive evaluation. 91% of students declares the course is of high quality and it has increased the knowledge of the attendees for 100% of them. Students have appreciated of the practical approach of the course and the opportunity to apply what learned in the labour market. N. 6 students have declared to have assimilated the subject matter reading literature, n. 4 students working in learning group and n. 1 attending lectures. The only recommendations could be done in order to improve the level of the course are:

- 1) To explain the examination standards clearer during the lectures
- 2) To make the teaching resources more appropriate
- 3) To preserve the quality of the training environment.

7. Summary

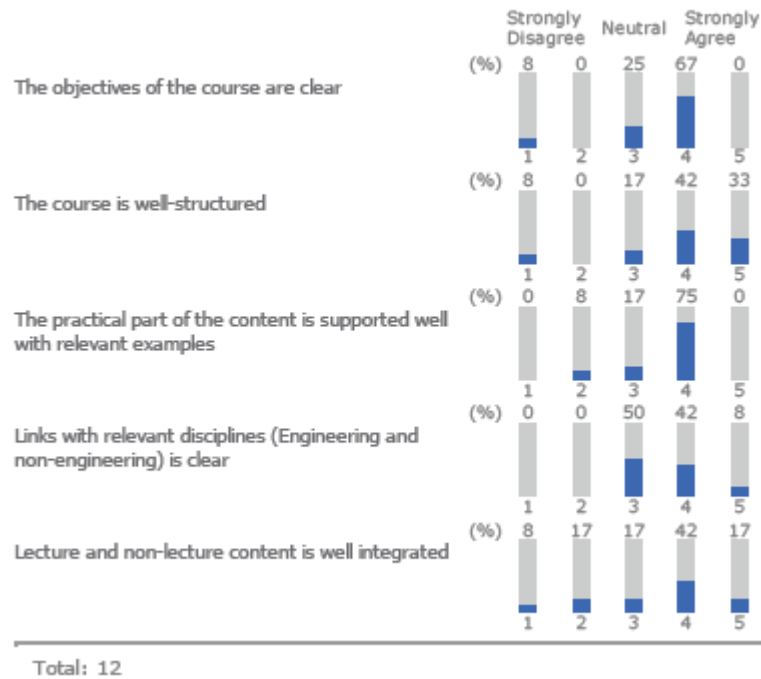


**i) Power Systems Protection Laboratories
Princess Sumaya University for Technology (PSUT)
1. The Course Design and Structure**

Power Systems Protection Laboratories has been provided only in PSUT. The students' opinion, even if remains positive, appears less enthusiastic than the other courses. This is proved by the low percentage of "Strongly Agree". For n. 8 students on n. 12 the objectives of the course are clear, n. 3 students doesn't express an opinion while n. 1 strongly agree. The course is well-structured for 75% of interviewees (17% is neutral and 8%, n. 1 person, strongly disagrees). Concerning the practical part, 75% of students affirms it is well supported by relevant examples, while 50% is neutral on the clearness of links with other disciplines (the other 50% thinks they are clear).

PSUT team should work to better integrate lecture and non-lecture content. In fact 25% think they aren't well integrated, 17% is neutral and only the 5% agrees with the assertion.

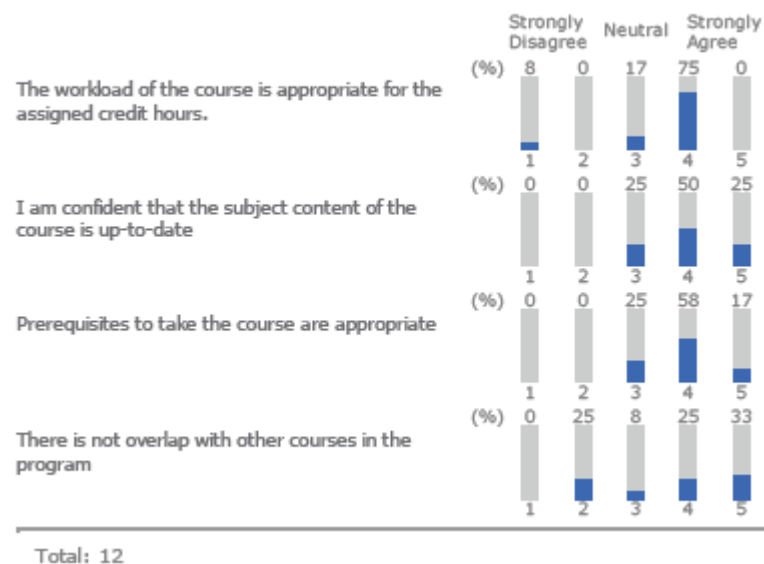
2. The Course Design and Structure



2. Workload and Content

For the 75% of students the workload is appropriate to the credit hours (17% is neutral and only n. 1 students strongly disagrees) and the subject contents of the course is up-to-date (the last 25% does not express an opinion). Prerequisites are appropriate for 75% of students. 25% of interviewees reports there is overlap with other courses in the programme. This opinion could be due to the different university paths of the students who have attended the course.

3. Workload and Content



3. Resources

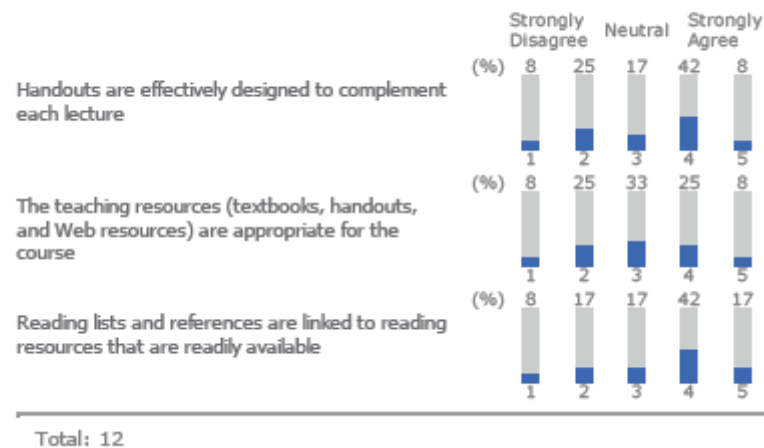
The opinion on resources is opposing. 50% of students affirms the handouts are effectively designed to complement the course, while 33% disagree with the assertion and 17% doesn't express an opinion.

The position of the students on teaching resource seems symmetrical: 33% thinks textbooks and web resources are appropriate for the course, 33% disagree and 33% is neutral.

The last question is on the availability of the reading resources: for 59% materials are available, for 23% the reading resources linked to reading lists and references aren't readily available (17% is neutral).

The analysis of training resource shown a large margin of improving, making the materials more appropriate to the course the resource ever available for the students.

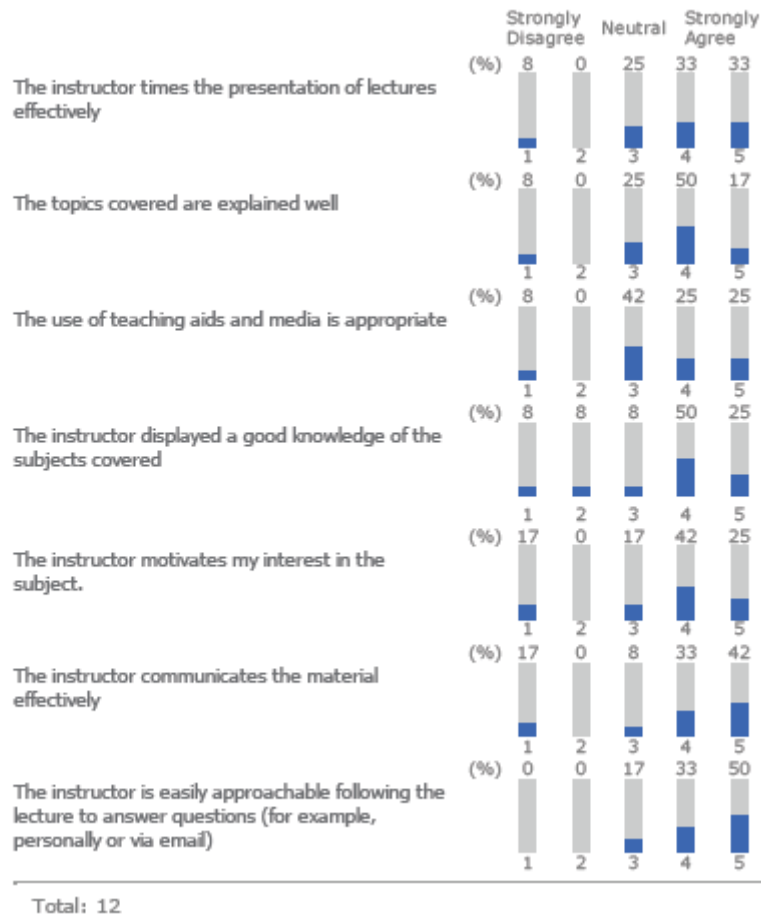
4. Resources



4. Instructors

The Section “Instructor” aims at evaluating the level of approval of the trainer(s) in term of skills, capacity to transfer knowledge and to attract students’ interest. The instructor has timed the presentation of lectures for 66% of interviewees, 25% takes on a neutral position while n. 1 student strongly disagrees. For the 67% of students the topics covered is well explained, 25% assumes a neutral position and, also in this case, n. 1 students totally disagree. The statistic shows a reduction of appreciation on the use of teaching aids and media: 50% thinks the use is appropriate, 42% has a neutral position and n. 1 students strongly disagrees. The knowledge of instructor is evaluated “good” by 75% of students, n. 1 student is neutral and n.2 students disagree with the assertion. N. 2 students think the instructor hasn’t motivated their interest, while 77% agrees with the sentence and 17% is neutral. 75% declares the instructor communicated the material effectively, n. 1 student is neutral and n. 2 of them strongly disagree with the claim. At the end all students admit the instructor has been easily approachable following the lectures to answer questions (50% strongly agree, 33% agree and 17% is neutral).

5. Instructors



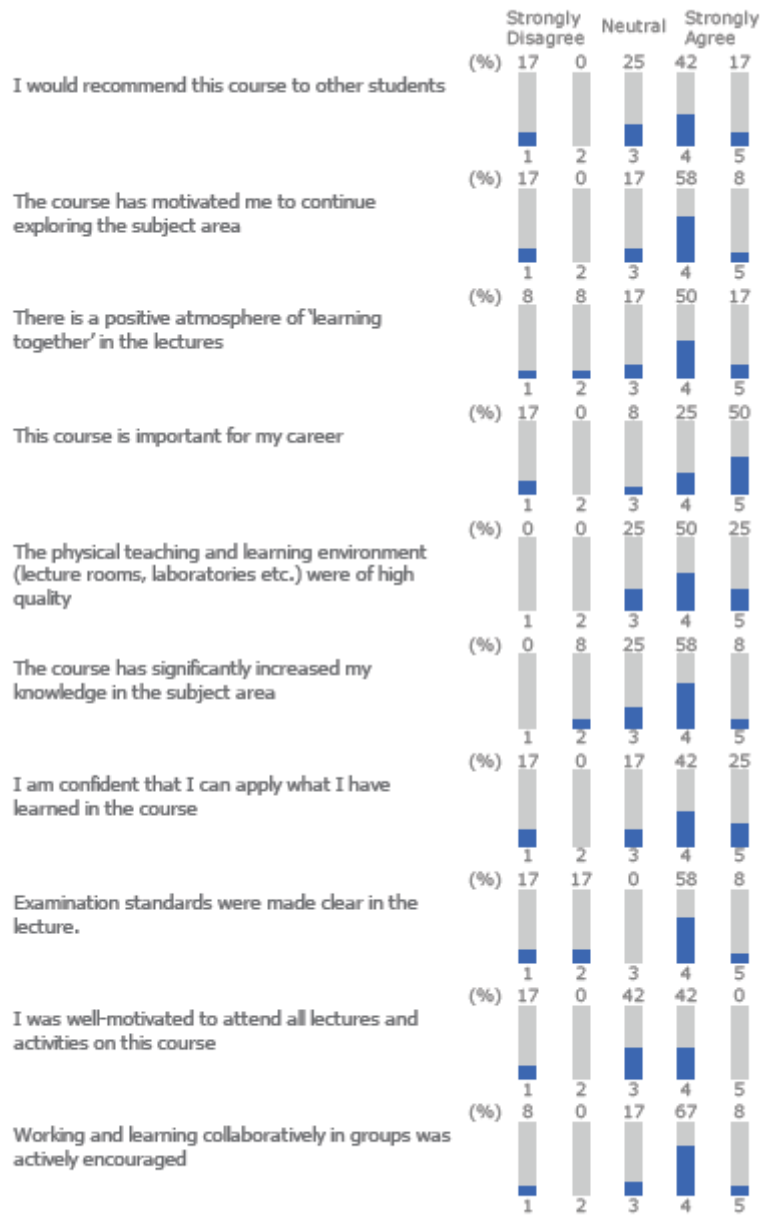
5. Overall Quality

At the conclusion, it is clear n. 2 students haven't appreciated the course: they will not recommend the course to the others (59% agree with the proposition and 25% is neutral), they haven't been motivated to continue exploring the subject (66% will continue and 17% is neutral) and they don't think the course is important for their career (75% declares the course is important for the career, n. 1 student has a neutral position on this matter). They also strongly disagree with the affirmation that describes the atmosphere of learning positive (67% think different and 17% is neutral) and they are sure they won't apply what they have learned in the course (67% will apply and 17% has a neutral opinion). 66% of interviewees admit the course has significantly increased its knowledge (17% is neutral and 8% disagrees).

Concerning the examination standards 34% of students' reports they weren't made clear during the lectures and 66% thinks the opposite. In general instructor should work on students' motivation, in fact the 42% has been motivated to attend lectures, and 42% assumes a neutral position and n. 2 students strongly disagree.

During the course the working and learning in group has been encourage for 75% of students, 17% has a neutral opinion and 8% disagree.

6. Overall Quality



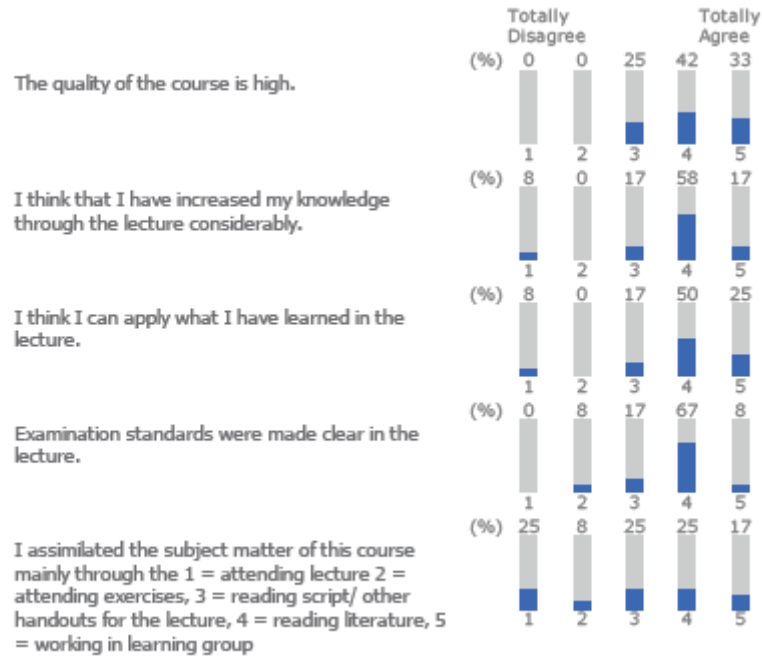
Total: 12

6. Summary

74% of students declares the quality of course is high while the 25% has a neutral opinion on. 75% has increased the knowledge on the topic (only n. 1 student strongly disagree) and 75% of students will apply what they have learned (17% is neutral and 8% totally disagree). For the 75% of interviewees examination standards were made clear.

25% of students has assimilated the subject matter of the course mainly through the attending of lectures, 8% attending exercises, 25% reading script and other handouts for the lecture, 25% reading literature and 17% working in learning group.

7. Summary



Total: 12