

# PROJECT GUIDELINE

FOR THE MASTER'S DEGREE PROGRAMMES  
"ENERGY INFORMATICS" AND "MOBILE COMPUTING"

UNIVERSITY OF APPLIED SCIENCES UPPER AUSTRIA  
SCHOOL OF INFORMATICS, COMMUNICATIONS AND MEDIA  
CAMPUS HAGENBERG  
DEPARTMENT OF SMART AND INTERCONNECTED LIVING

VERSION: 03/2023

## Table of Contents

1.	General Remarks .....	3
2.	Required Forms .....	4
2.1	List of Forms .....	4
2.2	Handling of Forms .....	4
3.	Project Phases .....	5
3.1	Proposal of Topic .....	5
3.2	Project Preparation .....	5
3.3	Working on the Project .....	6
3.4	Finishing the Project .....	6
4.	Resources .....	7
4.1	Moodle Course .....	7
4.2	Git Repository .....	7
4.3	Project Hardware .....	7
5.	Students' Responsibilities .....	8
5.1	Project Meetings .....	8
5.2	Project Abstract .....	8
5.3	Project Specification .....	8
5.4	Project Architecture .....	8
5.5	Project Submission .....	8
5.6	Project Presentation .....	10
5.7	Media Processing .....	10
6.	Grading .....	12
7.	Timeline .....	13
8.	Contact Persons .....	14

## 1. General Remarks

This document contains the guidelines for all curricular courses of the type “Project” (PT) to be held in the Master's Degree Programmes “Energy Informatics” (ENI) and “Mobile Computing Master” (MCM) of the Department of Smart and Interconnected Living. It contains all relevant information for deadlines, coaches, meetings, documentation, submissions, presentation, and composition of the grade.

The projects are intended for preparing or accompanying the writing of a Master's Thesis. Therefore, also the **Thesis Guideline** has to be considered. Especially, the decision over the proposed topics for accompanying projects has to be done by the Master's Thesis Committee (MTC) in order to assure a possible continuation of the work until the preparation of the Master's Thesis.

A work in small groups (up to three students) is possible for preparing projects; however, the topic of the group has to be defined in such a way, that a clear distinction of the sub-topics of the participating students is possible. This is not only important for the grading, but also for the continuation of the topic for the Master's Thesis, which has to be an individual work.

## 2. Required Forms

### 2.1 List of Forms

The following form is a mandatory formal requirement for the conduction of a project in the Department of Smart and Interconnected Living, being a part of the University of Applied Sciences Upper Austria (UAS):

#### Form A: Proposal of Topic

Form A needs to be provided to the Master's Thesis Committee (MTC), accompanied by a formless abstract document. The provision of these documents has to be performed via an upload to the corresponding course of the respective project **on the e-learning platform** (see Section 4.1).

Students have to convince the MTC of the value and interest of the intended project. Form A has to be signed by students and by proposed advisors, and to be approved by the Head of Studies on behalf of the MTC. After the approval of the topic, students can officially start with the project.

#### Attention:

**Not submitting a valid Form A in due time, or submitting a Form A that can not be accepted by the MTC, will lead to a topic allocation by the MTC disregarding the respective student's preferences.**

### 2.2 Handling of Forms

Students are responsible for the correct handling of Form A. They are encouraged to take their time and to double-check the information they provide. Errors could delay processing, or even lead to a stop of the project. The correct handling of Form A comprises following duties:

- Students have to **fill in** Form A **correctly** and in given **due time** (the due time can be taken from the **corresponding course** on the **e-learning platform**).
- Students have to **sign** Form A. This may be done electronically (by using an electronic image of the signature, which has to be placed in the designated field, or by using electronic signatures) or by paper (printing, signing manually, and scanning Form A).
- Students have to **collect additional signatures** without being reminded, as far as required by Form A (i.e., the proposed **advisor**). Again, this may be done electronically or manually.
- Finally, students have to **upload Form A** containing all required signatures to the upload section of the **corresponding course** on the **e-learning platform**.

### 3. Project Phases

#### 3.1 Proposal of Topic

Students are expected to select the topic of their project autonomously. However, this may be based on suggestions from professors or from companies they have already worked with. In case of collisions, the suggesting professor will take the choice.

To submit the selected topic, students have to fill in Form A. Additionally, they have to prepare and submit a formless “Project Abstract” document (1 page of content; see Section 5.2). The abstract shall answer the main questions on the topic, as follows:

- Motivation: What is the main idea behind this topic? How relevant is this topic for the professional practice?
- Realization: Which functionalities shall the intended artefact provide, and how shall the artefact be used for gaining results, which can be used for further work?

Students have to convert the abstract to PDF. Furthermore, they have to **prepare the fully signed** Form A (see Section 2). Then, **both documents have to be uploaded** to the e-learning platform. The abstract of the topic and Form A have to be approved by the Head of Studies on behalf of the MTC.

#### Attention:

**If students continue their topics from the respective preceding semester, a submission of Form A in the current semester can be omitted. In this case, also the submission of the Project Abstract can be omitted. However, if the topic is changed, another Form A and another Project Abstract have to be provided via the e-learning platform.**

#### 3.2 Project Preparation

As soon as topics are approved, the MTC allocates the advisors. This will be announced on the e-learning platform as well as by the department office in timely manner. Students’ preferences are taken into account as far as possible. With this announcement, the project officially starts.

Students have then to schedule an internal Kick Off Meeting with their respective allocated advisors. The Kick Off Meeting should not be scheduled later than week 6 of the semester.

Until week 8 of the semester, students should prepare a “Project Specification” document (see Section 5.3), considering the requests of the advisors. The specification shall answer a series of detailed questions on the chosen project topic, as follows:

- Goal and Motivation: What is the main idea behind this topic? How relevant is this topic for the professional practice? In which field can the topic be used?
- Realization: Which functionalities shall the intended artefact provide, and how shall the artefact be used for gaining results, which can be used for further work?

- Timeline: What are the planned deliverables of research, implementation, and documentation, and when should these deliverables be available (milestones)?
- Preconditions: What are the required resources and capabilities (e.g., software, hardware, organizational conditions)?

The answers to these questions may include an update of the content given in the abstract. The planned project also has to be evaluated regarding the potential to be used for the intended Master's Thesis.

The specification document must be finalized in cooperation with the advisor and has to comprise concrete deliverables and the corresponding milestones (see Section 5.3). The specification must be made available in the file repository, which is associated to the respective project (see Section 4.2).

Until week 10 of the semester, students should prepare a "Project Architecture" document (see Section 5.4), which outlines the internal and external components of the intended solution, their logical interrelations, and their concrete internal and external interfaces, as well as network infrastructures and protocol stacks.

Also the architecture document must be made available in the corresponding repository (see Section 4.2). Based on the architecture document, the available hardware is distributed by the Hardware Coordinators. Templates for Project Abstract, Project Specification, and Project Architecture are available in the repository.

#### **Attention:**

**If students continue their topics from the respective preceding semester, a submission of the Project Specification and Project Architecture can be omitted. However, if the topic is changed, another Project Specification and Project Architecture have to be provided via the e-learning platform.**

### 3.3 Working on the Project

After the advisor of a project has agreed on the proposed milestones and deliverables, the work has to be conducted accordingly. Further appointments have to be scheduled between students and their advisors in order to allow discussion of the achieved progress.

### 3.4 Finishing the Project

At the end of the semester, the complete project including the project documentation (see Section 5.5) must be submitted to the repository (see Section 4.2). The version which should be used as the basis for the grading has to be marked by the students by an appropriate tag.

Furthermore, a project presentation event will take place (see Section 5.6). Depending on the kind of project, additional documents for media processing (e.g., a short video or a project poster) have to be submitted (see Section 5.7).

## 4. Resources

### 4.1 Moodle Course

Each project curricular course has a **corresponding e-learning course** on the e-learning platform Moodle. This e-learning course contains appropriate sections for download and upload. In the **Download Section**, information like this guideline can be found, as well as several Office templates (e.g., for Form A). In the **Upload Section**, the completed **Form A** (as described above) and **other required documents** (as described in Section 5) have to be **uploaded**.

### 4.2 Git Repository

All documents, source files, etc. must be managed through the Git repository provided by the department. The access to the repository will be provided after the project distribution has been finalized. The directory structure is predefined and must not be changed. Several Office templates (the same as in the Moodle course) are available here under `\documentation\templates`; these predefined templates are to be used throughout the project.

### 4.3 Project Hardware

The department owns a number of devices, which can be used for projects. This hardware can be rented after finishing the project specification (for a limited duration). Due to the restricted amount of some devices, a further coordination process may be needed. After an approval by the respective advisor, the devices can be obtained by the hardware rental office (AV-Verleih; FH2 level 2 western side, next to the library).

If additional hardware resources are needed, which cannot be rent by the rental office, the department's Hardware Coordinators have to be contacted.

#### Attention:

**If hardware is kept longer than contractually agreed, a fee of 2 € per additional working day will be charged independent of the business hours of the rental office. Students will NOT be reminded when the deadline ends; the exact date is announced when the hardware is handed out.**

## 5. Students' Responsibilities

### 5.1 Project Meetings

Meetings with the advisor shall be conducted in regular time intervals and, if needed, extraordinarily. The scheduling of the meeting **has to be initiated by the student**. All meetings must be documented in a suitable manner and made available in the repository under `\Documentation\Meetings` (with a maximum delay of one week); a template (`Document-A-MeetingMinutes.docx`) for the meeting minutes can be found in the repository under `\Documentation\Templates`.

### 5.2 Project Abstract

In order to find a project topic, which can be accepted by the MTC, a short Project Abstract has to be generated and stored under `\Documentation\Reports`. Structure and content of the project abstract are to be extracted from the template (`Document-B-ProjectAbstract.docx`) in the template directory of the repository. The project abstract has additionally to be submitted to the e-learning platform along with Form A (see Section 3.1).

### 5.3 Project Specification

Before starting with the realization of the project, a Project Specification document must be written and stored under `\Documentation\Reports`. Structure and content of the specification are to be extracted from the template (`Document-C-ProjectSpecification.docx`) in the template directory.

### 5.4 Project Architecture

Before implementing the project, also a Project Architecture document must be written and stored under `\Documentation\Reports`. Structure and content of the project architecture are to be extracted from the template (`Document-D-ProjectArchitecture.docx`) in the template directory.

### 5.5 Project Submission

The project submission is based on the repository. At the project submission deadline, a tag has to be initiated on the repository. This tag marks all documents, data, and sources, which will then be finally used to evaluate and rate the project. The final submission must contain the following information:

1. Documentation
  - a. Protocols of all conducted meetings (`MeetingMinutes-YYYY-MM-DD.docx`)
  - b. Abstract of the intended project
  - c. Specification of the project topic
    - i. The title



- ii. A list of all project members including student numbers
  - iii. The name of the advisor(s)
  - iv. A description of the planned project
- d. Architecture of the project implementation
- e. Description of the final project
  - i. Introduction / general description / problem statement / initial situation
  - ii. Goal of the project
  - iii. Realization
  - iv. Obtained results
- f. MS-PowerPoint presentation (see Section 5.6)
- g. A poster visualizing the main issues of the conducted project (see Section 5.7)
- h. Content description suitable for the website
  - i. Inside the website template, only one row must be used and filled according to the hints inside the appropriate cells.
  - ii. All images referenced inside the website template (stored as PNG, GIF or JPG, but NOT integrated in Word or alike) and additional show-worthy screenshots must be stored in the `\Documentation\Media` directory. Images from the Internet are often copyrighted and thus they **are not to be used**.
  - iii. Descriptions should be short and meaningful and should attract readers.
- i. A short video (2 - 3 min) documenting the main issues of the conducted project (see Section 5.7)

## 2. Implementation

- a. An installation description including parameters used for installation (an external person should be able to setup the development environment)
- b. Project files and documented source code (C/C++: Doxygen, Java: Doxygen, C#: Doxygen) at class, method, respectively function level
- c. An html export of the complete documentation
- d. Compiled and runnable executables
- e. External components (DLLs, JARs, ...) if used/needed

Templates for the respective documents which are to be stored in the documentation section (`\Documentation`) can be found in the template directory (`\Documentation\Templates`). The meeting protocols from point 1a are to be stored under the `\Documentation\Meetings` directory; the documents from points 1b, 1c, 1d and 1e are to be stored under the `\Documentation\Reports` directory of the repository; the documents from points 1f, 1g, 1h and 1i are to be stored under the `\Documentation\Media` directory.

### Attention:

**For those projects, who are conducted as accompanying projects to a Master's Thesis, the project description according point 1e may be omitted.**

## 5.6 Project Presentation

At the end of the semester, a project presentation event will take place. A template for the presentation slides can be found at the corresponding directory of the repository (`Document-F-ProjectPresentation.pptx`).

Active participation in this **event is mandatory** except for following students:

- Students who study at other Universities (“Incomings”)
- Students who are abroad during the concerned semester (“Outgoings”)
- Students conducting the ENI Elective Project (ENI513) or ENI Master’s Thesis project (ENI602)

These students may **instead submit a presentation video** (9 - 10 min) containing the presentation to the `\Documentation\Media` directory of the repository.

The exact dates of the presentation event will be announced on the e-learning platform as well as by the department office in timely manner. Whether the project presentation has to be performed online or in presence, will be decided by the Head of Studies and announced by the department office in timely manner.

The following aspects are to be taken into account:

1. Presentation (lecture hall or online)
  - a. Every project group / student receives a 10 min time slot for the presentation with a 5 min discussion slot afterwards.
  - b. Every presentation can be visited on a free basis by every student; at least one professor (the session chair) will be attending to give feedback.
2. Exhibition (seminar room or online)
  - a. All project groups / students have to present their project in working condition.
  - b. In the case of an online exhibition, the work has to be demonstrated via live audio and video.

For each presenting group / student, **presence is mandatory for the whole day**. The exact time of presenting is announced by the respective session chairs, who again are allocated by the presentation organizer to host the presentations for defined sessions. Only professors of the department may take the session chair role.

If a project is not presented at the defined time slot, the project automatically receives a negative grade. One repetition is possible. If the repetition is still negative, a third presentation will then to be held in front of a commission.

## 5.7 Media Processing

For each project, a **short video (2 - 3 min)** has to be produced, which shows a demonstration of the implemented prototype along with useful explanations made by the project team.

To ensure the keeping of privacy rights, **people may only be shown in the video when giving their explicit written consent**.

Missing or trivial video documentation will have negative effects on the grading. The best videos may be rewarded and published via the department's social media channels.

Additionally, a poster visualizing the main issues of the conducted project has to be provided. A template for the poster (`Document-F-ProjectPoster.pptx`) can be found in the template directory.

Both files must be stored in the in the `\Documentation\Media` directory, along with possible additional show-worthy images. Hereby, it has again to be kept in mind that images from the Internet are often copyrighted and thus **they are not to be used**.

Again, following students are exempted from providing the short video and the poster:

- Students who study at other Universities ("Incomings")
- Students who are abroad during the concerned semester ("Outgoings")
- Students conducting the ENI Elective Project (ENI513) or ENI Master's Thesis project (ENI602)

## 6. Grading

Each project member gets an individual project grade. The weighted evaluation criteria as depicted in Table 1 are used:

Table 1: Evaluation Criteria

Criterion	Weight	Evaluated By
<b>Technical Solution</b> How does the concept look like How does the technical solution look like Have all the aspects been solved sufficiently	37 %	Advisor
<b>Process</b> Technical documentation (system architecture) Source documentation User/Project documentation Compliance to deadlines and process Meeting and minutes quality	47 %	Advisor
<b>Presentation</b> Presentation style Content Slides	10 %	Attending Professors
<b>Video</b> Content Design Technical Realization	6 %	Advisor

For those students, who are exempted from presentation, as well as video and poster submission, the weights are as follows:

- Technical Solution: 45 %
- Process: 55 %

After the grades have been given, a review of the evaluation process can be obtained from the department office.

### Attention:

**Noncompliance to the rules described in this document can result in a negative project evaluation.**

## 7. Timeline

The important due dates for the project course are shown at the e-learning platform. A rough schedule of dates can be seen in Table 2. If the project has not been submitted at the set time, it will not be approved, i.e., the student will receive a failing grade. An unapproved project can be resubmitted two times. The deadlines of these resubmissions are set by the department.

For Master's Thesis Projects and ENI Elective Projects however, the **latest possible deadline** for students who want to take the early exam appointment **is the due date of Form C** of the Master's Thesis Process (see **Thesis Guideline** and the respective courses on the e-learning platform).

Table 2: Task Allocation and Due Times

No.	Task description	Responsible	Plan date
01	Definition and submission of Form A and Abstract	Student	Week 2
02	Decision about topics and allocation of advisors	MTC	Week 4
03	Internal Kick Off Meeting with the advisor	Student, Advisor	Week 6
04	Submission of Project Specification	Student	Week 8
05	Submission of Project Architecture	Student, Advisor	Week 10
06	Individual appointments	Student, Advisor	Week 9 - 17
07	Presentation of practical part	Student	Week 18
08	Submission of all data of the project	Student	Week 19

The colours correspond to the phases of the project (see Chapter 3).

## 8. Contact Persons

### ENI AND MCM HEAD OF STUDIES

---

**Dr. Christoph Schaffer**

Phone: +43 (0)50804-22810

Email: [christoph.schaffer@fh-hagenberg.at](mailto:christoph.schaffer@fh-hagenberg.at)

### ENI MTP COORDINATOR AND ENI PROJECT COORDINATOR

---

**DI Armin Veichtlbauer**

Phone: +43 (0)50804-22825

Email: [armin.veichtlbauer@fh-hagenberg.at](mailto:armin.veichtlbauer@fh-hagenberg.at)

### MCM MTP COORDINATOR

---

**Dr. Erik Sonnleitner**

Phone: +43 (0)50804-22823

Email: [erik.sonnleitner@fh-hagenberg.at](mailto:erik.sonnleitner@fh-hagenberg.at)

### MCM PROJECT COORDINATOR

---

**Dr. Jens Krösche**

Phone: +43 (0)50804-22821

Email: [jens.kroesche@fh-hagenberg.at](mailto:jens.kroesche@fh-hagenberg.at)

### ENI AND MCM HARDWARE COORDINATORS

---

**DI Stephan Selinger**

Phone: +43 (0)50804-22822

Email: [stephan.selinger@fh-hagenberg.at](mailto:stephan.selinger@fh-hagenberg.at)**Dr. Jens Krösche**

Phone: +43 (0)50804-22821

Email: [jens.kroesche@fh-hagenberg.at](mailto:jens.kroesche@fh-hagenberg.at)

### DEPARTMENT OFFICE

---

**Mag.<sup>a</sup> Isabella Kloihofer**

Phone: +43 (0)50804-22804

Email: [isabella.kloihofer@fh-hagenberg.at](mailto:isabella.kloihofer@fh-hagenberg.at)**Mag.<sup>a</sup> Pia Lindner**

Phone: +43 (0)50804-22805

Email: [pia.lindner@fh-hagenberg.at](mailto:pia.lindner@fh-hagenberg.at)

### UAS LIBRARY

---

**Mag.<sup>a</sup> Susanna Mersits**

Phone: +43 (0)50804-21522

Email: [susanna.mersits@fh-hagenberg.at](mailto:susanna.mersits@fh-hagenberg.at)