Production Innovation

1-2 Images describing the course subject

The course will touch upon any of the areas below, depending on the participants’ individual interests.

1. Hållbar och resurseffektiv produktion
2. Flexibla produktionssystem
3. Virtuella produktionsutveckling och simulering
4. Människan i produktionsystemet
### Course and dates

**October 29 to 30, Luleå**
- Introduction to Production Innovation with lectures and examples from industry (GKN, Sandvik, 3D printing labs), visits to companies in Piteå, thinking new and differently in production (prefabricated houses, advanced composite production).

**December 3 to 4, Halmstad**
- More on Innovation – what it is – and what significance it has for Swedish small businesses. Produktion2030 participates in the Automation Småländ conference, which is included in the course. Visits to small businesses in the Gnosjö region.

**Prel Jan 12 to 14, Kiruna and Luleå**
- From iron ore to the blast – innovation in process industry. Visit to Space Campus. Work on your own project. On innovation work at LKAB.

**February 5, 6, 9 or 10 via web link**
- Seminar (one day, about 2 h per person) on your own project in small groups.

**March 16 to 17 Linköping**
- Presentation of the individual projects at a final conference for course participants.

### Teachers / Tutors

**In order of appearance (brief cv):**
- Anna Öhrwall Rönnbäck, chaired professor product innovation, Luleå University of Technology and guest professor at Industrial Management, Linköping University. Research area innovation, product development and business development. Project manager of Kunskapsförmedlingen and Kunskapsturnén.
- Kerstin Johansen, assistant professor LiU, Senior Lecturer Design & Product Development - Focus: Manufacturing at Linköping University
- Peter Törlind, assistant professor LTU, Researcher in Team Based Innovation, Head of division, Innovation and Design and senior lecturer at Functional Product Development
- Johan Stahre, professor Chalmers, Chair Professor, Head of Division Production Systems, Product and Production development. Codirector of Chalmers’ Area of Advance Production
- Ola Isaksson, adjunct professor Chalmers, and senior specialist in product development GKN
- Magnus Holmén, professor Innovation Sciences and Industrial Management, School of Business and Engineering Halmstad University
- Bengt-Göran Rosén, Professor of Mechanical Engineering, School of Business and Engineering, Halmstad University, responsible for the Graduate School
- Johan Frishammar, professor Entrepreneurship and Innovation, LTU
- Helena Lidelöw, associate professor LTU, and Lindbäcks Bygg. Research within systems building and industrialisation of construction. Topics are platforms in construction and quality/Lean applications in construction. Teaching within CAD, timber engineering, building technology, and industrialised construction.
- Also contributing: Elisabeth Sägström (MSc), Swerea IVF, professor Monica Bellgran, Senior Vice President Research & Development LKAB, Tord Gustavsson (PhD), Managing Director Blå Träden, Stefan Lindbäck and/or Erik Lindbäck, Lindbäcks Bygg, and many other company representatives.

**Pictures of Teachers**

Anna Öhrwall Rönnbäck, professor LTU, LiU

Kerstin Johansen, ass. professor LiU
<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
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<tbody>
<tr>
<td>Peter Törlind</td>
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<td>Ola Isaksson</td>
<td>adj professor Chalmers, GKN</td>
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<td>Magnus Holmén</td>
<td>professor, Halmstad University</td>
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<td>Bengt-Göran “BG” Rosén</td>
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<td>Johan Stahre</td>
<td>professor Chalmers</td>
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<td>Monica Bellgran</td>
<td>LKAB, adj professor MdH</td>
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<td>Johan Frishammar</td>
<td>professor LTU</td>
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Target group
The course targets professionals who want to deepen knowledge and awareness of the value of innovation in production and how to manage innovation (eg at their current workplace), and PhD candidates seeking to increase awareness regarding production innovation aspects within each of their own research fields.

The course will be given in English, but some of the content will be in Swedish (such parts are not compulsory for non-Swedish speaking participants). If all participants are Swedish speaking the course will be in Swedish.

Overall Course Goal
Increase awareness regarding innovation in production.

Higher Education Credits/ "Points"
7.5 credits/hp

Ingress Short Summary and aims
This course gives the participants in-depth knowledge about innovation terminology and different types of innovation. Especially, the course deals with production innovation with both theoretical discussions (supported from contemporary academic publications) and industrial examples (including site visits).

Learning outcomes
Upon successful completion of the course, participants should be able to:
• Define innovation in manufacturing industry
• Describe production innovation in different industrial contexts
• Conduct case studies of production innovation
  o Conduct literature review
  o Construct an analysis model
  o Collect case data
  o Analyse case data
  o Present conclusions from the case study
• Evaluate other course participants’ work
• Communicate about production innovation in both academic and industrial contexts (present own work orally and in writing, and give review of other’s work)

Course content
Lectures and company site visits will be carried out in combination with each participant’s own written reports on observations and reflections.

Expected pre-knowledge
MSc in Engineering or similar.

Registration info
Email to course responsible.

Examination
Each participant’s work will be examined based on written tasks delivered within the given time schedule, and an oral presentation of the own project at a final seminar. Active participation at the seminars. (Max 1 seminar absence is accepted, except final seminar when the own project will be presented. In case of absence: extra written assignments.)

Literature
Tidd J. and Bessant J. (2009), Managing Innovation: Integrating Technological, Market and Organizational Change, John Wiley & Sons Ltd: West Sussex
Papers (list to be announced)
Youtube clips etc

Limiting number of participants
24

Detailed Course Structure/ Class sessions
START, FIRST MEETING Oct 29-30
Day 1: Wednesday, 29 October
10:00-10:15 Arrival at Teknikens Hus, Luleå University of Technology, LTU
10:15-11:00 Introduction to the course (Anna, 45 min)
11:00-11:45 Future Manufacturing Challenges (Kerstin, 45 min)
11:45-12:30 Innovation and Creativity (Peter, 45 min)
Late LUNCH at UNIK
13:15-14:45 Innovation and Creativity – exercises (Peter, 1.5 h)
Coffee break
15:00-16:00 Innovation in a large multinational manufacturing corporation – GKN (Ola, 1 h)
Transport to the city (local bus)
Hotel check-in (e.g. Elite Hotel, Luleå, Stadshotellet)
18:00-19:00 Innovation and entrepreneurship – creating your own production business (seminar session arranged in the city center). Address: Kungsgatan 30.
19:00-21:00 Dinner “norrländsk buffett” (tapas à la Norrland)

Day 2: Thursday, 30 October
07:45 Chartered bus from Elite Hotel, Luleå (Stadshotellet)
08:30-09:45 appr.
Arrival at Lindhäcks Bygg, Piteå
Day 1: Wednesday, 3 December
09:00-09:30 Arrival at Högskolan Halmstad, HH
09:30-12:00 Innovation: Stylized facts and product innovation for start-ups
(Magnus and BG, 2.5 h)
12:00-13:00 LUNCH
13:00-17:00 Business models: how to create and capture value and production innovation in established companies and collaborations
(Magnus and BG, 4 h)
14:30-15:00 Coffee break
19:00 Dinner reserved for the group at Wild West Steakhouse, Gamla Tylösandsvägen 1, Halmstad by night

How to get to Halmstad:

Accommodation - see links under ‘Hotels’, e.g. Best Western Grand Hotel (tel. +46352808100) or Quality Hotel Eurostop (cheaper alternative).

How to find us at the Campus:
http://www.hh.se/download/18.1aee06953.42904a95b970/Campuskarta+Av+i+ENG-MAX+2014.pdf

Day 2: Thursday, 4 December
07:30 Chartered bus or cars to Gnosjö region, departure from Best Western Grand Hotel
09:30-11:30 Gnosjö region company site visits (Acron, CNC Factory, Lerocon, see all at http://www.automationsmaland.se/medlemmar.html)
11:30-12:45 LUNCH at Arenum (Weland, Gislaved Näringsliv AB)
13:00-17:00 Conference “Automation Småland”, Arenum
(in Swedish mainly, subtitled movie clips and some visual material in English)

THIRD MEETING week 3 (prel Jan 12-14)
Jan 12-14, 2015
Kiruna Jan 12-13, visit to mines and Spaceport Sweden (detailed program TBD). Changes and challenges in the mining industry. Our production innovation task. (Monica)

Bus to Luleå – with time to work with own projects.
(Ice Hotel visit could be co-arranged during the weekend before, but is not part of the course.)
Luleå Jan 14: Innovation in the process industry (Johan)

FOURTH MEETING week 7 (Feb 9-11)
Virtual seminar on each individual project. Participate at one 2 h seminar with 3 other participants. Read and give review to two other participant’s papers.

FIFTH MEETING March 16-17
Day 1: Monday, 16 March, prel Norrköping
12:00-22:30 LUNCH at Arbetets Museum (Labor Museum)
Presentations of individual projects
Dinner and hotel in Linköping
Day 2: Tuesday, 17 March, prel Linköping
08:30-13:00 Material laboratory at LiU
Presentations of individual projects
Final words - diplomas
Farewell lunch

Assignments See list below.
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<tr>
<th>Task</th>
<th>Deliverables</th>
<th>Due date</th>
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<tr>
<td><strong>Task 1</strong></td>
<td>Relate part 1 in the book Makers (Anderson 2012) to your own research or your daily work</td>
<td>17 nov 2014</td>
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<td><strong>Task 2</strong></td>
<td>Meeting 1 Short essay 1-2 A4 * Innovation challenges related to each presented industrial case * Reflection about this related to your own work (either research or daily work) * Hint: Base your reflections on your own focus in your daily challenges; i.e. operator level or strategic level or technology level</td>
<td>6 nov 2014</td>
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<td><strong>Task 3</strong></td>
<td>Meeting 2 Short essay 2-3 A4 (excluding references) * Including references * Based on your opinion / research - motivate! * Write so you could reuse in your dissertation (for PhD candidates) * Give empirical examples</td>
<td>9 jan 2015</td>
</tr>
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<td><strong>Task 4</strong></td>
<td>Meeting 2 Short essay 1 A4 Are SMEs innovative? * Challenges (disadvantages/opportunities) * Is it affordable? Motivate! * How do you interpret innovation in this context? Relate to your own research / daily work. * Use primary and secondary data for the case company selected.</td>
<td>12 dec 2014</td>
</tr>
<tr>
<td><strong>Task 5</strong></td>
<td>Meeting 3 Short essay 1/2 A4 * Innovation challenges related to each presented industrial case * Reflection about this related to your own work (either research or daily work) * Hint: Base your reflections on your own focus in your daily challenges; i.e. operator level or strategic level or technology level</td>
<td>19 jan 2015</td>
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**Task 6** Your project Report outline 2-3 A4 excluding references
- Introduction
- Background
- Purpose
- Research design
- Theoretical framework (areas)
- Expected results
  19 jan 2015

**Task 7** Preliminary report 3 feb 2015

**Task 8** Feedback procedure
- Review scientifically 2 other colleagues’ work
  9 feb 2015

**Task 9** Final report 2 mar 2015

**Task 10** Oral presentation 13 mar 2015
Literature list

Reading list Production Innovation PhD course Halmstad 3 December 2014

Obligatory readings


Recommended readings


Other useful papers