

Søknad om midler til studiekvalitetsfremmende tiltak	
Prosjektnavn:	
Prosjekteier (institutt, fakultet.):	
Stuedsted:	
Prosjektleder:	
Prosjektperiode er studieåret 2020/2021	
Søknadssum:	
Bakgrunn	
Hensikt	
Mål	
<i>Målene formuleres slik at de er spesifikke, målbare, aksepterte, tids- og kostnadseffektive og enkle.</i>	
Kriteriegrunnlag og overføringsverdi	
<i>Hvilket og på hvilken måte passer prosjektet til kriteriegrunnlaget for studiekvalitetsfremmende tiltak? I hvilken grad og på hvilken måte har prosjektet overføringsverdi til UiT forøvrig?</i>	
Forventede resultater	
Budsjett	
<i>Midler skal benyttes til studentretta tiltak. Midler kan ikke benyttes til å dekke ansattes utgifter der studenter ikke deltar. Ubenyttede midler, ikke dokumenterte brukte midler og/eller midler som ikke er brukt i henhold til tildelingen skal tilbakeføres til sentral pott.</i>	
Lengden på søknaden skal ikke overskride tre A4 sider. Søknad oversendes til Seksjon for forsknings- og utdanningskvalitet i ePhorte med referanse 2020/542	

Rapportering om bruk av tildelte midler til studiekvalitetsfremmende tiltak

Prosjektnavn:	Idea Factory
Prosjekteier (institutt, fakultet.):	Dpartment of Industrial Engineering
Stuedsted:	Narvik
Prosjektleder:	Hao Yu
Prosjektperiode	Studieåret 2020/2021
Tildelt sum:	180,000
Rapporteringsfrist	1.10.2021

Bakgrunn

Industrial Engineering is about to see "the big picture" when one is dealing with complex processes, systems, or organizations. The field focuses on analyzing and optimizing the many 'wheels' that work together so that an organization is able to function in the most efficient and effective way. Master Program of Industrial Engineering at UiT provides a well-combined course portfolio in order to provide students with extensive knowledge in both engineering technology and management science.

Through analysis of the result from the Studiebarometeret and student survey, we found the most students are satisfied with the quality and combination of the courses. However, three main recommendations were suggested to improve the quality of education at the master program:

1. Students wish to have a more interesting and active way to practice their knowledge from class in the real world, for example, the design thinking, innovative logistics solutions, etc.
2. Students suggest an enhancement between the knowledge from class and their applications in industry and R&D activities. Simply to say, the students have a good command of knowledge, but they are somehow unsure about how to use the knowledge in their future works.
3. Master Program of Industrial Engineering adopts an intensive teaching mode and one subject is completed within two weeks. Besides, the master courses are at higher level of difficulty. Some first-year master students may need more helps to follow the master study at the beginning and experiences from faculties and second year students will thus be helpful.

Hensikt

The purpose of the Idea Factory project is to improve the overall quality and student satisfaction at Master Program of Industrial Engineering through the following aspects:

- Establish an active and more interesting learning environment for innovation, idea generation, prototyping and testing
- Enhance the connection between research-based education and industrial application and R&D activities
- Provide more helps for first-year master students both academically and personally

Mål	
<i>Hvilke mål ble satt for prosjektet?</i>	<p>The project aims at achieving the following goals:</p> <ol style="list-style-type: none"> 1. WP1: the first goal of the project is to establish a physical idea factory where some entry-level devices, e.g., 3D printer, drone and VR set, will be placed, connected to the computers and internet, and managed and used directly by the student. Through which the knowledge learned from the class can be easily practiced in a more interesting way. The innovative ideas from the students can be easily tested. For example, the innovative product design can be prototyped; the innovative logistics solutions (e.g., delivery with drone, training with VR), and so forth. 2. WP2: the second goal is to host regular seminar/workshop per month with coffee and snacks or pizza, where industrial practitioners and/or researchers will be invited to give lectures. This aims at bridging the gap between the knowledge from class and industrial applications so that the students will be better prepared for their future works. Furthermore, this will also enhance the communications among students, faculties and industrial partners. 3. WP3: the third goal is to host a competition among several groups of master students in the spring semester of 2021, which focuses on the application of industrial engineering in solving a real-world challenge. 4. WP4: the fourth goal it for the support of evens like conferences, visit of industrial partners as well as other events for promoting the students' involvement in industrial cooperation and research activities. 5. WP5: project management
Tiltak	
<i>Hvilke tiltak og aktiviteter er gjennomført?</i>	<p>During the project period, the following activities have been implemented:</p> <ol style="list-style-type: none"> 1. A physical active learning factory with a wide range of equipment, i.e., 3D printers, drones, robot arms, smart robots, mobile robots, VR-glass, and micro-controllers has been established, and students can freely use and practice the equipment for their own projects. 2. We organized 9 seminars and workshops (1 physical event and 8 online events) for students to promote their professional development and enhance the connection between teaching and practice. 3. We support our master's students to attend several events including 6 professional conferences, 3 summer schools, 2 workshops. Besides, we support the participation of 2 workshops and 1 professional conference for the supervisor of the respective students. In addition, we join the Norwegian OR society, which gives our students free access to professional information and job opportunities closely related to their studies. 4. We support students' initiated projects during their master's thesis period or other courses. For example, a drone club was initiated by a group of second-year students during their master's thesis. The purchased equipment is returned to the active learning factory and can be continuously used by other students. 5. A Youtube channel is planned and will shortly be published with some interesting works from the Idea factory.

Resultater	
<p><i>Har prosjektet oppnådd de målene som fremgikk av søknaden? Hva har prosjektet lyktes med, og hva har prosjektet ikke lyktes med?</i></p>	<p>The project has achieved most of the planning goals including:</p> <ol style="list-style-type: none"> 1. By establishing an active learning factory, students can easily get familiar with new technologies and test their own designs and ideas. 2. By organizing professional events and supporting student events, students become much more motivated and active in their professional development and research. <p>However, due to the impact of the pandemic, several planned physical events cannot be arranged during the project period. For example, the planned physical seminars, workshops, and competitions. The effectiveness and interaction of online events are not as good as the physical ones.</p>
Vurdering og overføringsverdi for andre	
<p><i>I hvilken grad og hvilke erfaringer har dere gjort dere som kan være overførbare til andre fakultet eller UiT forøvrig? Hvordan kan og skal dette formidles til andre fakultet på en god måte? Skal prosjektresultat implementeres som et fast tiltak? Forklar.</i></p>	<p>The experience obtained from this project is transferrable in several aspects:</p> <ol style="list-style-type: none"> 1. New technologies will shape the future, and students need to know the impact of new technologies on their subjects. Thus, providing entry-level equipment for students in different faculties will be a very good way for promoting active learning. For example, the students in healthcare need to know how 3D printing will make a change. 2. Students can become very innovative and motivated with this kind of free and unsupervised learning. In addition, with the proper supervision in an interested field, students' learning effectiveness can be drastically improved. 3. Students can become motivated if they have the chance to present their results to their peers and professional communities. 4. Equity in education can be enhanced. Students with different backgrounds can access various technologies related to their study. <p>The project results will be sustained at the master's program. The active learning factory will be continuously used by students, and we will organize regular events, maintain the Youtube channel, and support students' events.</p>
Regnskap	
<p><i>Økonomisk rapportering hvor det skal legges frem regnskap for prosjektet som viser hva midlene har blitt benyttet til. Midler skal ikke benyttes til å dekke ansattes utgifter der studenter ikke deltar. Ubenyttede midler, ikke dokumenterte brukte midler og/eller midler som ikke er brukt i henhold til tildelingen skal tilbakeføres til sentral pott.</i></p>	<p>The financial report and funding allocation are given as follows:</p> <p>WP1 Equipment and materials: 95911.28 NOK WP2 Seminars: 1708 NOK WP3 Competition: 0 NOK WP4 Support for events: 40255.33 NOK</p> <p>As planned, the major funding is spent in purchasing the relevant equipment in WP1 and supporting student's events in WP4.</p> <p>Due to the impact of the pandemic, several physical activities in WP2 and WP3 cannot be organized as planned due the infection control measures during the implementation period.</p> <p>In WP4, the original plan was to support 3-4 student's trips to events. However, due to the pandemic and travel restrictions, the supports are mainly to the online events, conferences, and workshops, so more students get supports from the project.</p> <p>Besides, one positive side during the pandemic is the establishment of more digital resources and the Youtube channel, which help to sustain the project results in a continuous way.</p>
<p>Lengden på rapporten skal ikke overstige 3 A4 sider. Rapport oversendes til Seksjon for forsknings- og utdanningskvalitet i ePhorte med referanse 2020/542 Foreligger ikke rapport innen frist, skal midlene tilbakeføres til sentral pott</p>	