



Course syllabus

Faculty of Technology

Department of Forestry and Wood Technology

4TS042 Lokal innovation, 22,5 högskolepoäng

Local Innovation, 22.5 credits

Main field of study

Forest and Wood Engineering

Subject Group

Forest Science

Level of classification

Second Level

Progression

A1N

Date of Ratification

Approved 2014-10-03

Revised 2020-09-10 by Faculty of Technology. Literature list is revised.

The course syllabus is valid from autumn semester 2020

Prerequisites

General entry requirements for studies on second level, and specific entry requirements:

90 credits within the main field of Mechanical Engineering or Forest and Wood

Technology (including a Degree Project of at least 15 credits) or the equivalent, English

B/English 6 or the equivalent

Objectives

Module 1: Interdisciplinary Innovation Processes, 5 credits

After finished module, the student is expected to be able to:

- constructively contribute to the implementation of an idea, based on his/her field of competence, in a team containing a number of different disciplines,
- plan and carry out an interdisciplinary product innovation project,
- discuss the connections between the contributions of different fields of competence in an interdisciplinary product innovation project,
- describe, both orally and written, an interdisciplinary product innovation project from idea to implementation.

Module 2: Process - Design, 5 credits

After finished module, the student is expected to be able to:

- constructively and actively contribute in a team where different disciplines are involved in an interdisciplinary innovation project,
- discuss the concept of design and explain its connections to the general features of engineering and business and the how it relates to general features of Business Administration

- implement the design process in an interdisciplinary innovation project,
- explain the role of products in the context of innovation as well as its societal contribution towards sustainability and society,
- explain the role of design in innovation and sustainability identify and discuss the local conditions for innovation in the surrounding society from a design perspective,
- apply and justify the choice of design method.

Module 3: Leading Process - Technology, 5 credits

After finished module, the student is expected to be able to:

- lead a multidisciplinary team with active cooperation of project members
- take responsibility for the development of an innovation preparing it for its commercialization,
- identify and discuss the local conditions for innovation in the surrounding society from a technical perspective,
- apply and justify the choice of business method,
- critically examine the concept of innovation and its process from a technical perspective.

Module 4: Process - Business Administrations, 5 credits

After finished module, the student is expected to be able to:

- constructively and actively contribute in a team where different disciplines are involved in an interdisciplinary innovation project,
- account for and discuss the concept of how it relates to general features of Business Administration,
- implement the engineering process in an interdisciplinary innovation project use engineering tools for supporting the innovation process,
- identify technical (engineering) solutions for innovation taking sustainable development into consideration identify and discuss the local conditions for innovation in the surrounding society from an engineering perspective
- apply and justify the choice of engineering method.

Module 5: Skill and Technology, 2.5 credits

After finished module, the student is expected to be able to:

- account for dialogue seminar method and be able to, in a constructive way take part in dialogue seminars
- write essays
- profoundly understand his/her own profession using critical reflection through perspectives given in the course literature

Content

The course consists of 5 different modules:

Module 1 Interdisciplinary Innovation Processes 5 credits

The module consists of the following parts:

- interdisciplinary project work
- the design process
- sustainable development
- the innovation concept
- integrated market communication
- calculation and forecasting
- supply chain
- choice of material
- blueprint/product specification

- blueprint product specification
- construction aspects

Module 2 Process - Design 5 credits

The module consists of the following parts:

- the various parts of the design process (theories/analysis/concept/formation)
- visualisation
- sustainable development
- the innovation process

Module 3 Lead Process - Engineering 5 credits

The module consists of the following parts:

- project management in an innovation project
- communication of the discipline's basis (calculation, supply, integrated market communication, market research), approach, and methods
- sustainable development
- consumer involvement in product development.

Module 4 Process - Business Administration 5 credits

The module consists of the following parts:

- local innovation processes
- projects to develop technology
- choice of material
- blueprint/Product specification
- construction aspects
- production technology
- sustainable development.

Module 5 Skill and Technology 2.5 credits

The module consists of the following parts:

- introduction to the area of Skill and Technology, make distinctions between rules and the following of rules, between the abstract and the concrete, and problems and dilemmas in society from the perspective of professional skill
- introduction to the dialogue seminar method
- introduction to the terms case study, dialogue, tacit knowledge, the dream about the exact language, model and reality

Type of Instruction

The course consists of modules, workshops and seminars based on the different perspectives presented by the participating disciplines. The course also contains a mandatory project work which is supported by supervisors from all disciplines. The teaching is carried out on campus and at project organizations. Obligatory parts are stated in the schedule.

Examination

The course is assessed with the grades A, B, C, D, E, Fx or F.

Module 1: Interdisciplinary Innovation Processes, 5 credits Project report

Module 1: Interdisciplinary Innovation Processes, 5 credits Project report.

Module 2: Process - Design, 5 credits Written exam, group work, and written report in group dynamics.

Module 3: Lead process - Engineering, 5 credits Written exam, group work, and written report in group dynamics.

Module 4: Process - Business Administration, 5 credits Written exam, group work, and written report in group dynamics.

Module 5: Skill and Technology, 2.5 credits Assignments.

The following concerns all modules:

The grade A constitutes the highest grade on the scale and the remaining grades follow in descending order where the grade E is the lowest grade on the scale that will result in a pass. The grade F means that the student's performance is assessed as fail.

After each regular examination there will be at least one new examination in close proximity to the date the results of the regular exam were posted. A minimum of five occasions for written exams will be offered in relation to the syllabus to which the student was accepted. Usually three occasions per academic year are offered. Students that fail reports can complement after instructions from the examiner to obtain a pass grade.

Grading criteria for the A–F scale are communicated in writing to the student by the start of the course/module at the latest, as well as how grades on separate elements of examination are weighed to a final course grade.

Course Evaluation

A written course evaluation is carried out and compiled in a report, which is archived at the faculty. The results and possible measures taken are communicated by the course coordinator and presented to the students the next time the course is given, or in another way deemed suitable by the course coordinator. Other types of course evaluations, for example regular evaluations throughout the course or discussions with students, will be included and encouraged with the aim of ensuring continuous quality development.

Credit Overlap

The course cannot be included in a degree along with the following courses of which the content fully, or partly, corresponds to the content of this course: 4TS040 Local Innovation, 22,5 hp.

Other

The course contains mandatory elements such as study visits, laboratory work, and fieldwork. Such elements may result in certain expenses; these are paid for by the students themselves.

Required Reading and Additional Study Material

Required reading

The following literature is used in all modules:

Ashby, M. F., Shercliff, H. & Cebon, D. *Materials: Engineering, Science, Processing & Design*. BUTTERWORTH – HEINEMANN. The latest edition. 672 p.

Atkinson, A. *Management Accounting*. Pearson Education. The latest edition. 526 p.

Bamossy, G. J., & Solomon, M. R. (2016). *Consumer behaviour: A European perspective*. Pearson Education. 736 p

Göranzon, B. (2009). *The Practical Intellect*. Santerus Academic Press. 160 p.

Hannington, B. & Martin, B. *Universal Methods of Design: 100 Ways to Research*

Hammington, D. & Martin, D. Universal Principles of Design: 100 Ways to Research Complex Problems, Develop Innovative Ideas, and Design Effective Solutions. Rockport Publishers Inc. The latest edition. 208 p.

Hippel, E. A. (2005). Democratizing Innovation. The MIT Press, 226 p.

Lidwell, W., Holden, K. & Butler, J. Universal Principles of Design. Rockport Publishers Inc. The latest edition. 214 p.

Mintzberg, Henry, Ahlstrand Bruce & Lampel, Joseph B. Strategy Safari: Your Complete Guide Through the Wilds of Strategic Management. 2nd Edition, Pearson Ed. Ltd. 2009, 441 p

Puccio Gerard J. Creative Leadership Skills That Drive Change. 2nd edition Sage publications. 2011, 350 p

Slack, N., Brandon Jones, A., Johnston, R. & Betts, A. Operations and Process Management. Pearson. The latest edition. 540 p.

Thorpe, A. The Designer's Atlas of Sustainability. Island Press. The latest edition. 221 p.

Trott, P. Innovation Management and New Product Development. Prentice Hall. The latest edition. 620 p.

Ulrich, K. & Eppinger, S. Product Design and Development. McGrawHill Higher Education. The latest edition. 358 p.

Weick, Karl E. Sensemaking in Organizations. Sage publications, Inc. 1995, 231 p. Scientific articles. About 100 pages.

Reference Literature

Harris, La Verne Abe. Idea Engineering –Creative Thinking and Innovation. Momentum press 2014. 197 p
Weischenk, Susan. 100 things every designer needs to know about people. New Riders, 2011. 241 p