Project Guideline

Master's Degree Programme in Spatial Development and Infrastructure Systems

31 August 2023

1 Why do projects?

Projects are an essential component of the Master's study programme "Spatial Development and Infrastructure Systems" (SD&IS MSc). Through projects, students have the opportunity to use, adapt, and develop state-of-the-art methods of analysis to assess real-world problems in the fields of Spatial and Landscape Development, Transport Systems and Behaviour, and Network Infrastructure. More specifically, projects help students learn:

- to scientifically investigate problems pertaining to the future development of space and landscape, mobility and network infrastructure,

- to take responsibility for professional activities that require professional judgement, personal responsibility, personal initiative and innovation, and

- to critically evaluate their work and the work of others.

2 What is the purpose of this guideline?

Given the importance of projects in the learning experience, it is important that they are done seriously and well. This guideline provides basic guidance to ensure that this happens. It does not replace guidelines that have been developed for specific projects. Indeed, if there is any conflict between this guideline and specific project guidelines, the latter take precedence. Students are responsible for ensuring that they are following the correct guidelines.

3 What types of projects are there?

The projects included in the SD&IS MSc are classified as 1) in-class projects, 2) interdisciplinary project activity (IPA), 3) Master's project work, and 4) the Master's thesis. These are explained in the following sub-sections.

3.1 In-class projects

In-class projects are required within specific courses. They help students gain experience with the theory and tools provided in the course. The course lecturer defines the topic, process, length, method of evaluation and the time frame in which projects are to be done. The course lecturer also determines the registration process, how the project is marked, and the extent to which the project counts towards the final mark.

3.2 Interdisciplinary project activity (IPA)

The interdisciplinary project activity (IPA) is a stand-alone obligatory project offered in the 3rd semester. Through this project, students gain their first real-world spatial planning project experience by working together with three or four colleagues to solve a real-world spatial planning problem, drawing on the knowledge they have gained in their courses. The IPA starts at the beginning of the semester with an official group kick-off event and finishes at the end of the semester with a closing event in which all groups present their work in open plenum. The IPA is evaluated by all professors, executives in residence and assistants involved. Their individual evaluations are combined to produce a single grade for each group. Registration for the IPA opens approximately in mid-July and closes at the end of the second week of the semester. Students must register via myStudies. It is recommended that students complete all obligatory courses and have at least 30 credit points in specialisation courses before registering for the IPA. The IPA counts for 16 credit points.

3.3 Master's project work

Master's project work is a stand-alone non-obligatory project normally offered in the 2nd semester. It gives students the opportunity to study a specific topic of their choice under the guidance of a supervisor of their choice. The topics offered are published online in the middle of the semester prior to the one in which the project work is to be done. Students are to register via myStudies. The project counts for nine credit points.

3.4 Master's thesis

The Master's thesis is a stand-alone obligatory project normally offered in the 4th semester. It gives students the chance to study a specific topic of their choice in depth under the guidance of the supervisor of their choice. The Master's thesis starts in the second week of the semester and finishes a few weeks after the end of the lecture-period for that semester. The exact dates can be found at https://baug.ethz.ch/en/studies/reis/dates.html. In exceptional circumstances, the dates of the Master's thesis can be changed. A request must be made in writing to the study director who will either grant or deny the request. Students can only start a Master's thesis after they have obtained their Bachelor's degree, have met any additional admission requirements and have acquired at least 90 credit points in the Master's degree programme, including those for the compulsory courses and for the IPA. Students are to determine their own Master's thesis topics in discussion with a suitable supervisor (see section 6.3).

Once students have reached an agreement with the project supervisor, they register the topic in myStudies. Registration must be completed by the beginning of the semester in which the thesis is to be written. If a Master's thesis is not passed the first time, students have a second chance. The second Master's thesis must have a new topic and can be supervised by the same or a different supervisor. A Master's thesis counts for 20 credit points.

4 What are the big project do's and don'ts?

Projects are to be completed in compliance with the principles described in the Guidelines for Research Integrity and Good Scientific Practice at ETH Zurich. Of these, the big do's and don'ts are:

- Be original. All work must be original. Students are required to sign the Declaration of Originality form for Master's project work, IPA and Master's thesis. It may also be requested for other projects.

- Do not plagiarize. Students should never attempt to pass off the work of others as their own. It should be clear in presentations and reports that material being communicated in verbal, written or any other form belongs to the students. If the material belongs to others, it has to be clearly and correctly stated to whom it belongs.

- Appropriately cite the work of others. Work done in projects almost always builds upon the work of others, and it is appropriate, indeed essential, that students make clear how their work is related to the work of others in their final reports. This must be done in accordance with the rules of acceptable use and appropriate ways of citing the work of others.

- Treat confidentiality seriously. Many projects can only be done with information and tools provided by third parties. In many cases, these are provided with the assumption that any results generated will be kept confidential. With this in mind, students should never distribute their work in written or oral form without the written consent of the direct supervisor of the project or professor responsible.

- A student's work belongs to the student. The work a student does in their project is their intellectual property. To ensure a well-functioning Master's program, the student may be asked for the right for the SD&IS faculty to publish the work in

poster or short paper form to showcase the activities of D-BAUG, e.g. as a poster in D-BAUG hallways, on the SD&IS website, and in the ETH Research Collection.

5   Can projects be done in groups?

Some projects will be completed alone and others in groups. The decision depends on the specific requirements of the projects and of project supervisors. In some cases, students are allowed to decide themselves whether to work alone or in groups. When students are to form groups or have the choice of whether to do a project alone or with others, the choice must be made following the guidelines of the project supervisor.

6   How are topics determined?

6.1   A single topic is set

The topic of most projects is set by the project supervisor. If it is, you must speak with the project supervisor to understand what is expected of you.

6.2   Students can select one of multiple topics

If multiple possible topics are given for a project, e.g. the Master's project, students have the chance to select the topic that is of most interest to them. In this case, students are to read the descriptions and select one, either through an online tool or by informing the project supervisor. If help is needed to select one, students should contact the project supervisors and discuss details of possible projects with them before making a decision. Please be aware that there may be restrictions on the number of students able to select specific topics.

Topics for Master's project work are published online in the second half of the previous semester. If they are not, please approach the supervisor responsible or the director of studies as to when they will be published.

6.3   Students are free to select the topic of their choice

If the topic of a project is not set, or if it is possible to select additional topics to the ones given, e.g. the topic of a Master's thesis, students have may select one that is particularly well suited to their interests, within the given boundaries.

One way to identify a project topic is to select an interesting idea, develop an approximate problem description, and discuss this with the project supervisor, or potential project supervisor if there is a choice. Another way to determine a project topic is to contact the project, or potential project supervisor, and ask for ideas. Once a particular topic has been chosen, a problem description is to be developed. Tip: Reading scientific papers and discussing with domain experts are efficient ways of finding inspiration when deciding on topics.

The student and project supervisor will most likely need to rework the problem description until an agreement is reached. Once an agreement is reached, the student must register the project appropriately. If it is unclear how to do so, the direct supervisor should be asked.

7   How is work scheduled?

All projects require a schedule, which includes a list of the main activities required, the amount of effort required and when they should be started and completed. Having a good schedule increases the chances that project deliverables will be of high quality, on time and without too much last-minute pressure. Project schedules should include any obligatory meetings, e.g. intermediate presentations, final presentations, and imposed deadlines, e.g. project report submission. In developing the schedule, enough time should be included to produce the project deliverables, e.g. the final report, video and/or presentation. Communicating the work done in the project is almost as important as doing it. The total time of the activities included in the schedule should be roughly equal to those required to be awarded the associated credit points (1 credit point = 25 to 30 hours of work). The effort on the project should be allocated at reasonable times within the project, e.g. not necessarily all at the end.

Tips: Use a Gantt chart to schedule all the tasks, subtasks, and milestones, dates and meetings. After each meeting with supervisors, prepare meeting minutes. Circulate the minutes to the meeting participants for their agreement. This helps to quickly clarify any misunderstandings and helps to avoid problems in the project.

8   How should communication in projects work?

Projects can rarely be conducted without communication, e.g. with your supervisor, project partners or individuals that are external to ETH. It is important that all communication is done professionally. It is suggested at the beginning of each project to clarify with the direct supervisor as to how it is expected that communication should happen. For example, in some cases, it is advised only to contact external institutions with the consent of the supervisor, in order to avoid the external institutions being overloaded with questions. In other cases it is not.

9   Group work

Although some projects are to be done alone, some have to be done in groups, e.g. the IPA. In such projects, two or more students work together to solve a specific problem and hand in one set of deliverables for which they share common responsibility, e.g. a single final report. For group projects, at least part of the grade, if not all of the grade, will be the same for all group members. A high level of interpersonal skills is required for these to run optimally.

Group work should be clearly and fairly distributed amongst group members, early in the project. It is recommended to take minutes for the meetings in which the work is distributed, to avoid misunderstandings later in the project. If there are any concerns regarding group members, e.g. not pulling their weight, or working at a lower than acceptable quality, this must first be discussed within the group, and, if not quickly remedied, communicated to the project supervisor.

10   How to submit project deliverables

The deliverables to be submitted for each project depend on the project. Students should check with the project supervisor before the project starts, as to exactly what is to be handed in when, in what form and how it should be formatted. It is also suggested not to wait until the last minute to hand in the deliverables, especially if they are to be handed in over an electronic platform. Waiting until the last minute may jeopardize students' ability to meet deadlines.

11   How are projects graded?

The grading scale at ETH ranges from 1.0 to 6.0 in quarter grade (0.25) steps. The pass grade is 4.0, the maximum grade is 6.0. What is expected of students for each project varies, and therefore so does their evaluation. In general, however, projects are evaluated taking into consideration the student's:

- engagement and independence throughout the project,
- ability to work in the group if a group project,
- understanding of the theory and tools used in the project,
- ability to solve the specific problem,
- ability to critically evaluate and discuss the project results, and
- ability to present the project results through the specified deliverables, e.g. report, poster, videos and presentations.

It is recommended that the specific marking scheme should be obtained from the project supervisor prior to beginning the project.

12   How is feedback obtained?

An important component of learning and improving is receiving critical and constructive feedback. For some projects, feedback is given automatically. For others, students must request it. In the latter cases, students are encouraged to request feedback.

13   Further help

As completing successful projects requires interdisciplinary skills in addition to technical skills, students who are interested in improving these are directed to the material that can be used to test, train, and improve these, which can be found at https://baug.ethz.ch/en/department/organisation/department-staff/edu-services/competencies.html.

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