

# MATERIART

Art and Science of Materiality in Architectural Design Education

ERASMUS+ KA-203 Strategic Partnership in Higher Education Project

"MATERIART: The Art and Science of Materiality in Architectural Design Education"

## PROJECT REPORT

### O3 - MATERIART OPEN COURSE MODULE



UNIVERSITY OF  
THESSALY

SAPIENZA  
UNIVERSITÀ DI ROMA



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## PROJECT INFORMATION

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Project coordinators:	Prof. Dr. Nur Çağlar, Dr. Işıl Ruhi-Sipahioğlu, Günsu Merin Abbas
Project email address:	<a href="mailto:info@materiart.org">info@materiart.org</a>
Partner organizations:	Eindhoven University of Technology (TU/e) Istanbul Technical University (ITU) Sapienza Università di Roma (UNIROMA1) University of Thessaly (UTH) Universidade de Lisboa (ULISBOA) - FAUL
Project team:	Nur Çağlar, Işıl Ruhi-Sipahioğlu, Günsu Merin Abbas, Burçin Yılmaz, Selda Bancı, Sibel Acar, Murat Sönmez (TOBB ETU)  Juliette Bekkering, Irene Curulli, Sjef van Hoof (TU/e)  Leman Figen Gül, Mine Özkar, Elif Sezen Yağmur Kilimci (ITU)  Spartaco Paris (UNIROMA1)  Vaso Trova, Iris Lykourioti (UTH)  Manuel Couceiro da Costa, Nuno Mateus, Jorge Mealha, Sergio Proença (ULISBOA – FAUL)

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## 1. INTRODUCTION

### 1.1. Output Description

MATERIART Open Course Module (O3) is established as an internationally accredited short-term transnational learning module compatible with European universities. All student participants, who have completed one of the MATERIART International Intensive Studios in Architectural Design (ISAD/workshop) are given 3 ECTS that are registered to their transcripts. MATERIART Open Course Module encouraged universities to organize and students to attend such short term activities.

### 1.2. Guide to Reading Document

This report aims to map a detailed framework of the Open Course Module that was developed during MATERIART project. Depending on the institutional collaboration and the educational focus, the coursework, workload, ECTS, studio contents, and pedagogical strategies are subject to change.

This report could be regarded as:

- **a guide** for implementing a similar Open Course Module as a method in the existing curricula, and
- **documentation** of the three-year process of developing an international module through its contents, focus, structure and implementation.
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### 1.3. Setting the Scene

Tectonics, ways of doing, and architectural thinking has been encountered technical, aesthetic and cultural implications of the emerging digital technologies, communication technologies, and new materialities. Architectural practices in all the fields of the discipline are thus in a reformation process.

There are a number of issues in architectural education in terms of tutoring methods, capacity, the stagnant/conventional curriculum, which hampers architecture practices to absorb the transformation as a result of new ways of thinking and making architecture. The identified problems are as follows:

- Departmental curricula in a fixed program of studies that do not employ the latest pedagogical theories,
- Lack of technological infrastructure,
- Impossibility to educate an all-knowing student for the diversity of architectural practices,
- Lack of faculty members having pedagogical competences. Architecture is a growing profession in Europe; the number of architects in Europe has increased by 4% since 2014 (ACE Report, 2016). A number of architecture schools have grown vastly over the last 15 years,
- Lack of innovative approaches in studio teaching: Few professional practitioners tutoring studios innovate pedagogical approaches to studio models. Most rely on a more conventional and didactic system and take no notice of pedagogical improvements; the quality of their tutoring depends on their own experiences, awareness and abilities. At architecture schools, not all

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academicians tutor studios, including those from various sub-disciplines of the field, such as theory, history, fields of building technologies. Up-to-date researches do not thus fuse into a studio setting. There is a weakness in fostering knowledge triangle to work in the field of education, and

- Lack of transnational and multicultural communication during the formal education period.

Architecture is a discipline that is enriched and nourished by diverse cultures, attitudes and geographies. Accordingly, such discipline requires **transnational effort, intense communication and knowledge sharing via borderless platforms** for both learners and tutors to sustain its dynamic and fertile ground both for the academia and for the practice.

Architecture has strong linkages between education, research and profession on an international level via a number of institutions such as ACE, UIA and EAAE. However, due to economic, geographical, procedural, and time-related limitations, learners and tutors may not have an opportunity to be a part of these institutions. Such potential limitations may hinder the intercultural and civic competences of students and internationalization of HEIs. At this point, architectural education/curriculum shall offer transnational and multicultural peer communication to both tutors and learners. At this stage, the MATERIART Open Course Module was developed to fill this gap.

MATERIART seeks a method to adapt existing architectural curricula to the transformation in the field. In three-years project period, the project team aimed at developing alternative and experimental design studio models that were built upon various tutoring strategies in which both conventional and digital tools are integrated. The implemented studio strategies were expected to foster integrative skills in up-to-date architectural design methods and to raise awareness of the professional role of the architect during the age of transformation. MATERIART regards architectural design studio as the backbone of the design education, and it is the most flexible ground to absorb such experimentality and transformation. Architectural design studios hold a substantial innovation potential to enhance the relevance, quality, and impact of architectural design education/research in terms of handling the transformations in practices interacting with the discipline. Here, short-term international architectural design studios which are implemented globally by MATERIART Open Course Module provided a great potential to become incubators for developing innovative and multicultural and transnational learning model for that shapes the architects of future, who are in need to be aware of the current crisis that the humanity is facing through.

The earth and humanity are in the age of crisis: both environmental and economic. Architecture as a profession has a drastic responsibility for such mentioned crisis, which makes the discipline to re-think about itself. Here, architecture as a profession which is supra-cultural must be globally interconnected. The communication between professionals and prospective professionals is extremely crucial at this point. The global collaborative processes could be one of the critical components that could develop a mutual solution for the future of the profession and the future of our earth. It is vital to develop a ground that enables global collaboration, and the field of architectural education must be in the first place that could foster the change and transformation. At this stage, there is a need to develop a transferable and globally acceptable module that could engage the existing stagnant architectural design curriculum with the transformation in the field that requires a certain level of awareness of the responsibility of the profession. Accordingly, MATERIART with O3 Open Course Module aimed at developing such transferable

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and globally acceptable module, which fosters inter-institutional communication and multi-layered collaboration.

In three-years project implementation, MATERIART Open Course Module

- integrated alternative and experimental ISADs,
- integrated new tutoring strategies that foster developing digital design skills and awareness on existing urban/architectural problems (due to environmental crisis, overpopulation, deforestation, scarcity and dearth),
- targeted to raise awareness on the responsibility of the architect as a professional figure.

## 2. IMPLEMENTATION

### 2.1. Structure

MATERIART Open Course Module highlighting the significance of the inter-institutional engagement during the process, substituted/substitutes for one of the elective courses with 3 ECTS in the curriculum. Each ISAD covered approximately

- 20 hours of theoretical subjects to be taught (lectures, keynotes, seminars)
- 20 hours of practical work (studio hours-hands-on work)
- 20 hours of self-study (literature research, readings, site-study)
- 20 hours of group tuition (discussions & consultation of roving critics, presentations, site excursions)

TOTAL: 80 hours = 3 ECTS

With this module, the institutions accept the equivalency of the coursework, which fulfils the requirements for 3 ECTS workload. Institutions are free to convert the given credits into their credit and grading system. During the project implementation, TOBB ETU has already such an elective course implemented as an international module (MIM 321) in the curriculum. Accordingly, no problem was encountered in adding this course within the list of electives which students naturally choose and register according to their field of interest, as all the partnering institutions have already electives in their curriculum.

The students are expected to inform their institutions about their Open Course Module attendance. For the declaration, the studio tutors and the host institution officialize the attendance of the students with deliverables as follows:

- a certificate of attendance with the signature of the head and stamp of the host institution (Appendix A),
- a certificate showing the student's level of success in the studio (Appendix B).

**European Credit Transfer and Accumulation System (ECTS):** The European Credit Transfer and Accumulation System (ECTS) is established within the scope of the Bologna Process, which makes higher-educational institutions (HEI), courses and studies comparable, compatible and transparent

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internationally. ECTS is designed to facilitate student mobility and brought a recognition of the academic qualifications that are gained during the abroad study periods in HEIs. ECTS improves flexibility and plurality in HEIs and students by increasing a possibility for blending different learning styles of different HEIs, including formal and non-formal learning, and work-based learning. ECTS credited each course (such as a studio, a lecture-based course, or an internship) based on "the workload and defined learning outcomes."

60 ECTS credits are equal to a full year study/work:

- A first cycle (Bachelor's) degree is 180 or 240 credits;
- A second cycle (Master's) degree is 90 or 120 credits;
- Third cycle (PhD) degree varies in the number of ECTS.

Here, MATERIART Open Course Module presents a compatible, transparent and transferable learning model to the architectural design education, which is infrastructured by The European Credit Transfer and Accumulation System.

## 2.2. Pilot Implementation

The pilot implementation was performed within the three-years of project duration. Three international short-term studios were planned. However, due to COVID-19 outbreak, the first two planned were implemented. The first one is hosted by TOBB ETU (Ankara, TR), while the second one is hosted by FAUL (Lisbon, PT), with the attendance of over 100 students and 30 tutors.

Open Course Module cannot be considered isolated from the structure and running of the short-term studios. Spreading the activity call, student/tutor selection, content preparation and managerial works (retrieving the studio briefs, particular requirements of the studios like the need of the space and materials, schedules, daily group and individual activities) were the significant phases that require coordination of the host and the coordinator institution. Such work items were also crucial to grasp the equivalency of the workload in each studio to be fair to the students, to arrange group activities, and control the plurality and richness in the content and tutoring methods that are offered.

### 2.2.1. Focus

Each short-term studio was planned to focus on a theme, as also declared during the project application, that stresses the current challenges in architecture. The first one is the *Figure* which focused on the architect and architecture as a figure, while the second is the *Deck* focused on the contextualization. The third is the *Habitus*, which was planned to focus on the urban character of the place.

Each studio group were free to structure their way of understanding, tutoring method, studio activities and the design outputs. Such a free ground enabled tutors and students to express themselves as they would like to, which supported the experience and experimental aspects of such studio processes.

### 2.2.2. Preparation Process

The preparation process requires an inter-institutional effort and collaboration. There are a number of phases that were followed during MATERIART Open Course Implementation as performed for (1) the organization of the incoming students, and (2) the organization of the event (Figure 1).

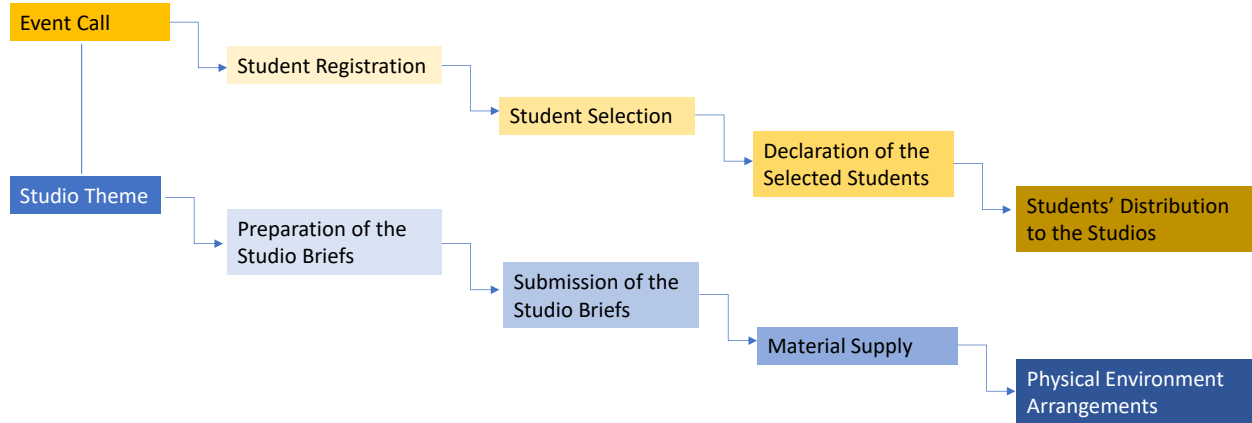


Figure 1: MATERIART Open Course Module-Implementation Phases

#### (1) The Organisation of the Incoming Students

**Event Call:** Each partner institution launches a call for the application that directs students to a page that TOBB ETU generated on the MATERIART Online Platform (O2) to collect the applications. The calls are published on the institutional websites, MATERIART's social media accounts and also via the posters on the bulletin boards (Figure 2).

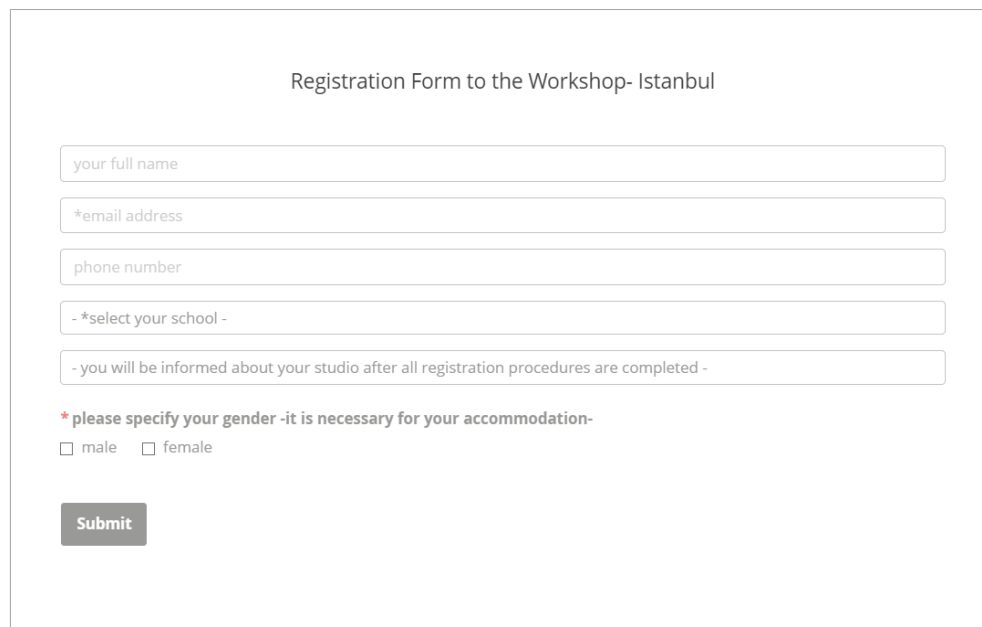


Figure 2: MATERIART ISAD Posters

The calls indicate the application criteria that student participants are required to fulfil as follows:

- architecture students from all grades except first grades of the first cycle of partner HEIs;
- the students' English proficiency, at least B1 level, scores from TOEFL, IELTS, or other exams approved by the partner schools are acceptable;
- the students' Grade Point Average (GPA), at least 70 (based on 100 scale).

**Student Registration:** Students register their application via a page on the MATERIART Online Platform (Figure 3).



*Figure 3: Sample Student Registration Form in MATERIART Open Platform*

**Student Selection:** Following the application deadline, the final registration list is shared with the Research and Teaching Team (WT RT), and the participants are selected through an assessment procedure.

WT RT prepares a list of applicants based on the students' cumulative scores: First 5 students from partner HEIs and first 25 (sometimes beyond) students from host HEI are in the principal list from partner HEIs/ and the second 5 from partner HEIs and 25 students from host HEI are announced in the waiting list, for cases of non-attendance. Any student participation in the IPs is entirely voluntary.

Students are selected from different grades to diversify the participant profile and their education backgrounds. At TOBB ETU, architecture studios are structured vertically, where the studios are taught in a format which combines students of differing degrees of design and drawing experience. As expected, owing to the experiences gained from these studios, this setting allowed students to progress at their own rate fostered by peer-work.

**The Declaration of the Selected Students:** The students are informed about their application via email, and ask their final approval of their attendance.

**Students' Distribution to the Studios:** The students in the principal list are distributed according to their institution and their grade. It is essential to provide a homogeneity for each studio group. During the implementation, the main aim was to create groups based on cultural diversity. Also, the balance in the group by means of architectural skills and maturity was critical.

## (2) The Organization of the Event

**The workshop Theme:** The theme of the MATERIART ISADs were defined at the project application. Accordingly, each ISAD has its unique theme as abovementioned. Each studio prepared its unique workshop structure and flow within the scope of the pre-defined workshop themes.

**Preparation and Submission of the Studio Briefs:** Each studio develops a workshop brief that explains its thematic description, tutoring method, studio objectives, schedule and required programs and materials. Minimum a month before the ISAD, the studio briefs are submitted to WT RT and the host institution. The briefs are accessible via the ISAD page on Online Platform (Figure 4).



Figure 4: ISAD Details on Platform

**The Material Supply and the Facility Arrangement:** The host institutions are expected to provide the required materials for the studios. Depending on area and facilities that studios need, the host institutions are expected to provide such spaces.

### 2.2.3. Schedule

The events were scheduled that involves social and cultural activities, excursions, ice-breaking activities and panel sessions that support the multi-directional communication in architectural production (**Hata! Başvuru kaynağı bulunamadı.**). Particularly, ice-breaking and the activities that are based on intercultural communications are prioritized. Ice-breaking activities support the group members' interaction who are meeting for the first time. Rather than directly starting the activities with studios or the workshop content,

site visits and design-focused opening activities are regarded as the significant part of creating a communicative learning environment within the scope of the organized workshops. Besides the officially organized activities, student organization groups arranged informal activity sessions which also supported and enhanced intercultural communication.

*Table 1: Standard Workshop Schedule*

<b>Arrivals</b>
<b>Pre-Working Day</b> 18.00-21.00 Welcoming reception
<b>1st day</b> 9.00-9.30 Opening address(es) 9.30-10.30 Keynote speech(es) 10.30-11.00 coffee break 11.00-12.30 Introduction to studios 12.30-14.00 lunch break 14.00-16.00 Excursion to the site 16.00-16.30 coffee break 16.30-17.30 discussions on the site 17.30 evening activities (social & cultural activities)
<b>2nd day – 5th day: Standard Course Program</b> 09.00-10.30 lecture hours 10.30-11.00 Coffee break 11.00-12.30 studio hours 12.30-14.00 lunch break 14.00-15.30 studio hours 15.30-16.00 coffee break 16.00-17.30 discussion and consultation with roving critics 17.30- evening activities (social & cultural activities)
<b>7th day: Jury-Mini Symposium: MATERIART IP Monitoring &amp; Assessment</b> 09.00-09.30 Opening address(es) of the mini-symposium 09.30-10.00 coffee break 10.00-13.00 workshop presentation 1-2-3-4-5-6 13.00-14.00 lunch break 14.00-16.00 Panel 16.00-16.30 coffee break 16.30- 18.00 Closing address(es)
<b>Break-days: Social &amp; cultural activities, optional excursions</b>
<b>Departures</b>

### 3. EVALUATION

MATERIART is structured with a system of interrelating actions that are assessed in a controlled and iterative way that resulted in the production of the intermediate and final results. In such a process, evaluation played a significant role in Materiart Open Course Module to receive feedback from the participants for the further improvements of the implementation. Evaluation activities are performed in parallel to the workshops. Each feedback from the participants has led to improvements for the next activity.

#### 3.1. Methodology and Data Retrieval

MATERIART Open Course Module followed a methodology based on critical questioning with spiral iteration, which is **to define, to analyze, to test, to assess, to re-test, to re-assess**. During each ISAD, questionnaires and interviews are conducted with the participants.

Questionnaires are digitally collected from the student participants, while the interviews are performed with the workshop tutors. The focus of the questionnaires is to receive feedback from the students on the workshops for further improvements focusing on a number of aspects. Interviews are conducted to receive feedback for the overall organization, workshops and the developed/implemented pedagogical method by the tutors.

#### 3.2. Questionnaire Structure and Focus

Questionnaires are performed by the student participants focusing on the overall evaluation of the ISAD organization. The questionnaire is based on multiple-choice questions with the multi-directional focus: **overall satisfaction, tutor, studio, communication, self-expression, physical environment and accessibility to the facilities, workload-ECTS balance, length and suggestions for the improvements**.

##### 3.2.1. Questionnaire

Table 2: Questionnaire for the Students

Questions for the Evaluation of Student Workshops
<b>QUESTION-1: Using the scale 1 to 5 (where 1 is unsatisfactory and 5 is very good), how would you rate</b> (1) The general organization of the MATERIART IP-1 (2) Utility and efficiency of MATERIART IP website (3) Your overall satisfaction with MATERIART IP-1 studios
<b>QUESTION-2: Please rate the following statements for your studio:</b> (1) The instructor managed classroom time and pace well. (2) The instructor used a variety of instructional methods to reach the workshop objectives (3) The instructor stimulated my interest in the subject (4) The instructor encouraged discussions and responded to questions. (5) The instructor challenged students to do their best work. (6) The instructor was knowledgeable on the topic

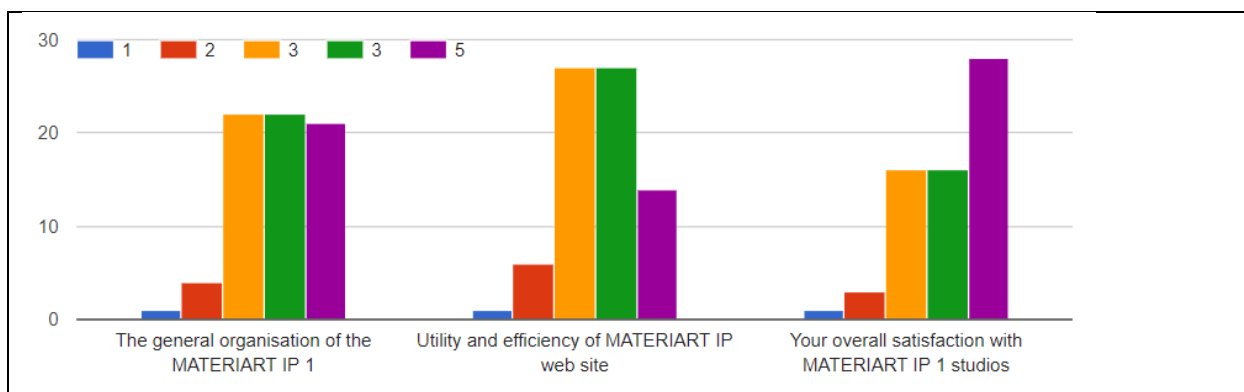
<p><b>QUESTION-3: Please rate the following statements for your studio:</b></p> <ul style="list-style-type: none"> <li>(1) I could express myself at the studio</li> <li>(2) The studio enhanced my design capabilities</li> <li>(3) The IP enhanced my language skills</li> <li>(4) I would be interested in attending the next MATERIART IP</li> <li>(5) I would recommend this IP to other students</li> </ul>
<p><b>QUESTION-4: Please rate the following statements for your studio:</b></p> <ul style="list-style-type: none"> <li>(1) Internet connection</li> <li>(2) Accessibility of stationary</li> <li>(3) Accessibility of printing facilities</li> <li>(4) Physical conditions of the studio (heating, lighting, ventilation)</li> </ul>
<p><b>QUESTION-5: The length of the MATERIART IP:</b></p> <ul style="list-style-type: none"> <li>(1) Too short</li> <li>(2) Right length</li> <li>(3) Too long</li> </ul>
<p><b>QUESTION-6: The workload-3 ECTS balance of the MATERIART IP</b></p> <ul style="list-style-type: none"> <li>(1) Too much</li> <li>(2) Right</li> <li>(3) Too low</li> </ul>
<p><b>QUESTION-7: What did you most appreciate/enjoy/think was the best about the MATERIART IP:</b></p> <ul style="list-style-type: none"> <li>(1) Welcome reception</li> <li>(2) Lunch</li> <li>(3) Coffee Breaks</li> <li>(4) Informal evening activities</li> <li>(5) Site visit</li> <li>(6) People</li> <li>(7) Evening activities organized by the host</li> </ul>

### 3.2.2. Questionnaire Results of C1-2-3

48 of the 62 students replied to the questionnaire for C1-2-3.

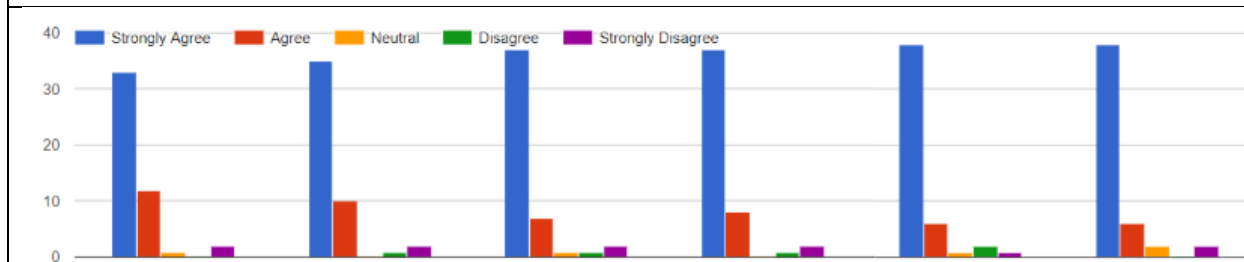
*Table 3: Questionnaire Results of C1-2-3*

Questions for the Evaluation of Student Workshops
<p><b>QUESTION-1: Using the scale 1 to 5 (where 1 is unsatisfactory and 5 is very good), how would you rate</b></p> <ul style="list-style-type: none"> <li>(1) The general organization of the MATERIART IP-1</li> <li>(2) Utility and efficiency of MATERIART IP website</li> <li>(3) Your overall satisfaction with MATERIART IP-1 studios</li> </ul>



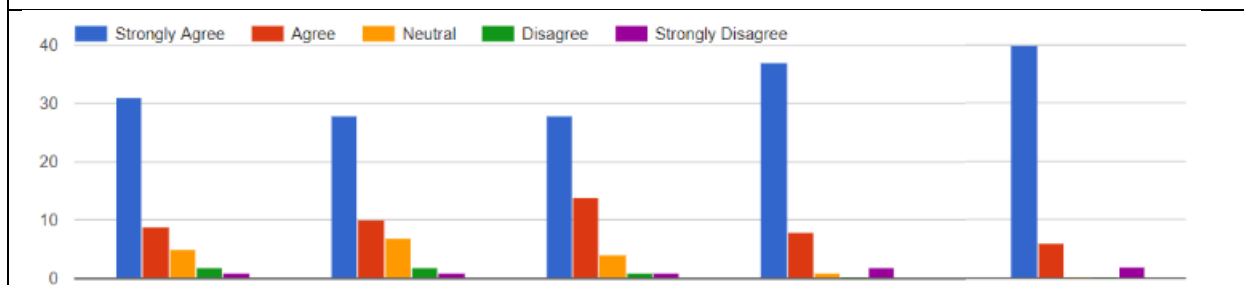
**QUESTION-2: Please rate the following statements for your studio:**

- (1) The instructor managed classroom time and pace well.
- (2) The instructor used a variety of instructional methods to reach the workshop objectives
- (3) The instructor stimulated my interest in the subject
- (4) The instructor encouraged discussions and responded to questions.
- (5) The instructor challenged students to do their best work.
- (6) The instructor was knowledgeable on the topic



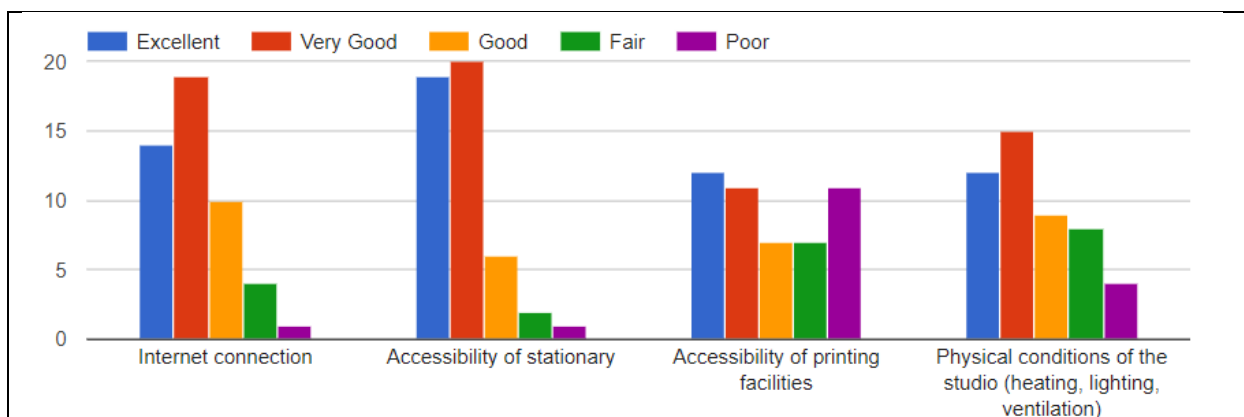
**QUESTION-3: Please rate the following statements for your studio:**

- (1) I could express myself at the studio
- (2) The studio enhanced my design capabilities
- (3) The IP enhanced my language skills
- (4) I would be interested in attending the next MATERIART IP
- (5) I would recommend this IP to other students



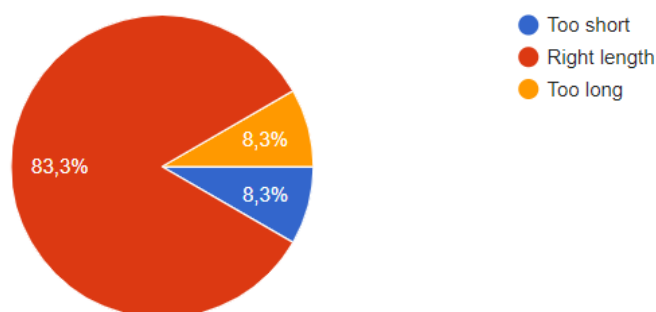
**QUESTION-4: Please rate the following statements for your studio:**

- (1) Internet connection
- (2) Accessibility of stationary
- (3) Accessibility of printing facilities
- (4) Physical conditions of the studio (heating, lighting, ventilation)



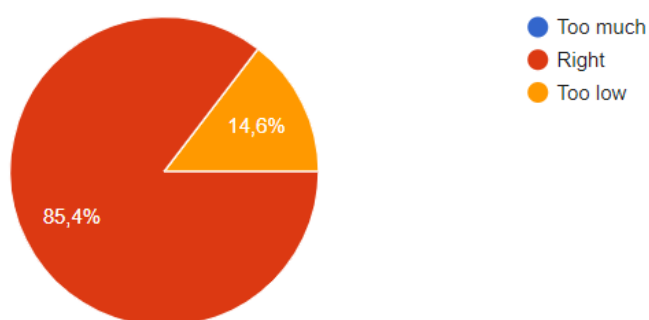
**QUESTION-5: The length of the MATERIART IP:**

- (1) Too short
- (2) Right length
- (3) Too long



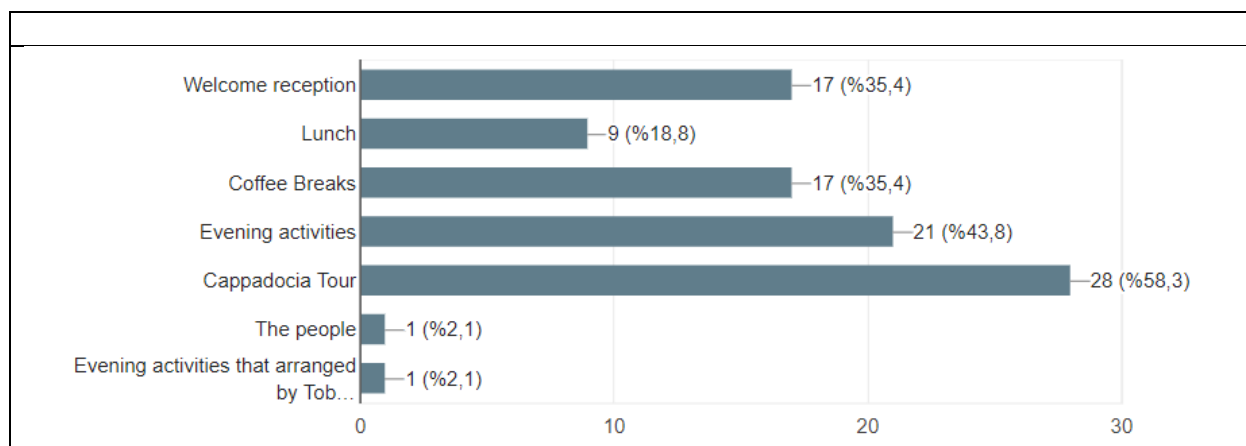
**QUESTION-6: The workload-3 ECTS balance of the MATERIART IP**

- (1) Too much
- (2) Right
- (3) Too low



**QUESTION-7: What did you most appreciate/enjoy/think was the best about the MATERIART IP:**

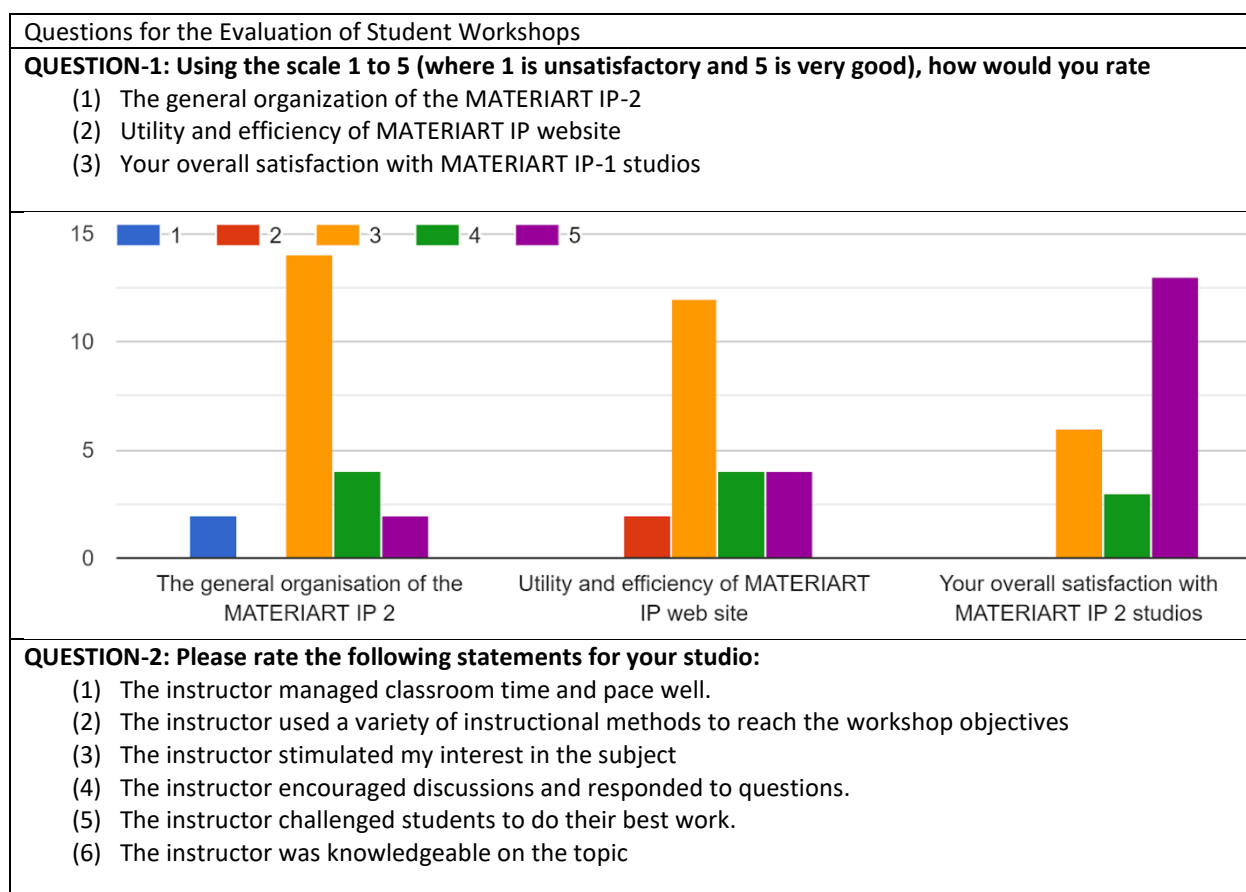
- (1) Welcome reception
- (2) Lunch
- (3) Coffee Breaks
- (4) Informal evening activities
- (5) Site visit
- (6) People
- (7) Evening activities organized by the host

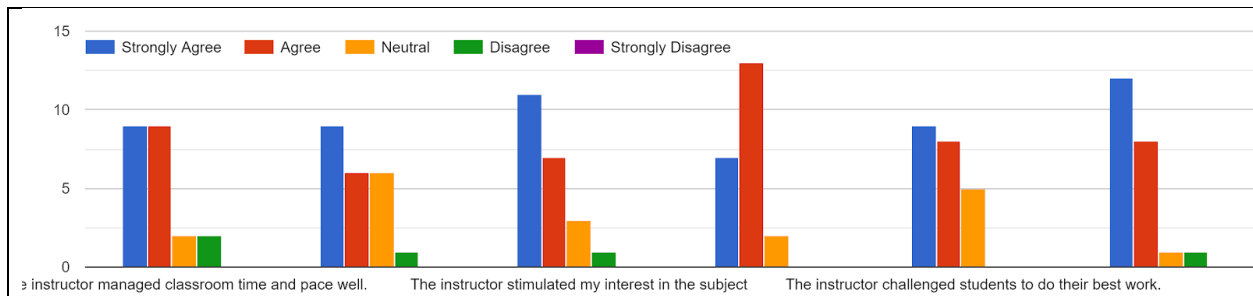


### 3.2.3. Questionnaire Results of C5-6-7

22 of the 58 students replied to the questionnaire for C5-6-7.

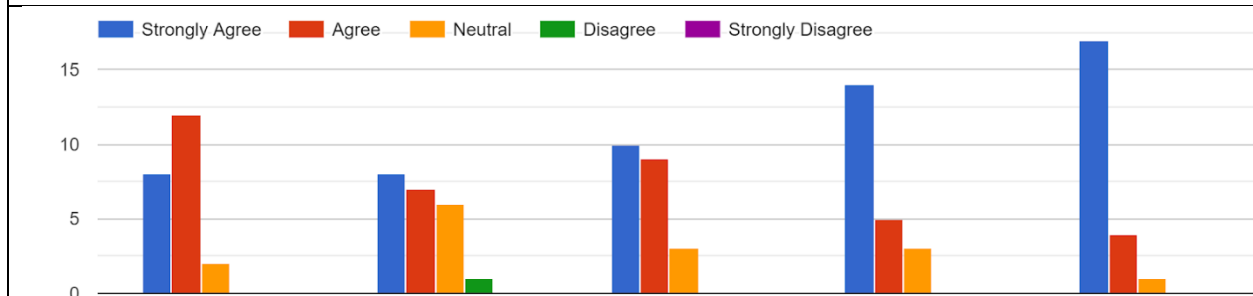
Table 4: Questionnaire Results of C5-6-7





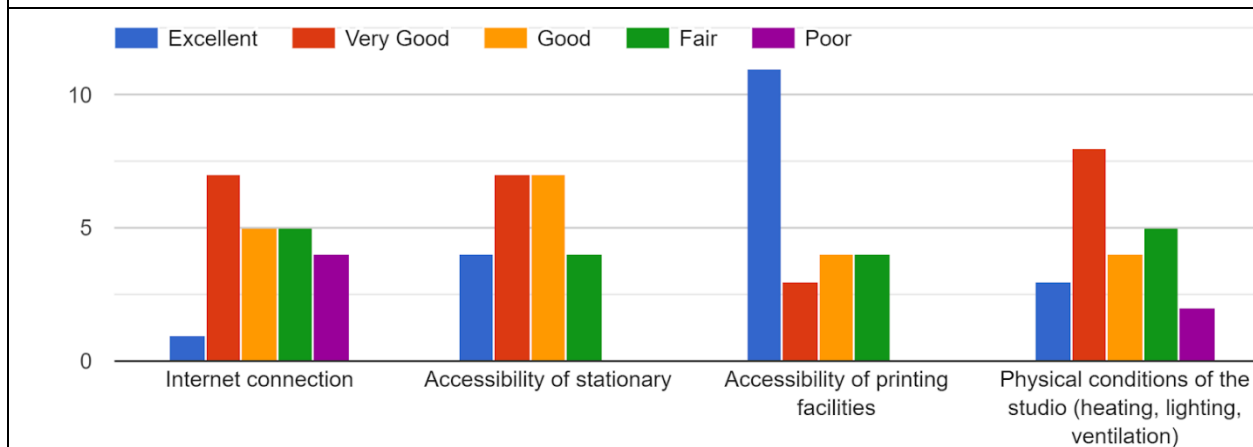
**QUESTION-3: Please rate the following statements for your studio:**

- (1) I could express myself at the studio
- (2) The studio enhanced my design capabilities
- (3) The IP enhanced my language skills
- (4) I would be interested in attending the next MATERIART IP
- (5) I would recommend this IP to other students



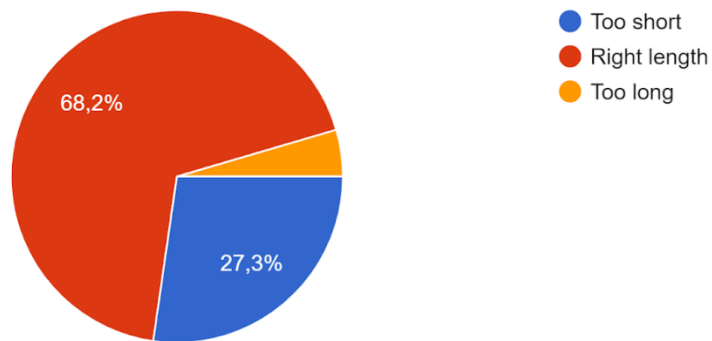
**QUESTION-4: Please rate the following statements for your studio:**

- (1) Internet connection
- (2) Accessibility of stationary
- (3) Accessibility of printing facilities
- (4) Physical conditions of the studio (heating, lighting, ventilation)



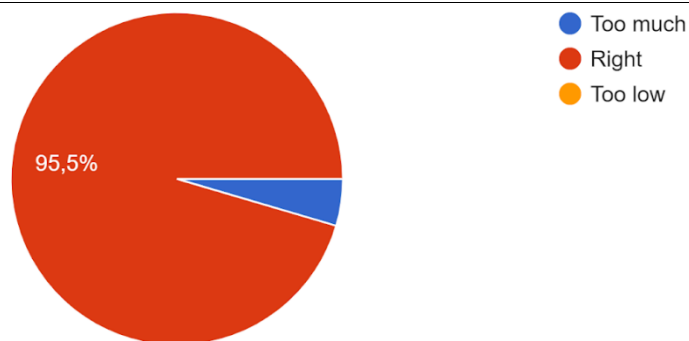
**QUESTION-5: The length of the MATERIART IP:**

- (1) Too short
- (2) Right length
- (3) Too long



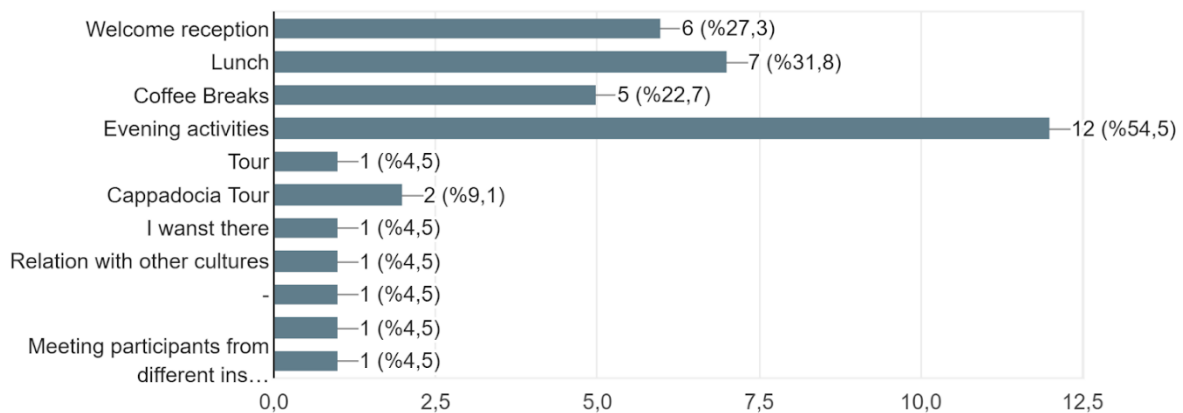
**QUESTION-6: The workload-3 ECTS balance of the MATERIART IP**

- (1) Too much
- (2) Right
- (3) Too low



**QUESTION-7: What did you most appreciate/enjoy/think was the best about the MATERIART IP:**

- (1) Welcome reception
- (2) Lunch
- (3) Coffee Breaks
- (4) Informal evening activities
- (5) Site visit
- (6) People
- (7) Evening activities organized by the host



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### 3.2.4. Analysis

The analysis results draw a number of conclusions, as follows:

- **Organization:** The students' overall satisfaction resulted in above the average value, which is regarded as positive feedback for the general organizational quality of the ISADs. C1-2-3 Ankara workshop has a student organization team, which also contributed to the organizational quality, which also supports the peer-communication.
- **Tutors:** The students also evaluated the tutors. For both workshops, the students agreed and strongly agreed on that,
  - the tutors managed the time and the pace of the group well,
  - the tutors used a number of instructional methods to achieve the workshop targets,
  - the tutors were stimulating the students' interest in the workshop,
  - the tutors encouraged students to discuss and question,
  - the tutors challenged students to their best work, and
  - the tutors were knowledgeable on the topic.
- **Studio and Student:** For both workshops, the students agreed and strongly agreed on that,
  - they expressed themselves at the studio,
  - the studio contributed them to enhance their design capabilities,
  - the activities enhanced their language skills,
  - they would be interested in attending the next MATERIART activities,
  - they would recommend MATERIART experience to other students.
- **Studio Physical Conditions:** Students evaluated the physical conditions of the workshop environment. Both host institutions provided good internet connection, access to the stationary facilities and physical environment. Also, the results informed the host institutions about the issues to improve their current facilities.
- **Workshop Duration:** The students evaluated the length of the studio as ideal.
- **Workload-ECTS Balance:** The students evaluated 3 ECTS as ideal for the required workload.
- **Activities:** The students find socio-cultural activities enjoyable most, including informal evening activities, breaks and site-trips.

### 3.3. Interview Structure and Focus

Interviews with the tutors are performed to receive feedback about the overall structure of MATERIART organization and the Open Course Module. The interview structure is based on open-ended questions with the multi-directional focus, which are grouped in five question chunks: *the tutor's background, MATERIART as Erasmus+ KA203 project, workload-balance, studio and students, and overall organization.*

### 3.3.1. Interview Questions

Table 5: Interview Questions

<b>Questions for the Evaluation of Student Workshops</b>
<b>(1) Tutor:</b>
Would you please introduce yourself?
Partner/Associate Partner?
<b>(2) MATERIART as Erasmus+ KA203 Project:</b>
Have you ever heard about TOBB Architecture before this organization?
Besides the workshop, what do you think about the Materiart Erasmus project in general? Do you know the project details before the workshop organization?
<b>(3) Workload-Balance:</b>
As you know, these workshop series are structured as an elective course which is 3 ECTS. What do you think about this?
Duration of the workshop, is it sufficient and productive enough? (shorter/longer)
The daily duration of your studio work?
<b>(4) Studio and Students</b>
What do you think about the workshop theme? (confusing/clear/relevant/irrelevant)
Would you please evaluate the structure of your studio, level of students, and mixed attendance of students (from different schools)? Would you prefer a workshop with your students, or mixed is acceptable for you?
Would you please evaluate the collaborative skills of your students in the workshop group?
Would you please evaluate the representation, communication and professional skills of your students in the workshop group?
<b>(5) Overall Organization:</b>
Would you please evaluate the workshop location? (city and school)
Would you please evaluate the quality of the organization and the activities?

### 3.3.2. The Interview Results and Analysis of IPs

The interview results are concluded as follows:

- **MATERIART as Erasmus+ KA203 project:** is regarded by the tutors as a detailed project that clearly outlines the activities, timeline and the distribution of the workload. The project is enriched with the theoretical background, which contributed to the outcomes of the projects. The workshop processes are always regarded as a very rewarding process that is supposed to produce a result, tangible, discussable result on short time with the contributors that do not know each other before who are open to discussion and interaction. MATERIART calls are not only the students but also for the tutors for sharing and the development of good practices. The tutors highlighted that architectural education would be benefitting from MATERIART for a long-term because the participants grow a lot from these encounterings. The plurality of the partnership is one of the most motivating aspects of MATERIART, where both teachers and students are from international backgrounds that makes MATERIART vibrant ground for exchanging ideas, discussions and incubates further thoughts and further ideas to develop. Also, tutors agreed on that; such activities contribute to architectural education by shifting the students' focus on multi-directions.

- **Workload-Balance:** 7-days workshop was found relatively long for the tutors since their academic terms were continuing. Also, a number of tutors were running their professional architectural offices. However, 7-days workshop-3 ECTS was found ideal. Also, the tutors valued the time that was spent for the workshops, which stimulates the students' minds to incubate new ideas that last longer since the period is relatively intense compared to the daily education routine of the students, and also tutors.
- **Studio and Students:** The workshop themes were found enriching and stimulating. The themes were open to broad and flexible discussions since each tutor evaluated the theme differently. Also, tutors highlighted that they had learnt new things from the other studios' processes. The mixes students were regarded as a positive aspect of the studios since each tutor was challenged to reflect a homogenous basis for the students from different levels, grades and universities. The students at the studios from different grades were regarded as a benefit. What the students have gained during the workshops would contribute to their future works, and they would affect other students in their schools. One of the biggest challenges was found to be the language barrier in some cases. During the first workshop (C1-2-3), the tutors found the language barrier as a problem, but, the problems were solved by the student organization groups and native speakers that aids students with translation and communication. For the second workshop, there was no such problem encountered.
- **Overall Organization:** Despite the complexity in the organizations, both organizations were evaluated positively by the tutors. Tutors evaluated the model-making facilities and the accessibility to the materials and other facilities of both TOBB ETU and ULISBOA FAUL. Tutors highlighted the organizational quality and the collaborative attitude of the TOBB ETU student organization team in C1-2-3. TOBB ETU student organization team facilitated the communication of the tutors for their needs to access the facilities. However, some studios needed technical support for model-making facilities, which student organization team was not sufficient to assist the tutors. At this stage, for the second workshop (C5-6-7), technical support for the model-making facilities was provided by ULISBOA FAUL.

### 3.4. Impact and Overall Evaluation

MATERIART Open Course Module had a positive impact on all participants of the project, which brought plurality, richness and a quest for alternative ways of creating learning environments. Notably, there are two significant impacts of MATERIART Open Course Module; one is for students, and the other one is for the tutors. The students experienced different pedagogies and teaching-learning-working cultures, as well as experiencing an internationally operating professional environment. For tutors, they benefited from this pedagogical exchange through developing new teaching skills. Overall from this process, the institutions (partners and associate partners) structured collaborative bonds. Erasmus+ KA203 fund provided an opportunity for students to experience international learning environment, which led them to structure friendship and professional relationships with the tutors and the offices. A number of students organized their compulsory internships by using such international bonds. A number of students performed their internships in Greece, Portugal and the Netherlands with the reference of the project partners at foreign offices and also at the offices of the tutors who are practising architects.

MATERIART Open Course Module also contributed to the field of architectural education by publishing two books as a collection of the tutoring strategies, new pedagogies, learning skills and multi-layered working environment as the outputs of C1-2-3 and C5-6-7.

### 3.4.1. SWOT Analysis of the MATERIART Open Course Module

The questions given at the SWOT analysis table were prepared to map the contributions and the drawbacks of the developed module and its relevance to the EU Directive 2013/55. Also, SWOT analysis was used to identify prospective strategies to improve the weaknesses of the implemented module.

Table 6: Questions of SWOT analysis

	Favourable	Unfavourable
Internal	<b>Strengths</b> 1.What are the strengths of the Open Course Module? (In equipping the students to address the challenges of the profession and the skills, knowledge, and competences as defined in EU Directive 2013/55) 2.What does Open Course Module better than existing architectural curricula? 3.What are unique strategies this model offers?	<b>Weaknesses</b> 1.What are the weaknesses of the Open Course Module? 2. What do existing architectural curricula better than the Open Course Module? 3.What can be improved in the Open Course Module?
External	<b>Opportunities</b> 1.What conditions may positively affect the Open Course Module? 2.What opportunities are available to the Open Course Module?	<b>Threats</b> 1.What conditions may negatively affect the Open Course Module?

Table 7: SWOT analysis of MATERIART Open Course Module

	Favourable	Unfavourable
Internal	<b>Strengths</b> 1. Provides first-hand <i>intercultural</i> experience with <i>mobility</i> and <i>flexibility</i> that fosters competency for the existing architectural design curriculum. 2.Fosters <i>plural</i> and <i>informal</i> learning environment through <i>learning-by-doing</i> that supports the professional development of students, which also <i>broadens their vision and enhance their skills</i> . 3.Providing <i>borderless</i> and <i>compatible</i> skill exchange ground that supports international communication and integrity is the unique strategy of Open Course Module.	<b>Weaknesses</b> 1.This type of structures requires international and inter-institutional engagement and effort. This could be a potential weakness for the further implementation of the Open Course Module. 2. N/A 3.Open Course Module could be improved as it is disseminated and internalized by the institutions: the more institutions implement Open Course Module, the students could have an opportunity to get benefitted from the added values of Open Course Module.
External	<b>Opportunities</b>	<b>Threats</b>

	<p>1.The increase in the number of institutions interested in the implementation of the Open Course Module could provide a ground for the sustainability of such mobility.</p> <p>2.The institutions might structure collaborative bonds with each other that could foster the implementation of the Open Course Module on a larger scale.</p>	<p>1.The implementation of the Open Course Module depends on the internalization of this structure by the institutions. The disinterest of the institutions for the implementation of the Open Course Module could be a significant threat.</p>
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### 3.4.2. Outputs of the Short-term Studios

The outputs of the ISADs are collected and presented as two internationally published books: **The Figure** for C1-2-3 (Figure 5), and **The Deck** for C5-6-7 (Figure 6).

The books are available at <https://www.materiart.org/publications>



Figure 5: The Figure

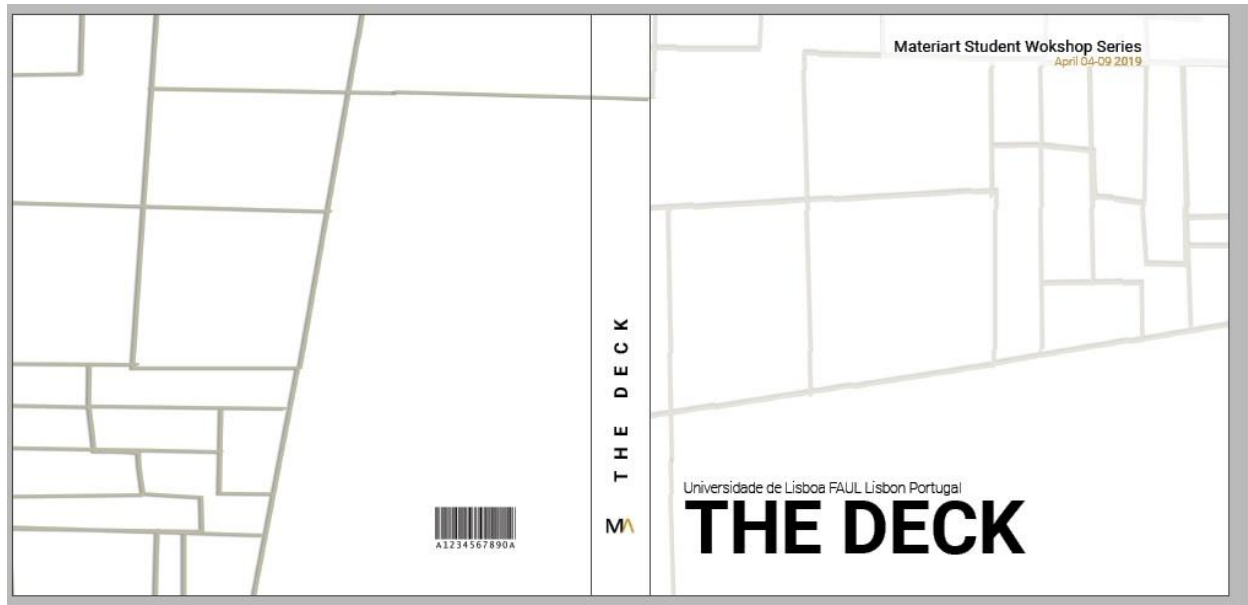


Figure 6: The Deck

## APPENDIX

### Student Certificate Sample



#### CERTIFICATE OF ATTENDANCE

This is to certify that

**Ahsen Uzunlu**

ahsenuzunlu@gmail.com

has attended and satisfactorily completed the requirements for Intensive Program 1 under the theme "The Figure" that was held from 10<sup>th</sup> April to 20<sup>th</sup> April 2018 at TOBB University of Economics and Technology in Ankara, Turkey.

**Intensive  
Program 1**

**Prof. Dr. Nur Çağlar**

Head | Department of Architecture | TOBB ETU  
Project Coordinator | MATERIART

\*This project is funded by the Erasmus+ Program of the European Union.

## Student Supplement: Grading Certificate Sample



Subject: Certificate of attendance at the Intensive Program 2 (C5-6-7) of MATERIART: Art and Science of Materiality in Architectural Design Education (workshop | 7days | 4 ECTS)

This is to confirm that \_\_\_\_\_ successfully participated at the IP 2 (C5-6-7) of MATERIART: *Art and Science of Materiality in Architectural Design Education* hosted by University of Lisbon (FAUL) in Lisbon, Portugal and earned a grade of \_\_\_\_.

This workshop was held from 4<sup>th</sup> April to 10<sup>th</sup> April 2019 and it fulfills all the requirements of the course entitled *MIM 321 International Architectural Intensive Design Studio* taught at TOBB University of Economics and Technology. Course ECTS information is given below.

The workshop theme was "The Deck". MATERIART is an on-going project funded by *Erasmus+ Program of the European Union* (Project code: 2017-1-TR01-KA203-046280). The workshop is organized by the MATERIART project partners and associate partners: TOBB University of Economics and Technology, Turkey; TU/e Eindhoven University of Technology, The Netherlands; Faculty of Architecture (FAUL) Universidade de Lisboa, Portugal; İstanbul Technical University, Turkey and University of Thessaly, Greece.

Projects developed during the workshop were presented on the last day of the workshop. All projects are documented on this website: <https://www.materiart.org>

### **MIM 321 International Architectural Intensive Design Studio**

20 hours theoretical subjects to be taught (lectures, keynotes, seminars)

20 hours practical work (studio hours-hands-on work)

20 hours self-study (literature research, readings etc.)

20 hours group tuition (discussions & consultation of roving critics, presentations, site excursions etc.)

TOTAL: 80 hours = 3 ECTS.

Workshop Tutors

Manuel Couceiro da Costa  
Faculty of Architecture (FAUL), University of Lisbon



Co-funded by the  
Erasmus+ Programme  
of the European Union

## Consent Form Sample for Students



### INFORMED CONSENT FORM FOR MATERIART IP2 STUDENTS

This questionnaire is part of an on-going research project entitled *MATERIART: The Art and Science of Materiality in Architectural Design Education*, which is funded by Erasmus+ Program of the European Union (Project code: 2017-1-TR01-KA203-046280) and coordinated by the Department of Architecture at TOBB University of Economics and Technology. Your participation in this questionnaire is voluntary. You may choose not to participate. This form is intended to inform you about the research project, the questionnaire you are invited to participate, and the design studios. Detailed information about the project and project activities are found on the project website ([www.materiart.org](http://www.materiart.org)). If you decide to participate in this questionnaire and in the design studios within MATERIART IP2, please sign the informed consent form.

Project Coordinator: TOBB University of Economics and Technology, Turkey

#### Project Partners:

- TU/e Eindhoven University of Technology, The Netherlands
- Faculty of Architecture (FAUL), Universidade de Lisboa, Portugal
- İstanbul Teknik Üniversitesi, Turkey
- TOBB University of Economics and Technology, Turkey
- University of Thessaly, Greece

#### Project Associate Partners:

- Universidade Lusófona, Portugal
- Hafencity Universität, Germany
- Hochschule Anhalt, Germany
- University of Zagreb, Faculty of Architecture, Croatia
- The Oslo School of Architecture and Design, Norway

#### Information on the questionnaire:

This questionnaire intends to evaluate the workshop C2 (student workshop) that you participated from 4th April to 10th April 2019 at Faculty of Architecture (FAUL) Universidade de Lisboa, Portugal. It aims to examine the quantitative and qualitative aspects of the MATERIART IP2.

If you agree to participate in this questionnaire:

- you will complete a questionnaire of 24 questions (10 mins);
- the questionnaire will be online;
- as a participant, you will not be charged nor will be paid;
- your name will remain confidential;
- all data gathered in this questionnaire will only be used for academic research and will not be used beyond this research or other researches. If needed, without your signed approval they will not be shared.
- all the hard copies of the research data will be kept in a secured room, all digital copies will be on password secured hard drive, and will be archived after the research.
- There are no HARMFUL question/request in the questionnaire. During the questionnaire, you have the right to withdraw at any time or refuse to participate entirely. If you withdraw from the questionnaire, all data gathered from you will be omitted and deleted.

#### Information on the design studios:

Your design studio outcomes and, eventually, this research will provide data/produce knowledge to the existing teaching schemes, enhance the development of alternative design studio models.

If you agree to participate to MATERIART IP2 (C5-6-7)

- you will follow a design studio of 7 days;
- your name (for the publication of your design studio works) will be public;
- your work and your speeches at the design studio will be video recorded or audio recorded;
- all data pertaining to your design will be stored online (including MATERIART project website) or printed will not be used beyond this research or other researches. If needed, without your signed approval they will not be shared.
- There are no HARMFUL question/request in the design studios. During the studio, you have the right to withdraw at any time or refuse to participate entirely. If you withdraw from the studio, all data gathered from you will be omitted and deleted.

**General Information:**

Your participation in this workshop and questionnaire is important for the success of this project.

Results of these questionnaires and the studio outcomes will be shared via project dissemination activities, academic publications and will be presented at conferences/symposiums/meetings on architectural design education.

Thank you for your time in reading and evaluating this informed consent form.

**Consent of the participant**

I was informed about the above given details on ongoing ERASMUS+ Strategic Partnership Project coordinated by TOBB University of Economics and Technology, Department of Architecture along with the following project partners: TU/e Eindhoven University of Technology, İstanbul Teknik Üniversitesi, University of Thessaly, Faculty of Architecture (FAUL) Universidade de Lisboa; project associate partners: Universidade Lusófona, Hafencity Universität, Hochschule Anhalt, University of Zagreb, Faculty of Architecture, The Oslo School of Architecture and Design. I am invited as a "participant" to a questionnaire that is part of this research. I also participated to the MATERIART IP2 at Faculty of Architecture (FAUL) Universidade de Lisboa in Lisbon, Portugal.

I am voluntarily taking part in this project. I have never been forced to participate this project. I understand that I don't have to take part, and I can stop the questionnaire at any time. I know that it is appropriate to notify my withdrawal from the research in advance so as to not strand the researchers.

I know that the projects and the studio outcomes attained within the MATERIART IP2 studios will only be used for academic research and will not be used beyond this research or other researches. If needed, without your signed approval they will not be shared.

I am not under pecuniary liability for any research expenses. I don't expect to receive any benefit or payment for my participation.

If I participate to this study, I am assured about confidentiality of the data and my personal information, which will then be protected with care when study results will be used for educational and scientific purposes.

I also understand that my words may be quoted directly.

I am assured that in case of any problem that might occur during the study necessary interventions will be made. I know that if I have questions about this research I am free to contact Nur Çağlar Ph.D via +90. 312.292 45 61 or Işıl RUHİ SİPAHİOĞLU, Ph.D. via +90.312.292 45 70.

I have read the information sheet and understood all explanations in detail. After a thinking process, I decided to be a "participant" to the so-called research project. I am more than happy and voluntary to accept this invitation.

A copy of this mutually signed form will be given to me.

**Participant** (Name, Surname, Address, Phone and Signature)

**Researcher** (Name, Surname, Address, Phone and Signature)

## Consent Form Sample for Tutors



### INFORMED CONSENT FORM FOR MATERIART IP2 TUTORS

This interview is part of an on-going research project entitled *MATERIART: The Art and Science of Materiality in Architectural Design Education*, which is funded by Erasmus+ Program of the European Union (Project code: 2017-1-TR01-KA203-046280) and coordinated by the Department of Architecture at TOBB University of Economics and Technology. Your participation in this interview is voluntary. You may choose not to participate. This form is intended to inform you about the research project, the questionnaire you are invited to participate, and the design studios. Detailed information about the project and project activities are found on the project website ([www.materiart.org](http://www.materiart.org)). If you decide to participate in this questionnaire and in the design studios within MATERIART IP2, please sign the informed consent form.

Project Coordinator: TOBB University of Economics and Technology, Turkey

#### Project Partners:

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#### Information on the questionnaire:

This questionnaire intends to evaluate the workshop C2 (student workshop) that you participated from 4th April to 10th April 2019 at Faculty of Architecture (FAUL), Universidade de Lisboa, Portugal. It aims to examine the quantitative and qualitative aspects of the MATERIART IP2.

If you agree to participate in this interview:

- you will complete an interview of 10 questions (10 mins);
- the interview will be recorded;
- as a participant, you will not be charged nor will be paid;
- your name will remain confidential;
- all data gathered in this interview will only be used for academic research and will not be used beyond this research or other researches. If needed, without your signed approval they will not be shared.
- all the hard copies of the research data will be kept in a secured room, all digital copies will be on password secured hard drive, and will be archived after the research.
- There are no HARMFUL question/request in the questionnaire. During the interview, you have the right to withdraw at any time or refuse to participate entirely. If you withdraw from the questionnaire, all data gathered from you will be omitted and deleted.

#### Information on the design studios:

Your design studio outcomes and, eventually, this research will provide data/produce knowledge to the existing teaching schemes, enhance the development of alternative design studio models.

If you agree to participate to MATERIART IP2 (C5-6-7)

- you will follow a design studio of 7 days;
- your name (for the publication of your design studio works) will be public;
- your work and your speeches at the design studio will be video recorded or audio recorded;
- all data pertaining to your design will be stored online (including MATERIART project website) or printed will not be used beyond this research or other researches. If needed, without your signed approval they will not be shared.
- There are no HARMFUL question/request in the design studios. During the studio, you have the right to withdraw at any time or refuse to participate entirely. If you withdraw from the studio, all data gathered from you will be



omitted and deleted.

#### General Information:

Your participation in this workshop and questionnaire is important for the success of this project.

Results of these questionnaires and the studio outcomes will be shared via project dissemination activities, academic publications and will be presented at conferences/symposiums/meetings on architectural design education.

Thank you for your time in reading and evaluating this informed consent form.

#### Consent of the participant

I was informed about the above given details on ongoing ERASMUS+ Strategic Partnership Project coordinated by TOBB University of Economics and Technology, Department of Architecture along with the following project partners: TU/e Eindhoven University of Technology, İstanbul Teknik Üniversitesi, University of Thessaly, Faculty of Architecture (FAUL), Universidade de Lisboa; project associate partners: Universidade Lusófona, Hafencity Universität, Hochschule Anhalt, University of Zagreb, Faculty of Architecture, The Oslo School of Architecture and Design. I am invited as a "participant" to a questionnaire that is part of this research. I also participated to the MATERIART IP2 at Faculty of Architecture (FAUL), Universidade de Lisboa, Portugal.

I am voluntarily taking part in this project. I have never been forced to participate this project. I understand that I don't have to take part, and I can stop the questionnaire at any time. I know that it is appropriate to notify my withdrawal from the research in advance so as to not strand the researchers.

I know that the projects and the studio outcomes attained within the MATERIART IP2 studios will only be used for academic research and will not be used beyond this research or other researches. If needed, without your signed approval they will not be shared.

I am not under pecuniary liability for any research expenses. I don't expect to receive any benefit or payment for my participation.

If I participate to this study, I am assured about confidentiality of the data and my personal information, which will then be protected with care when study results will be used for educational and scientific purposes.

I also understand that my words may be quoted directly.

I am assured that in case of any problem that might occur during the study necessary interventions will be made. I know that if I have questions about this research I am free to contact Nur Çağlar Ph.D via +90. 312.292 45 61 or Işıl RUHİ SİPAHİOĞLU, Ph.D. via +90.312.292 45 70.

I have read the information sheet and understood all explanations in detail. After a thinking process, I decided to be a "participant" to the so-called research project. I am more than happy and voluntary to accept this invitation.

A copy of this mutually signed form will be given to me.

**Participant** (Name, Surname, Address, Phone and Signature)

**Researcher** (Name, Surname, Address, Phone and Signature)

