



2nd Quality Report

(15/01/2022 – 14/07/2022)

WP10. Quality Assurance

July 2022

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1 Introduction

As foreseen in the project’s Quality Assurance & Evaluation Plan, 6 internal Quality Reports will be issued, one every 6 months of the DeCAIR project. Every six-months, a combined Quality Report will be created and addressed to the Quality Committee to support the quality assurance and quality control process, which will include the Project Performance Reviews and the Quality Control Reviews.

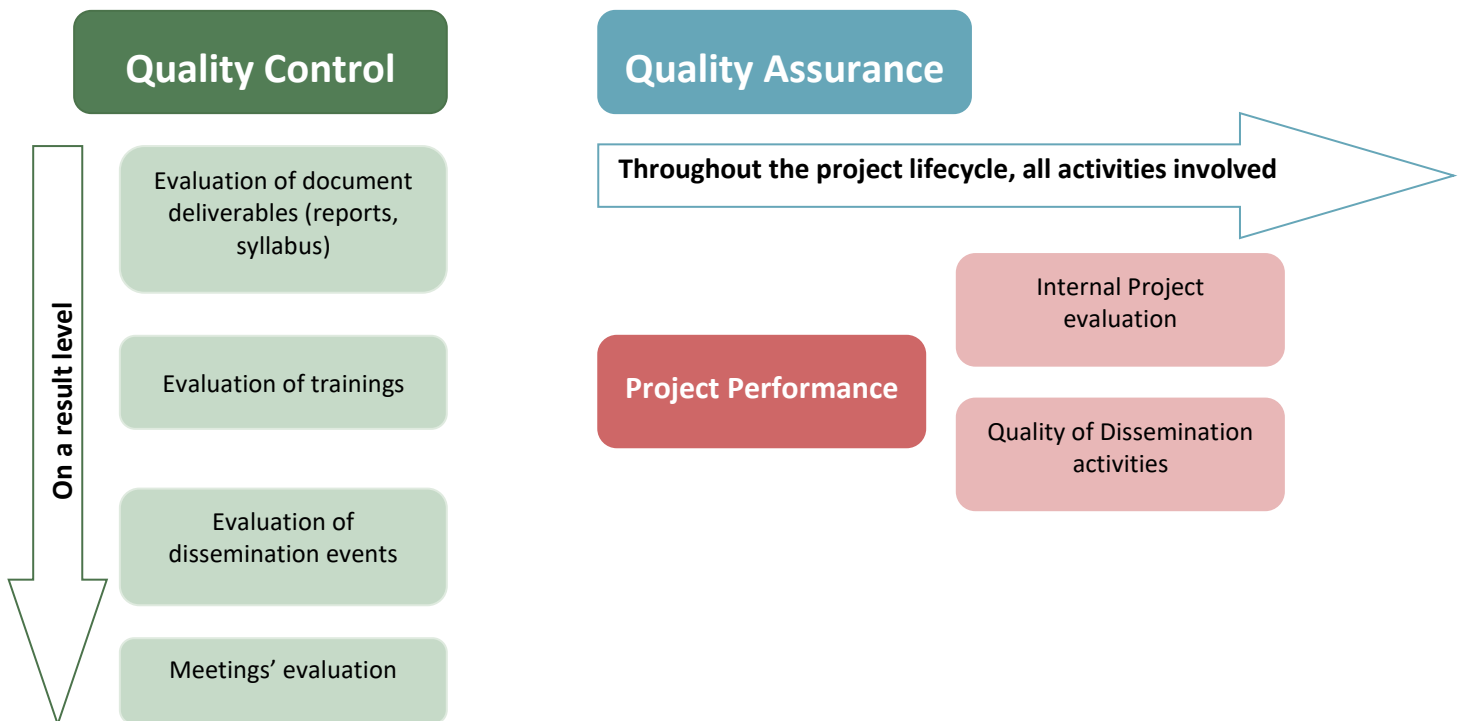
Project Quality Reports will be prepared for all activities of the project and the project Quality Monitoring Table will be updated with the information, which will serve as a Monitoring Tool for the collection of information about the status of processes and deliverables regarding their quality characteristics.

In this report we evaluate the project’s conformance against the criteria and specifications set in terms of quality assurance and quality control. In order to accomplish that we will accumulate, analyse and summarise the results from the internal and external quality evaluations done in the previous 6 months of the project.

The elements that will be regularly collected and evaluated are findings from:

- Regular Internal measurement of satisfaction among partners
- Partnership Meetings
- Deliverable Evaluation
- Monitoring details

The structure the Quality Report follows the structure outlined in the Quality Assurance & Evaluation Plan, as shown in the graphic below:



For this issue, which covers the 3rd semester of the project, i.e. from January 15, 2022 until July 14, 2022, we have identified and collected information from project partners for the evaluation of the 1st internal evaluation of the project, 1 Steering Committee meeting, the Courses Syllabus, 3 trainings, 2 events as well as dissemination activities and results.

All internal surveys were conducted via Google Forms. This ensured an easy access for all partners to submit their responses and have them all in an organised manner.

2 Project Performance

2.1 1st Internal Evaluation (1st year, February 2022)

The internal evaluations among project partners, aimed to measure the project management, internal communication, collaboration with external stakeholders and the overall evaluation of the project, are meant to be conducted at the end of each project year.

In each survey, each partner's project representatives rate the performance of the partnership in a questionnaire, using Google Forms.

The questionnaire used for the surveys consisted of a total of 21 questions, grouped in 4 sections: Project management, Internal communication, Communication/Dissemination strategy and Overall evaluation of the project progress. The questions were closed questions on 5-point Likert scale, where respondents have to give a grade between 1 and 5, with 5 being the highest (Strongly Agree) and 1 the lowest (Strongly Disagree); one open-ended question for remarks, comments and suggestions was also included.

At the end of the questionnaire respondents are asked to declare their organisation, for the purpose of ascertaining partner participation.

The 1st internal evaluation was conducted between 2-8 February 2022.

All partners' representatives were invited to participate; 8 responses were received. The participation per partner is illustrated in the following figure.

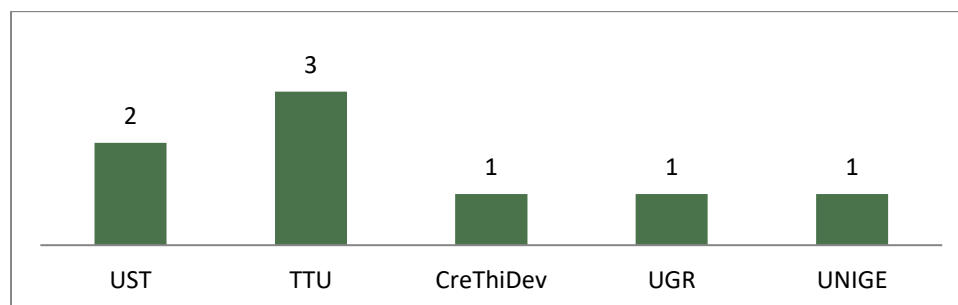


Figure 1. Number of surveys submitted (N=8)

2.1.1 Scaled questions

The responses given by the participants are analysed below. The responses received can be found below in Table 1 and Figure 2-6.

The average of approval based on all responses, from all 4 sections, is 89%, above the threshold of 70%.

- **Project Management**

This section received on average 91% rate of approval. The lowest rated statement, with 88% was: “The responsibilities for each partner are stated clearly”. The highest rated statement (95%) was “We receive instructions about meetings well in advance”.

Overall, partners seem satisfied with the management of the project, however the responsibilities for each partner could be clearly stated.

- **Internal Communication**

This section has received 90% rate of agreement, on average, ranging between 83% (“I’m satisfied with the file-sharing tool used and the method that is used for Project internal communications”) and 95% (“There is a good level of communication with the lead partner”). The responses show that internal communication among partners can be improved; although the communication with the lead partner is satisfactory, there is a lack of communication among partners, something that can be explained by the lack of face-to-face meetings with all partners’ attendance which has prevented them from getting to know each other better. In any case, the lead partner should make efforts to stimulate communication among partners from this point on as well as solve issues that some partners may have with the file-sharing tool.

- **Communication / Dissemination strategy**

In this section, there was a 84% average agreement to the statements. All four statements were rated similarly, ranging between 83-85%. A conclusion from the section is that finding and engaging stakeholders is a difficult process that can be improved in the future, probably with the development of a Dissemination and Exploitation strategy.

- **Overall Project Progress**

This section has received 90% average rate of approval. Of the 6 statements, the lowest rated was “Partners have committed the required time and resources to achieve the objectives” at 83%. The highest rated statements were “The workplan of the project is being followed” and “Any deviations from the workplan have been well considered and agreed by all” at 95%. From this analysis, it can be concluded that the delays in the implementation of some project activities during the first year, is raising concerns among partners and should be dealt with as soon as possible. However, it should be noted that according to responses the deviations from the workplan, is thoroughly discussed and approved by the partners.

Table 1. Analysis of responses on 1-5 scale for the 1st project evaluation

| | | Count | 1- Strongly Disagree | 2- Disagree | 3- Neutral | 4- Agree | 5-Strongly Agree | weighted average |
|--|--|--------------|----------------------------|----------------|---------------|-------------|---------------------|---------------------|
| Section 1. Project Management | | | | | | | | |
| Q1 | I know what the project aims to achieve. | 8 | 0% | 0% | 13% | 25% | 63% | 90% |
| Q2 | The responsibilities for each partner are stated clearly. | 8 | 0% | 0% | 13% | 38% | 50% | 88% |
| Q3 | I am aware what tasks my organisation has to do in the coming months. | 8 | 0% | 0% | 13% | 25% | 63% | 90% |
| Q4 | Feedback from the lead partner is received when a query is raised from a partner. | 8 | 0% | 0% | 13% | 25% | 63% | 90% |
| Q5 | Issues are resolved quickly and effectively. | 8 | 0% | 0% | 13% | 13% | 75% | 93% |
| Q6 | We receive instructions about meetings well in advance. | 8 | 0% | 0% | 13% | 0% | 88% | 95% |
| | | Avg.1 | 0% | 0% | 13% | 21% | 67% | 91% |
| Section 2. Internal Communication | | | | | | | | |
| Q7 | I'm satisfied with the file-sharing tool used and the method that is used for Project internal communications. | 8 | 0% | 0% | 38% | 13% | 50% | 83% |
| Q8 | Response from partners on raised issues is satisfactory. | 8 | 0% | 0% | 13% | 25% | 63% | 90% |
| Q9 | All partners provide regular updates on their work package activities. | 8 | 0% | 0% | 13% | 13% | 75% | 93% |
| Q10 | There is a good level of communication with the lead partner. | 8 | 0% | 0% | 13% | 0% | 88% | 95% |
| Q11 | There is a good level of communication among all partners. | 8 | 0% | 0% | 13% | 38% | 50% | 88% |
| | | Avg.2 | 0% | 0% | 18% | 18% | 65% | 90% |
| Section 3. Communication / Dissemination Strategy | | | | | | | | |
| Q12 | It was easy to find the relevant stakeholders. We have addressed all targeted stakeholders. | 8 | 0% | 0% | 13% | 63% | 25% | 83% |

| | | Count | 1- Strongly Disagree | 2- Disagree | 3- Neutral | 4- Agree | 5-Strongly Agree | weighted average |
|-----|--|-----------------|----------------------------|----------------|---------------|-------------|---------------------|---------------------|
| Q13 | The addressed stakeholders are well-informed on the development of the project. | 8 | 0% | 0% | 13% | 50% | 38% | 85% |
| Q14 | The addressed stakeholders are engaged to the project objectives. | 8 | 0% | 0% | 13% | 50% | 38% | 85% |
| Q15 | It was easy to engage the relevant stakeholders. | 8 | 0% | 0% | 13% | 50% | 38% | 85% |
| | | Avg.3 | 0% | 0% | 13% | 53% | 34% | 84% |
| | Section 4. Overall Project Progress | | | | | | | |
| Q16 | The project is keeping up with the planned objectives. | 8 | 0% | 0% | 13% | 13% | 75% | 93% |
| Q17 | The workplan of the project is being followed. | 8 | 0% | 0% | 13% | 0% | 88% | 95% |
| Q18 | Any deviations from the workplan have been well considered and agreed by all. | 8 | 0% | 0% | 13% | 0% | 88% | 95% |
| Q19 | Partners have committed the required time and resources to achieve the objectives. | 8 | 0% | 0% | 25% | 38% | 38% | 83% |
| Q20 | I'm satisfied with the deliverables delivered during the first year of the project. | 8 | 0% | 13% | 0% | 13% | 75% | 90% |
| Q21 | My expectations regarding my involvement in the project (effort, time, commitments, etc) were met. | 8 | 0% | 0% | 25% | 25% | 50% | 85% |
| | | Avg.4 | 0% | 2% | 15% | 15% | 69% | 90% |
| | | Avg. 1-4 | 0% | 1% | 14% | 24% | 61% | 89% |

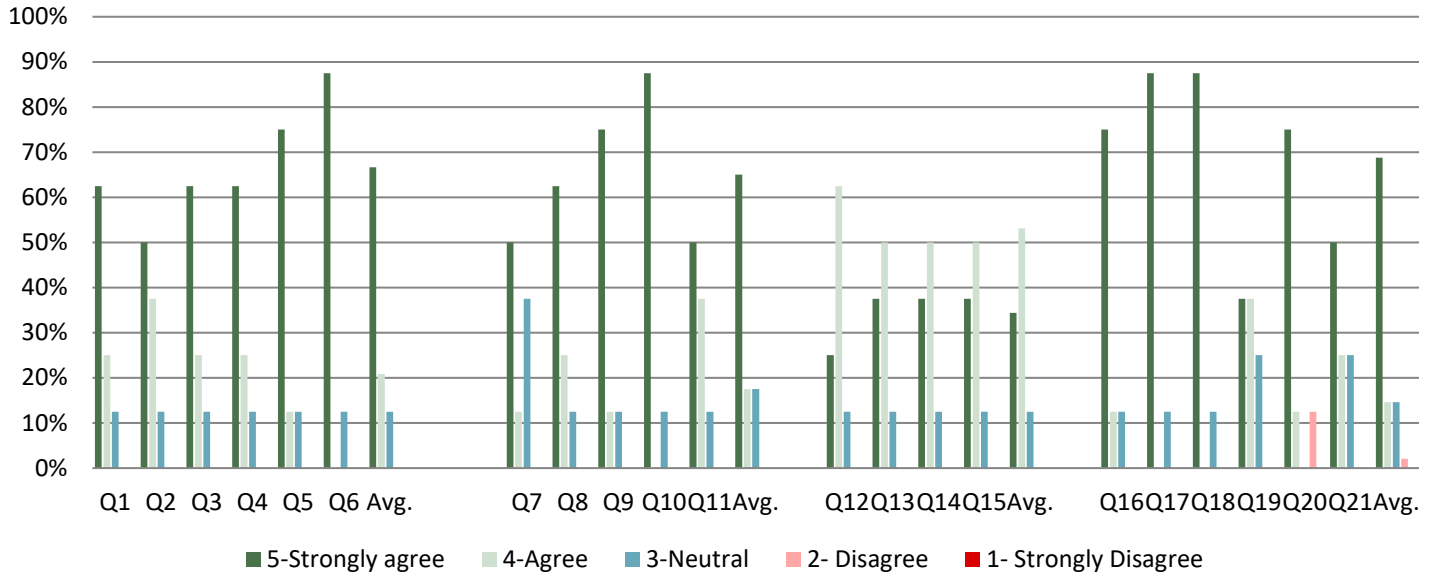


Figure 2: Overall analysis of responses on 1-5 scale for the 1st project evaluation

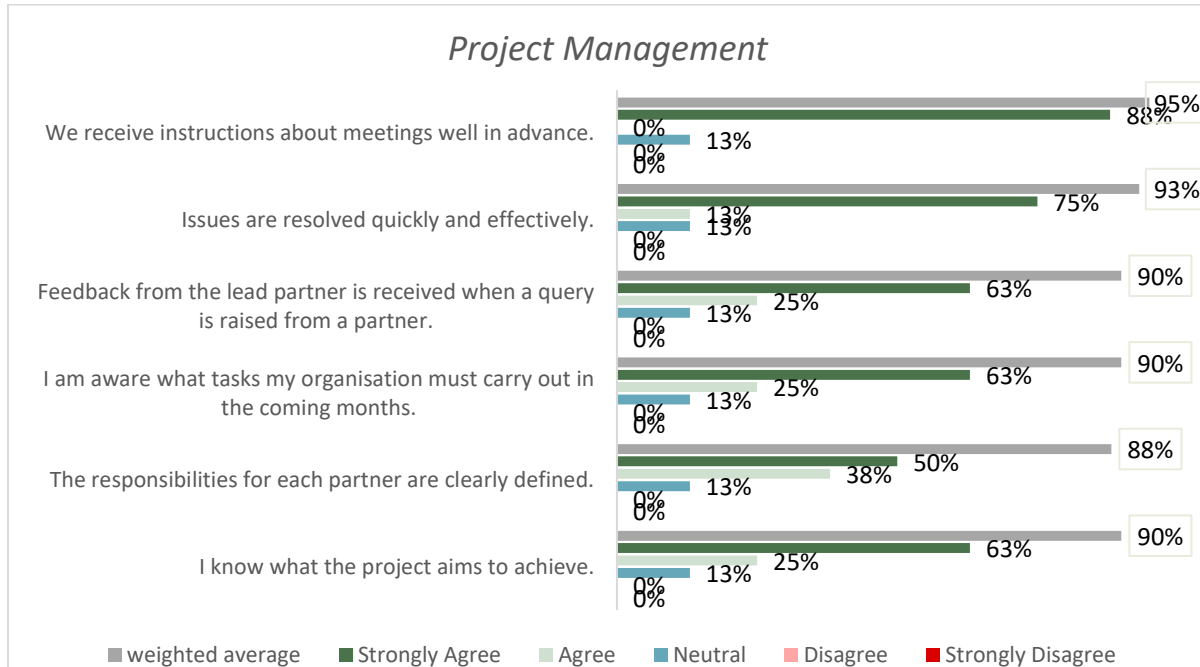


Figure 3: Analysis of responses on 1-5 scale for the 1st project evaluation: Management

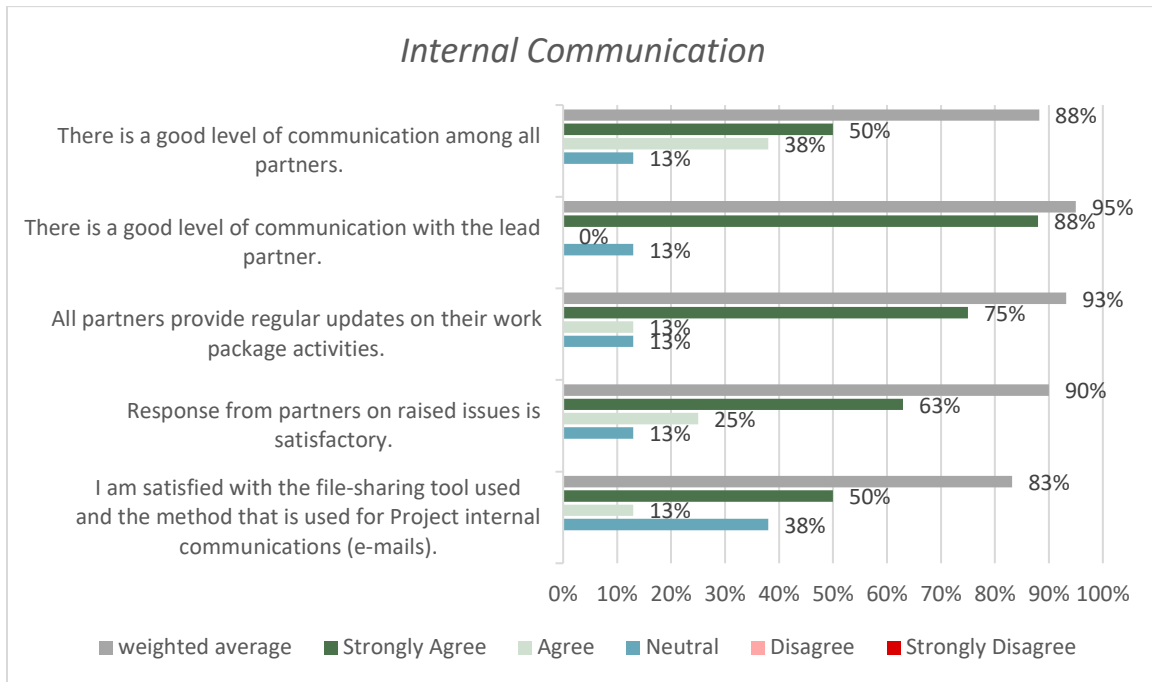


Figure 4: Analysis of responses on 1-5 scale for the 1st project evaluation: Internal Communication

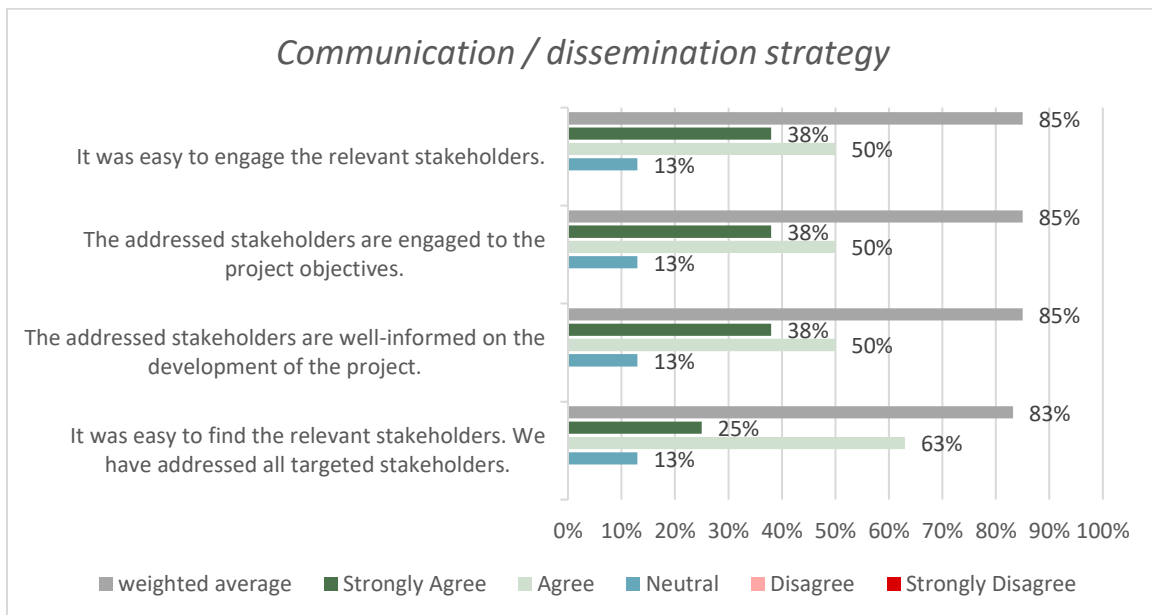


Figure 5: Analysis of responses on 1-5 scale for the 1st project evaluation: Communication/ Dissemination Strategy

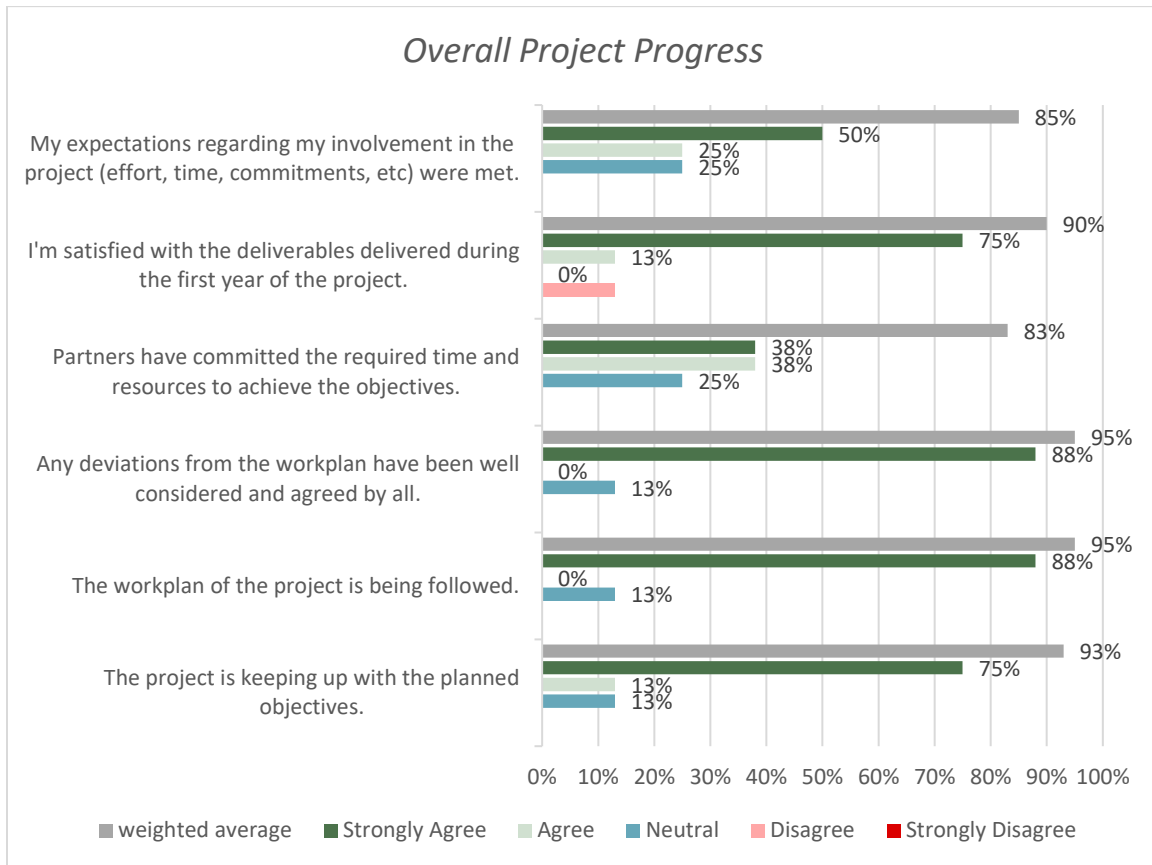


Figure 6: Analysis of responses on 1-5 scale for the 1st project evaluation: Project Progress

2.1.2 Open-ended question

On the question of feedback from improvement, one partner stated that partners from UGR are not too much committed and that doesn't help in the work ahead.

2.2 Evaluation according to the Quality Plan metrics

The criteria for the evaluation of the Project Management performance are the following:

Table 2. Project Performance Indicators

| Name | Target | Result |
|--|---|----------------|
| Progress Reports made | <i>6-months</i> | <i>No</i> |
| Internal Project Evaluation done | <i>Yearly</i> | <i>Yes</i> |
| Internal Evaluation of project performance (satisfaction survey) | <i>>70% weighted average</i> | <i>Yes</i> |
| Dissemination and Communication Report delivered | <i>6-months</i> <i>(according to the quality dissemination indicators)</i> | <i>Yes</i> |
| External Project Evaluation Report done | <i>Due date: 14 September 2022 and 14 December 2023</i> | <i>Not yet</i> |

The indicators that are used for the evaluation of the effectiveness of the Dissemination and Communication activities concern both quantitative and qualitative ones, as follows:

Table 3. Quantitative Dissemination Indicators

| Quantitative indicators | Target | Result |
|--|---|--|
| Number of newsletters issued | <i>Every 6 months (starting January 2022)</i> | <i>Yes (1 newsletters issued so far on 28.03.2022)</i> |
| Social media accounts created | <i>Within 3 months from the start</i> | <i>Yes (Facebook, Instagram, Twitter, You Tube)</i> |
| Number of posts on Social Media | <i>2 per month</i> | <i>Yes</i> |
| Number of followers on Social Media (collective) | <i>500 followers</i> | <i>In progress</i> |
| Project website created | <i>Within 2 months from the</i> | <i>Yes</i> |

| Quantitative indicators | Target | Result |
|--|--|--|
| | <i>start</i> | (http://decair.ju.edu.jo/Home.aspx) |
| Visitors' metrics | <i>To be collected</i> | - |
| Number of Hits in the project website | <i>To be collected</i> | |
| Workshops organised | <i>9 workshops (6 in JO & 3 in LB)</i> | <i>In progress</i> <ul style="list-style-type: none"> • 1 workshop for WP11.1 in JO (March 31st, 2022) • 1 workshop for WP11.1 in LB (March 2nd, 2022) |
| Number of people participating in Workshop | <i>25-40 participants per workshop</i> | Yes |
| Number of non-project events participation and presentation of the project | <i>> 1 per partner in JO & LB</i> | 12 (2 online, 9 in Jordan, 1 in Lebanon) ¹ |
| Production and circulation of printed materials | <i>1.000 printed brochures per partner country</i> | Yes, UJ has printed 1.000 brochures for the project |
| Media coverage (articles in specialised press newsletters, press releases, interviews, etc.) | <i>>5 per partner country</i> | Interview: On 20/1/2022 DeCAIR Project General Coordinator was hosted by the University of Jordan Radio station to discuss AI and the DeCAIR project. ² |
| Posts about the project on various internet websites and Social Media pages | <i>>5 per partner country</i> | <ul style="list-style-type: none"> • 1 post on the LU website (http://www.ulfq.ul.edu.lb/news/2349) • 4 posts on the UJ news website (http://ujnews2.ju.edu.jo/en/english/Home.aspx) |

¹ For further information visit DeCAIR webpage: <http://decair.ju.edu.jo/Lists/Activities/AllActivities.aspx>

² Thu 20/1/2022: Prof. Gheith Ali Abandah was hosted by The University of Jordan Radio to discuss AI and the DeCAIR project. This was through an episode of the JU TECH program prepared and presented by Lara A Dahiyat. You can listen to the full interview through the following link: <https://fb.watch/aJ5Y4wgCex/>

| Quantitative indicators | Target | Result |
|---|----------------------------|--|
| Meetings with stakeholders (target audience) beyond the scheduled networking activities | >1 in each partner country | <ul style="list-style-type: none"> • Online dissemination meeting organized by UJ on March 4th, 2021 • Info Day meeting with students in LU on September 22nd, 2021 • The DeCAIR project met the University of Jordan's President on April 28th 2022³ |

Table 4. Qualitative Dissemination Indicators

| Indicators | Target | Outcome |
|---|--|---|
| Feedback from the target groups in the dissemination workshop events | >70% weighted average | Yes |
| Feedback from the internal project evaluation regarding dissemination | >70% weighted average | Yes (1 st internal evaluation) |
| Outcome of the contacts with stakeholders and policymakers in JO and LB (cooperation agreements, joint projects, etc) | Positive outcome through the contacts made | Not yet, in progress |

³ For further information visit DeCAIR webpage: <http://decair.ju.edu.jo/Lists/Activities/AllActivities.aspx>

3 Project Quality Control

3.1 Meetings evaluation

The post-meetings evaluations among project partners, aimed to measure mainly the effectiveness of the partnership meetings as well as check the progress and effectiveness of the project from the partners' point of view.

After each meeting, a meeting evaluation survey is conducted. In each survey, each partner's project representatives rate the meeting in a questionnaire, using Google Forms for the distribution to the partners.

The questionnaire used for these surveys consists of 20 closed questions on 2 sections on 5-point Likert scale, where respondents have to give a grade between 1 and 5, with 5 being the highest (Strongly Agree) and 1 the lowest (Strongly Disagree), as well as 3 open-ended questions.

At the end of the questionnaire respondents are asked to declare their organisation, for the purpose of ascertaining partner participation.

There is a base questionnaire regarding all meeting evaluations. Nevertheless, depending on the type and purpose of each meeting, some questions might be adjusted.

During the project several Steering Committee meetings have been organised in order to discuss the monitoring of progress towards completion of the deliverables and of the assigned Tasks. These short meetings that aimed to discuss specific topics have not undergone an evaluation.

Overall, the DeCAIR Steering Committee meetings that have been held from the beginning of the project until July 14, 2022, are 13.

3.1.1 The 10th Steering Committee meeting (Genoa, Italy and online, 2 February 2022)

The 10th Meeting Evaluation was implemented after the meeting that was held both face to face and online on February 2nd, 2022. A questionnaire was prepared and was delivered to the partners through Google Forms.

Partners submitted their answers between February 2nd and 10th, 2022. Out of 19 participants in the meeting (according to the Minutes), 6 responses were received (36% participation), coming from 8 out of 10 participating partners. This is illustrated in Figure 7.

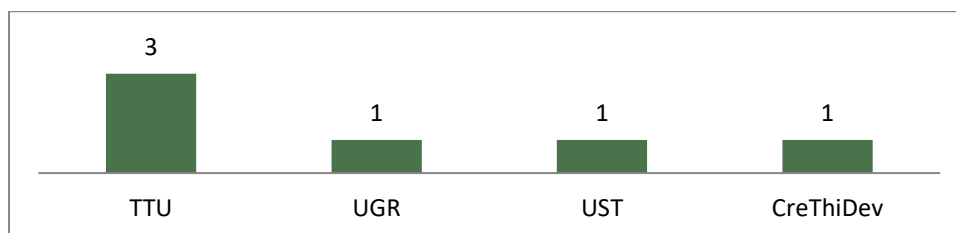


Figure 7. Number of surveys submitted (N=6)

The responses given by the participants are analysed below.

3.1.1.1 Analysis of scaled questions

From the 6 participants who took part in the evaluation survey, 3 were participated virtually. Q8-11 addresses only to participants who participated in the face to face meeting.

The responses received can be found below in Table 5 and in Figure 8. Most participants responded with a positive reply, marking the responses as Agree (21%), and Strongly Agree (55%) overall, for both sections. On average there was 84% agreement with the statements of the 2 sections, above the appointed 70% threshold, suggesting that participants were overall satisfied with the effectiveness of the project meeting.

In the first section of questions, about the Meeting itself, the average agreement was 85% with answers mostly at Strongly Agree (56%), while a percentage (15%) is Agree and a high percentage (26%) is Neutral. Finally, a small percentage (3%) is Disagree. The lowest rating received was 67% (“Q11 – Catering and meals were satisfactory”) and the highest 93% (“Q5- All participants had the opportunity to express their observations/ comments/ questions about the topics).

In the second section of questions about the perception of the Project after the meeting, the average agreement was 84% with response rates mostly at Strongly Agree (53%) and Agree (30%), while a percentage (17%) is Disagree. For all questions the received rating was 83%, except for Q18 - The meeting contributed positively to the progress of the project and the scheduling of the next steps, in which the rating was 87%.

As we can see from the graph, in all statements, the number of responses “Strongly Agree” statement in the majority of questions dominates over the other responses. The only exception is Q9 - The overnight accommodation was satisfactory, where Neutral responses are higher than Strongly Agree responses, Q10 - Access to the venue of the meeting was easy, where Strongly Agree, Agree and Neutral responses are equal rated and Q11 - Catering and meals were satisfactory, where Strongly Agree, Neutral and Disagree responses are also equal rated .

All statements in the first section, about the Meeting itself have received one to two Neutral responses, while Q11 “Catering and meals were satisfactory” has also received one Disagree response. Moreover, in the second section of questions about the perception of the project after the meeting, all questions have received one Disagree response. No question has received Neutral response.

Table 5. Analysis of responses on 1-5 scale for the 10th meeting evaluation

| | | Count | 1-Strongly Disagree | 2- Disagree | 3- Neutral | 4- Agree | 5-Strongly agree | weighted average |
|--|---|---------------|---------------------|-------------|------------|------------|------------------|------------------|
| Section 1. The meeting | | | | | | | | |
| Q1 | The meeting was well planned and organised. | 6 | 0% | 0% | 17% | 17% | 67% | 90% |
| Q2 | The agenda of the meeting was balanced, focusing on all key aspects of the project. | 6 | 0% | 0% | 17% | 33% | 50% | 87% |
| Q3 | The participants received all information about the meeting on time. | 6 | 0% | 0% | 17% | 17% | 67% | 90% |
| Q4 | The presentations by partners were clear and understandable. | 6 | 0% | 0% | 17% | 17% | 67% | 90% |
| Q5 | All participants had the opportunity to express their observations/ comments/ questions about the topics. | 6 | 0% | 0% | 17% | 0% | 83% | 93% |
| Q6 | The timetable was respected. | 6 | 0% | 0% | 17% | 33% | 50% | 87% |
| Q7 | The meeting served its purpose. | 6 | 0% | 0% | 17% | 17% | 67% | 90% |
| Q8 | The conference room and its facilities facilitated the work during the meeting. | 3 | 0% | 0% | 33% | 0% | 67% | 87% |
| Q9 | The overnight accommodation was satisfactory. | 3 | 0% | 0% | 67% | 0% | 33% | 73% |
| Q10 | Access to the venue of the meeting was easy. | 3 | 0% | 0% | 33% | 33% | 33% | 80% |
| Q11 | Catering and meals were satisfactory. | 3 | 0% | 33% | 33% | 0% | 33% | 67% |
| | | Avg. 1 | 0% | 3% | 26% | 15% | 56% | 85% |
| Section2. The project after the meeting | | | | | | | | |
| Q12 | I have a clear view of the project aims and objectives. | 6 | 0% | 17% | 0% | 33% | 50% | 83% |
| Q13 | I understand clearly the administrative structure of the project. | 6 | 0% | 17% | 0% | 33% | 50% | 83% |
| Q14 | The information given helped me to better understand the activities of the project and the interactions and links between them. | 6 | 0% | 17% | 0% | 33% | 50% | 83% |

| | | Count | 1-Strongly Disagree | 2- Disagree | 3- Neutral | 4- Agree | 5-Strongly agree | weighted average |
|-----|--|-----------------|---------------------|-------------|------------|------------|------------------|------------------|
| Q15 | I have better understanding of the role of my institution/organization in this project and what is expected from me for the upcoming months. | 6 | 0% | 17% | 0% | 33% | 50% | 83% |
| Q16 | I have a clear view of the deadlines for the upcoming months. | 6 | 0% | 17% | 0% | 33% | 50% | 83% |
| Q17 | The timescales proposed are realistic and feasible. | 6 | 0% | 17% | 0% | 33% | 50% | 83% |
| Q18 | The meeting contributed positively to the progress of the project and the scheduling of the next steps. | 6 | 0% | 17% | 0% | 17% | 67% | 87% |
| | | Avg. 2 | 0% | 17% | 0% | 30% | 53% | 84% |
| | | Avg. 1,2 | 0% | 8% | 16% | 21% | 55% | 84% |

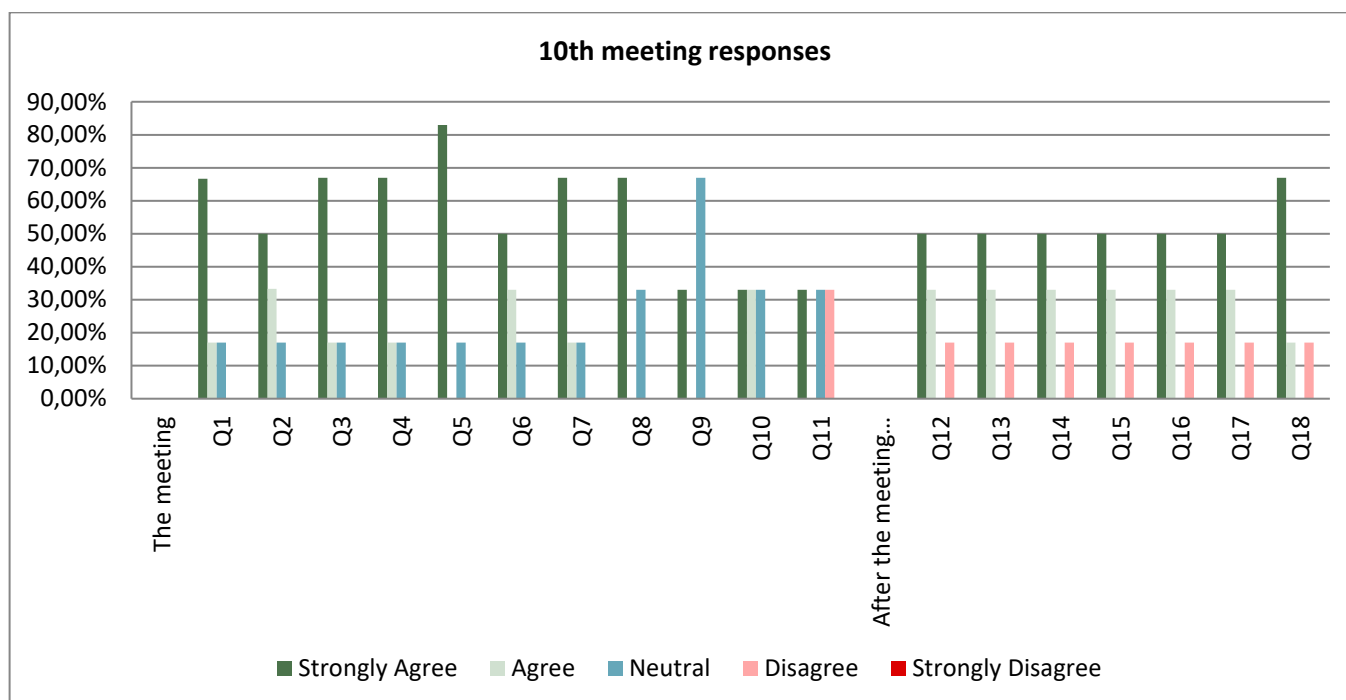


Figure 8: Analysis of responses on 1-5 scale for the 10th meeting evaluation

3.1.1.2 Open ended question

The open-ended question included the following:

Q 19. Please provide feedback of any issues you might have and how these can be improved:

In the open questions section of the questionnaire, one participant offered his/her views, providing feedback of issues that could be improved in the following meetings. According to his/her recommendation the meeting for those who attend virtually should have been prepared better regarding the acoustics as well as the optics of the room as well as the other colleagues.

3.2 Courses Syllabus evaluation

Courses Syllabus have been developed for the Universities of Jordan and Lebanon. Every course syllabus version underwent two evaluation processes. Firstly, by a peer reviewer from the same university offering the course, where the coordinator of each university distributed the syllabi of her/his university on her/his team. Then the main author of the syllabus updated the syllabus according to the feedback received from the first reviewer. Secondly, the syllabus was reviewed one more time using the same evaluation form by an expert peer reviewer from another partner European university. After the second review, the main author of the syllabus updated again the syllabus according to the feedback received from the second reviewer.

Two phases of the evaluation process:

- Phase 1: peer review by reviewers of the same university
- Phase 2: expert reviewer from a European university

Additionally, the course syllabus was in depth discussed and reviewed in November 2021 during the Steering Committee meeting in Amman, before the start of the two evaluation phases.

There are two types of courses that have been reviewed both for bachelor and master programs: Artificial Intelligence and Robotics.

The online evaluation questionnaires include closed questions as well as open-ended questions for remarks, comments, and suggestions.

The questionnaire used consists of 8 sections on 5-point Likert scale, where respondents have to give a grade between 1 and 5, with 5 being the highest (Excellent) and 1 the lowest (Poor). Room for comments after each section was also made available:

1. Course Overview (contains 3 questions)
2. Learning Objectives & Outcomes (contains 3 questions)
3. Teaching & Learning methods (contains 4 questions)

4. Resources & Materials (contains 4 questions)
5. Schedule (contains 4 questions)
6. Learning Assessments (contains 5 questions)
7. Course Policies (contains 5 questions)
8. Overall Overview (contains 4 questions)

The 9th section contains 2 open-ended questions regarding: Strengths & Weaknesses of the course.

Room for suggestions or comments for making the course more effective was also made available.

At the end of the questionnaire respondents are asked to declare their organisation, for the purpose of ascertaining partner participation.

The 1st evaluation phase started on 26/12/2021 and ended on 9/1/2022, while the 2nd evaluation phase started on 21/1/2022 and ended on 1/2/2022.

In Annex I you may find the Courses Syllabus evaluation survey.

3.2.1 Analysis of results

Below are stated the average acceptance with the various course characteristics for each course of the 2nd evaluation phase, after the corrections and improvements made from the results of the 1st evaluation phase.

3.2.1.1 University of Jordan (UJ)

Table 6. Responses on evaluation of Course Syllabus (AI) for the University of Jordan (UJ)

| Question | | ARTIFICIAL INTELLIGENCE | | | | | | | | | | | | | |
|---|---|---------------------------------|------------------------------------|----------------------|--------------------------|----------------|--|-------------------------------|-----------------------------------|--------------------------|---------------------------------------|---------------------------------|--------------------------------|-------------------------------|--|
| | | AI and Machine Learning (BScCE) | Computational Intelligence (BScCE) | Data Science (BScCE) | Computer Vision (BScISE) | Machine Vision | Advanced Topics in Machine Learning (MScCEN) | Applied Data Science (MScAIR) | Applied Machine Learning (MScAIR) | Computer Vision (MScAIR) | Natural Languages Processing (MScAIR) | Reinforcement Learning (MScAIR) | Unsupervised Learning (MScAIR) | Research Methodology (MScAIR) | |
| Course Overview | 1 Description of the course is clear & comprehensive | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 2 Expectations for prerequisite knowledge in the discipline and/or any required competencies are clearly stated | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 3 Course credits have been assigned that reflect the hours scheduled for the course | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| Learning | 4 The learning objectives and outcomes stated are suitable for the level of the course | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 5 The learning outcomes are measurable and consistent with the program-level objectives | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 6 The learning objectives & outcomes are clearly articulated & use specific action verbs | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| Teaching & Learning Methods | 7 The teaching & learning methods are clearly defined and appropriate for this level of course | 100% | 80% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 8 The teaching, learning methods & objectives are aligned | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 9 The teaching & learning methods promote the achievement of the stated learning objectives & outcomes | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 10 The teaching and learning methods promotes actively engage students | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| Resources & Materials | 11 The resources and materials are appropriate for this level of the course | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 12 The resources & materials contribute to the achievement of the stated learning objectives & outcomes | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 13 The resources & materials stated are in sufficient variety of topics and formats | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 14 The resources & materials represent up-to-date theory and practice in the discipline | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| Schedule | 15 The course schedule is clearly defined & logically sequenced | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 16 The amount of time needed to complete this course is appropriate for this content | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 17 The course schedule is aligned to the Intended learning Outcome (ILO) | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 18 The course schedule is aligned to the resources | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| Learning Assessments | 19 The learning outcomes & assessments are aligned | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 20 Major summative assessment activities are clearly defined | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 21 Assessments are adequately paced & staged | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 22 The course grading policy is clearly stated | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 23 Weighting of exams & projects is clearly defined | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| Course Policies | 24 The course policies are clearly stated & consistent with HEI guidelines | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 25 Policies for missed exams and/or assignments are clearly addressed | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 26 Attendance requirements policies are clearly articulated | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 27 Lab policies are clearly defined (if appropriate) | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| Overall Overview | 28 Rights & responsibilities of both students and faculty are clearly defined | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 29 Syllabus communicates high expectations and describes value of course | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 30 Syllabus is well organized, easy to navigate, requires interaction | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 31 Format of the syllabus is clear & consistent throughout | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| | 32 The syllabus is free of spelling and grammatical errors | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |
| Average acceptance with the various course characteristics | | 100% | 99% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |

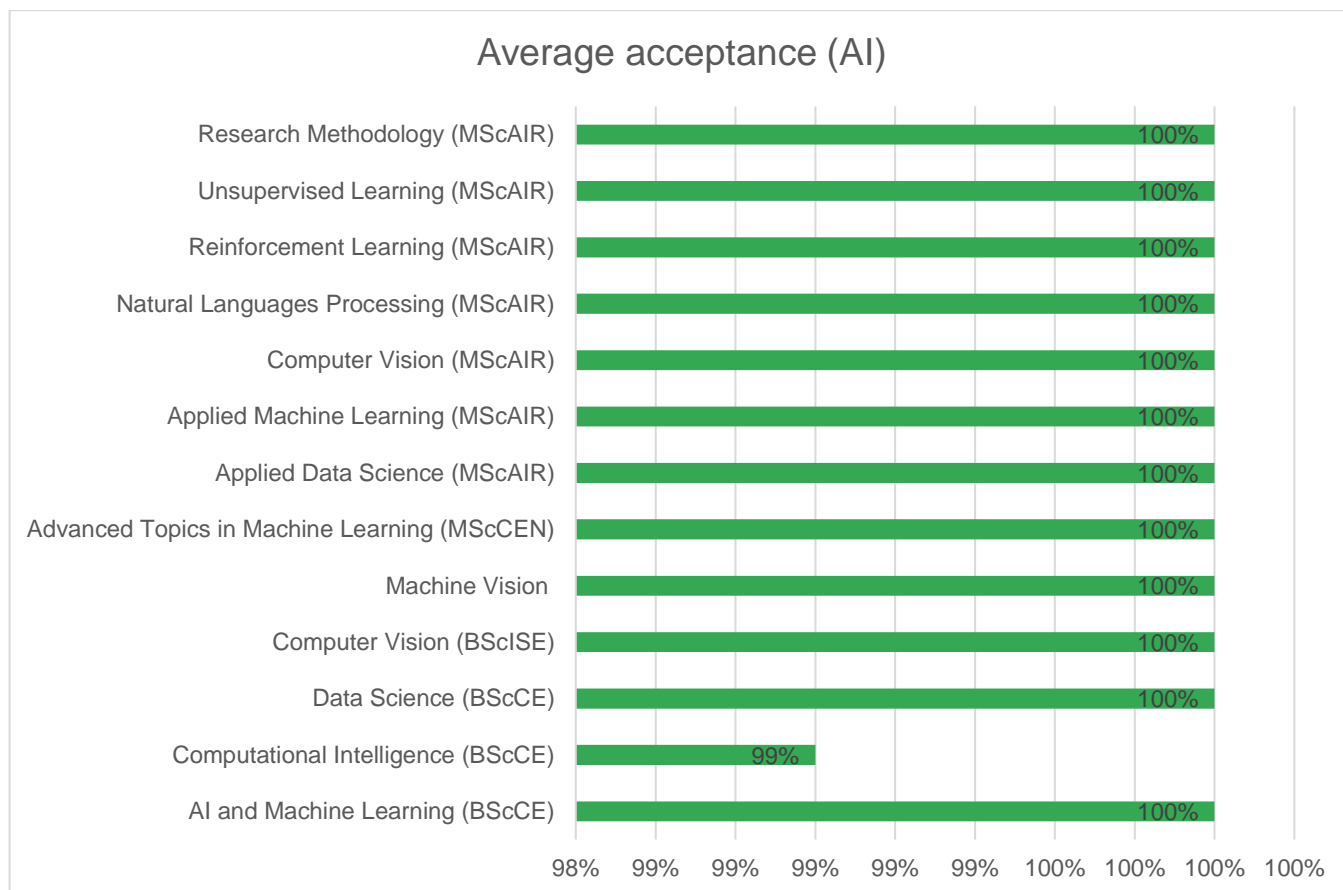


Figure 9: Average acceptance with the various course characteristics, AI, University of Jordan

Below are stated the comments, strengths and the suggestions for improvement that have been received:

Reinforcement Learning (MScAIR)

Suggestion: *In the Course overview section I added a missed word in the description.*

Computational Intelligence (BScCE)

Suggestion: *Typos corrected in teaching & learning methods in the course.*

Computer Vision (BScISE)

Strength: *It is comprehensive and covers very important topics.*

All reviewers stated that the courses are excellent.

Table 7. Responses on evaluation of Course Syllabus (Robotics) for the University of Jordan (UJ)

| | | Course | ROBOTICS | | | | | | | |
|--------------------------------|----|---|--------------------------|-----------------------------|-------------------------|----------------------------------|----------------------------------|-----------------------------|--|----------------------------------|
| Questions | | Digital Control (BScME) | Robotics Systems (BScME) | Intelligent Control (BScME) | Mobile Robotics (BScME) | Computer Control Systems (BScCE) | Modern Operating Systems (BScCE) | Autonomous Systems (MScAIR) | Industrial and Applied Robotics (MScAIR) | Advanced Control Theory (MScAIR) |
| Course Overview | 1 | Description of the course is clear and comprehensive | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 2 | Expectations for prerequisite knowledge in the discipline and/or any required competencies are clearly stated | 100% | 100% | 100% | 100% | 100% | 100% | 80% | 80% |
| | 3 | Course credits have been assigned that reflect the hours scheduled for the course | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Learning Objectives & Outcomes | 4 | The learning objectives and outcomes stated are suitable for the level of the course | 100% | 80% | 80% | 80% | 80% | 100% | 80% | 100% |
| | 5 | The learning outcomes are measurable and consistent with the program-level objectives | 80% | 100% | 100% | 100% | 100% | 100% | 80% | 100% |
| | 6 | The learning objectives and outcomes are clearly articulated and use specific action verbs | 100% | 100% | 100% | 100% | 100% | 100% | 80% | 100% |
| Teaching & Learning Methods | 7 | The teaching and learning methods are clearly defined and appropriate for this level of course | 100% | 100% | 100% | 100% | 100% | 80% | 80% | 100% |
| | 8 | The teaching, learning methods and objectives are aligned | 100% | 100% | 100% | 80% | 100% | 100% | 80% | 100% |
| | 9 | The teaching and learning methods promote the achievement of the stated learning objectives and outcomes | 100% | 80% | 100% | 100% | 100% | 100% | 80% | 80% |
| | 10 | The teaching and learning methods promotes actively engage students | 80% | 100% | 80% | 100% | 100% | 100% | 80% | 100% |
| Resources & Materials | 11 | The resources and materials are appropriate for this level of the course | 100% | 100% | 100% | 80% | 80% | 100% | 100% | 100% |
| | 12 | The resources and materials contribute to the achievement of the stated learning objectives and outcomes | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 13 | The resources and materials stated are in sufficient variety of topics and formats | 80% | 80% | 80% | 100% | 100% | 80% | 100% | 80% |
| | 14 | The resources and materials represent up-to-date theory and practice in the discipline | 100% | 100% | 80% | 100% | 100% | 100% | 60% | 100% |
| Schedule | 15 | The course schedule is clearly defined and logically sequenced | 100% | 100% | 100% | 100% | 100% | 100% | 80% | 80% |
| | 16 | The amount of time needed to complete this course is appropriate for this content | 100% | 80% | 100% | 80% | 100% | 100% | 80% | 100% |
| | 17 | The course schedule is aligned to the Intended learning Outcome (ILO) | 100% | 100% | 100% | 100% | 80% | 60% | 80% | 80% |
| | 18 | The course schedule is aligned to the resources | 100% | 100% | 100% | 60% | 100% | 80% | 80% | 100% |
| Learning Assessments | 19 | The learning outcomes and assessments are aligned | 100% | 100% | 100% | 80% | 100% | 100% | 80% | 100% |
| | 20 | Major summative assessment activities are clearly defined | 100% | 100% | 100% | 100% | 100% | 100% | 80% | 100% |
| | 21 | Assessments are adequately paced and staged | 100% | 100% | 80% | 80% | 100% | 100% | 80% | 80% |
| | 22 | The course grading policy is clearly stated | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 23 | Weighting of exams and projects is clearly defined | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Course Policies | 24 | The course policies are clearly stated and consistent with HEI guidelines | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 25 | Policies for missed exams and/or assignments are clearly addressed | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 26 | Attendance requirements policies are clearly articulated | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 27 | Lab policies are clearly defined (if appropriate) | 80% | 80% | 80% | 80% | 80% | 80% | 100% | 60% |
| | 28 | Rights and responsibilities of both students and faculty are clearly defined | 100% | 80% | 100% | 80% | 100% | 100% | 80% | 80% |
| Overall Overview | 29 | Syllabus communicates high expectations and describes value of course | 100% | 100% | 100% | 100% | 100% | 100% | 80% | 100% |
| | 30 | Syllabus is well organized, easy to navigate, requires interaction | 100% | 100% | 100% | 100% | 100% | 100% | 80% | 100% |
| | 31 | Format of the syllabus is clear and consistent throughout | 100% | 100% | 100% | 100% | 100% | 100% | 80% | 100% |
| | 32 | The syllabus is free of spelling and grammatical errors | 100% | 100% | 100% | 100% | 100% | 100% | 80% | 80% |
| | | Average acceptance with the various course characteristics | 98% | 96% | 96% | 94% | 98% | 96% | 87% | 94% |

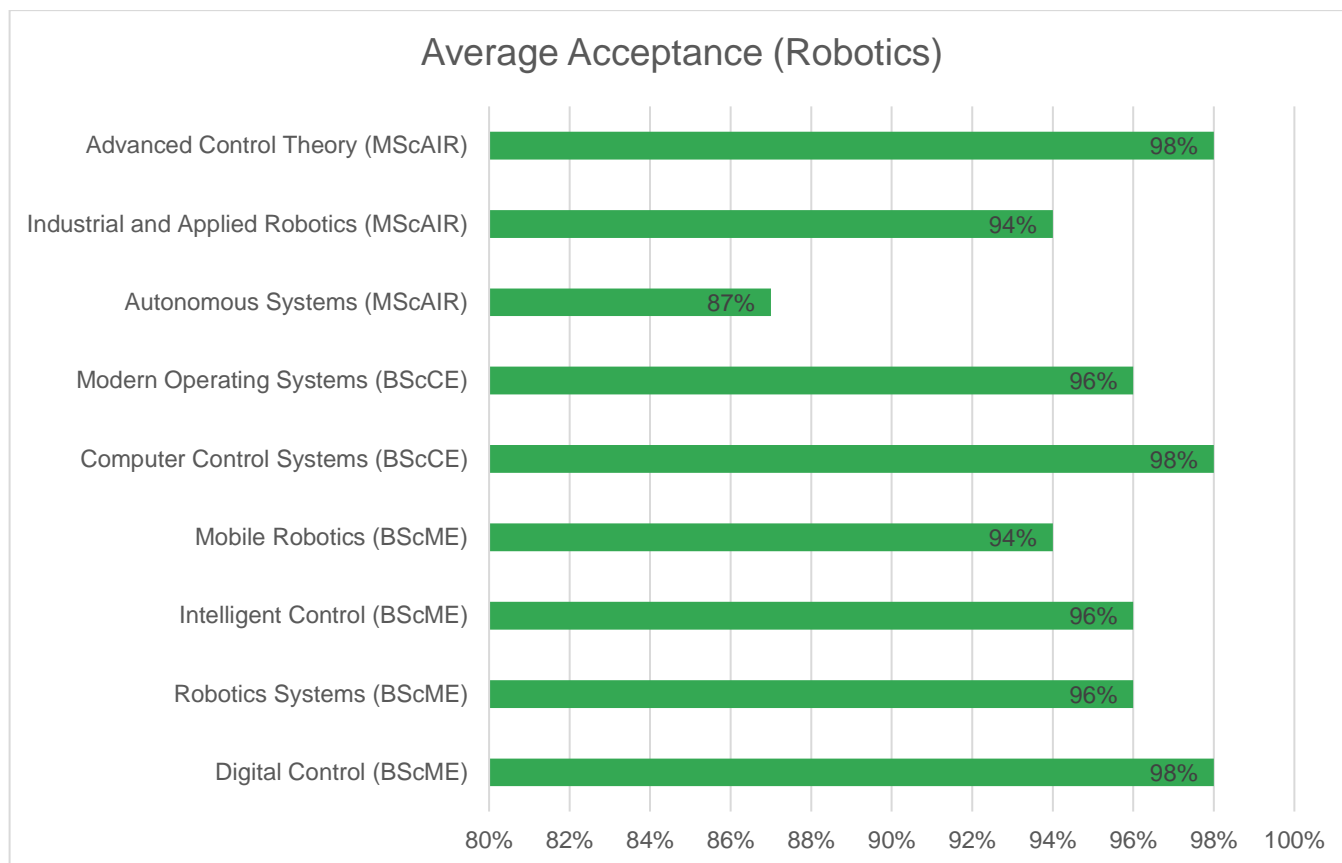


Figure 10: Average acceptance with the various course characteristics, Robotics, University of Jordan

The reviewers pointed the following strengths, weaknesses, suggestions for improvement and comments of the courses:

Advanced Control Theory (MScAIR)

Strength: *Combination of theoretical concept and practical implementation regarding control theory.*

Comment: *Very precise and nice description of the course.*

Autonomous Systems (MScAIR):

Strength: *Many resources for students to use.*

Weakness: *Many of the resources are not up-to-date with today's technology.*

Suggestion: *Latest editions of some of the suggested books could be used or adding new and recently published books in the field.*

Computer Control Systems (BScCE)

Strength: *Introduces students to computer control systems and covers basic principles. Many practical aspects.*

Comment: *Very detailed and nice description and objectives! Not all ILOs are covered in outline, e.g., ILO 5,6.*

Introduces students to computer control systems and covers basic principles. Many practical aspects.

Digital Control (BScME)

Strength: *Covers most topics of digital control, nice overview over this field.*

Suggestion: *Consider homework or tasks for students where they can put the objectives into practice. I.e., not only introduce Matlab commands (see Week 7-10) but rather let them solve a task using these commands.*

Comment: *Very nice description and detailed topic outline/schedule!*

Industrial and Applied Robotics (MScAIR)

Strength: *Especially objective 4 (practical skills), broad overview of applications in robotics*

Suggestion: *May describe the topics in the schedule more precisely, very general.*

Comment: *Please remove yellow highlighting in evaluation tools.*

Intelligent Control (BScME)

Strength: *Covers most of the topics withing Fuzzy Systems and Control.*

Comment: *Please fill PLO column in ILO table. Include practical exercise where possible.*

Mobile Robotics (BScME)

Strength:

- *Covers wide variety within the field of mobile robotics.*
- *In the Schedule section may include more resources (also recommended not only required) in the topic outline*

Suggestion: *If possible, highly interconnect the course with practical aspects in the lab (e.g. after lab development within Decair)*

Modern Operating Systems (BScCE)

Strength: *Displays a nice overview of the important topic of OS.*

Suggestion: *Please align ILO column, e.g., there is no ILO 7 and ILO 4 is missing*

Comment: *Teaching and learning methods are more detailed in other UJ courses, but still are sufficient here.*

Robotics Systems (BScME)

Strength: *Teach basic concepts regarding kinematics, dynamics, and transformations.*

Comment: *Please remove highlighting for final version.*

3.2.1.2 Tafila Technical University (TTU)

Table 8. Responses on evaluation of Course Syllabus (AI) for the Tafila Technical University (TTU)

| | Questions | ARTIFICIAL INTELLIGENCE | | | | | | | | | |
|--------------------------------|---|-----------------------------------|--|-------------------------------------|--------------------------|--|---|---|--------------------------------------|--|-------------|
| | | Programming for Engineers (BScSE) | Artificial Neural Network and Deep Learning (BScISE) | Computational Intelligence (BScISE) | Computer Vision (BScISE) | Statistical Analysis and Data Science (BScISE) | Emerging Technology in Intelligent Systems (BScISE) | Introduction to Artificial Intelligence and Machine Learning (BScISE) | Natural Language Processing (BScISE) | Reinforcement Learning and Game Development (BScISE) | |
| Course Overview | 1 Description of the course is clear and comprehensive | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 2 Expectations for prerequisite knowledge in the discipline and/or any required competencies are clearly stated | 100% | 100% | 100% | 100% | 100% | 100% | 40% | 100% | 100% | 100% |
| | 3 Course credits have been assigned that reflect the hours scheduled for the course | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Learning Objectives & Outcomes | 4 The learning objectives and outcomes stated are suitable for the level of the course | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 5 The learning outcomes are measurable and consistent with the program-level objectives | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 6 The learning objectives and outcomes are clearly articulated and use specific action verbs | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Teaching & Learning Methods | 7 The teaching and learning methods are clearly defined and appropriate for this level of course | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 8 The teaching, learning methods and objectives are aligned | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 9 The teaching and learning methods promote the achievement of the stated learning objectives and outcomes | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Resources & Materials | 10 The teaching and learning methods promotes actively engage students | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 11 The resources and materials are appropriate for this level of the course | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 12 The resources and materials contribute to the achievement of the stated learning objectives and outcomes | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Schedule | 13 The resources and materials stated are in sufficient variety of topics and formats | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 14 The resources and materials represent up-to-date theory and practice in the discipline | 100% | 100% | 100% | 100% | 100% | 100% | 40% | 100% | 100% | 100% |
| | 15 The course schedule is clearly defined and logically sequenced | 100% | 100% | 100% | 100% | 100% | 100% | 80% | 100% | 100% | 100% |
| Learning Assessments | 16 The amount of time needed to complete this course is appropriate for this content | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 17 The course schedule is aligned to the Intended learning Outcome (ILO) | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 18 The course schedule is aligned to the resources | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Course Policies | 19 The learning outcomes and assessments are aligned | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 20 Major summative assessment activities are clearly defined | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 21 Assessments are adequately paced and staged | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Overall Overview | 22 The course grading policy is clearly stated | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 23 Weighting of exams and projects is clearly defined | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 24 The course policies are clearly stated and consistent with HEI guidelines | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Overall Overview | 25 Policies for missed exams and/or assignments are clearly addressed | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 26 Attendance requirements policies are clearly articulated | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 27 Lab policies are clearly defined (if appropriate) | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Overall Overview | 28 Rights and responsibilities of both students and faculty are clearly defined | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 29 Syllabus communicates high expectations and describes value of course | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 30 Syllabus is well organized, easy to navigate, requires interaction | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Overall Overview | 31 Format of the syllabus is clear and consistent throughout | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | 32 The syllabus is free of spelling and grammatical errors | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| | Average acceptance with the various course characteristics | 100% | 100% | 100% | 100% | 100% | 100% | 98% | 98% | 100% | 100% |

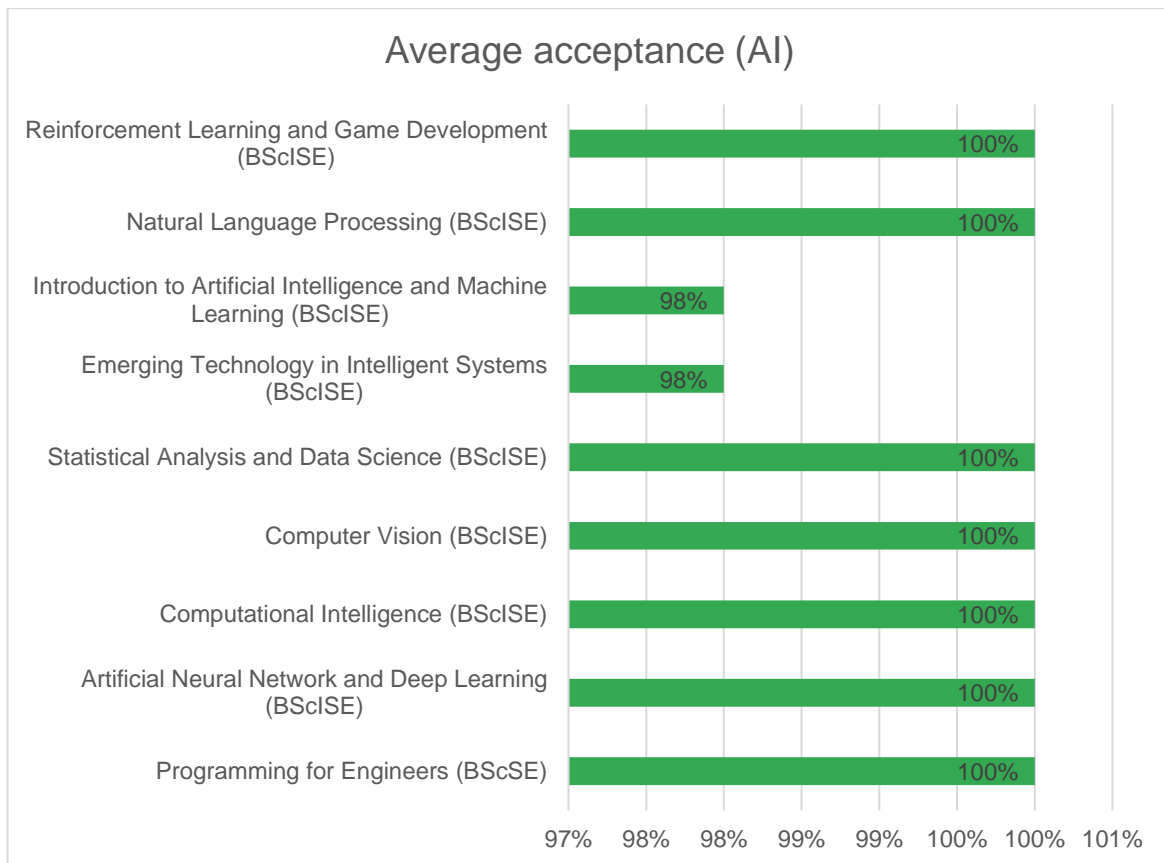


Figure 11: Average acceptance with the various course characteristics, AI, Tafila Technical University

The reviewers stated the following suggestions and comments:

Emerging Technology in Intelligent Systems (BScISE)

Suggestion: *In "Prerequisites by topic (other than the formal prerequisites above)" I added "artificial intelligence (AI) and robotics"*

Programming for Engineers (BScSE)

Comments:

- *I suggest giving final assignments in Python.*
- *Python should be the main language to use.*

Table 9. Responses on evaluation of Course Syllabus (Robotics) for the Tafila Technical University (TTU)

| | Course | ROBOTICS | |
|---|---|---|---------------------------|
| | | Artificial Intelligence for Robotics (BScISE) | Robotics Systems (BScISE) |
| Course Overview | 1 Description of the course is clear and comprehensive | 100% | 100% |
| | 2 Expectations for prerequisite knowledge in the discipline and/or any required competencies are clearly stated | 100% | 100% |
| | 3 Course credits have been assigned that reflect the hours scheduled for the course | 100% | 100% |
| Learning Objectives & | 4 The learning objectives and outcomes stated are suitable for the level of the course | 80% | 100% |
| | 5 The learning outcomes are measurable and consistent with the program-level objectives | 80% | 80% |
| | 6 The learning objectives and outcomes are clearly articulated and use specific action verbs | 80% | 100% |
| Teaching & Learning Methods | 7 The teaching and learning methods are clearly defined and appropriate for this level of course | 100% | 80% |
| | 8 The teaching, learning methods and objectives are aligned | 100% | 100% |
| | 9 The teaching and learning methods promote the achievement of the stated learning objectives and outcomes | 100% | 100% |
| | 10 The teaching and learning methods promotes actively engage students | 100% | 80% |
| Resources & Materials | 11 The resources and materials are appropriate for this level of the course | 100% | 100% |
| | 12 The resources and materials contribute to the achievement of the stated learning objectives and outcomes | 100% | 100% |
| | 13 The resources and materials stated are in sufficient variety of topics and formats | 100% | 100% |
| | 14 The resources and materials represent up-to-date theory and practice in the discipline | 100% | 100% |
| Schedule | 15 The course schedule is clearly defined and logically sequenced | 80% | 80% |
| | 16 The amount of time needed to complete this course is appropriate for this content | 100% | 100% |
| | 17 The course schedule is aligned to the Intended learning Outcome (ILO) | 100% | 100% |
| | 18 The course schedule is aligned to the resources | 100% | 100% |
| Learning Assessments | 19 The learning outcomes and assessments are aligned | 100% | 100% |
| | 20 Major summative assessment activities are clearly defined | 80% | 80% |
| | 21 Assessments are adequately paced and staged | 100% | 100% |
| | 22 The course grading policy is clearly stated | 100% | 100% |
| | 23 Weighting of exams and projects is clearly defined | 100% | 100% |
| Course Policies | 24 The course policies are clearly stated and consistent with HEI guidelines | 100% | 100% |
| | 25 Policies for missed exams and/or assignments are clearly addressed | 100% | 100% |
| | 26 Attendance requirements policies are clearly articulated | 100% | 100% |
| | 27 Lab policies are clearly defined (if appropriate) | 100% | 100% |
| | 28 Rights and responsibilities of both students and faculty are clearly defined | 20% | 20% |
| Overall Overview | 29 Syllabus communicates high expectations and describes value of course | 100% | 100% |
| | 30 Syllabus is well organized, easy to navigate, requires interaction | 100% | 100% |
| | 31 Format of the syllabus is clear and consistent throughout | 100% | 100% |
| | 32 The syllabus is free of spelling and grammatical errors | 100% | 100% |
| Average acceptance with the various course characteristics | | 94% | 94% |

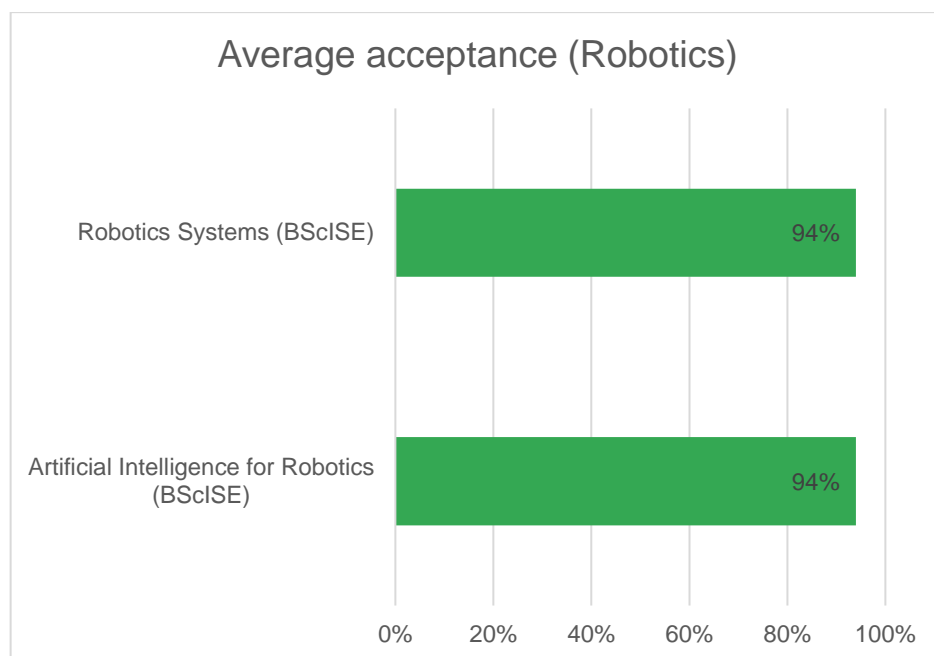


Figure 12: Average acceptance with the various course characteristics, Robotics, Tafila Technical University

Below are stated the suggestions for improvement that have been received:

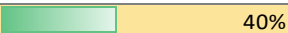











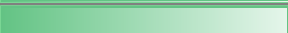



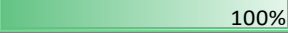





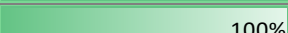







Artificial Intelligence for Robotics (BScISE) and Robotics Systems (BScISE)

Suggestions:

- *In the course policies section rights and responsibilities are not mentioned.*
- *Please specify lab hours.*

3.2.1.3 Lebanese University (LU)

Table 10. Responses on evaluation of Course Syllabus (AI) for the Lebanese University (LU)

| | | ARTIFICIAL INTELLIGENCE |
|---|---|--|
| | Course | Computer Vision (BScEE) |
| | Questions | |
| Course Overview | 1 Description of the course is clear and comprehensive |  40% |
| | 2 Expectations for prerequisite knowledge in the discipline and/or any required competencies are clearly stated |  100% |
| | 3 Course credits have been assigned that reflect the hours scheduled for the course |  40% |
| Learning Objectives & | 4 The learning objectives and outcomes stated are suitable for the level of the course |  100% |
| | 5 The learning outcomes are measurable and consistent with the program-level objectives |  100% |
| | 6 The learning objectives and outcomes are clearly articulated and use specific action verbs |  100% |
| Teaching & Learning Methods | 7 The teaching and learning methods are clearly defined and appropriate for this level of course |  100% |
| | 8 The teaching, learning methods and objectives are aligned |  100% |
| | 9 The teaching and learning methods promote the achievement of the stated learning objectives and outcomes |  100% |
| | 10 The teaching and learning methods promotes actively engage students |  100% |
| Resources & Materials | 11 The resources and materials are appropriate for this level of the course |  100% |
| | 12 The resources and materials contribute to the achievement of the stated learning objectives and outcomes |  100% |
| | 13 The resources and materials stated are in sufficient variety of topics and formats |  100% |
| | 14 The resources and materials represent up-to-date theory and practice in the discipline |  100% |
| Schedule | 15 The course schedule is clearly defined and logically sequenced |  100% |
| | 16 The amount of time needed to complete this course is appropriate for this content |  100% |
| | 17 The course schedule is aligned to the Intended learning Outcome (ILO) |  100% |
| | 18 The course schedule is aligned to the resources |  100% |
| Learning Assessments | 19 The learning outcomes and assessments are aligned |  100% |
| | 20 Major summative assessment activities are clearly defined |  100% |
| | 21 Assessments are adequately paced and staged |  100% |
| | 22 The course grading policy is clearly stated |  100% |
| | 23 Weighting of exams and projects is clearly defined |  100% |
| Course Policies | 24 The course policies are clearly stated and consistent with HEI guidelines |  100% |
| | 25 Policies for missed exams and/or assignments are clearly addressed |  100% |
| | 26 Attendance requirements policies are clearly articulated |  100% |
| | 27 Lab policies are clearly defined (if appropriate) |  100% |
| | 28 Rights and responsibilities of both students and faculty are clearly defined |  100% |
| Overall Overview | 29 Syllabus communicates high expectations and describes value of course |  80% |
| | 30 Syllabus is well organized, easy to navigate, requires interaction |  100% |
| | 31 Format of the syllabus is clear and consistent throughout |  100% |
| | 32 The syllabus is free of spelling and grammatical errors |  100% |
| Average acceptance with the various course characteristics | | 96% |

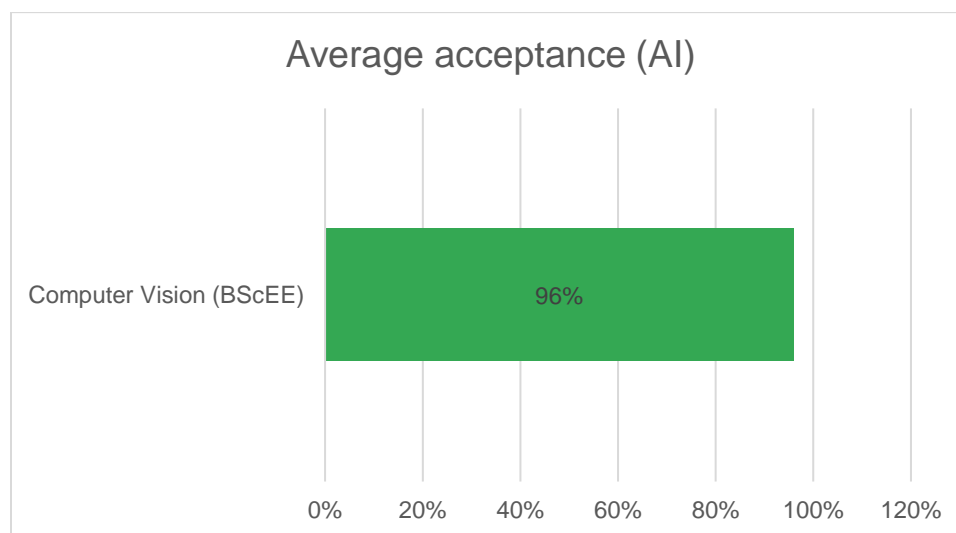


Figure 13: Average acceptance with the various course characteristics, AI, Lebanese University

Below are stated the comments and the suggestions for improvement that have been received:

Computer Vision (BScEE)

Suggestion: *The description in the course overview section should be a little more detailed.*

Table 11. Responses on evaluation of Course Syllabus (Robotics) for the Lebanese University (LU)

| | | Course | ROBOTICS | | |
|---|----|---|-------------------------|------------------|---------------------------|
| Questions | | | Sensors and IOT (BScEE) | Robotics (BScEE) | Advanced Robotics (MScME) |
| Course Overview | 1 | Description of the course is clear and comprehensive | 100% | 100% | 100% |
| | 2 | Expectations for prerequisite knowledge in the discipline and/or any required competencies are clearly stated | 100% | 100% | 100% |
| | 3 | Course credits have been assigned that reflect the hours scheduled for the course | 100% | 100% | 100% |
| Learning Objectives | 4 | The learning objectives and outcomes stated are suitable for the level of the course | 100% | 80% | 80% |
| | 5 | The learning outcomes are measurable and consistent with the program-level objectives | 100% | 100% | 100% |
| | 6 | The learning objectives and outcomes are clearly articulated and use specific action verbs | 100% | 100% | 100% |
| Teaching & Learning | 7 | The teaching and learning methods are clearly defined and appropriate for this level of course | 100% | 100% | 100% |
| | 8 | The teaching, learning methods and objectives are aligned | 100% | 100% | 100% |
| | 9 | The teaching & learning methods promote the achievement of the stated learning objectives & outcomes | 100% | 100% | 100% |
| | 10 | The teaching and learning methods promotes actively engage students | 100% | 100% | 100% |
| Resources & Materials | 11 | The resources and materials are appropriate for this level of the course | 60% | 100% | 100% |
| | 12 | The resources & materials contribute to the achievement of the stated learning objectives and outcomes | 80% | 100% | 100% |
| | 13 | The resources and materials stated are in sufficient variety of topics and formats | 60% | 100% | 100% |
| | 14 | The resources and materials represent up-to-date theory and practice in the discipline | 60% | 100% | 100% |
| Schedule | 15 | The course schedule is clearly defined and logically sequenced | 100% | 100% | 100% |
| | 16 | The amount of time needed to complete this course is appropriate for this content | 100% | 100% | 100% |
| | 17 | The course schedule is aligned to the Intended learning Outcome (ILO) | 100% | 100% | 100% |
| | 18 | The course schedule is aligned to the resources | 100% | 100% | 100% |
| Learning Assessments | 19 | The learning outcomes and assessments are aligned | 100% | 100% | 80% |
| | 20 | Major summative assessment activities are clearly defined | 80% | 80% | 80% |
| | 21 | Assessments are adequately paced and staged | 100% | 100% | 100% |
| | 22 | The course grading policy is clearly stated | 100% | 100% | 100% |
| | 23 | Weighting of exams and projects is clearly defined | 100% | 100% | 100% |
| Course Policies | 24 | The course policies are clearly stated and consistent with HEI guidelines | 100% | 100% | 100% |
| | 25 | Policies for missed exams and/or assignments are clearly addressed | 100% | 100% | 100% |
| | 26 | Attendance requirements policies are clearly articulated | 100% | 100% | 100% |
| | 27 | Lab policies are clearly defined (if appropriate) | 100% | 100% | 100% |
| | 28 | Rights and responsibilities of both students and faculty are clearly defined | 20% | 20% | 20% |
| Overall Overview | 29 | Syllabus communicates high expectations and describes value of course | 100% | 100% | 100% |
| | 30 | Syllabus is well organized, easy to navigate, requires interaction | 100% | 100% | 100% |
| | 31 | Format of the syllabus is clear and consistent throughout | 100% | 100% | 100% |
| | 32 | The syllabus is free of spelling and grammatical errors | 100% | 100% | 100% |
| Average acceptance with the various course characteristics | | | 93% | 96% | 96% |

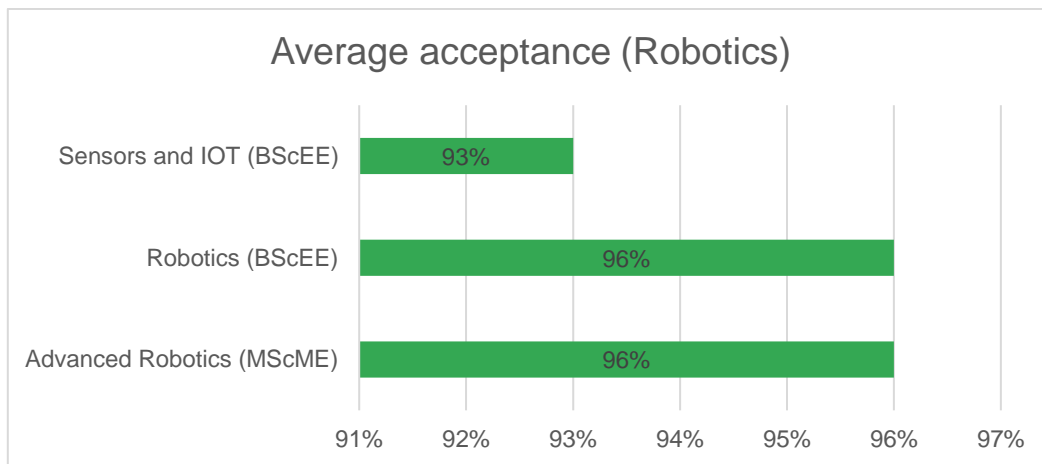


Figure 14: Average acceptance with the various course characteristics, Robotics, Lebanese University

Below are stated the comments and the suggestions for improvement that have been received:

Advanced Robotics (BScEE):

Suggestions:

- *Please correct "till Robot Motion Control using PID" in the assessment tool table.*
- *I found the docx in the LU directory but in the file, it is reported TTU please check*

Robotics (BScEE)

Suggestion: *Please specify the number of hours in the lab for the course since it requires some*

Finally, reviewers stated that rights and responsibilities are missing in the documents of the three courses.

3.2.1.4 Beirut Arab University (BAU)

Table 12. Responses on evaluation of Course Syllabus (AI) for the Beirut Arab University (BAU)

| | Course Questions | ARTIFICIAL INTELLIGENCE | | | |
|---|---|-------------------------|--------------------------|-----------------------------------|--------------------------------|
| | | Deep Learning (BScCE) | Machine Learning (BScCE) | Programming for Engineers (BScCE) | Reinforcement Learning (MScCE) |
| Course Overview | 1 Description of the course is clear and comprehensive | 100% | 40% | 100% | 100% |
| | 2 Expectations for prerequisite knowledge in the discipline and/or any required competencies are clearly stated | 100% | 100% | 100% | 100% |
| | 3 Course credits have been assigned that reflect the hours scheduled for the course | 100% | 100% | 100% | 100% |
| Learning Objectives & | 4 The learning objectives and outcomes stated are suitable for the level of the course | 100% | 100% | 100% | 100% |
| | 5 The learning outcomes are measurable and consistent with the program-level objectives | 100% | 100% | 100% | 100% |
| | 6 The learning objectives and outcomes are clearly articulated and use specific action verbs | 100% | 100% | 100% | 100% |
| Teaching & Learning Methods | 7 The teaching and learning methods are clearly defined and appropriate for this level of course | 100% | 100% | 100% | 100% |
| | 8 The teaching, learning methods and objectives are aligned | 100% | 100% | 100% | 100% |
| | 9 The teaching and learning methods promote the achievement of the stated learning objectives and outcomes | 100% | 100% | 100% | 100% |
| | 10 The teaching and learning methods promotes actively engage students | 100% | 100% | 100% | 100% |
| Resources & Materials | 11 The resources and materials are appropriate for this level of the course | 40% | 40% | 100% | 100% |
| | 12 The resources and materials contribute to the achievement of the stated learning objectives and outcomes | 100% | 40% | 100% | 100% |
| | 13 The resources and materials stated are in sufficient variety of topics and formats | 100% | 40% | 100% | 100% |
| | 14 The resources and materials represent up-to-date theory and practice in the discipline | 40% | 40% | 100% | 40% |
| Schedule | 15 The course schedule is clearly defined and logically sequenced | 100% | 100% | 100% | 100% |
| | 16 The amount of time needed to complete this course is appropriate for this content | 100% | 100% | 100% | 100% |
| | 17 The course schedule is aligned to the Intended learning Outcome (ILO) | 100% | 100% | 100% | 100% |
| | 18 The course schedule is aligned to the resources | 100% | 100% | 100% | 100% |
| Learning Assessments | 19 The learning outcomes and assessments are aligned | 100% | 100% | 100% | 100% |
| | 20 Major summative assessment activities are clearly defined | 100% | 100% | 100% | 100% |
| | 21 Assessments are adequately paced and staged | 100% | 100% | 100% | 100% |
| | 22 The course grading policy is clearly stated | 100% | 100% | 100% | 100% |
| | 23 Weighting of exams and projects is clearly defined | 100% | 100% | 100% | 100% |
| Course Policies | 24 The course policies are clearly stated and consistent with HEI guidelines | 100% | 100% | 100% | 100% |
| | 25 Policies for missed exams and/or assignments are clearly addressed | 100% | 100% | 100% | 100% |
| | 26 Attendance requirements policies are clearly articulated | 100% | 100% | 100% | 100% |
| | 27 Lab policies are clearly defined (if appropriate) | 100% | 100% | 100% | 100% |
| | 28 Rights and responsibilities of both students and faculty are clearly defined | 100% | 100% | 100% | 100% |
| Overall Overview | 29 Syllabus communicates high expectations and describes value of course | 100% | 100% | 100% | 100% |
| | 30 Syllabus is well organized, easy to navigate, requires interaction | 100% | 100% | 100% | 100% |
| | 31 Format of the syllabus is clear and consistent throughout | 100% | 100% | 100% | 100% |
| | 32 The syllabus is free of spelling and grammatical errors | 40% | 100% | 100% | 100% |
| Average acceptance with the various course characteristics | | 94% | 91% | 100% | 98% |

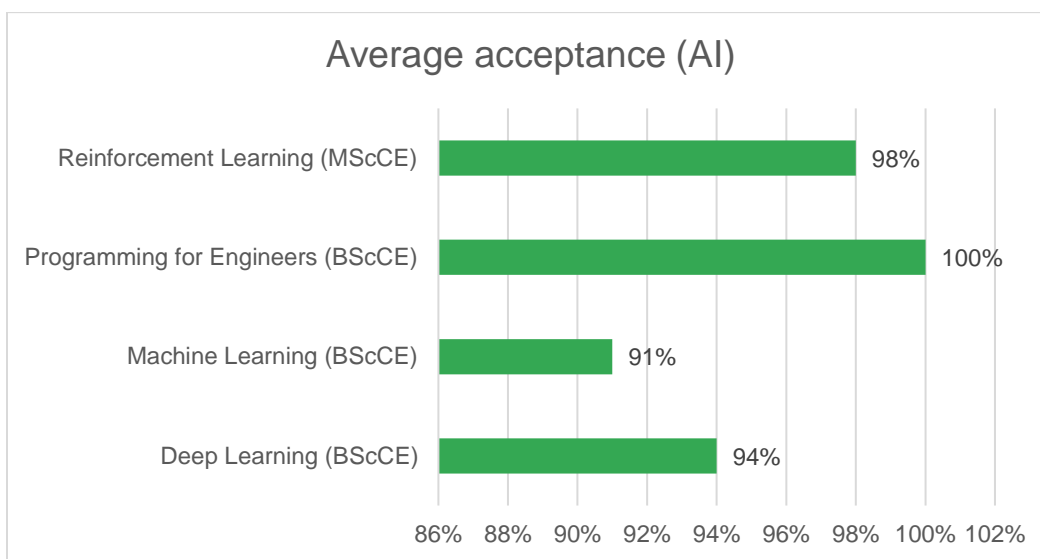


Figure 15: Average acceptance with the various course characteristics, AI, Beirut Arab University

Below are stated the comments and the suggestions for improvement that have been received:

Machine Learning (BScCE)

Suggestion:

- *In the Course Overview section avoid acronyms (VC, EM, PCA, SVD)*
- *In the Resources and Materials section I added a textbook useful for programming assignments and I correct the edition of Stuart-Norvig book that now includes deep learning and reinforcement learning*

Deep Learning (BScCE)

Suggestion: *In the Resources and Materials section add this textbook: François Chollet, Deep Learning with Python, Manning Pub. 2018.*

Reinforcement Learning (MScCE)

Suggestion: *In the Resources and Materials section you could add Nimish Sanghi, Deep Reinforcement Learning with Python: With PyTorch, TensorFlow and OpenAI Gym, Apress, 2021.*

Programming for Engineers (BScCE)

Comment: *The course has some formatting problems in the last page.*

Table 13. Responses on evaluation of Course Syllabus (Robotics) for the Beirut Arab University (BAU)

| | | ROBOTICS | |
|---|---|----------------------------|---|
| Course | | Autonomous Systems (MScCE) | Computational Aspects of Robotics (MScCE) |
| Course Overview | Description of the course is clear and comprehensive | 100% | 100% |
| | Expectations for prerequisite knowledge in the discipline and/or any required competencies are clearly stated | 100% | 100% |
| | Course credits have been assigned that reflect the hours scheduled for the course | 100% | 80% |
| Learning Objectives & | The learning objectives and outcomes stated are suitable for the level of the course | 100% | 100% |
| | The learning outcomes are measurable and consistent with the program-level objectives | 100% | 80% |
| | The learning objectives and outcomes are clearly articulated and use specific action verbs | 80% | 100% |
| Teaching & Learning Methods | The teaching and learning methods are clearly defined and appropriate for this level of course | 100% | 100% |
| | The teaching, learning methods and objectives are aligned | 80% | 100% |
| | The teaching and learning methods promote the achievement of the stated learning objectives and outcomes | 100% | 100% |
| | The teaching and learning methods promotes actively engage students | 100% | 100% |
| Resources & Materials | The resources and materials are appropriate for this level of the course | 100% | 100% |
| | The resources and materials contribute to the achievement of the stated learning objectives and outcomes | 100% | 100% |
| | The resources and materials stated are in sufficient variety of topics and formats | 100% | 100% |
| | The resources and materials represent up-to-date theory and practice in the discipline | 100% | 100% |
| Schedule | The course schedule is clearly defined and logically sequenced | 100% | 100% |
| | The amount of time needed to complete this course is appropriate for this content | 100% | 80% |
| | The course schedule is aligned to the Intended learning Outcome (ILO) | 100% | 100% |
| | The course schedule is aligned to the resources | 100% | 100% |
| Learning Assessments | The learning outcomes and assessments are aligned | 100% | 100% |
| | Major summative assessment activities are clearly defined | 100% | 100% |
| | Assessments are adequately paced and staged | 100% | 80% |
| | The course grading policy is clearly stated | 100% | 100% |
| | Weighting of exams and projects is clearly defined | 100% | 100% |
| Course Policies | The course policies are clearly stated and consistent with HEI guidelines | 100% | 100% |
| | Policies for missed exams and/or assignments are clearly addressed | 100% | 100% |
| | Attendance requirements policies are clearly articulated | 100% | 100% |
| | Lab policies are clearly defined (if appropriate) | 80% | 100% |
| | Rights and responsibilities of both students and faculty are clearly defined | 100% | 20% |
| Overall Overview | Syllabus communicates high expectations and describes value of course | 100% | 100% |
| | Syllabus is well organized, easy to navigate, requires interaction | 100% | 100% |
| | Format of the syllabus is clear and consistent throughout | 100% | 100% |
| | The syllabus is free of spelling and grammatical errors | 80% | 100% |
| Average acceptance with the various course characteristics | | 98% | 95% |

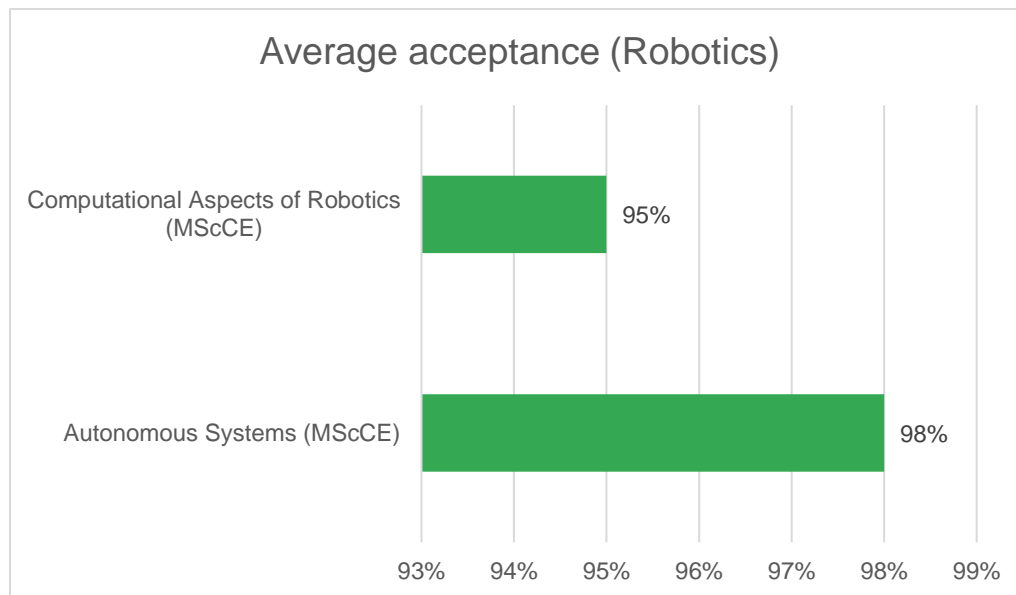


Figure 16: Average acceptance with the various course characteristics, Robotics, Beirut Arab University

The reviewers pointed the following strengths, suggestions for improvement and comments of the courses:

Autonomous Systems (MScCE)

Strength: *Covers major field of mobile autonomous systems.*

Suggestion: *Let students implement and try as much as possible in the lab in accordance with the lecture.*

Comment: *Excellent improvement of the objective and topic outline compared to the first draft! Please check grammar in last sentence of Description.*

Computational Aspects of Robotics (MScCE)

Suggestion: *In the Course Policies section rights and responsibilities details are not stated.*

Comment: *Please specify the amount of lab hours*

3.2.2 Conclusion

The Courses Syllabus have been successfully reviewed and approved. All the responses on the questions, comments and suggestions for improvement have been promptly made available to the main author of the syllabus in order to make the necessary corrections, if any.

Through the activities of the WP2, WP5, and WP6, the following new programs got final national accreditation:

- MSc in AIR in UJ
- BSc in Intelligent Systems Engineering in TTU
- The following existing programs got the final necessary approvals for the new/modified courses:
- MSc in Computer Engineering and Networks in UJ
- BSc in Computer Engineering in UJ
- BSc in Mechatronics Engineering in UJ
- MSc in Mechanical Engineering in JUST
- BSc in Computer Engineering in TTU
- BSc in Mechatronics Engineering in TTU
- MSc in Mechanical Engineering in LU
- BSc in Electrical Engineering in LU
- MSc in Robotics and Intelligent Systems in LU
- MSc in Computer Engineering in BAU
- BSc in Computer Engineering in BAU

In total national accreditation in the universities of Jordan and in Lebanon got 1 new Master's program, 1 new Bachelor program, 5 existing Master's programs and 6 existing Bachelor programs.

Moreover, through the activities and outcomes of WP1 and WP2, and through consultations in the University of Jordan and the Jordanian Accreditation and Quality Assurance Commission for Higher Education Institutions (AQACHEI), the selection criteria are based on UJ regulations, GPA of the student's BSc program, and the students BSc specialization grouped in three priorities. The adopted selection criteria is part of the MSc in AIR program study plan.

3.3 Training evaluation

All Training workshops/seminars undergo an evaluation process by the participants/trainees. After the end of the training, each participant is asked to rate several aspects of the training in a questionnaire (using hardcopies or Google Forms). The questionnaires include closed questions as well as open-ended questions for remarks, comments and suggestions.

The questionnaire used consists of 4 sections. The 1st section (Overall training experience) contains 9 closed questions (in case of online training the questions are 8) on 5-point Likert scale, where respondents have to give a grade between 1 and 5, with 5 being the highest (Strongly Agree) and 1 the lowest (Strongly Disagree). The 2nd section (Opinion of the Trainers) contains 4 closed questions on 5-point Likert scale, where respondents have to give a grade between 1 and 5, with 5 being the highest (Strongly Agree) and 1 the lowest (Strongly Disagree). The 3rd section contains one closed Yes/No question asking if the training was appropriate for the level of experience of the participant. The 4th section contains 3 open-ended questions regarding: Topics that were not or insufficiently covered – Topics not relevant to the training – Best part of the training.

Room for suggestions or comments for making the program more effective was also made available.

At the beginning of the questionnaire respondents are asked to declare their organisation, for the purpose of ascertaining partner participation.

During the 3rd semester of the project among the training workshops that are analysed below there was also held a training workshop in cooperation with NVIDIA Deep Learning Institute, and Jordan Joint Chapter of the IEEE Computer Society and Computational Intelligence Society entitled Fundamentals of Deep Learning. The workshop was given by NVIDIA Learning Institute Ambassador Dr. Manal Jalloul (American University of Beirut “AUB”). The training workshop took place at the School of Engineering Labs / University of Jordan on May 30th, 2022, and it was also available online through Zoom for both students and faculty. The duration of that workshop was 2,5 hours and it was decided by the consortium not to be evaluated.

3.3.1 Introduction to Machine Learning (face to face & online, 3-14/2/2022)

A questionnaire was prepared and was delivered to all the participants through Google Forms after the Machine Learning training that was held online between February 3, 2022, and February 14, 2022, by the University of Genoa (UNIGE) in the framework of WP7. The course has started in a hybrid mode, and it was continued in a virtual mode.

Responses were collected via Google Forms, between February 14th and March 2nd, 2022. The 6 responses that were received are coming from the following organizations, illustrated in Figure 17.

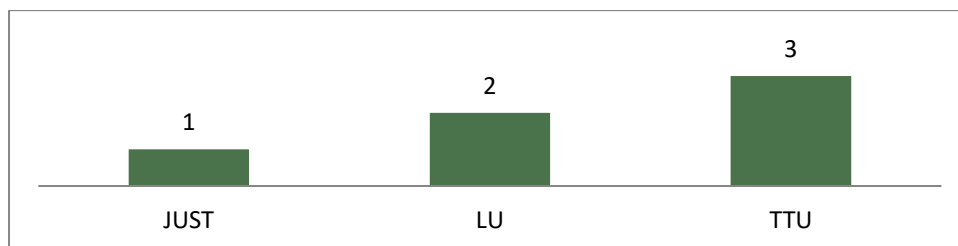


Figure 17: Number of surveys submitted (N=6)

The academic level of the participants according to their responses is the following: 5 Teaching staff and 1 Professor.

The responses given by the participants are analysed below.

3.3.1.1 Analysis of scaled questions

The responses received can be found below in Figures 18, 19, 20 and Table 14. Most participants responded with a positive reply, marking the responses as Agree (64%), and Strongly Agree (26%) overall, for both sections. On average there was 82% agreement with the statements of the 2 sections, well above the appointed 70% threshold, suggesting that participants were overall satisfied with the effectiveness of the training webinar and the trainers.

In the first section of questions, in the overall experience about training, the majority of the answers are Strongly Agree (23%) and Agree (71%), while a percentage (6%) is Neutral.

In the second section of questions about the participants' opinion of the trainers/presenters, the response rates are mostly Strongly Agree (33%) and Agree (50%) responses, while a percentage (4%) is Neutral. Also a 8% percentage Disagree and 4% Strongly Disagree.

Finally, 83% participants (5 out of 6) agreed that the training was appropriate for their level of experience.

Table 14. Analysis of responses on 1-5 scale for the Training workshop

| | Count | 1-Strongly Disagree | 2- Disagree | 3- Neutral | 4- Agree | 5- Strongly agree | weighted average |
|---|-------|---------------------|-------------|------------|----------|-------------------|------------------|
| Section 1. Overall Training experience | | | | | | | |
| The training was well planned and organized. | 6 | 0% | 0% | 0% | 67% | 33% | 87% |

| | Count | 1-Strongly Disagree | 2- Disagree | 3- Neutral | 4- Agree | 5- Strongly agree | weighted average |
|--|-----------------|---------------------|-------------|------------|------------|-------------------|------------------|
| The chosen teleconference platform was satisfactory. | 6 | 0% | 0% | 0% | 33% | 67% | 93% |
| The objectives of the training were clearly defined and met. | 6 | 0% | 0% | 0% | 67% | 33% | 87% |
| The topics of the training were clear and easy to follow. | 6 | 0% | 0% | 17% | 67% | 17% | 80% |
| The length of training was sufficient. | 6 | 0% | 0% | 0% | 83% | 17% | 83% |
| The training enhanced my understanding on the subject. | 6 | 0% | 0% | 17% | 67% | 17% | 80% |
| The training was relevant to my needs. | 6 | 0% | 0% | 0% | 100% | 0% | 80% |
| Training met my expectations. | 6 | 0% | 0% | 17% | 83% | 0% | 77% |
| | Avg. 1 | 0% | 0% | 6% | 71% | 23% | 83% |
| Section 2. Opinion of the trainers/presenters | | | | | | | |
| The trainer(s) was knowledgeable about the training topic. | 6 | 0% | 0% | 0% | 17% | 83% | 97% |
| The topics were presented in a clear and understandable manner. | 6 | 0% | 17% | 0% | 67% | 17% | 77% |
| The trainer(s) encouraged participation, interaction and answered questions clearly. | 6 | 0% | 17% | 17% | 50% | 17% | 73% |
| The trainer's communication style kept me focused and interested. | 6 | 17% | 0% | 0% | 67% | 17% | 73% |
| | Avg. 2 | 4% | 8% | 4% | 50% | 33% | 80% |
| | Avg. 1,2 | 1% | 3% | 6% | 64% | 26% | 82% |

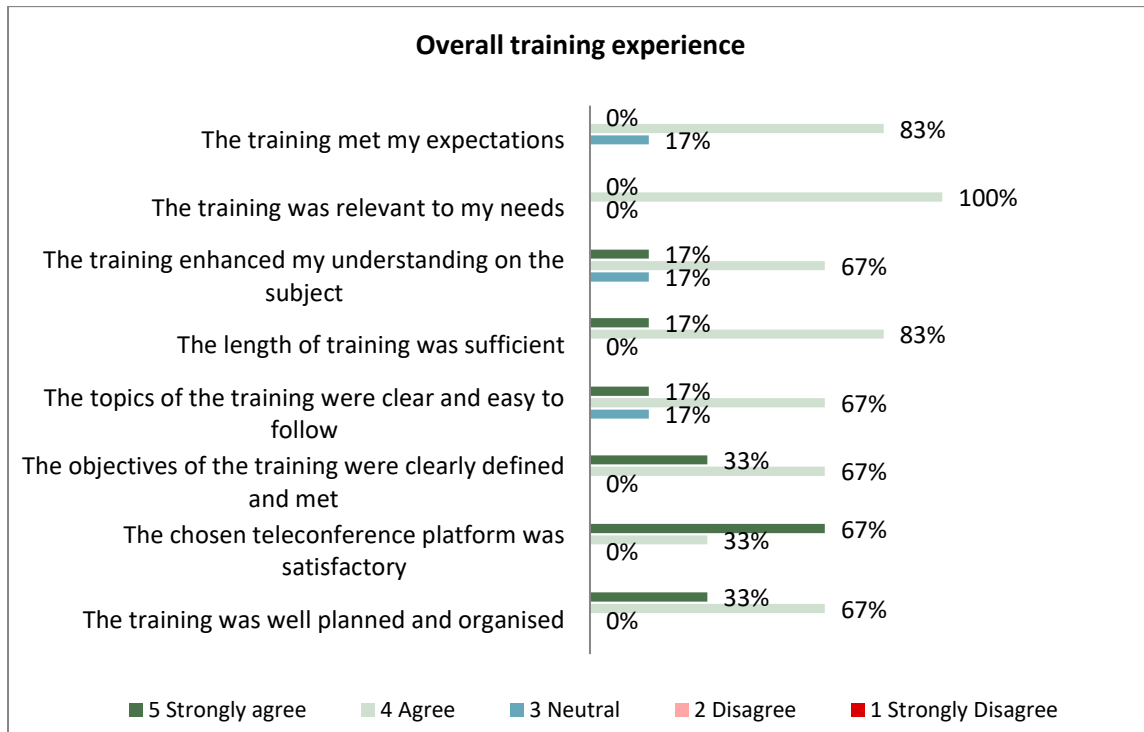


Figure 18: Analysis of responses on 1-5 scale for the Overall Training experience

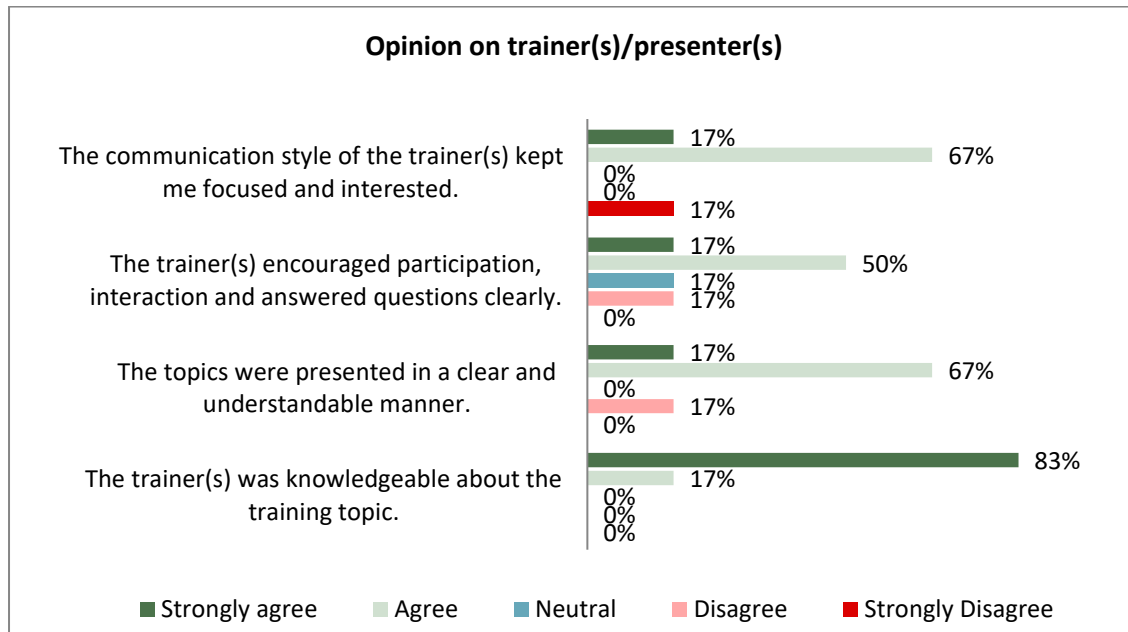


Figure 19: Analysis of responses on 1-5 scale for the opinion of the trainers/presenters



Figure 20: Analysis of responses on Yes-No scale for the appropriateness of the training according to the level of participants' experience

As we can see from the graphs, the number of responses “Strongly Agree” and “Agree” statement dominate over the other responses. All questions have received one Strongly Disagree statement.

The questions that received one Disagree statement are: “The topics were presented in a clear and understandable manner” and “The trainer(s) encouraged participation, interaction and answered questions clearly”. Also one Strongly Disagree statement has received the question: “The communication style of the trainer(s) kept me focused and interested”.

Also 4 out of 12 questions have received one Neutral response.

The questions with the lower weighted average (73%) were: “The trainer(s) encouraged participation, interaction and answered questions clearly” and “The communication style of the trainer(s) kept me focused and interested”, while the question with the highest weighted average (97%) was “The trainer(s) was knowledgeable about the training topic”.

3.3.1.2 Open ended questions

In this section of the questionnaire, participants were asked to write suggestions or opinions about any of the aspects covered in the other questions or about issues not yet analysed. It must be noted that the following analysis concerns specific responses received, since some questions were either remained unanswered or received a general response. The open-ended questions included the following:

Which topics were not covered or insufficiently covered, in your opinion?

The (specific) responses in this question are the following:

- *More practical implementations and examples would have been welcome*
- *RNN*

Which topics were not relevant in your opinion?

One response was received on this question, suggesting that some of the basic mathematical tools could have been skipped.

What did you like best about the training?

In this question we have received one answer stating that the best about the training was the theoretical background of the instructor.

What suggestions or comments do you have for making the program more effective?

The suggestions coming from one participant is the following:

- *Having training instead of teaching would be more helpful. Teachers need to know the tools, best practices in teaching, and course outline instead of theoretical material.*

3.3.2 Data Science (online, 15.03.2022 - 06.04.2022)

A questionnaire was prepared and was delivered to all the participants through Google Forms after the Data Science training course that was held online on March 15 to April 4, 2022, by the University of Granada (UGR), in the framework of WP7.

Responses were collected via Google Forms, between April 5th and April 25th 2022.

A total of 32 persons have registered in the course's training sessions. 17 persons have participated in the evaluation survey of the training, illustrated in Figure 21.

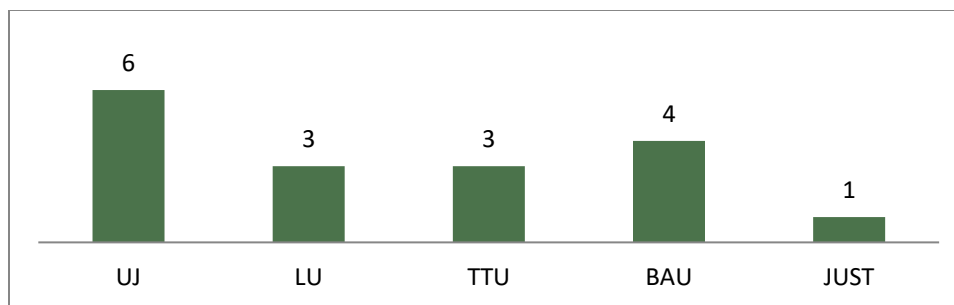


Figure 21: Number of surveys submitted (N=17)

The academic profile of the participants according to their responses is the following: 2 students, 2 Assistant Professors, 1 Professor and 12 teaching staff.

The responses given by the participants are analysed below.

3.3.2.1 Analysis of scaled questions

The responses received can be found below in Figures 22, 23 and Table 15. Most participants responded with a positive reply, marking the responses as Agree (45%) and Strongly Agree (35%) overall, for both sections, while a significant percentage (10%) is Neutral, 8% is Disagree and 2% Strongly Disagree.

On average there was 80% agreement with the statements of the 2 sections, above the appointed 70% threshold.

In the first section of questions, in the overall experience about training, the average agreement was 80%. The majority of the answers is Agree (46%) and Strongly Agree (35%), while 10% is Neutral, 7% is Disagree and 3% Strongly Disagree.

The lowest rating received was 71% (“Q5 - The length of training was sufficient) and the highest 85% (“Q6 – The training enhanced my understanding on the subject” and “Q7 - The training was relevant to my needs”).

In the second section of questions about the participants’ opinion of the trainers/presenters, the average agreement was 80% above the appointed 70% threshold. Response rates mostly at Agree (43%) and Strongly Agree (35%), while Neutral and Disagree responses were equal rated 10% and Strongly Disagree 1%.

The lowest rating received was 73% (“Q12- The communication style of the trainer(s) kept me focused and interested”) and the highest 86% (“Q11- The trainer(s) encouraged participation, interaction and answered questions clearly.”).

Finally, all participants agreed that the training was appropriate for their level of experience.

Table 15. Analysis of responses on 1-5 scale for the Training workshop

| | Count | 1-Strongly Disagree | 2- Disagree | 3- Neutral | 4- Agree | 5- Strongly agree | weighted average |
|--|-------|---------------------|-------------|------------|----------|-------------------|------------------|
| Section 1. Overall Training experience | | | | | | | |
| The training was well planned and organized. | 17 | 6% | 0% | 12% | 41% | 41% | 82% |
| The chosen teleconference platform was satisfactory. | 17 | 6% | 0% | 0% | 59% | 35% | 84% |
| The objectives of the training were clearly defined and met. | 17 | 6% | 0% | 12% | 41% | 41% | 82% |
| The topics of the training were clear and easy to follow. | 17 | 6% | 6% | 18% | 41% | 29% | 76% |

| | Count | 1-Strongly Disagree | 2- Disagree | 3- Neutral | 4- Agree | 5- Strongly agree | weighted average |
|--|-----------------|---------------------|-------------|------------|------------|-------------------|------------------|
| The length of training was sufficient. | 17 | 0% | 29% | 18% | 24% | 29% | 71% |
| The training enhanced my understanding on the subject. | 17 | 0% | 6% | 0% | 59% | 35% | 85% |
| The training was relevant to my needs. | 17 | 0% | 6% | 0% | 59% | 35% | 85% |
| Training met my expectations. | 17 | 0% | 12% | 18% | 41% | 29% | 78% |
| | Avg. 1 | 3% | 7% | 10% | 46% | 35% | 80% |
| Section 2. Opinion of the trainers/presenters | | | | | | | |
| The trainer(s) was knowledgeable about the training topic. | 17 | 6% | 0% | 6% | 41% | 47% | 85% |
| The topics were presented in a clear and understandable manner. | 17 | 0% | 12% | 12% | 59% | 18% | 76% |
| The trainer(s) encouraged participation, interaction and answered questions clearly. | 17 | 0% | 6% | 12% | 29% | 53% | 86% |
| The trainer's communication style kept me focused and interested. | 17 | 0% | 24% | 12% | 41% | 24% | 73% |
| | Avg. 2 | 1% | 10% | 10% | 43% | 35% | 80% |
| | Avg. 1,2 | 2% | 8% | 10% | 45% | 35% | 80% |

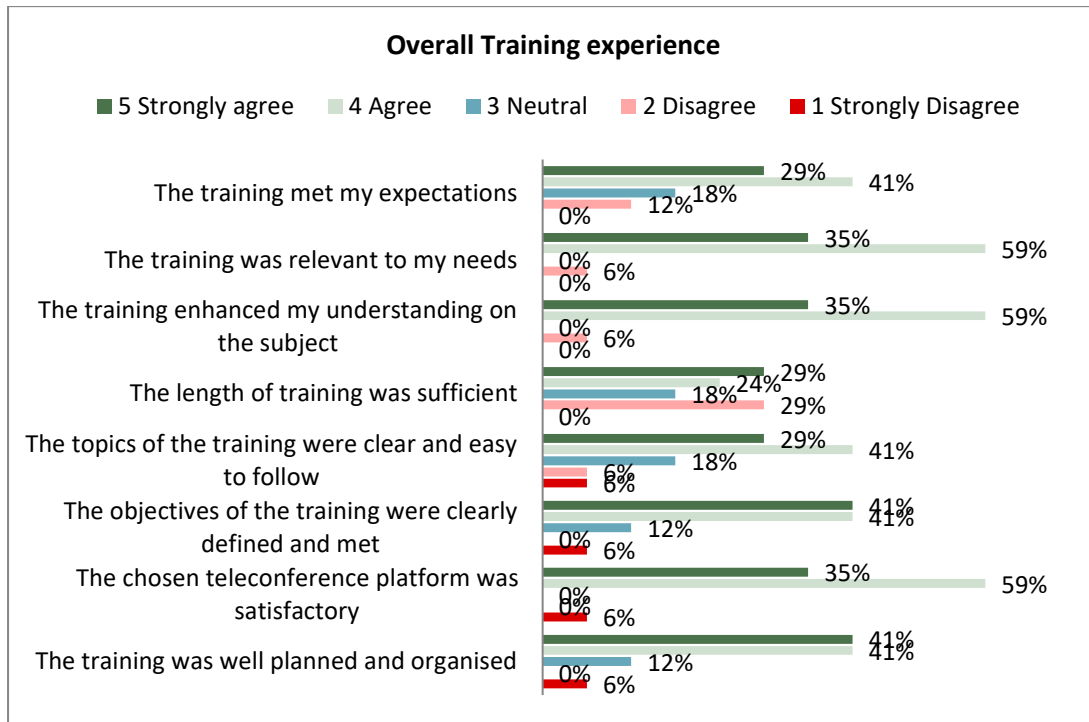


Figure 22: Analysis of responses on 1-5 scale for the Overall Training experience

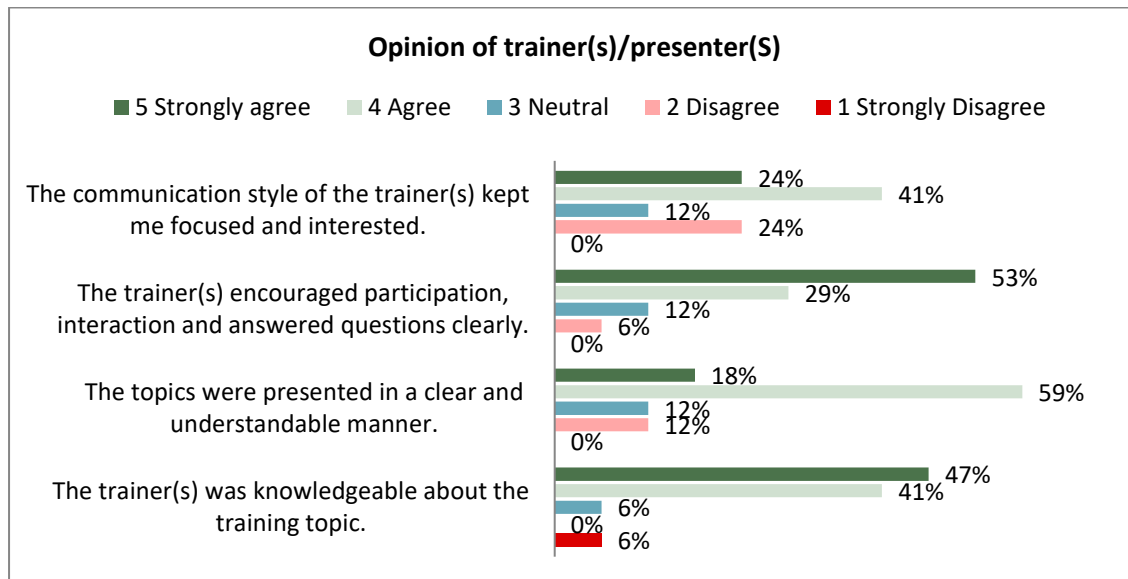


Figure 23: Analysis of responses on 1-5 scale for the opinion of the trainers/presenters

3.3.2.2 Open ended questions

In this section of the questionnaire, participants were asked to write suggestions or opinions about any of the aspects covered in the other questions or about issues not yet analysed. It must be noted that the following analysis concerns specific responses received, since some questions were either remained unanswered or received a general response. The open-ended questions included the following:

Which topics were not covered or insufficiently covered, in your opinion?

The (specific) answers in this question are the following:

- *KNIME*
- *Would have loved to use Python Libraries alongside BigML and Knime*
- *We all have background in Python. I think that the course should have been built around using Python and the related packages, instead of using tools on the Internet.*
- *Some focused implementations in Python (for ex) would have been nice.*

Which topics were not relevant in your opinion?

The one response received in this question stated that perhaps the practical part on BigML was too long without any added value.

What did you like best about the training?

In this question we have received the following answers:

- *PlotDB*
- *It was comprehensive and an eye-opener to many new techniques for me*
- *Demos of new available technologies.*
- *That it covered a broad spectrum of subjects.*
- *The application sessions*

What suggestions or comments do you have for making the program more effective?

The suggestions coming from 7 participants are the following:

- *We need to have the recording to refer to it in future.*
- *Physical training because it was very hard to follow what is shown on the screen due to the small screen.*
- *Some slides or graphs were in Spanish, would have been better to have them in English so that when we refer back to them we can understand the slide without going back to the video (self-contained). Also, Google Meet has a major downside for us using PCs and laptops as the presentation screen was too small and we could not see the bigML and Knime screens well and it made it hard for us to follow in real-time or read the menus. I would prefer that future sessions be conducted using Zoom as the presentation*

will be in full screen and much clearer.

- **1.** The course organization is very complex with multiple trainers and multiple session types. I think it is more useful to have simpler courses.
- **2.** Each session is too long. I prefer shorter virtual courses.
- **3.** The sessions were condensed in short period of time. The sessions should have been spread over longer period to enable us to study covered material and solve homework.
- **4.** I prefer shorter virtual courses.
- **5.** Provide the course material and recordings in a more timely fashion.
- Face to face training is more valuable than online. Training should be designed and delivered as a workshop for teachers about best practices of teaching such topics.
- Adding more research-oriented examples.
- Lessen the time of each training session, let it be 2 hours for example instead of 3 hours and a half, so that participants are able to restudy the material and prepare for next session. Especially that participants might have work and other duties. Also, it will be a good option to leave couple of days between each session.

3.3.3 Advanced Data Science (face to face & online, 23.05.2022 - 29.05.2022)

A questionnaire was prepared and was delivered to all the participants through Google Forms after the Advanced Data Science training that was held between May 23, 2022 and May 29, 2022 by the University of Granada (UGR) in the framework of WP7. The training workshop was specifically held for faculty members who attended from the University of Jordan (UJ), Jordan University of Science and Technology (JUST), Tafila Technical University (TTU), Beirut Arab University (BAU), and the Lebanese University (LE). The workshop was concurrently held online via Zoom to allow other faculty members to attend. The workshop focused on hands-on examples and some teaching strategies to transfer knowledge to students.

Responses were collected via Google Forms, between June 6th and June 13th 2022.

A total of 19 persons have participated in the training, 14 physical and 5 virtual. In the evaluation survey of the training, 14 have participated. This is illustrated in Figure 24.

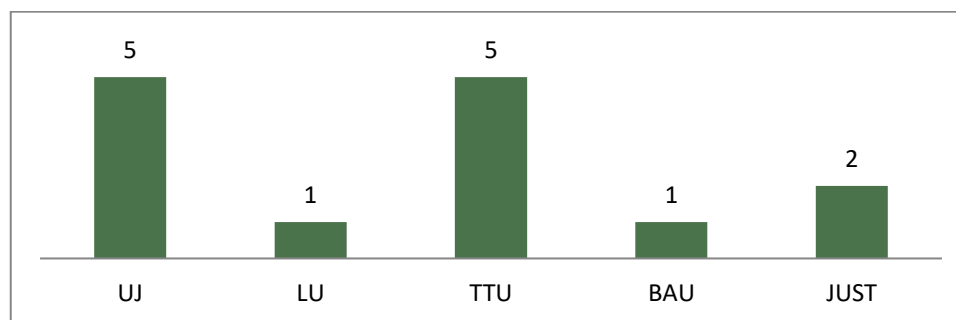


Figure 24: Number of surveys submitted (N=14)

The academic profile of the participants according to their responses is the following:

- 2 Associated Professors,
- 1 Professor and
- 11 teaching staff.

The responses given by the participants are analysed below.

3.3.3.1 Analysis of scaled questions

The responses received can be found below in Figures 25, 26 and Table 16. Most participants responded with a positive reply, marking the responses as Agree (47%) and Strongly Agree (46%) overall, for both sections, while a small percentage (7%) is Neutral. No question has received a negative response.

On average there was 88% agreement with the statements of the 2 sections, above the appointed 70% threshold.

In the first section of questions, in the overall experience about training, the average agreement was 88%. The majority of the answers is Agree (51%) and Strongly Agree (44%), while 5% is Neutral.

The lowest rating received was 80% (“Q5 - The length of training was sufficient”) and the highest 94% (“Q1 – The training was well planned and organised”).

In the second section of questions about the participants’ opinion of the trainers/presenters, the average agreement was also 88% above the appointed 70% threshold. Response rates mostly at Strongly Agree (50%) and Agree (39%), while 11% is Neutral.

The lowest rating received was 81% (“Q10- The topics were presented in a clear and understandable manner”) and the highest 93% (“Q9- The trainer(s) was knowledgeable about the training topic.”).

Finally, all participants agreed that the training was appropriate for their level of experience.

Table 16. Analysis of responses on 1-5 scale for the Training workshop

| | Count | 1-Strongly Disagree | 2- Disagree | 3- Neutral | 4- Agree | 5- Strongly agree | weighted average |
|--|-------|---------------------|-------------|------------|----------|-------------------|------------------|
| Section 1. Overall Training experience | | | | | | | |
| The training was well planned and organized. | 14 | 0% | 0% | 0% | 29% | 71% | 94% |
| The workshop's location/ venue/ platform was satisfactory. | 14 | 0% | 0% | 14% | 29% | 57% | 89% |

| | Count | 1-Strongly Disagree | 2- Disagree | 3- Neutral | 4- Agree | 5- Strongly agree | weighted average |
|--|-----------------|---------------------|-------------|------------|------------|-------------------|------------------|
| The objectives of the training were clearly defined and met. | 14 | 0% | 0% | 0% | 36% | 64% | 93% |
| The topics of the training were clear and easy to follow. | 14 | 0% | 0% | 0% | 64% | 36% | 87% |
| The length of training was sufficient. | 14 | 0% | 0% | 29% | 43% | 29% | 80% |
| The training enhanced my understanding on the subject. | 14 | 0% | 0% | 0% | 64% | 36% | 87% |
| The training was relevant to my needs. | 14 | 0% | 0% | 0% | 64% | 36% | 87% |
| Training met my expectations. | 14 | 0% | 0% | 0% | 79% | 21% | 84% |
| | Avg. 1 | 0% | 0% | 5% | 51% | 44% | 88% |
| Section 2. Opinion of the trainers/presenters | | | | | | | |
| The trainer(s) was knowledgeable about the training topic. | 14 | 0% | 0% | 0% | 36% | 64% | 93% |
| The topics were presented in a clear and understandable manner. | 14 | 0% | 0% | 14% | 64% | 21% | 81% |
| The trainer(s) encouraged participation, interaction and answered questions clearly. | 14 | 0% | 0% | 14% | 29% | 57% | 89% |
| The trainer's communication style kept me focused and interested. | 14 | 0% | 0% | 14% | 29% | 57% | 89% |
| | Avg. 2 | 0% | 0% | 11% | 39% | 50% | 88% |
| | Avg. 1,2 | 0% | 0% | 7% | 47% | 46% | 88% |

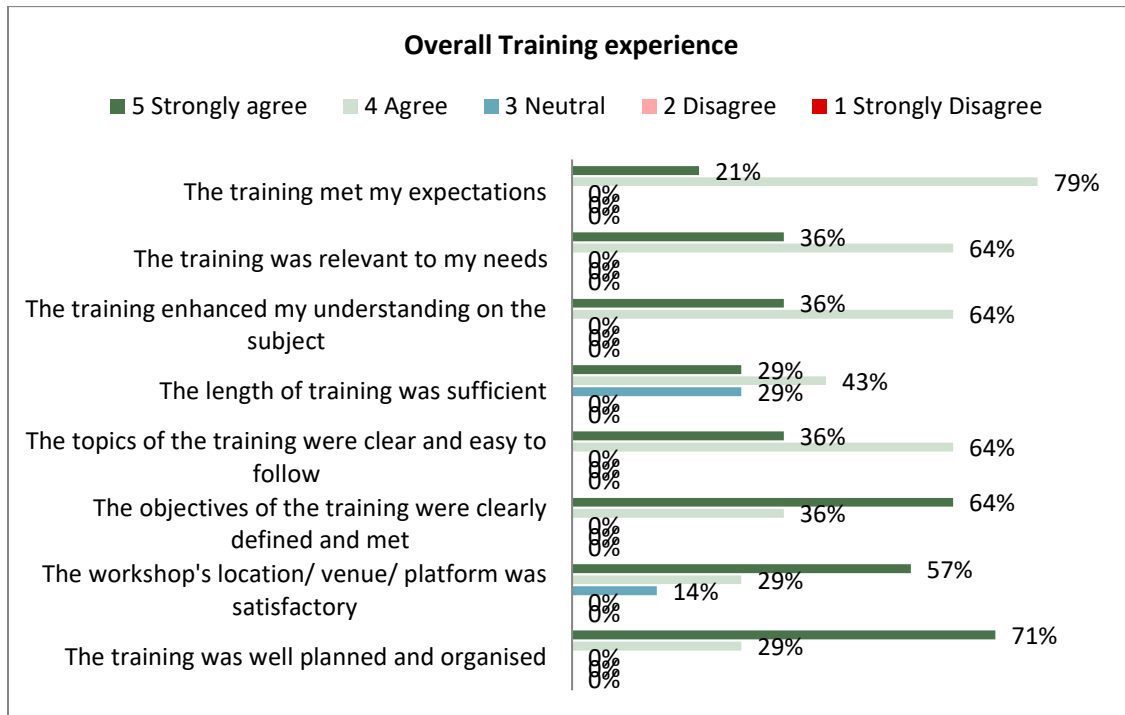


Figure 25: Analysis of responses on 1-5 scale for the Overall Training experience

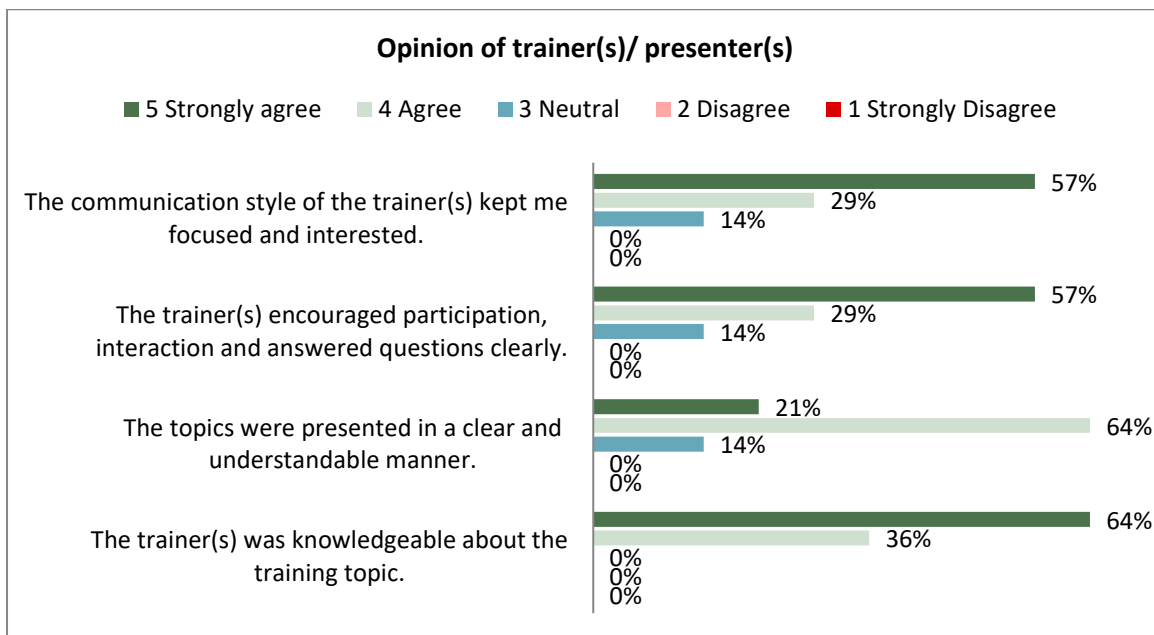


Figure 26: Analysis of responses on 1-5 scale for the opinion of the trainers/presenters

3.3.3.2 Open ended questions

In this section of the questionnaire, participants were asked to write suggestions or opinions about any of the aspects covered in the other questions or about issues not yet analysed. It must be noted that the following analysis concerns specific responses received, since some questions were either remained unanswered or received a general response. The open-ended questions included the following:

Which topics were not covered or insufficiently covered, in your opinion?

The (specific) answers in this question are the following:

- *Writing code and good explanation of the code*
- *Perhaps some practical applications to image processing using ML*
- *Data analytics*
- *Practical problems*

Which topics were not relevant in your opinion?

There were no responses received in this question.

What did you like best about the training?

In this question we have received the following answers:

- *The Jupyter and Collab files used in the training were professionally done*
- *Multiple examples*
- *The organization of the teaching material*
- *The fact that it involved practical implementations using Python*
- *Giving both theory and practice*
- *Expert trainers*
- *The chosen topics*
- *The organization of the training*

What suggestions or comments do you have for making the program more effective?

The suggestions coming from 7 participants are the following:

- *Some jupyter files had minor mistakes, this has taken few minutes to fix at times.*
- *Extend the coding time.*
- *Focusing on the basics and fundamentals which are more relevant to bachelor students. increasing the allocated time for practice.*
- *Select a less noisy room.*

- *More time for practice.*
- *Using better equipments for the online part.*
- *More hands on experience are required. Maybe a mini project at the end would be a good idea.*

3.4 Event Evaluation

All Events/workshops undergo an internal evaluation process by the participants. After the end of the event, each participant is asked to rate the event in a questionnaire (using hardcopies or Google Forms).

The standard questionnaire used for these surveys consists of 7 closed questions as well as an open question where participants are asked to provide their suggestions regarding improvements that should be implemented. Room for additional suggestions or feedback was also made available.

At the beginning of the questionnaire respondents are asked to declare their organisation, for the purpose of ascertaining partner participation.

Nevertheless, some questions may be adjusted to the type, topic and scope of each event.

3.4.1 Workshop event in Beirut (hybrid, 2 March 2022)

In the framework of the WP11 a hybrid workshop event was organized on 2 March 2022 at the premises of the Beirut Arab University in Lebanon. Totally 62 participated online while 40 in person.

9 responses were received. Responses were collected via Google Forms, between March 2nd and March 21st 2022. The participation is illustrated in Figure 27.

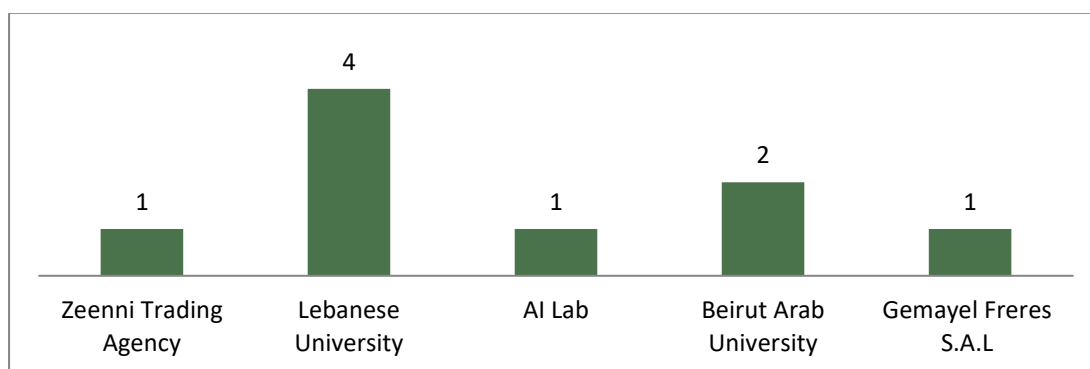


Figure 27: Number of surveys submitted (N=9)

3.4.1.1 Analysis of scaled questions

The responses received can be found below in Figure 28, 29, 30 and Table 17.

The majority of participants responded with a positive reply, marking the responses as Excellent (65%), and Good (33%), well above the appointed 70% threshold, suggesting that participants were overall satisfied with the effectiveness of the event.

Only one question received an “Average” response by one participant. This questions is: “What did you think on the event duration”. No question has received negative responses.

Table 17. Analysis of responses on 1-5 scale for the 1st workshop event

| | Questions | Count | Poor | Fair | Average | Good | Excellent | Total | weighted average |
|--------------------------|---|-------|------|-----------|-----------|-----------|------------|------------|------------------|
| Overall event experience | How would you rate the event? | 9 | 0% | 0% | 0% | 44% | 56% | 100% | 91% |
| | How would you rate the event’s location/venue/platform? | 9 | 0% | 0% | 0% | 22% | 78% | 100% | 96% |
| | How would you rate the speeches/presentations? | 9 | 0% | 0% | 0% | 33% | 67% | 100% | 93% |
| | What did you think of the event duration? | 9 | 0% | 0% | 11% | 44% | 44% | 100% | 86% |
| | How useful was the event to you? | 9 | 0% | 0% | 0% | 22% | 78% | 100% | 96% |
| | Average | | | 0% | 0% | 2% | 33% | 65% | 100% |

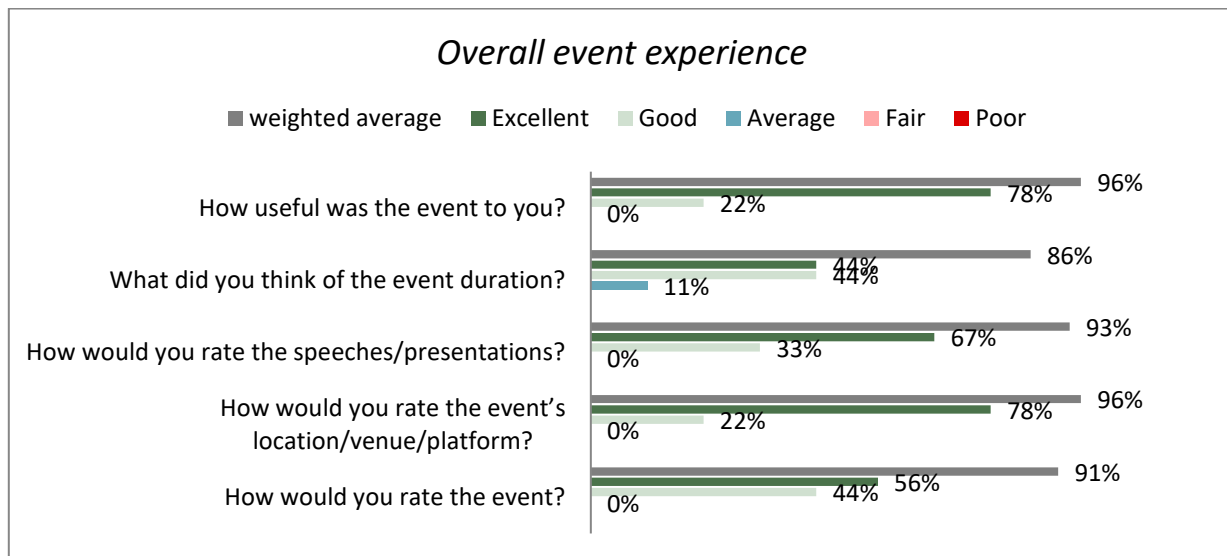


Figure 28: Analysis of responses on 1-5 scale for the Overall event experience

3.4.1.2 Analysis of open and closed questions

Q6. What did you like most about the event? (closed question)

Participants had to choose among the three presented sessions: Session 1: Academia- Industry Collaboration Best Practices, Session 2: Curricula Enhancement and Session 3: Round table: Towards a sustainable Academia- Industry Collaboration.

8 participants answered that they liked Session 1 most.

One participant stated that he/she liked all sessions.

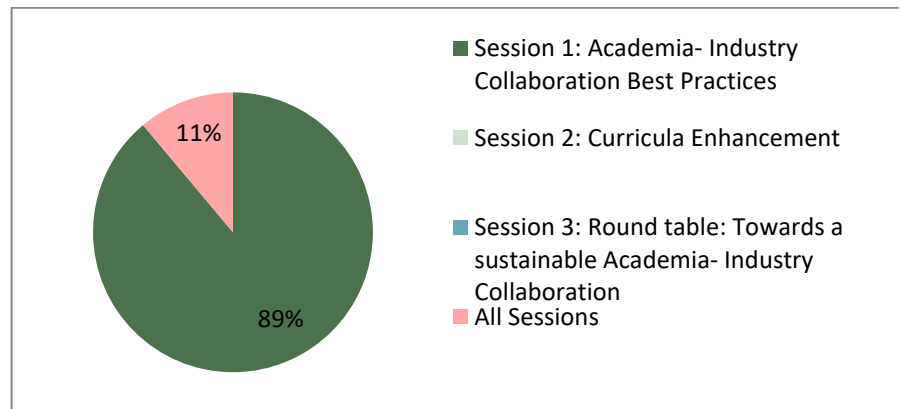


Figure 29: Analysis of responses for the Session they liked most

Q7. What do you think can be improved? (open question)

Three answers were received:

- *Create a committee between both parts*
- *Make the presentations shorter*
- *Give more details about needs from industrials*

Q8. Which topic(s) would you like to see covered more? (closed question)

- Session 1 received 2 responses
- Session 2 received 1 response
- Session 3 received 7 responses

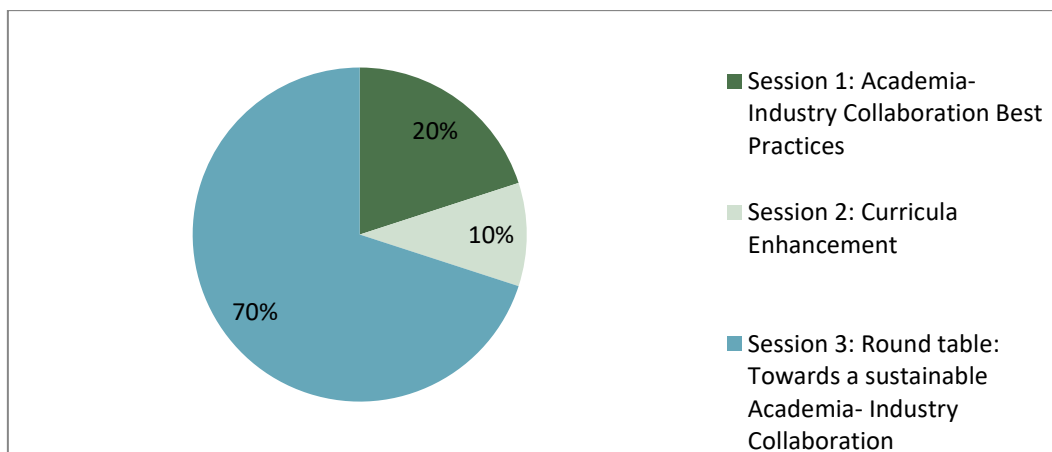


Figure 30: Analysis of responses for the session that needed to be covered more

No suggestions regarding aspects of the event that could be improved were received.

3.4.2 Workshop event (hybrid, 31 March 2022)

In the framework of the WP11 a workshop was held on 31 March 2022, in hybrid mode with a total of 54 participants; 30 online and 24 physically at the premises of the Prince Al Hussein Bin Abdullah II School of International Studies organised by the University of Jordan.

The title of the workshop was “Establishing and Reinforcing the Collaboration between Industry and Academia”. It gathered experts in this area from industry and agencies in order to discuss the challenges, risks and opportunities related to industry-academia collaboration. These issues were presented and discussed during the workshop in three keynote speeches and a panel discussion. The outcome of the workshop is expected to be a set of guidelines that can facilitate and empower this collaboration.

8 responses were received. Responses were collected via Google Forms, between April 7th and April 17th 2022. The participation is illustrated in Figure 31.

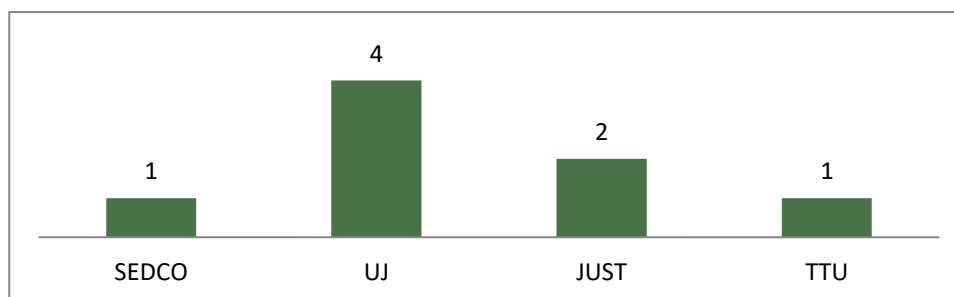


Figure 31: Number of surveys submitted (N=8)

3.4.2.1 Analysis of scaled questions

The responses received can be found below in Figure 32, 33, 34 and Table 18.

The majority of participants responded with a positive reply, marking the responses as Excellent (40%), and Good (48%), well above the appointed 70% threshold, suggesting that participants were overall satisfied with the effectiveness of the event.

All questions received one “Average” response. No question has received negative responses.

Table 18. Analysis of responses on 1-5 scale for the 2nd workshop event

| Questions | | Count | Poor | Fair | Average | Good | Excellent | Total | weighted average |
|--------------------------|---|-------|-----------|-----------|------------|------------|------------|-------------|------------------|
| Overall event experience | How would you rate the event? | 8 | 0% | 0% | 13% | 13% | 75% | 100% | 93% |
| | How would you rate the event's location/venue/platform? | 8 | 0% | 0% | 13% | 25% | 63% | 100% | 91% |
| | How would you rate the speeches/presentations? | 8 | 0% | 0% | 13% | 75% | 13% | 100% | 81% |
| | What did you think of the event duration? | 8 | 0% | 0% | 13% | 50% | 38% | 100% | 86% |
| | How useful was the event to you? | 8 | 0% | 0% | 13% | 75% | 13% | 100% | 81% |
| Average | | | 0% | 0% | 13% | 48% | 40% | 100% | 86% |

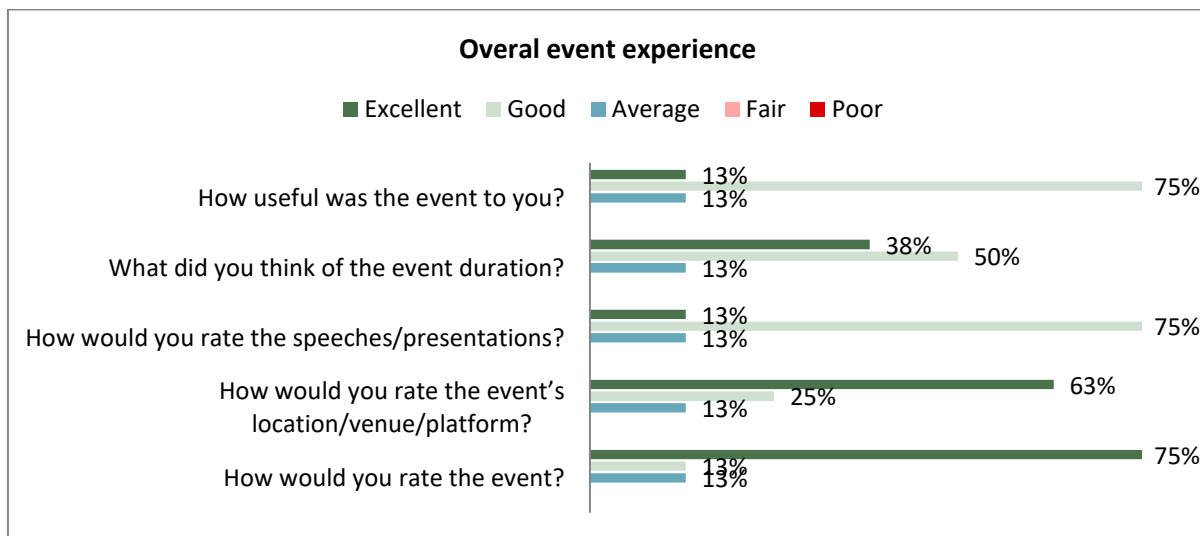


Figure 32: Analysis of responses on 1-5 scale for the Overall event experience

3.4.2.2 Analysis of open and closed questions

Q6. What did you like most about the event? (closed question)

Participants had to choose among the three presented sessions and the Panel Discussion:

- Session 1: Soft Robotics Technologies from Labs to the Real World
- Session 2: Skilling for Employability, Opportunities and Challenges
- Session 3: Linking Academic Institutes with Industrial Sectors
- Panel Discussion: Towards Sustainable Academia-Industry Collaboration

3 participants stated that they liked Session 1 most.

1 participant answered that he/she liked Session 2 most.

While 4 participants stated that he/she liked all sessions.

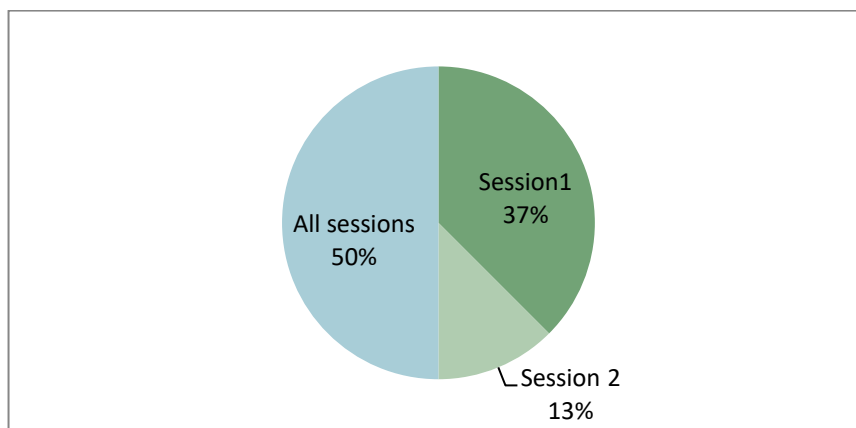


Figure 33: Analysis of responses for the Session they liked most

Q7. What do you think can be improved? (open question)

These answers were received:

- *I would like to see more practical examples of matching the Industry needs with the available resources, private sector representatives can share success and failure stories and what they believe can be done to improve the match between market needs and new graduates.*
- *I would also encourage the exploration of the idea of how the Industry and the Universities can benefit from the utilization of undergraduates during their final 2 years, like outsourcing research and development projects, fostering graduation projects.*
- *more partners from industry to be involved*
- *involving higher participation from stakeholders*

- *remote sessions to be replaced by physical sessions*
- *cooperation between academy and industry*

Q8. Which topic(s) would you like to see covered more? (closed question)

- Session 1 received 3 responses
- Session 2 received 1 response
- Session 3 received 4 responses
- Panel Discussion received 3 responses

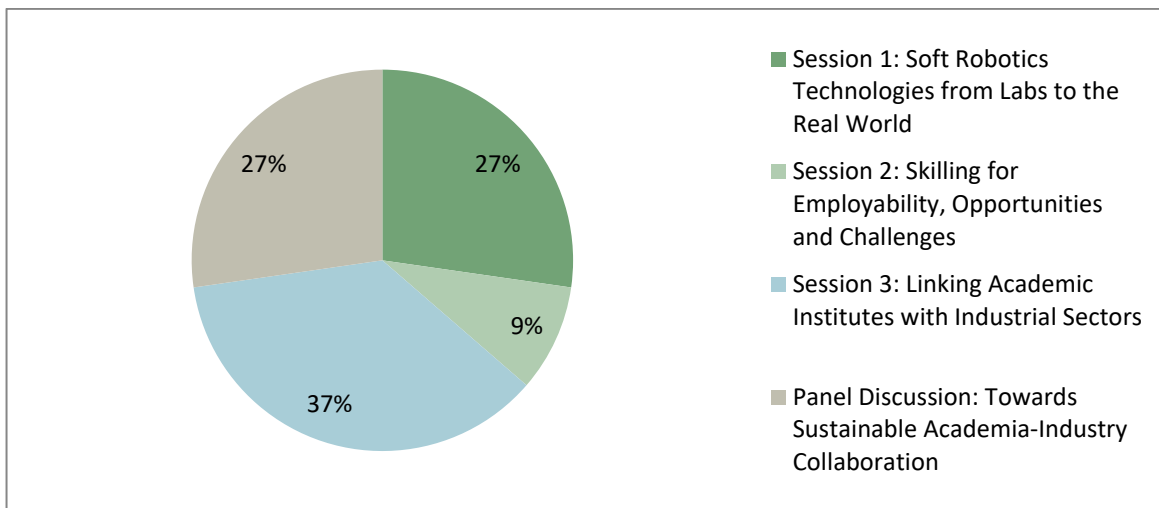


Figure 34: Analysis of responses on 1-5 scale for the Overall event experience

One suggestion regarding aspects of the event that could be improved was received stating that the consortium is doing great work that can be funded by proper sponsors so it is needed marketing management in the DeCAIR project.

4 Conclusions

The quality control measures that were taken during this semester aimed at the effectiveness of management and communication among the partnership and the timely accomplishment of its milestones and the effective budget control; this was achieved using quality assurance at two levels: quality of deliverables and quality of processes.

Overall, according to the project quality assurance measures taken and the evaluations performed in terms of quality control, it is considered that the third 6-months period of the project has been implemented according to the project plan and objectives, and the production of concrete and high-quality results in line with the project objectives has been ensured through the implementation of quality assurance and control interventions.

During the 3rd semester the following evaluations took place:

- 1st year Internal evaluation (internal satisfaction survey)
- 10th Steering Committee meeting in Genoa (internal satisfaction survey)
- Syllabus evaluation
- 3 Trainings evaluation (external satisfaction survey)
 - Introduction to Machine Learning
 - Data Science
 - Advanced Data Science
- 2 Events evaluation (external satisfaction survey)

For all evaluations detailed reports containing the analyses of results and responses have been promptly made available to all partners in order to facilitate exchange of views and obtaining feedback on issues raised.

Overall, the results of the analysis of the 1st year project evaluation show a perception of a very good partnership and project coordination among the partners. Partners rated with very high grades the questions. Some issues that need attention and need to be approved are the following:

- Responsibilities of each partner to be clearly stated.
- Communication among partners to be further improved.
- Development of a strategy to achieve better engagement of stakeholders.
- Measures to be taken regarding the delays of some project activities.

The results of the 10th SC meeting have been mostly satisfactory. The positive effects of the start of face-to-face meetings have obvious given to the partnership more confidence in the success of the project, something that is evident in their responses in the post-meeting questionnaire and the internal evaluation questionnaire.

Moreover, the Courses Syllabus has been successfully reviewed and approved in two phases, by a peer reviewer from the same university offering the course and by a reviewer from a European University. After the reviews

the necessary corrections have been made by the main author of the Syllabus.

In total national accreditation in the universities of Jordan and in Lebanon got 1 new Master's program, 1 new Bachelor program, 5 existing Master's programs and 6 existing Bachelor programs.

Finally, 3 training workshops and 2 dissemination events have been evaluated by the participants using a satisfaction surveys. Reports about the surveys are included in each training report in this document. Minor issues were reported and were adequately discussed and dealt with by the Project Coordinator, with the assistance of the Quality Committee and the responsible partners of the trainings.

5 ANNEXES

5.1 Annex I. Syllabus Evaluation

Syllabus Evaluation (peer review by partners' institutions)

Course Title & No: _____

HEI offering the course: _____

Please give us your evaluation by answering this questionnaire. Your feedback is very valuable in view of the further project progress and performance.

Rate each question on a 1 (Poor) to 5 (Excellent) scale. Mark only one per row. If you give 1 or 2, please explain why and if it is possible give some advice, using the Comment lines.

Thank you for your valuable time.

| | 1-Poor | 2 | 3 | 4 | 5-Excellent |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Course Overview | | | | | |
| Description of the course is clear and comprehensive. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Expectations for prerequisite knowledge in the discipline and/or any required competencies are clearly stated. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Course credits have been assigned that reflect the hours scheduled for the course. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: | | | | | |
| Learning Objectives & Outcomes | | | | | |
| The learning objectives and outcomes stated are suitable for the level of the course. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| The learning outcomes are measurable and consistent with the program-level objectives. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| The learning objectives and outcomes are clearly articulated and use specific action verbs. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: | | | | | |
| Teaching & Learning Methods | | | | | |
| The teaching and learning methods are clearly defined and appropriate for this level of course. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| The teaching, learning methods and objectives are aligned. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| The teaching and learning methods promote the achievement of the stated learning objectives and outcomes. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| The teaching and learning methods promotes actively engage students. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments: | | | | | |
| Resources & Materials | | | | | |
| The resources and materials are appropriate for this level of the course. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| The resources and materials contribute to the achievement of the stated learning objectives and outcomes. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

The resources and materials stated are in sufficient variety of topics and formats.

The resources and materials represent up-to-date theory and practice in the discipline.

Comments:

Schedule

The course schedule is clearly defined and logically sequenced.

The amount of time needed to complete this course is appropriate for this content.

The course schedule is aligned to the Intended learning Outcome (ILO).

The course schedule is aligned to the resources.

Comments:

Learning Assessments

The learning outcomes and assessments are aligned.

Major summative assessment activities are clearly defined.

Assessments are adequately paced and staged.

The course grading policy is clearly stated.

Weighting of exams and projects is clearly defined.

Comments:

Course Policies

| | | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| The course policies are clearly stated and consistent with HEI guidelines. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Policies for missed exams and/or assignments are clearly addressed. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Attendance requirements policies are clearly articulated. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Lab policies are clearly defined (if appropriate). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Rights and responsibilities of both students and faculty are clearly defined. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Comments:

Overall Overview

| | | | | | |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Syllabus communicates high expectations and describes value of course. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Syllabus is well organized, easy to navigate, requires interaction. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Format of the syllabus is clear and consistent throughout. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| The syllabus is free of spelling and grammatical errors. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Comments:

Strengths of the course:

Weaknesses of the course:

Comments and suggestions for improvement:

Any further comment:

Date:

Your name:

Your organization: