Graduation Plan for AE students

Personal Information

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Studio

Architectural Engineering
Architecture teacher: Job Schroën
Research teacher: Ulf Hackauf
Technology teacher: Maarten Meijs

Argumentations of choice of the studio:
The Architectural Engineering studio has a great deal of attraction because it creates a mix between engineering and architecture, more specifically around a technical fascination of the student. This fascination leads to a very varied range of subjects within the studio itself. Moreover, the possibility of choosing one's own site out of four maximises the possibility of ending up with a situation and a context one is really interested in without losing the ease of access of information.
But mostly, I wanted a studio that could aid and guide me in the design of a more technical approach towards architecture.

Title

Urban Food for Amsterdam, Urban Food Van Ghendt, Farming Amsterdam, Farming Van Ghendt, Aquaponics ♡ Van Ghendt … (I can't seem to choose).

Graduation Project

Problem Statement

The Netherlands is a major export factor in the food industry globally and in Europe. Despite this business, most of our food production is destined to go outside of our own country, and we still import tons and tons of food to provide our people with nutrition.
Proven by studies, the Netherlands needs three times its area to provide itself with enough food; and this is when we would use that area purely for food production.
One person needs about 0.8 ha of food production to be sufficiently fed. Of course, in the countryside this would not be so hard to come close to. But what about the cities?

In Amsterdam there are 800.000 (over 2 million in Amsterdam greater-area) people, who all need to be fed. Right now, almost all of this food is imported, be it in- or outside of our country. That's why I believe it is an important moment time to invest in urban farming. This way, the food can be grown locally, hopefully organically, and be better available to people, cafés and restaurants. Rooftops, empty buildings, parks – you name it, there can be urban farming. It can be horizontal as well as vertical; which opens up a whole new dimension to the production of food.

There are a few methods of urban farming, and aquaponics is one of them.
Aquaponics is a way of soilless farming where aquaculture is combined with hydroponics. Aquaculture is the farming of fish, and hydroponics is soil-less vegetable and fruit farming with all the nutrients added to the water. By combining both systems it becomes a closed loop where the fish provide the nutrients for the plants, and the plants clean the water in return.
This system of farming uses a lot less water and is less intensive than soil-based farming. The downside is that the system has to be set up properly in the beginning and nutrient values measured regularly.

Objective

I believe that placing aquaponics in Amsterdam can contribute significantly to the food consumption in the area, and provide better awareness of food among the people. Within the van Gendt halls, the aim is to create a cycle of food that actively involves the people using it. From growing and consuming to a waste-cycle, I wish to integrate aquaponic farming with people's lifestyles for a better and sustainable food-aware future.

Overall design question

How can urban farming contribute to a self-sustainable program to give the van Gendt halls in Amsterdam a new food-aware future?

- What are the possibilities in urban farming?
- How can a greenhouse add to climate design?
- What are the possibilities in program concerning this food production?
- What is the background (numbers, studies) concerning food in the Netherlands/Amsterdam?
- What is the proper strategy concerning this food production in relation to Amsterdam?
- What is the architectural vision for the van Ghendt halls in Amsterdam? And maybe for the surroundings?

Thematic Research Question

For my thematic research I would like to dig deeper into the possibilities of an aquaponics system with the surrounding program for I believe that this could be an answer to many problems, such as water treatment, waste treatment, climate design and food produce. Aquaponics is basically a self-sustaining system that can provide local inhabitants and shops with fruits, vegetables and fish.

- What is aquaponics exactly? How does it work? What are the requirements? What is optimal to produce?
- What are the possibilities concerning the topics of water, waste and energy in relation to a bigger cycle than aquaponics itself?
- How can one integrate these subjects in one system, in one building?

Methodologies

Literature studies, reference/case study, research by design

Planning

First of all, I still had two courses from msc2 left: history thesis and online portfolio building. According to the rules, the history thesis has to be finished before the P2, so that is a must. Furthermore, it says that one can take 5 ECTS with them into the P3-P4 phase. Unfortunately, portfolio building is 6 ECTS, so I have to finish that one too. Therefore I will be placing a little focus on finishing these courses.

Now, as we know, I have had to postpone the P2 presentation due to a mistake in planning: I managed to get 60 ECTS in the first year, but 48 ECTS of those ended up in msc2 and only 12 ECTS in msc1. I

have spent the last semester catching up on the missing 18 ECTS and I am happy to say that I have managed to get them. So, now I have 78 ECTS in the system but this time 30 ECTS of those are in msc1! Finally living up to the demand of the board of examiners, I can now give the presentation and hopefully move on to the last semester.

So, to refresh everybody's memory, here a short timeline:

1. I started the graduation year in February 2015 at AE.
2. At that point in time, I still had to finish the history thesis (6 ECTS) and Online Portfolio Building (6 ECTS). I was convinced that these were the only ECTS left to get (more on that later).
3. During the semester I finished these 12 ECTS, and I thought all was fine.
4. By the time the P2 in June came up, I discovered that an error was made, and I had only 12 ECTS in msc1 and 48 ECTS in msc2 (instead of 30 – 30). There was no possibility of moving 18 ECTS from msc2 into msc1, so there was only one option left: pause my graduation year and take a semester time to catch up.
5. In September I started the studio Complex Projects of 12 ECTS and the accompanying seminar of 6 ECTS.
6. When the board checked the ECTS in Osiris, of course 18 ECTS were still missing. I explained the situation and got permission to do a delayed P2.
7. After quite a struggle, the two Complex Projects courses were finished and passed at the end of January. Then, I planned in a P2 for 12 February, which was approved by all my tutors.

It was not an easy track to complete, but I am happy that I finally made it to an official P2.
For the coming semester, the goal is to convert the knowledge I gained from my research paper into a design worthy for graduation.
Included as an appendix is a short visual representation of the planning.

Relevance

I believe the relevance is quite specific, pertaining to the raising question on how to feed the population and creating more awareness on this subject. Not just by promoting super small-scale backyard gardening, but by creating a program that co-exists with the food production to show and educate people on food production.

Literature

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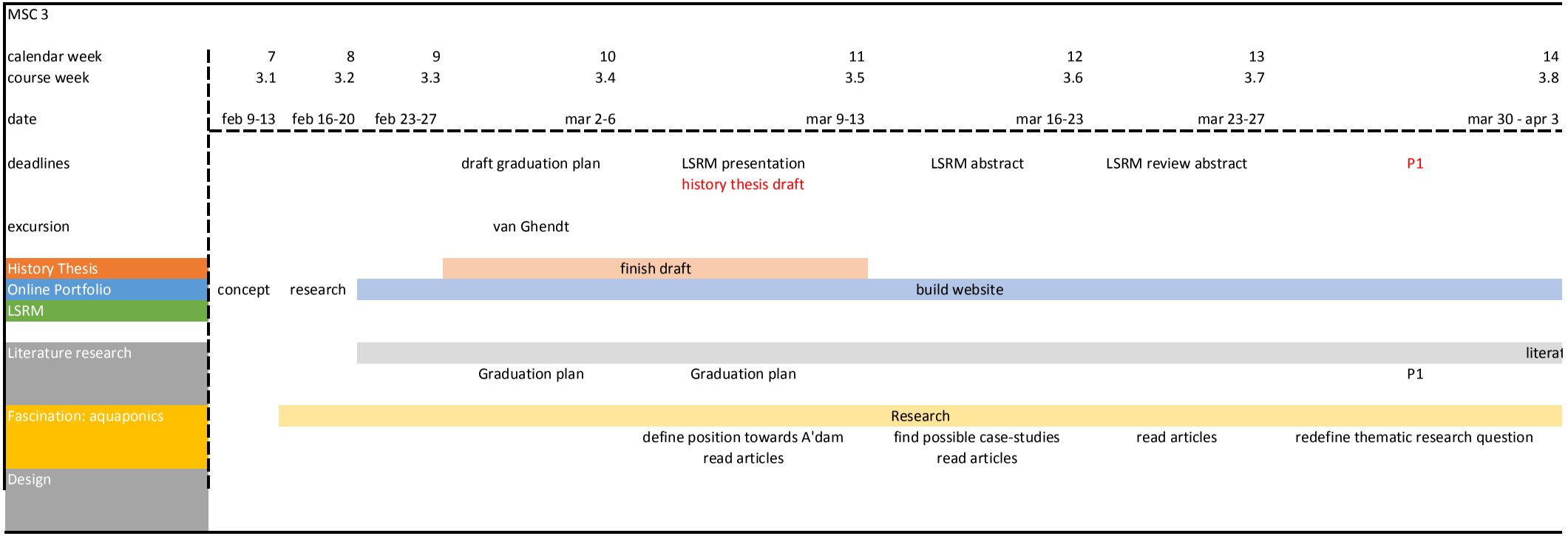
farm:shop, Dalton (case study)

The plant, Chicago (case study)

growUp box, London (case study)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History Thesis
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redefine thematic research question
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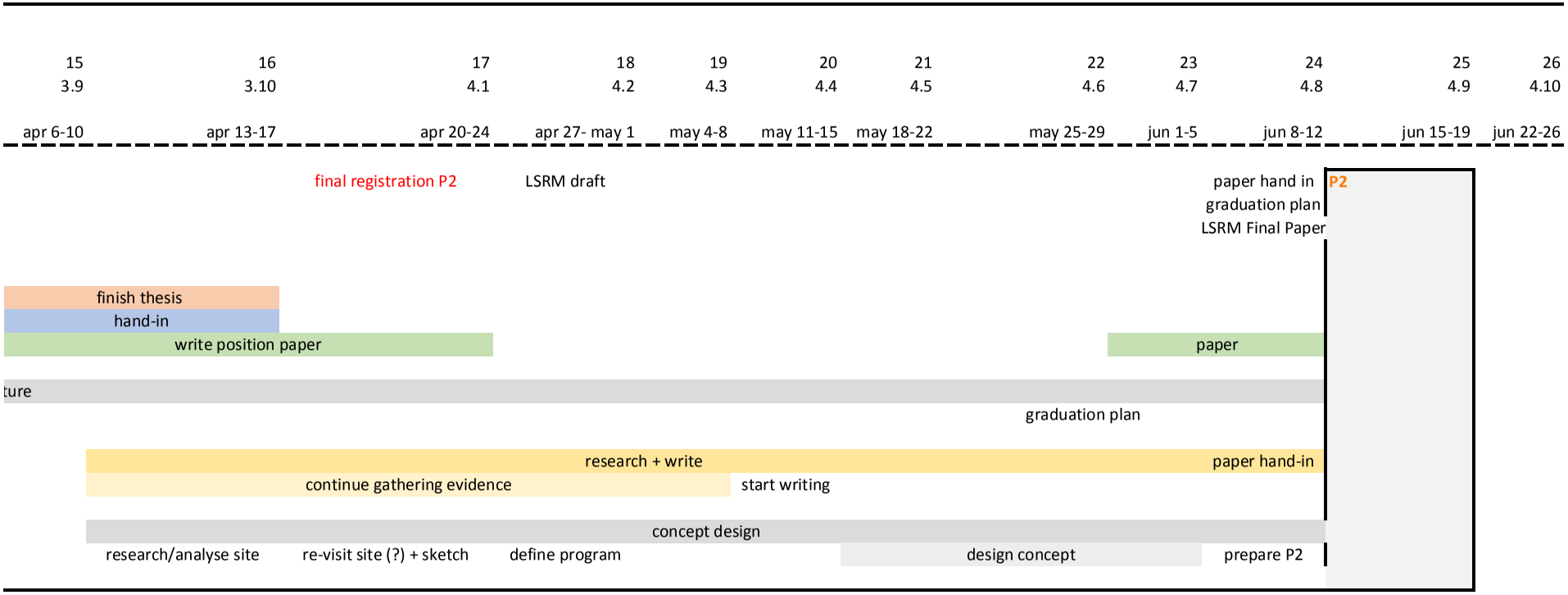
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final registration P2
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graduation plan
LSRM Final Paper
P2
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write position paper
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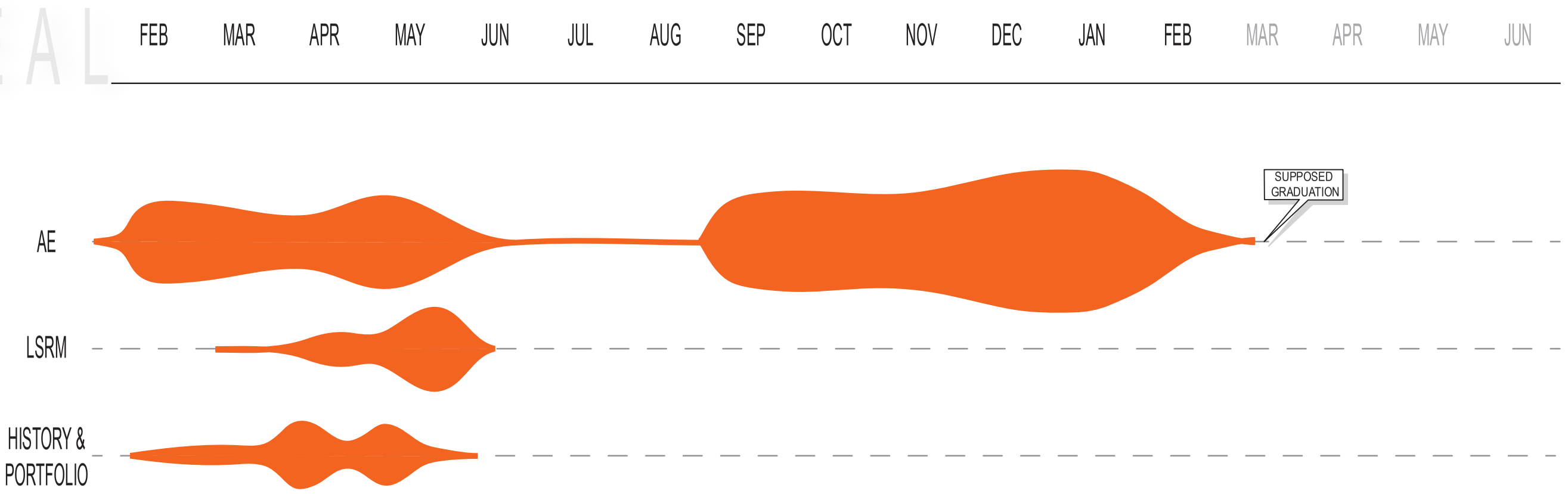
graduation plan
research + write
paper hand-in
continue gathering evidence
start writing
concept design
research/analyse site
re-visit site (?) + sketch
define program
design concept
prepare P2

IDEAL



REALITY