



## D3.2 Phase 2 teaching modules for innovation and entrepreneurship curricula with guidelines

December 2023

Per-Anders Langendahl (Department of Economics, SLU)  
Jan Aidemark (LNU)

KIC EIT Food is supported by the European Institute of Innovation and Technology (EIT), a body of the European Union.

Coordinated by



## Document information

|   |  |
|---|--|
| D3.2 Phase 2 teaching modules for innovation and entrepreneurship curricula with guidelines |  |
| Project/Grant Agreement number  | KAVA 21383   |
| Project title   | Nordic Baltic Universities boosting entrepreneurial and innovation support systems |
| Project acronym   | NOBALIS  |
| Project start date  | 01/07/2022   |
| Project end date  | 31/07/2024   |
| Project duration  | 15 months  |
| Work Package  | <i>WP3: Enhancing the quality of innovation and entrepreneurship education</i>     |
| Deliverable lead  | SLU  |
| Author(s)   | <i>Per-Anders Langendahl and Jan Aidemark</i>                                      |
| Type of deliverable* (R, DEM, DEC, other)   | R  |
| Dissemination level** (PU, SEN, CI)   | PU   |
| Date of first submission  | <i>31.12.2023</i>  |
| Revision n°   | 2  |
| Revision date   | <i>09.01.2024</i>  |

Please cite this report as: Langendahl, P. A., Aidemark, J. (2023), Deliverable Title, D3.2 of the HEI project.

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Institute of Innovation and Technology (EIT). Neither the European Union nor the granting authority can be held responsible for them.

\* **R**=Document, report; **DEM**=Demonstrator, pilot, prototype; **DEC**=website, patent fillings, videos, etc.; **OTHER**=other  
\*\* **PU**=Public (fully open), **SEN**=Sensitive — limited under the conditions of the Project/Grant Agreement, **CI**=Classified  
(RESTREINT-UE/EU-RESTRICTED, CONFIDENTIEL-UE/EU-CONFIDENTIAL, SECRET-UE/EU-SECRET under Decision 2015/444)

## Contents

|   |   |
|---|---|
| <b>Document information</b> .....   | <b>2</b>  |
| <b>Executive Summary</b> .....  | <b>5</b>  |
| <b>About the EIT HEI Initiative</b> .....                                       | <b>7</b>  |
| <b>1 Introduction</b> .....   | <b>8</b>  |
| 1.1 Building capacity to enhance the quality of I&E education.....              | 8   |
| <b>2</b> .....  | <b>Results: Lessons learned from tasks 1-4</b>                |
| .....   | <b>9</b>  |
| 2.1 Lessons learned at SLU.....   | 9   |
| 2.2 Lessons learned at LNU.....   | 11  |
| 2.3 Lessons learned at LLU/LBTU.....  | 12  |
| 2.4 Lessons learned at EMU .....  | 13  |
| 2.5 Lessons learned at NMBU.....  | 14  |
| <b>3</b> .....  | <b>Next steps to enhance the quality of I&amp;E education</b> |
| .....   | <b>15</b>   |
| 3.1 Quality assurance system.....   | 16  |
| 3.1.1 Criteria for Quality of NOBALIS courses.....                              | 16  |
| 3.1.2 Assessment in relation to objectives.....                                 | 17  |
| 3.1.3 Potential for Internal Follow-Up Processes. ....                          | 17  |
| 3.1.4 Course Evaluations.....   | 18  |
| <b>Appendix 1: template for I&amp;E curricula with guidelines</b> .....         | <b>19</b>   |
| <b>Appendix 2: Academic staff participating in WP3</b> .....                    | <b>20</b>   |
| <b>Appendix 3: Overview of courses that include I&amp;E curricula</b> .....     | <b>21</b>   |
| <b>Appendix 4: Teaching modules for I&amp;E curricula with guidelines</b> ..... | <b>23</b>   |

## Executive Summary

The executive summary provides an overview of Work Package 3 within the NOBALIS project focusing on enhancement of innovation and entrepreneurship education. The report encapsulates the lessons learned from phase 2.

The participants executed four interrelated tasks:

1. Building capacity to teach innovation and entrepreneurship
2. Developing innovation and entrepreneurship curricula.
3. Transferring innovation and entrepreneurship curricula into educational contexts.
4. Developing a quality assurance system for the curricula.

The report underscores the evolution from phase 1 to phase 2, detailing the establishment of a peer-to-peer training groups at each university. Key outcomes from phase 2 include the modification of the joint template for developing I&E curricula, with a focus on defining and motivating learning objectives. The report emphasizes the transfer of curricula into educational context, highlighting the implementation of I&E curricula in various courses across participating HEIs.

The report delves into lessons learned from each HEI, summarizing insights from the coordinators of the satellite teams. The focus is on task 1-4:

1. Building capacity to teach I&E:
  - Highlights the establishment of a peer-to-peer training program.
  - Describe the use of a joint framework.
2. Developing I&E curricula:
  - Emphasizes the challenges and time required for development-
  - Importance of practical, real-life value in teaching I&E.
3. 3. Transferring I&E curricula into educational contexts:
  - Adresses student motivation and the need for independent work
  - Discusses the challenges of teaching innovation and the demand for flexible examination methods.
4. Developing quality assurance system for curricula
  - Highlights the need for coordination and communication among academics.
  - Addresses the importance of differentiation between MA and BA level in I&E modules

Lessons learned at each HEI:

The report provides a detailed breakdown of lessons learned at individual HEIs:

- **SLU:** Focuses on societal expectations for innovation and adoption of constructive alignment framework.

- **LNU:** Highlights challenges in building capacity, emphasizing the importance of time, engagement and community creation.
- **LLU/LBTU:** Discusses the alignment of study courses with quality standards, effective knowledge transfer methods, and collaboration between faculties.
- **EMU:** reports on the formation of peer groups and emphasizes the need for better coordination between academics
- **NMBU:** describes challenges in creating satellite team and the evolving interest in I&E education following the alignment of strategic action plans.

In summary the report captures significant progress made in enhancing the quality of innovation and entrepreneurship education during phase 2 of the NOBALIS project, providing insights and lessons learned for future improvements and development. For further detailed information and supplementary materials, please refer to the appendices included in this report. The appendices provide additional insights including teaching modules for I&E curricula with guidelines (see Appendix 4).

## About the EIT HEI Initiative

The EIT HEI Initiative: Innovation Capacity Building for Higher Education has been designed with the aim of increasing the innovation and entrepreneurial capacity in higher education by bringing together HEIs in innovation value chains and ecosystems across Europe. A central philosophy of the EIT is the integration of the EIT Knowledge Triangle Model into all its activities. HEIs selected to participate in the HEI Initiative will also leverage and use the Knowledge Triangle Model as an enabler, facilitating the creation of systemic, institutional change. Additionally, HEIs selected to participate in the HEI Initiative will contribute to and leverage Smart Specialisation Strategies, the Regional Innovation Impact Assessment (RIIA) Framework, as well as align to the goals of the EIT Regional Innovation Scheme (EIT RIS). This will strengthen the links between HEIs and their local and regional ecosystems and provide an impetus to leverage additional funding sources beyond the HEI project funding period of the selected HEI projects.

HEIs are encouraged to prepare applications which will support the development and implementation of six Actions in their institutions, cumulatively leading to institutional transformation, an increase in entrepreneurial and innovation capacity, and integration with innovation ecosystems.

# 1 Introduction

Work Package 3 (WP3) aims at enhancing the quality of innovation and entrepreneurship education. This report presents the lessons learned from phase 2 of the NOBALIS project including teaching modules for innovation and entrepreneurship (I&E) curricula with guidelines. The teaching modules for I&E education with guidelines are presented in Appendix 4.

Participants in WP3 has undertaken four interrelated tasks to achieve its aim and outcomes, these are:

1. Building capacity to teach innovation and entrepreneurship
2. Developing innovation and entrepreneurship curricula
3. Transferring innovation and entrepreneurship curricula into educational contexts
4. Developing a quality assurance system for the curricula

Lessons learned in phase 2 builds on the work completed in phase 1 of the NOBALIS project, which is described in Deliverable 3.1 “teaching modules for innovation and entrepreneurship curricula with guidelines”, published in October 2022. In this progress report, we report on curricula (teaching modules) developed in phase 2, which are made available for educators and trainers in the Higher Education Institutions (HEIs) participating in the NOBALIS project and for the European Institute for Technology HEI Initiative resource hub. The report captures lessons learned from all four tasks in WP3 complete during phase 1 and 2. The outcome from phase 2 that are captured in this report will inform subsequent developments to enhance the quality of innovation and entrepreneurship education at each HEI of this consortium. Summary of lessons learned in phase 1 and tasks completed in phase 2 is described next.

## 1.1 Building capacity to enhance the quality of I&E education

A peer-to-peer training program was established in phase 1 to enhance the quality of innovation and entrepreneurship (I&E) education. Academic staff involved in teaching I&E were recruited as participants in the training program and to develop teaching modules for I&E curricula with guidelines. The peer-to-peer training programme was organised into three interrelated workshops that focused on developing a joint framework to depict and transfer I&E curricula between participants. The concept of constructive alignment (see Biggs and Tanng, 2011<sup>[1]</sup>) were selected by task leaders as structure to depict and share good I&E teaching practices. In subsequent workshops, participants presented their curricula’s and discussed its implementation in educational contexts. <sup>[1]</sup> The guidelines for describing good teaching practices is inspired by the concept Constructive Alliance, for reference see Biggs, J. and Tang, C. 2011 *Teaching for Quality Learning at University*. Open University Press, UK.

The joint template, se Appendix 1, for developing I&E curricula developed in phase 1, was modified and deployed in phase 2 to develop and improve I&E curricula at each HEI as well as to share I&E curricula beyond the participants of this project. A key modification in the guiding template for developing I&E curricula is the instruction to define and motivate the intended learning objectives as well as describe teaching and learning activity. As the project transferred from phase 1 into phase 2, participants involved in WP3 grew from 12 to 20 participating academics. An overview of participants in WP3 in phase 1 and 2 are



depicted in Appendix 2. To accommodate for more participants in the training program for academics, we established satellite teams at each HEI. The satellite teams extended the work undertaken in phase 1 to enhance the quality of I&E education at each HEI. A coordinator was appointed for each satellite team to organise the work for each task. Three interrelated workshops were also organised for the coordinators of each satellite team to ensure that lessons learned are shared across the HEIs of the NOBALIS project. These workshops included 1) kick-off in February 2023; 2) workshop to discuss progress on tasks 1-4 in May 2023; and 3) workshop to capture lessons learned in November 2023. A key task for WP3 is to transfer curricula into educational contexts. Here, curricula refer to teaching modules and educational contexts refers to courses at each HEI. Participants in the satellite teams are developing and implementing I&E curricula into teaching contexts. An overview of courses that include I&E curricula is depicted in Appendix 3. Having presented the approach and outcomes from building capacity to teach I&E curricula and transferring I&E curricula into educational contexts, lessons learned at each HEI is reported next.

## 2 Results: Lessons learned from tasks 1-4

In this section we report on lessons learned articulated at each HEI for all four tasks in WP3. The coordinators for each satellite team in WP3 was asked to present lessons learned from each HEI based on the questions detailed below:

- Task 1: building capacity to teach I&E - what did we learn from completing this task? What went well; what did not went well; what can we do to improve capacity building?
- Task 2: Developing I&E Curricula – what did we learn from completing this task? What went well, what did not work; what can we do to improve our curricula developments for I&E education
- Task 3: Transferring I&E curricula into educational context? What did we learn from this task? What can we improve?
- Task 4: Developing quality assurance system for curricula: What did we learn from this task? What can we improve?

Lessons learned from each HEI are presented in subsequent sections.

### 2.1 Lessons learned at SLU

The satellite team at SLU had 5 participating academics with knowledge and experience of teaching I&E. To facilitate dialogue on teaching I&E, we organised our discussion along three important questions 1) why do we teach I&E, 2) what are the expectations on I&E curricula and 3) how do we meet those expectations. Here, expectations on teaching I&E in higher education were divided into societal level (e.g. policy), at educational program level (e.g. Masters program) and at course/ student level.

**Expectations at societal level** we recognise that a wave of (inter)national policies call for innovation to resolve sustainability challenges. In the context of food and farming sectors, these includes, but are not limited to, the EU CAP Network, European Innovation Partnership (EIP- AGRI), the green deal as well as national and regional policies such as the Swedish Food Strategy. These policies call for innovation in food

and farming sectors and highlights the importance of innovation that not only seek to enhance economic growth and competitiveness, but also and importantly, support innovations that can contribute to more sustainable food and farming practices. This suggests a development in the societal objectives to support innovation from economic growth to also address complex sustainability challenges (see for example Weber and Roracher, 2012).

**Expectation at programme level** we recognise that universities plays crucial roles in creating insights on complex sustainability challenges and solutions to resolve these. Universities also play key role to educate future professionals with competences and capacities to advance more sustainable futures. Thus, at educational program level such as management education, universities are expected to prepare students for such tasks. This means that our teaching practices must recognise the shifts in societal expectations on innovation from that of economic growth to innovation management to tackle sustainability challenges.

Building competences for innovation that aims to tackle complex sustainability challenges is very different from building competences for innovation that seeks economic growth. For instance, steering innovation that leads to economic growth and competitiveness tend to focus on the success or failure of taking new products to the market. In contrast, steering innovation to tackle sustainability challenges tend to stress the importance of transformative and system innovation. While the former approach recognises the heroic entrepreneur as the key actor to take innovations to the market, transformative and system innovation recognise the importance of interplay between multiple actors. Knowing how innovation process works and identifying competences needed to facilitate transformative and system innovation is therefore a core task at hand for teaching innovation in higher education. Based on this reflection on societal expectations for teaching innovation, we identify that the overall motive to teach innovation is to build competence and capacity for transformative and system innovation. Given the commitment to sustainable development in both teaching and research at SLU, we believe this motive to teach innovation aligns with the expectations at societal and organisational level. We have a number of courses at SLU that aims to build competence and capacity among students to manage innovation for sustainability. In the next section, we turn to our curricula to explain how we teach innovation.

We use the term curricula here, which refers to a taught module that includes intended learning outcome, teaching activities and assessment task. This way of framing a curricula builds on the idea of constructive alignment developed by Biggs and Tang (2011). The framework consists of the following elements:

- Intended Learning Outcome (ILO), which refers to the expected competences or capabilities students are expected to learn by completing the course or taught module
- Teaching and Learning Activities (TLA), which refers to the pedagogical methods deployed by the teacher to facilitate learning, and to help students to achieve the learning objectives
- Assessment Task (AT), which refers to the method deployed to assess that the student have achieved the intended learning objectives.

We adopt this framework to explain key elements of teaching innovation in higher education. The constructive alignment framework is found useful for the following reasons. First, it offers a generic framework for enhancing the quality of teaching in higher education, which can be applied to innovation. This matters since innovation is an interdisciplinary subject area with very little consensus among academics and practitioners on competences needed to steer innovation. Second, it offers a framework for teachers to create descriptive and explanatory narratives about their teaching practices, which can be shared with other teachers for the purpose to imitate and compare teaching practices. Since one of the objectives in the

Nobalis project is to share our teaching practices with others, we must also consider the scale and scope of our innovation curricula. While it may be difficult for others to adopt a full course, it may be easier to transfer a taught module. This means that our curricula, in this context, should stay within the range of 1,5 ECT.

#### **Lessons learned from work undertaken by the satellite team at SLU:**

- Innovation is an elusive subject area, which makes it challenging to pin down competences and relevant learning objectives as it depends on the teaching context
- Innovation curricula can usefully be recognised as generic competence at program level that links to more specific competences at course level
- Creating and adopting innovation curricula in terms of progression; and for different programs (e.g. engineering or management education; PhD level education)

## **2.2 Lessons learned at LNU**

There are challenges to building capacity to teach I&E. There are several things that can be learnt from these efforts. Based on what went well or not so well, we can make some suggestions and discussions for improvements.

- 1) Time and engagement. Teachers that are engaged into the area and their time management issues is a aspect on development new courses
- 2) Power of compensation. Compensation in terms in money seems not the strongest aspect on engagement. Interest and urgency seems more important than compensation for participation.
- 3) Community creation. The formation of a group or a community that have stake in courses and new course modules seems to be central for success. This especially so if it can be created on inter university basis.
- 4) Project as disruptor and new perspectives. The project format creates a new ground for development and cooperation, the disruption that an international project means to everyday planning and operations, creates new perspectives and motivations.
- 5) Online – physical moods of cooperation. Transitioning between the two work moods seems very important for engagement, getting onto physical meeting creates a firm ground for building communities.

Developing I&E Curricula – lessons learnt from creating new modules for education and how we can improve continued development of I&E education.

- 1) Course development is in general a long process, over time, from idea stage to putting the material in to operation in a course. Also, it takes several course instantiations to get things right.
- 2) In centre of this process there is a transformation, from theory to practice. This is a journey, a translation, from idea to an actualist learning content.
- 3) Effective knowledge transfer methods imply a lot of trial and error, flexible approach and reinterpretations of known ideas in new contexts.

- 4) Most effective is the contextualisation of contents, that is to work in practical situation, with students in companies, students creating new companies etc.

#### Transferring I&E curricula into educational context

- 1) All depending on the background of students, working with student group that have actively selected a entrepreneurial education, and working with students with other subject matter as main interest is very different
- 2) In general, the student motivation and attitude towards innovation work and entrepreneurial action varies to a very high degree. The matter of entrepreneurial mindset, and the particular world view of an innovator must be key aspect of building up motivation. Certainly this is true in the non-innovation based educations. Teaching about the broader context of why innovation is important in their field is condition for further studies - why is innovation important is needed is not a given for all students.
- 3) Working with entrepreneurial skills is by default an exercise in independent work, which implies a high degree of student responsibility. This high degree of self-sufficiency and self-trust is implicit in the entrepreneurial identity, and cannot be expect with all, and needs to be promoted.
- 4) Innovation is inherently a creativity task, to promote independent action and ability to seek novel solutions, put demands on how judge and examine the student outputs.
- 5) Teaching innovation put high demands on flexible was of doing examination, and standardising grading becomes harder. New ways of doing these formal parts of the education is a challenge.

### 2.3 Lessons learned at LLU/LBTU

At LBTU Strategy for 2023-2027 we sets three strategic goals for the next planning period – research excellence and innovation capacity, high-quality studies and excellence in university management, the achievement of which is ensured by three Action Programmes: Research Programme, Study and Lifelong Learning Programme and Management Programme. The goal of LBTU’s scientific activity is to achieve internationally recognised excellence in the Baltic Sea region and to ensure that research meets the needs and requirements of society, to strengthen LBTU’s innovation capacity and to ensure the transfer of knowledge. The focus is therefore on innovation in relation to both scientific and study processes, where the methodology of course delivery plays a major role. During the implementation of the NOBALIS project, we have come to the following conclusions:

- we realized that we implement study courses in a similar way- among the project partners;
- Our study courses descriptions are based on quality standards and meet all requirements about them
- study methods and methodology are the part of the system how we achieve learning outcomes
- We reflect on the suitability of our intended learning outcomes and on what alternative teaching/learning activities and assessment tasks we might best use

- We pay attention on good collaboration between Faculties, Technology Transfer Center and Business Incubators
- Project gives for as an experience and impulse for a sharing with teaching/learning activities and practices between Social Sciences, Engineering Sciences and Food Technology Sciences

## 2.4 Lessons learned at EMU

EMU peer group was formed by 3 academics teaching I&E modules for different study programs. The aims of peer group meetings were to make sense on how different academics approach entrepreneurship and entrepreneurial behaviour overall, compare the teaching practices, create opportunities for peer feedback, and find possible solutions to present challenges.

The group met in a series of meetings in which each academic introduced their modules, incl. the topics covered, activities, assessment tasks, materials used, followed by a discussion on challenges, the wider context of teaching entrepreneurship in different study programs and levels, and the development opportunities. More specifically, in the discussion on the present teaching approach covered the topics on what works well at present; what are problems in terms of content, delivery, placement of module in wider study program; how to activate student engagement; what kind of support is needed for further quality improvement at the course and university level and what could be the potential solutions; what are the future trends and topics that need to be integrated to the I&E modules.

The formation of peer group combined with a review of entrepreneurship and innovation courses, their outcomes, methods, students' participation in EMU has been an important outcome of NOBALIS project as EMU has not previously systematically reviewed its I&E modules.

### **Lessons learned from peer group meeting:**

#### Positive aspects in present modules

- Academics have relative freedom in terms of choosing their teaching approach and activities.
- Teaching staff tailors the I&E content and learning activities to the study programs and the focus on bioeconomy related entrepreneurial opportunities and practical examples is well aligned with university's research and teaching focus and provides practical value to students.
- The academics put emphasis on providing real life practical value for students through the modules.
- There is variety of practical and theoretical materials in Estonian and English available as well as new opportunities in form of podcasts, support tools etc. that can facilitate student engagement with the course content.

#### Challenges

- So far, there has been lack of coordination between different academics and lack of systematic comparison on different modules and course content at different study levels (BA, MA). The business planning and modelling subjects are covered in different courses and not only in specific I&E modules. The tasks and content of individual modules should be better coordinated with more communication and cooperation between the academics and study programs. Improved coordination and communication between the academic staff would decrease the fragmentation of subjects between the many individual modules and support students in development of more holistic thinking on bioeconomy and its entrepreneurship opportunities.

- There is also a need for better differentiation on MA and BA level needs in I&E modules as there is some repetition of teaching topics and tools.
- The academic staff highlighted that a more systematic and central pedagogical support for development of teaching skills, methods and tools and for the engagement of new generation of students is warranted at the university level.
- At doctoral level courses, there is interest in the entrepreneurship module, however, the credit hours allocated to the module are very limited and thus some topics are very superficially covered. This requires a further review on whether to concentrate on a more limited number of learning outcomes and topics.
- There is need to further integrate inspiring success stories and case studies related radical innovations to I&E modules, particularly at doctoral level to support more active commercialization of research.
- Academic staff and students both demonstrate an interest in the use of AI and digital tools, incl. demonstration on how to successfully utilize the ChatGPT and other AIs in o business planning, entrepreneurship and innovation activities, research. marketing, but university lacks expertise and dialogue on how to address this and incorporate it to the I&E modules.

## 2.5 Lessons learned at NMBU

At NMBU we experienced challenges creating a satellite team. The new strategy for 2023-2030 at NMBU is the first inclusion of innovation as one of the explicit focus areas. Many processes such as the strategic processes takes time to implement and the faculties during fall of 2023 finished their strategic action plans for 2023-2026 to include actions towards the focus areas. Before the action plans were aligned with the strategic ambitions it was hard to engage lecturers to develop new curricula and implement it in the syllabus.

I&E education has for a long time been offered to NMBU students. The business school and Faculty of science and Technology, both provide several courses which are open for all students to sign up for. This has been sufficient, but with the new strategy stating that students will be given the opportunity to acquire innovation skills within their field of study the efforts need to be raised. Now with the action plans aligned the NOBALIS work package is seen more as an opportunity, rather than extra work.

There has been an interest among some lecturers to include I&E in their lectures, without the necessary knowledge of how, and what they should teach. The lecturers experienced in these fields have unfortunately not been able to partake in the project due to time constraints. With the transition to satellite teams at each university, the lack of experience in many of the lecturers made it difficult to start the peer-to-peer sharing. NMBU is through "læringscenteret" (learnings center) creating a systems for train-the-trainer to facilitate knowledge and experience sharing and pedagogical tools between faculties and study fields. Empowerment for innovation and sustainability will be central and the program will train all lecturers over a 3-year period. NOBALIS curricula will be provided as tools.

Towards the end of 2023 after the faculties finished their strategic action plans, we saw more interest, and more time for lecturers to develop new curricula. We have for instance a cross disciplinary team creating a master's program in Sustainable Food Systems which will incorporate I&E and knowledge on sustainable food systems from the perspective of all the faculties.

### 3 Next steps to enhance the quality of I&E education

In this final section of the report, we present our plans to further enhance the quality of I&E education based on lessons learned from phase 1 and 2.

| HEI | Next steps  |
|-----|---|
| SLU | <p><b>Identified areas for improving curricula developments for I&amp;E education</b></p> <ul style="list-style-type: none"> <li>• Consider expectations at societal and program level when designing I&amp;E curricula et course level</li> <li>• Using constructive alignment framework is useful when designing I&amp;E curricula</li> <li>• Divide learning objectives into 1) knowledge and understanding, or theoretical knowledge as in knowing-what, and 2) competence and capacity, or practical knowledge as in knowing-how</li> <li>• Make innovation curricula more explicit and include a sense of progression of this subject area in teaching</li> </ul>   |
| LNU | <p>Identified areas for improving curricula developments for I&amp;E education at LNU includes</p> <ul style="list-style-type: none"> <li>- Improvement of examination forms, group work vs. Individual assignments, paper vs. written exam</li> <li>- Considerations of impact from LLM technologies,</li> <li>- Student motivation, why entrepreneurship?</li> </ul>  |
| LLU | <ul style="list-style-type: none"> <li>• We mostly focus on competency-based education, but we need to pay more attention to outcomes-based teaching and learning;</li> <li>• The Teaching and Learning Development Center should be a part of the University innovation ecosystem ;</li> <li>• We need to pay more attention to transformative reflection.</li> <li>• We assessed students at the end of the study course using – criterion-referenced assessment. This type of assessment is not suitable for innovation study courses.</li> <li>• If a university is active in national business incubator programmes as well as student business incubators, then more attention needs to be paid to integrating and linking these activities in study programmes and courses.</li> </ul> |
| EMU | <p>The review of I&amp;E courses and peer group suggested areas for improvement and possible measures:</p> <ul style="list-style-type: none"> <li>• The peer meetings provided a first step towards better coordination of I&amp;E modules in EMU. The meetings should continue with the inclusion of all I&amp;E teachers in the university and systematic review on the content, needs in different level courses, teaching approach and materials combined with peer support. This will improve the quality of I&amp;E modules, teaching skills and methods and the overall quality of the study programs.</li> </ul>  |

|      |  |
|------|--|
|      | <ul style="list-style-type: none"> <li>• There is a need to further review the learning outcomes, workload and time resources for modules for a better alignment of objectives and content.</li> <li>• There is a need to systematically address the opportunities related to the use of AI and digital innovation tools with building the expertise of the academic staff, fostering dialogue on the subject and developing institutional policies.</li> <li>• EMU lacks success stories in research commercialization that would be beneficial cases for doctoral level I&amp;E courses. Sharing of the I&amp;E curricula and experience of the NOBALIS partners provides one solution to address this issue.</li> </ul> |
| NMBU | <ul style="list-style-type: none"> <li>• NMBU will take lessons from the other partners who have been more successful in creating study groups of teachers teaching I&amp;E.</li> <li>• Utilize the curricula developed by the other HEIs to inspire and provide a toolbox to lecturers implementing the new strategy through their courses</li> <li>• Travel to SLU to learn from their lecturers</li> <li>• Work towards a general and common and broader understanding of innovation and entrepreneurship to facilitate knowledge sharing amongst lecturers</li> </ul>  |

### 3.1 Quality assurance system

A key task for WP3 is to develop a quality assurance system for the curricula at each HEI. A pilot scheme is presented in this section which will be implemented and tested in phase 2B.

#### 3.1.1 Criteria for Quality of NOBALIS courses.

As a starting point for the work regarding educational quality there are a plethora of quality criteria divided between three areas: governance and organization, conditions, and completion and results of education. The criteria are applied in order to gauge the quality of the education and its modus operandi. Furthermore, they serve as important variables to consider when deciding on possible actions and their subsequent reviewal in accordance with the participating University's internal quality assurance processes. The criteria are, in essence, identical for basic, advanced and research levels, and are consistent with the ESG assessment criteria used when auditing each university's quality assurance work regarding the contents of their educations.

##### Forum for Quality Criteria

The quality-assurance process involves development and control of quality as well as promotion, further development and spread of good examples. Each part of our operations has its respective objectives as basis for the quality-assurance process. This can be described through four sub steps, The NOBALIS university's quality wheel (Figure 1):



### 3.1.2 Assessment in relation to objectives

Analysis and identification of insufficient quality and good examples respectively

Prioritization and implementation of measures in relation to identified insufficient quality and spread of good examples. Follow-up of implemented measures the analysis (substep 2) is carried out in relation to objectives and when needed the objectives are revised.

As for prioritized measures (substep 3), this includes also how the follow-up should be carried out. A measure can also be preventive in order to minimize the risk of insufficient quality. The documentation of the quality assurance is available at each University.

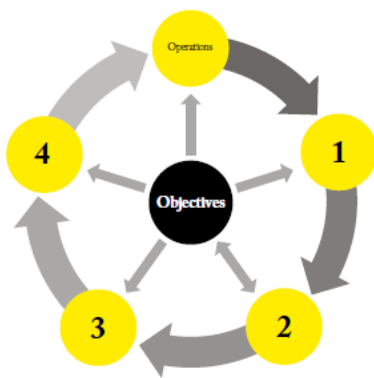


Figure 1: Operations are carried out in relation to objectives. The objectives also make up the basis for the NOBALIS quality-assurance process. 1. Assessment, 2. Analysis, 3. Measures, 4. Follow-up of measures

Criteria and subcriteria are compiled in a quality matrix, which can be used to support the systematic work with quality assurance. It contains, among other things, suggestions on how to show when certain criteria have been met, when and how you should conduct a follow-up, as well as how the internal division of responsibility is structured.

### 3.1.3 Potential for Internal Follow-Up Processes.

The internal follow-up processes can be conducted within certain time intervals with the purpose of supporting a quality driven business development. The follow-up of the annual and triennial cycles is meant to identify, prioritize and support quality-enhancing actions, as well as spreading and making use of good examples in order to support quality assurance work carried out by the faculties on an operational level.

### 3.1.4 Course Evaluations

For students to be given the possibility to share their opinions on a course (through course evaluations and other follow-ups) and be able to take part of the results is mandatory by ESG and can be regulated by a Higher Education Ordinance (In Sweden; 1st Ch. 14 §).

The local rules regarding courses do exist. local rules state, among other things, that the results of the course evaluations shall be used to improve upon the course content, and that each faculty/department must develop policy documents that clarifies the allocation of responsibility and general procedures.

In order to support the NOBALIS universities in their work with the course evaluation process, a guidance document has been developed. The guidance document asks questions that stem from relevant quality criteria and connects them to the ESG parameters for course evaluations. The questions are meant to be used as points of reflection when instructions for conducting course evaluations are being constructed.

For each course/education element given and reported as a NOBALIS we would like to know for each University.

Table 1: Template for evaluation

| Course   | Evaluation methods  | Results  |
|--|---|--|
| <i>Name of the course/ element.<br/>Level and ECTS.<br/>Number of participants</i> | <i>How was the course/element evaluated?<br/>If specific questions were asked, please supply the specific questions</i> | <i>What were the results of the course evaluation.<br/>What were the lessons learned by giving the course/element.</i> |

## Appendix 1: template for I&E curricula with guidelines

Table 2: Template for developing I&E curricula with guidelines

| <b><i>Teaching context</i></b>                           |   |
|--|---|
| <b>Course name</b>                                       | <i>What is the course name</i>  |
| <b>Classification</b>                                    | <i>Subject area</i>   |
| <b>Course code</b>                                       | <i>What is the course code</i>  |
| <b>Course period</b>                                     | <i>Start and end of taught module</i>   |
| <b>Educational program</b>                               | <i>What is the name of educational program</i>  |
| <b>Educational level</b>                                 | <i>What level, e.g. Bachelor; master, doctoral</i>  |
| <b>Responsible institution</b>                           | <i>What responsible institution delivers the course</i>   |
| <b>Teacher</b>   | <i>What person delivers the taught module: name and email</i>   |
| <b>Country</b>   | <i>Country</i>  |
| <b>Approx nr. of ECT</b>                                 | <i>What is the approx. nr of credits for curricula</i>  |
| <b><i>I&amp;E Curricula that encompasses: XX ECT</i></b> |   |
| <b>Intended Learning Outcome</b>                         | <i>Define the learning outcome: What are (or is) the intended learning outcome of the taught module, what are the students expected to learn? Explain verb and/or skill</i> |
| <b>Teaching &amp; Learning Activity</b>                  | <i>What do you as teacher do to help the students achieve the learning outcome; what teaching practices do you deploy</i>   |
| <b>Assessment Task</b>                                   | <i>What method do you deploy to assess that students have achieved learning outcome</i>   |
| <b>Course literature/ material</b>                       | <i>Literature reference list/ Complementary teaching material</i>   |
| <b>Quality assurance mechanism</b>                       | <i>How do you ensure high quality and steady improvements of the training programs and the teaching modules?</i>  |

## Appendix 2: Academic staff participating in WP3

|            |     |
|------------|-----|
| WA-#1-A001 | SLU |
| WA-#1-A002 | SLU |
| WA-#1-A003 | SLU |
| WA-#1-A004 | LNU |
| WA-#1-A005 | LNU |
| WA-#1-A006 | LNU |
| WA-#1-A007 | LLU |
| WA-#1-A008 | LLU |
| WA-#1-A009 | LLU |
| WA-#1-A010 | LLU |
| WA-#1-A011 | LLU |
| WA-#1-A012 | LLU |
| WA-#1-A013 | ARD |
| WA-#1-A014 | EMU |
| WA-#1-A015 | EMU |
| WA-#1-A016 | LNU |
| WA-#1-A017 | LNU |
| WA-#1-A018 | SLU |
| WA-#1-A019 | SLU |
| WA-#1-A020 | LLU |
| WA-#1-A021 | LLU |
| WA-#1-A022 | LLU |
| WA-#1-A023 | LLU |
| WA-#1-A024 | EMU |

## Appendix 3: Overview of courses that include I&E curricula

| Course code/ Name                                      | Nr of students | Period Q1-4 plus year | University (HEI) |
|--|----------------|-----------------------|------------------|
| FÖ0477   | 23             | Q3-2023               | SLU              |
| FÖ0444   | 8              | Q2-2023               | SLU              |
| FÖ0043   | 9              | Q2-2023               | SLU              |
| VadZ4078<br>Innovation in Business                     | 6              | Q1-2022               | LLU/LBTU         |
| Ekon3096<br>Sustainable Development                    | 1              | Q1-2022               | LLU/LBTU         |
| Ekon2100<br>Bioeconomics                               | 20             | Q1-2022               | LLU/LBTU         |
| VadZ5079<br>Knowledge Management and Innovations       | 17             | Q1-2022               | LLU/LBTU         |
| Citi1018 Introduction in Studies- design               | 22             | Q1-2022               | LLU/LBTU         |
| Citi2035 Basics of Crafts                              | 7              | Q1-2022               | LLU/LBTU         |
| LauZ5110 Engineering Research                          | 7              | Q1-2022               | LLU/LBTU         |
| Ekon6001 Food and Entrepreneurship                     | 5              | Q2-2023               | LLU/LBTU         |
| VadZ3029 Analysis of Economic Activities               | 31             | Q2-2023               | LLU/LBTU         |
| VadZ3057<br>Entrepreneurship in the Food Manufacturing | 12             | Q2-2023               | LLU/LBTU         |
| Ekon5139 Economic Resources                            | 17             | Q3-2023               | LLU/LBTU         |
| Ekon5139 Economic Resources                            | 10             | Q3-2023               | LLU/LBTU         |
| MVI385   | 32             | Q3-2023               | NMBU             |
| BIO235   | 30             | Q3-2023               | NMBU             |
| IIK051 Creative problems solving                       | 19             | Q2-2023               | LNU              |

|  |    |          |     |
|--|----|----------|-----|
| 1IK052 Reflection on Entrepreneurial identity      | 21 | Q2-2023  | LNU |
| 4IL067 Business model canvas                       | 27 | Q3-2023  | LNU |
| 4FE450 Internationalizing the entrepreneurial firm | 13 | Q3-2023  | LNU |
| DK.0021 Management and Entrepreneurship            | 11 | Q2- 2023 | EMU |
| MS.0804 Rural Entrepreneurship I                   | 17 | Q2- 2023 | EMU |
| MS.0837 Rural Entrepreneurship II                  | 17 | Q2- 2023 | EMU |
| MS.1930 Basics of Bioeconomy                       | 34 | Q3- 2023 | EMU |

## Appendix 4: Teaching modules for I&E curricula with guidelines

|  |   |
|--|---|
| Teaching context                       |   |
| Course name                            | Industrial economics and innovation   |
| Classification                         | Business administration and innovation for engineers  |
| Course code                            | FÖ0477  |
| Course period                          | September 2023 – October 2023   |
| Educational program                    | Engineering program   |
| Educational level                      | Masters level   |
| Responsible institution                | Department of Economics, SLU  |
| Teacher                                | Per-Anders Langendahl, <a href="mailto:per-anders.langendahl@slu.se">per-anders.langendahl@slu.se</a>   |
| Country                                | Sweden  |
| Approx nr. of ECT                      | 1,5 ECT   |
| I&E Curricula that encompasses: XX ECT |   |
| Intended Learning Outcome              | To explain and discuss innovation and sustainability in relation to energy- and water management contexts<br>med denna övning är att analysera och diskutera företagsekonomiska förutsättningar och begränsningar för innovation som kan bidra till hållbar utveckling inom energi- eller miljöbransch. Med innovation avses här någonting nytt (tex produkt, tjänst eller process) som kan, genom implementering och spridning, bidra till mer ekonomisk, social och miljömässigt hållbar utveckling.  |
| Teaching & Learning Activity           | This module begins with a lecture that introduces the students to concepts of innovation in relation to sustainability challenges. A specific framework is presented to students that builds on socio-technical systems perspective on innovation, which highlights the importance of innovation to address sustainability challenges, and identifies that the success or failure for such innovations to develop depends on systemic factors, e.g. incumbent technology & industry, established rules and regulations, market developments, and cultural context such as norms and values. Having introduced a theoretical framework on innovation, an assignment is the given to apply the framework on an emerging technology that holds potential to resolve sustainability challenges but struggle with uptake and diffusion. In this way, the student learn about the dynamic interplay between new technology in relation to wider system contexts to discuss conditional factors that may support or obstruct development and uptake of innovations in energy- and water utilities management contexts. |

|                                |   |
|--------------------------------|---|
| Assessment Task                | The students are assigned to a group. The group must first learn about the analytical framework that can be applied to guide an empirical investigation on a particular emerging technology that holds potential to resolve sustainability challenge but struggle with uptake. Once they have learned about the analytical framework they apply it to empirical context to create insights on conditional factors that can help explain factors that drive development of particular technology, but also and importantly, to identify barriers to diffusion and uptake in user practices. The assignment is assessed at a seminar where students present and discuss their findings with reference to innovation and sustainability in energy- and water engineering contexts. |
| Course literature/<br>material | Berkhout, F. Sustainable Innovation Management. In: Mark Dodgson, David Gann and Nelson Phillips (eds), The Oxford Handbook of Innovation Management, Oxford: Oxford University Press, 2014: 290-315  |

|   |   |
|---|---|
| Course name                                       | Digitalisation projects – Problem solving   |
| Classification                                    | Informatics   |
| Course code                                       | 1IK051  |
| Course period                                     | 2023-03-27 – 2023-06-01   |
| Educational program                               | Digital Business Development, 180 credits   |
| Educational level                                 | Bachelor  |
| Responsible institution                           | Department of Informatics, Linnaeus university  |
| Teacher   | Håkan Sterner <a href="mailto:hakan.sterner@lnu.se">hakan.sterner@lnu.se</a>  |
| Country   | Sweden  |
| Approx nr. of ECT                                 | 5   |
| <i>I&amp;E Curricula that encompasses: XX ECT</i> |   |
| Intended Learning Outcome                         | Ability to use different theories, methods and techniques to describe, explain and understand problems and suggest solutions to digitalization problems<br>Ability to identify digitalization problems in organizations<br>Ability to analyze and reflect on digitalization solutions within different business areas |
| Teaching & Learning Activity                      | Lectures, group tutoring and seminars.  |
| Assessment Task                                   | Group assignment with written reports. The assignment is divided into three parts.<br><br>Part one presents the organization and gives an overview of problem areas.  |



|                                |   |
|--------------------------------|---|
|                                | <p>Part two structures the identified problem areas by means of models and techniques from Checkland's SSM, for instance (also other approaches can be chosen).</p> <p>Part three develops different solutions to the analyzed problems based on different models, which are explained and motivated in the problem context</p>   |
| Course literature/<br>material | <p>James M. Higgins 101 Creative Problem Solving Techniques: The Handbook of New Ideas for Business, New Management Pub Co (latest edition)</p> <p>Bernard Garrette, Corey Phelps, Olivier Sibony. Cracked it! How to solve big problems and sell solutions like top strategy consultants. Springer (latest edition)</p> <p>Nathaniel Greene. Stop Guessing. Berrett-Koehler Publishers (latest edition)</p> <p>Jake Knapp. Sprint. Simon and Schuster (latest edition)</p> |

|  |  |
|--|--|
|  |  |
| Course name  | <i>Digitalisation project - Innovation</i>   |
| Classification   | <i>Informatics</i>   |
| Course code  | <i>1IK052</i>  |
| Course period  | <i>27 March- June 6</i>  |
| Educational program                                      | <i>Digital business development</i>  |
| Educational level  | <i>Bachelor</i>  |
| Responsible institution                                  | <i>Linnaeus University, Faculty of Technology – Dept. of Informatics</i>   |
| Teacher  | <i>Jan Aidemark, <a href="mailto:jan.aidemark@lnu.se">jan.aidemark@lnu.se</a></i>  |
| Country  | <i>Sweden</i>  |
| Approx nr. of ECT  | <i>2</i>   |
| <b><i>I&amp;E Curricula that encompasses: XX ECT</i></b> |  |
| Intended Learning Outcome                                | A.1 demonstrate the ability to plan and implement a practical innovative digitization project A.2 independently search for relevant scientific articles in the area of digitization and innovation and apply the knowledge to practical situations A.3 describe theories, methods and techniques for innovation A.4 criticize, reflect, discuss and report on digitization in operations and innovative processes. |
| Teaching & Learning Activity                             | <i>The task is personal reflection exercise, where the student uses a set of concepts of what constitute an entrepreneurial mind set. This is the theory is then applied on the student own situation, and in reflection of the personal actions and plans. The task is supported by lectures, personal tutoring and literature.</i>   |
| Assessment Task  | <i>Written essay (about 10 pages) and presentations.</i>   |
| Course literature/<br>material                           | <i>Entrepreneurial Development, Volume 1 Vasant Desai Global Media 2008-12-01</i>  |

|  |  |
|--|--|
|  | <p><i>Entrepreneur : Building Your Business from Start to Success by Mads Faurholt , and Lars Tvede Publisher John Wiley &amp; Sons, Incorporated</i></p> <p><i>The Lean Entrepreneur : How Visionaries Create Products, Innovate with New Ventures, and Disrupt Markets by Brant Cooper, , Patrick Vlaskovits, , and Eric Ries John Wiley &amp; Sons, Incorporated 2016</i></p> <p><i>Esther Baldwin, Curley Martin, Managing Innovation in the Digital World - 2022. Senaste upplagan.</i></p> <p><i>Paul Trott, Innovation Management and New Product Development, Pearson. Senaste upplagan.</i></p> |
|--|--|

|                                     |  |
|-------------------------------------|--|
| Course name; ECT                    | <i>Food and Entrepreneurship (3 ECT)</i>   |
| Classification                      | <i>Development Studies</i>   |
| Course code;                        | <i>Ekon6001</i>  |
| Educational program                 | <i>Food Science</i>  |
| Educational level                   | <i>Master studies</i>  |
| Approx nr. of students              | <i>5</i>   |
| Responsible faculty/<br>institution | <i>Institute of Business and Management, at LLU (LBTU)</i>   |
| Teacher                             | <i>Dina Popluga <a href="mailto:dina.popluga@lbtu.lv">dina.popluga@lbtu.lv</a></i>   |
| Country                             | <i>Latvia</i>  |
| Name of the I&E taught<br>module    | <p><i>Innovation in business:</i></p> <p><i>The course focuses on food production technologies and economic interrelationships in the context of entrepreneurship, as well as in the context of the world, European Union, Baltic, and Latvian EU food markets. The course provides students with theoretical and specialized knowledge and practical skills in food entrepreneurship development.</i></p>   |
| Intended LO                         | <p><i>in-depth and specialized knowledge of the role of food; economic aspects of food production and consumption, problems and trends in the global, the European Union, and Latvian levels; the food chain and factors influencing it.</i></p> <p><i>Critical understanding of resources for food production and their role in food entrepreneurship; of economic activity of food production enterprise and its planning.</i></p> <p><i>Well-developed skills to assess the disparities of economic conditions in the food industry; to see the problems, contradictions, and the development of the main factors influencing the food sector, and sub-sector;</i></p> <p><i>to be able to analyze and evaluate operations of food enterprises and to establish a calculation-based product development strategy.</i></p> <p><i>are able to plan the tasks assigned responsibly, make reasoned and reasonable conclusions</i></p> |

|                              |  |
|------------------------------|--|
| Teaching & Learning Activity | <p>Lecture (2 h) <i>The economic importance of food. Economic aspects of food production and consumption, problems and trends in the world.</i></p> <p>Practical work (3h) <i>Food product life cycle assessment. Food processing and life cycle. Food production resources and their role in food business.</i></p> <p>Independent work/ and/ or/ participation students' business incubator: (6h ) <i>Students choose a specific food product. The selected product should be evaluated according to the most important business influencing factors, including data, analysis and interpretation. Each of these factors should be justified with data or expert assessments, quotes from business sources. Key conclusions and suggestions for improving the selected food industry should be provided.</i></p> |
| Assessment Task              | <i>Presentation on the assessment of the external economic factors of production / processing of the selected food/ product group. Pass/Fail</i>   |
| Course literature            | <p>Bunte F., Dagevos H. (2009) <i>Food Economy: Global Issues and Challenges</i>. Wageningen Academic Publishers, eBook.</p> <p>Conforti P. (ed.) (2011) <i>Looking ahead in world food and agriculture: perspectives to 2050</i>. Rome: FAO, 539 pp.</p> <p>Blundel R., Lockett N., Wang C. <i>Exploring Entrepreneurship</i>. Second ed. Sage Publications Ltd, 2018. 458 p.</p>   |

|                                  |   |
|----------------------------------|---|
| Course name; ECT                 | <i>Economic Resources (3 ECT)</i>   |
| Classification                   | <i>Development Studies</i>  |
| Course code;                     | <i>Ekon5139</i>   |
| Educational program              | <i>Business Management</i>  |
| Educational level                | <i>Master studies</i>   |
| Approx nr. of students           | 20  |
| Responsible faculty/ institution | <i>Institute of Business and Management, at LLU (LBTU)</i>  |
| Teacher                          | <i>Aina Dobele <a href="mailto:aina.dobele@lbtu.lv">aina.dobele@lbtu.lv</a><br/>Madara Dobele <a href="mailto:madara.dobele@lbtu.lv">madara.dobele@lbtu.lv</a></i>  |
| Country                          | <i>Latvia</i>   |
| Name of the I&E taught module    | <i>Innovation in business:<br/>The course focuses on the identification of global and national problems in the use of resources and the preparation of research and innovative ways of solving problems to apply methods and calculations for economic resources.</i> |
| Intended LO                      | <i>be able to: demonstrate the knowledge and understanding of substance of economic resources and a differentiated management approach to be applied to various systems</i>   |

|                              |  |
|------------------------------|--|
|                              | <p><i>Demonstrate cognitive and selective knowledge of the availability and role of resources regionally, nationally and globally</i></p> <p><i>independently identify an enterprise's resources and assess their competitiveness as well as design a strategy based on resource-based competitive advantages</i></p> <p><i>Integrate knowledge to examine and critically assess problems, differences and priorities concerning resource use and its role in the development of the country and its regions and enterprises</i></p>   |
| Teaching & Learning Activity | <p><i>Lecture (2 h) Concept of economic resources and the evolution of economic theories.</i></p> <p><i>Practical work (3h) Assessment of the competitiveness and use efficiency of resources.</i></p> <p><i>Practical work and independent work (6h ) an assessment of the competitiveness of an enterprise's resources (VRIO matrix).</i></p>  |
| Assessment Task              | <p><i>Presentation on the assessment of the an economic assessment of use of an enterprise's resources Pass/Fail</i></p>   |
| Course literature            | <p><i>Brebbia C.A., Miralles I., Garcia J.L. Environmental and Economic Impact on Sustainable Development. UK: WIT Press, 2017. 250 p.</i></p> <p><i>25 Cases for Bioeconomy Innovation Around the Baltic Sea Region. RDI2CluB, 2020. ISBN: 978-9934-8940-0-8</i></p> <p><i>Modak P. Practicing Circular Economy. Boca Raton: CRC Press, 2021. 365 p. ISBN: 978-0-367-61953-4</i></p> <p><i>Kopnina H., Poldner K. Circular Economy: Challenges and Opportunities for Ethical and Sustainable Business. Abingdon, Oxon; New York, NY: Routledge, 2022. 226 pp. ISBN: 978-0-367-41864-9</i></p> <p><i>Lamie D., Deller S. Local Food Systems and Community Economic Development. New York, NY: Routledge, 2020. 106 pp. ISBN: 978-1-03-208184-7</i></p> |

|                         |   |
|-------------------------|---|
| Teaching context        |   |
| Course name             | Rural Entrepreneurship I  |
| Classification          | Business and administration   |
| Course code             | MS.0804   |
| Course period           | 14.03.23-28.04.23   |
| Educational program     | Rural Entrepreneurship and Financial Management                           |
| Educational level       | Bachelor  |
| Responsible institution | Chair of Rural Economics, Estonian University of Life Sciences            |
| Teacher                 | Rivo Neuhaus <a href="mailto:rivo.neuhaus@emu.ee">rivo.neuhaus@emu.ee</a> |
| Country                 | Estonia   |

|                                       |  |
|---------------------------------------|--|
| Approx nr. of ECT                     | 2 ECTS   |
| I&E Curricula that encompasses: 1 ECT |  |
| Intended Learning Outcome             | Business model development<br>After completing the module, the student is aware of the specificities of rural entrepreneurship<br>can explain the functional content of different business companies;<br>is familiar with the process of founding a company.   |
| Teaching & Learning Activity          | The module on business model development integrates all the previous topics covered in the course of Rural Entrepreneurship I as the students demonstrate their knowledge through working on a business idea for a rural or bioeconomy-based enterprise and preparing a business model for it at the end of the course.<br><br>The module combines lectures (3) and seminars (3) and independent work (12).<br>Lectures: the topics covered are differences between business idea, business model and business plan; different types of business models; parts of a business model, incl. idea, product and market, competition, pricing strategies and marketing plan, finances, start-up costs, organizational forms.<br>Seminars: the exercises in seminars include a group work for brainstorming business ideas; group works on developing marketing plan (pricing, promotion, product, placement strategy); exercise on financial planning for a start-up in which groups are presented with different business ideas and they have to analyze the costs and revenues.<br>Independent work: reading materials and individual work on a business model development. |
| Assessment Task                       | Individual work on development of a business model for a rural or biobased idea. The aim of the assessment task is to sum up the topics covered. Students prepare written reports on a business model and present their business models in the seminar.<br>The written report on their business models has to cover:<br>Value proposition of the business<br>Customer<br>Channels<br>Customer relations<br>Revenue model<br>Costs<br>Key resources<br>Key activities<br>The assessment task is graded pass/fail.   |
| Course literature/material            | Osterwalder, A., Pigneur, Y. (2010). Business Model Generation. A Handbook for visionaries, game changers and challengers. New Jersey: John Wiley and Sons.<br>BDA Consulting (2016). The Handbook for a Start-up Entrepreneur. Enterprise Estonia.<br>Sirkel, R., Uibolet, K., Teder, J., Nikitina-Kalamäe, M. (2008). From an Idea to a Successful Company. Materials for an Entrepreneurship Module.  |
| Quality assurance mechanism           | The quality system combines student feedback, quality assessment of the study program and regular updates of the curricula. Student feedback is collected through regular course assessment at the end of each course in which students provide scores for various elements of the course and comments. The student feedback is available to the lecturer and to the study program leader.   |

|  |  |
|--|--|
|  | <p>The quality assessment of the study program is conducted in every 7 year and includes a detailed self-assessment of the modules by the lecturer, review by the head of the study program and by a study programs development committee.</p> <p>Smaller scale updates of the curricula take place annually as the study program leader leads the process of planning changes and the lecturers are required to review their content, materials, activities, tasks and student feedback before the start of new academic year.</p> <p>The academic staff is required to report their course development activities and skills development, incl. participation in trainings, in their regular performance review.</p> |
|--|--|

|                                       |  |
|---------------------------------------|--|
| Teaching context                      |  |
| Course name                           | Rural entrepreneurship II  |
| Classification                        | Business and administration  |
| Course code                           | MS.0837  |
| Course period                         | 31.01.23-05.04.23  |
| Educational program                   | Rural Entrepreneurship and Financial Management  |
| Educational level                     | Bachelor   |
| Responsible institution               | Chair of Rural Economics, Estonian University of Life Sciences   |
| Teacher                               | Rivo Neuhaus <a href="mailto:rivo.neuhaus@emu.ee">rivo.neuhaus@emu.ee</a>  |
| Country                               | Estonia  |
| Approx nr. of ECT                     | 3 ECTS   |
| I&E Curricula that encompasses: 2 ECT |  |
| Intended Learning Outcome             | <p>Business plan</p> <p>After completing the module, the student knows the principles for drawing up a business plan and can apply these principles in practice; knows the functional outputs of a business plan; knows the effect of economic changes on the business plan.</p>   |
| Teaching & Learning Activity          | <p>The module on the business plan development integrates the topics covered in the course of Rural Entrepreneurship II and students demonstrate their knowledge and skills acquired in previous courses and in Rural Entrepreneurship II by preparation of a business plan for a rural or biobased enterprise.</p> <p>The module combines lectures (12) and seminars (14) and independent work (30).</p> <p>Lectures: the topics covered are validation of a business idea, business planning, description of business, analysis of business environment, SWOT analysis, presentation of product and services</p> |

|                                |  |
|--------------------------------|--|
|                                | <p>in the business plan, marketing mix, competition analysis, production planning, personnel planning, financial forecasts, risks.</p> <p>Seminars: discussions and practical assignments in the seminars on business goals, mission and vision statements, competition analysis, creation of 1 page marketing plan, funding, pitching of a business idea.</p> <p>Independent work: reading materials and a group work on a business plan; analysis of the business plans of other groups.</p>   |
| Assessment Task                | <p>Group work on development of a business plan for a rural or biobased idea. Student prepare a written business plan, present their business plan and assess the business plans of another groups.</p> <p>The written report on their business plans should to cover:</p> <p>Summary of the plan</p> <p>Description of the enterprise and team</p> <p>Business idea, mission and vision</p> <p>Short- and long-term goals</p> <p>Analysis of business environment (PESTLE)</p> <p>SWOT analysis</p> <p>Risk analysis</p> <p>Description of product or service</p> <p>Market and customer analysis</p> <p>Analysis of competition</p> <p>Marketing plan</p> <p>Financial plans</p> <p>Start-up costs and roadmap</p> <p>Assessment of the other groups' plan: the goal is to take the position of an investor and analyze how coherent, realistic and feasible is the plan and how well individual components of the plan are covered.</p> <p>The assessment of group task is graded pass/fail.</p>  |
| Course literature/<br>material | <p>Horan, J., Peter, T. (2015). The One Page Business Plan for the Creative Entrepreneur. The One Page Business Plan Company.</p> <p>Enterprise Estonia (nd). A Guide for Preparing a Business Plan.</p> <p>BDA Consulting (2016). The Handbook for a Start-up Entrepreneur. Enterprise Estonia.</p>   |
| Quality assurance<br>mechanism | <p>The quality system combines student feedback, quality assessment of the study program and regular updates of the curricula. Student feedback is collected through regular course assessment at the end of each course in which students provide scores for various elements of the course and comments. The student feedback is available to the lecturer and to the study program leader.</p> <p>The quality assessment of the study program is conducted in every 7 year and includes a detailed self-assessment of the modules by the lecturer, review by the head of the study program and by a study programs development committee.</p> <p>Smaller scale updates of the curricula take place annually as the study program leader leads the process of planning changes and the lecturers are required to review their content, materials, activities, tasks and student feedback before the start of new academic year.</p> <p>The academic staff is required to report their course development activities and skills development, incl. participation in trainings, in their regular performance review.</p> |





