



Course Analysis MF2088

Innovation and Product Development Fall 2020

Date and author: [2021-12-10 by Gunilla]

1 Course information

In the course, a real innovation and product development project in collaboration with a sponsor, or a student initiated development project, is carried out. The work is carried out in groups, and in the course, the work is supported through seminars and supervision, with focus on both the process and deliveries. The students design their innovation process and organisation themselves, based on their innovation challenge utilising documented working methods in innovation work. Examples of methods are design thinking, lean start-up and triple layered business model canvas. The deliveries in the course is that the students develop business models, business plans and included solution in the form of concepts and prototypes.

In the course, seminars are also carried out, where organisation and management of the projects are discussed and critically reviewed, as well as seminars about the progress in the innovation and product development solutions.

Intended learning outcomes

After passing the course, the student should be able to:

Innovation process: LM1: Design, apply, evaluate and adapt processes and working methods to handle complex (vague, ambiguous) innovation projects.

LM2: Use methods to handle social factors in project teams.

LM3: Analyse and evaluate ones own practical implementation of innovation work and put it in relation to research.

Innovation deliveries: LM4: Develop, justify, evaluate and communicate business models and business plans.

LM5: Develop, justify, evaluate and communicate solution proposals in the form of concepts and prototypes.

LM6: Analyse and evaluate innovation solutions based on economic, environmental and social sustainability.

Course responsible teacher:

Gunilla Ölundh Sandström

Other teachers in the course:

Jens Hemphälä, Mats Magnusson and guest lecturers

Examiner:

Gunilla Ölundh Sandström

Learning activities:

The course is related to a real innovation project and the students work actively on their project during the course and get support in seminars. The students develop, lead and execute an innovation project using methods, tools and ways of working learned in the program and the course.

2 Students' view of the course

Summary of students' view of the course based on for example LEQ survey and/or interviews or other activities.

Response rate of LEQ course evaluation survey:

At the last seminar in the course all student teams (7 teams) filled in a Mural answering the questions *What went well, What didn't go well* and *Actions* that the students wants to change in the course regarding *The course activities, The relationship to stakeholders, the examination.*

Brief summary of students' responses from the LEQ survey and/or other types of course evaluation:**The course activities:****What went well**

It is clear from the feedback that the students have appreciated the course format and the activities arranged. Even though the course were given with no face-to-face interaction with teachers or in class having all seminars on-line due to Covid-19 wok the format with seminars and arranging discussions and feedback in small review groups has worked out well. Some typical comments on what worked out well:

- Having a large open project with practical application in industry
- Supervision from KTH
- The course teachers did an amazing job
- Really appreciated the sessions with breakout rooms to discuss the projects and learning experiences. (This don't happen naturally in the same way due to covid)
- The opponent-seminar where everyone had one that read each BP and give constructive feedback
- Seminars and guidance sessions

- Mural used for online collaboration
- Reading a book - inspiring each other and extending knowledge

What didn't go well

The students found it hard to not meet face-to-face especially for understanding their project and getting to know the project partner and in the creative phases of the project. It was harder to get to know each other when they did not meet in person in class and it also affected willingness to discuss in full class. Also understanding the given challenge became harder since the students could not meet the project partners, users or customer nor could they test the solutions they were working on in the correct environment.

Issues not Covid-19 related are that students perceive that they get to little knowledge on financial aspects of a business plan to properly be able to manage that part. It is both due hard to get data and lack of education in that area in the program and the course.

Some also experienced that responses from project partners were sometimes slower than they wanted and that the feedback from KTH supervisors could have been more detailed.

Some representative quotes from the students on what they did not think worked well:

- Couldn't meet in person -> creativity declines
- The breakout of covid-19 prevents us from meetings in person
- Lack of background knowledge to calculate the financial part of the business plan
- We have had less breaks then when we had physical lectures
- Sometimes difficult to present specific stuff that was specified for seminars with group presentations (we are not always doing the same things)
- Supervision could sometimes have been more detailed
- Sometimes the discussion in breakout rooms became unfocused
- Participation in whole class, we dont know eachother and people are shy
- Hard to understand the initial problem. Was probably good for our personal understanding, but it has been a struggle.
- Sometimes hard to get quick respons from project partner

Actions to be taken:

Suggestions of actions from students relate to the teachers being better at managing Zoom and on-line teaching. Suggestions also for course design to off load first period by moving seminars to the second

period. There are also suggestions for how to improve the seminars and also to add seminars on financial issues. Some of the comments from the students below:

- Optimize the time spent in zoom in seminars
- Add at least one lecture on which parts are important to take in consideration when calculating financial parts
- Plan in more breaks, or use an alarm
- It would have been good (during the seminars) if the teacher presenting during (responsible for) the seminar had tried to twist their presentation towards remote group work. We would definitely have needed more tips on how to do everything on a distance, for example creative work such as brainstorming.
- Seminars: instead of presentations on set format (e.g. show concepts) allow open format and prepare pain-points in advance
- Have older students coming back and tell about different paths. We got to see stagecast in the beginning of the masters, that was really interesting!
- Move one or two seminars from period 1 to period 2 to get more even workload

Comments on examination:

What went well:

Students comments on examination reflect that most of them appreciate the format of examination of the process, reflections and learnings and the innovation results. They also appreciate the feedback format with peer-review of final hand-ins and also feedback on individual hand-ins by teachers.

- Interesting with business plan as examination to prepare for future works
- It was very good that it was approximately two weeks between the individual business plan peer review and the final presentation. In two weeks the group has time to fix a lot and finish up the project, and the improved result on the final presentation was apparent.
- The examination covers multiple dimensions, taking almost all the activities through in project into consideration
- The grade is not only assessed by the quality of project, but also based on learning reflections
- The presentations were great
- Really like the Lessons Learned format!
- Nice that we got to choose a lot of the Innovation Results for ourselves.

What did not go well

Some students ask for more guidance on the level of the hand-ins and more clarity of the different hand-ins.

- The course is very big (22,5 hp) but it feels a bit messy to deliver a huge report, a prototype, a presentation AND an individual report on lessons learned (twice).
- Stressful not knowing what was/is expected in terms of prototypes.
- It's a bit difficult to correspond the learning outcomes to specific activities, project stages or assignments
- Hard to keep attention on 7 presentations on zoom

Actions:

Some students ask for more specific information about the quality of prototypes and also a seminar on prototypes as a complement to the supervision and prototyping seminars already in the course where the students have support an industrial designer.

- We wish that the LOs can be addressed more through the seminars
- Inform about different types of prototypes and suggest platforms (Mural, Adobe XD etc.) and that a sketch on paper also works to communicate an idea.
- Maybe an entire lecture on prototyping and how it can differ depending on product/service category.
- Inform the value of re-doing things and be more clear in the course syllabus around the specific documents/activities that have the largest impact.

3 Teacher analysis of the course

Changes of the course before this course offering:

The course spring 2020 was affected by Covid-19. The major changes in the course were therefore related to this. The schedule and the project were the same as it would have been without Covid-19 but the format of seminars was on-line instead and the student's possibilities to meet physically was very limited.

The course's strengths (based on the students' experiences and the teacher analysis):

The major strength in the course is the course design and that student get to run an open innovation project that they have full responsibility for. They get to do and reflect on innovation work. The mix of examination forms were not only result but also the process and individual learnings are examined.

Areas for improvement of the course (based on student experiences and teacher analysis):

One issue in the course is that innovation projects are all have their own path and the students make the project plans that fit their projects. Therefore, the seminars in the course are more in the timeline for some projects than others and they may be in different phases. That can lead to that the content of arranged seminar is better suited for some project than others in regards to their timeline. The seminars can be even more adapted to that. Some students find the seminars to short and others to long. Some find the discussions with other students less supportive and others find them inspiring and very helpful. For most the format of the seminars works well and we can push even more the format of the discussions and what they should present and how to give each other feedback.

We can improve giving seminars on financial issues and include an introduction seminar on prototypes that complements the already given supervision session with an industrial designer.

We can also invite former students of company representatives to present their view of innovation process.

The learning objectives are discussed in each team at the start of the course and time is given on reflecting and discussing them and the LO have detailed grading criteria. In the beginning of the course all is new for students so this discussion could also take place later on in the project when they are familiar with their projects.

Proposed changes to the next course round:

- Seminar on financial issues related to start-up or innovation work within a company (or it can be included in courses prior to this course)
- Include more on early prototyping of business models and solutions
- Invite previous students and/or company representatives
- Further improve the format of discussions at seminars
- Discuss LO, examination and grading criteria also more in the middle of the course to complement the discussion at the course start.