Meeting: 10 november 2023
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SIE Section
Agenda

• Master Thesis (PDM)
  • Context
  • How to proceed
  • Types of PDM, timeline
  • Research topics

• Internship
  • Goals, directive
  • Where and how long
  • How to proceed
  • Agreement, ISA status

• Questions
Master Thesis (PDM)

A unique occasion to tackle an academic challenge
Master Thesis (PDM) - Context

• Conditions

  • To succeed in the Master cycle (90 cr.)
  • To have achieved the internship (except for PDME)
  • The duration of the PDM is one full semester (30 credits)
  • The PDM must be achieved within 1 year right after the end of the Master cycle
  • Conditional admission: not more than 8 missing credits
    • Must be an exception

EPFL Directives:
- Education (414.132.3)
- «Contrôle des études» (414.132.2)
- https://www.epfl.ch/education/studies/reglement-et-procedure/pdm/

EPFL - Section des Sciences et Ingénierie de l'Environnement
Master Thesis (PDM) - Context

• Fundamental principles
  • The PDM is a research academic work
  • The topic must be discussed and accepted by a SIE professor (or MER), as well as the Section Head
  • The Prof or MER is in charge of the main supervision of the PDM
  • The assessment of the PDM is done during an oral exam led by a professor (main supervisor) and an expert.

The PDM is a unique occasion to organize your own research project in a fully autonomous way.
How to proceed?

See: guidelines on SIE web pages
Master Thesis (PDM) - How to proceed

- **PDM standard (SIE Lab)**
  - Identify your own research interest
  - Search for internal competences *(academic supervision)*
  - Discuss with professors of the research domain
    - Optional: search for an external partner
  - Define the research topic
    - Title; goals; content, methodology
  - **Define the supervision** *(Prof + co-supervisor)*
  - Communicate your choice to the Section
    - Then the Section will give the green light
  - Register your PDM on ISA
    - Deadline: same as for courses (two weeks after the semester start)
    - Even if the starting date of your PDM is later
Master Thesis (PDM)- How to proceed

• PDM in the industry (PDME)
  • No initiative with an external partner without a preliminary discussion with an SIE Professor
    • The Professor must contact the external partner
  • Discussion on the conditions for a PDME
    • Role of the company and the external supervisor
    • PDME agreement (EPFL- Company - Student)
      • Hosting by the company, mode of supervision
      • Confidentiality: data/documents from the company, PDM report
      • Intellectual property

Are you interested in a PDME? Please ask the Section
Master Thesis (PDM)- How to proceed

- PDM in the industry (PDME)

- Types of partners: OK
  - Engineering comp., consultant
  - Public Administrations and institutions
  - Industry, start-up
  - EPF Research Institutes: EAWAG, WSL, PSI, EMPA
    - Mandatory agreement of the Section

- Types of partners: NON OK
  - Foundation
  - Non-profit association
Master Thesis (PDM) - How to proceed

• Standard PDM with an external partner
  • Internship (STAP) done and validated on ISA
  • Duration: from 17 to 25 weeks
  • Agreement is not mandatory; to be clarified with the Section

• PDME: PDM within a company
  • The internship is included
  • Duration: 25 weeks
  • Agreement is mandatory
## Master Thesis (PDM) - Summary

<table>
<thead>
<tr>
<th>Type</th>
<th>Context</th>
<th>Duration [weeks]</th>
<th>Internship</th>
<th>Supervision</th>
<th>Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard</strong></td>
<td>Hosted by a SIE research lab</td>
<td>17</td>
<td>Before the PDM</td>
<td>1 SIE prof.</td>
<td>Not required</td>
</tr>
<tr>
<td><strong>Standard with an external partner</strong></td>
<td>Lab + external partner</td>
<td>17 – 25</td>
<td>Before the PDM</td>
<td>1 SIE prof. + 1 external supervisor (option)</td>
<td>Recommended</td>
</tr>
<tr>
<td><strong>PDME</strong></td>
<td>With the industry</td>
<td>25</td>
<td>Integrated</td>
<td>1 SIE prof. + 1 external supervisor from the company</td>
<td>Mandatory</td>
</tr>
</tbody>
</table>

[https://www.epfl.ch/schools/enac/education/environmental-sciences-and-engineering/fr/sie-bienvenue/formation/master/projet-de-master/](https://www.epfl.ch/schools/enac/education/environmental-sciences-and-engineering/fr/sie-bienvenue/formation/master/projet-de-master/)
Master Thesis (PDM) - Timeline

• Timeline
  • ISA Platform
    • You have to register on ISA at the latest two weeks after the start of the semester
      • Even if your PDM starts later during the semester
  • Start/end: flexible dates
    • Spring semester: between 1st January and 31st May
    • Fall semester: between 1st June and 31st December
    • Start on Monday and end on Friday at 12:00 (Swiss time)
    • Please validate your dates with the Section, before ISA registration
    • Once the dates are scheduled, no possibility to change them anymore
  • See: https://www.epfl.ch/education/studies/reglement-et-procedure/pdm
Master Thesis (PDM) - Research

• Research topics
  • Sources of inspiration
    • IIE Institut (Environment)
    • Some research labs in civil engineering
    • ETH Research Institutes (EAWAG, WSL, PSI, EMPA)
  • Visit IIE web pages
  • …express your interest for some research fields
  • …get in touch

https://www.epfl.ch/schools/enac/research/environmental-engineering-institute-iie/
Internships

Immersion in the professional world
Internships

• **Principle**
  • The internship is part of the EPFL Master programs
  • It can be done: after the end of the Bachelor, during the master cycle or right before the master thesis
  • It must be achieved before starting the master thesis

• **Goals**
  • immersion in the professional world
  • Working in teams
  • Be aware of the work organization of a company
  • Be exposed to the requirements of engineering projects
Internships

• Duration: min 8 weeks – max 6 months

• Règlement d’études SIE (only in French)

Les étudiant·e·s doivent effectuer un stage d’ingénieur d’une durée minimale de 8 semaines et maximale de 6 mois entre la fin du cycle Bachelor et le début du projet de Master. La réalisation d’un projet de Master de 25 semaines en entreprise dispense cependant les étudiant·e·s de cette obligation.

SIE web pages:
https://www.epfl.ch/schools/enac/education/fr/sciences-et-ingenierie-de-lenvironnement/master-sie-fr/stage-dingenieur/
Internships

- Companies: OK
  - Engineering comp., consultant
  - Public Administrations and institutions
  - Industry, start-up
  - EPF Research Institutes: EAWAG, WSL, PSI, EMPA
    - A practical work of the internship is required and if possible a collaboration with external partners
    - Mandatory agreement of the Section

- Companies: NON OK
  - Universities
  - Research Centers
  - NOG
  - Public institutions with a direct link with a University
  - Foundations
  - Associations
Internships

• Where & How long

• 2022 – Duration
  • 2 months: 18 %
  • 3-5 months: 45%
  • 6 months: 37 %
Internships

• How to proceed
  • Identify a professional domain of interest
  • Search for companies involved in this domain
    • Have a look at the SIE list of completed internships
  • Send your CV and letter of motivation to companies
    • Communicate your internship opportunity to the Section (> Green light)
    • Register your proposal on ISA
  • …or search for a proposal on EPFL internships platform
  • If the answer is positive
    • Communicate with the internship coordinator (SIE Section)
    • Search for an internal supervisor (SIE teacher)
      • The supervisor must not necessarily be an expert in the internship’s domain
    • Complete the agreement: to be signed by the internal supervisor, the company and the student; before the beginning of the internship
    • Upload your signed agreement on ISA and send a copy to the Section
Internships

• Agreement
  • Three parties: Student – Company – EPFL
    • EPFL: supervisor = teacher from SIE or ENAC
    • Company: supervisor in charge of your coaching
  • Agreement between student and company
    • Roles, liability, insurance
    • Title and content of the work
    • Supervision/coaching
    • Confidentiality
    • Intellectual property
    • Salary
Internships

- Your status on ISA
  - 8 weeks during the summer period (out of semesters)
    Nothing to do on ISA
  - During the semester: status «stage»
    • Reduced fees; no possibility to attend courses
    • It does not count for the Master cycle’s duration
  - Doing a second internship (your own initiative): status «congé»
    • This semester counts in the duration of the Master cycle
  - If the internship is done after the Master cycle, it is mandatory to start the Master thesis right after
  - If the internship is done after the Bachelor cycle, you have to do it right after the achievement of the BA
Students Interviews

Valérie Zermatten
« L'intelligence artificielle, ou le « deep learning », s'utilise de plus en plus dans l'analyse d'images en automatisant certaines tâches pénibles sans supprimer le travail humain, mais en le facilitant. »

Océane Hames
« Ces changements dans les zones polaires ont un impact sur le climat global. En les modélisant avec précision, on espère de mieux comprendre ce qui pourrait changer dans le futur. »

Coralie Chappelier
« A terme, il est intéressant de savoir comment des bactéries dans les écosystèmes aquatiques vont évoluer avec le changement climatique, et en particulier celles qui peuvent intoxiquer des animaux comme les chiens. »

• https://www.epfl.ch/schools/enac/education/environmental-sciences-and-engineering/fr/sie-bienvenue/etudier-lenvironnement/temoignages-detudiants/
QUESTIONS

https://stages.epfl.ch/

SECTION DES SCIENCES ET INGÉNIERIE DE L’ENVIRONNEMENT