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Teaching Portfolio

1. Pedagogical philosophy:

I have always enjoyed teaching, already at high school I was often tutor for my student mates, later during studies at DTU I was assistant teacher until now more professional at the university. Besides I have in my time in industry made educational programs for people in the entire organization from production people to top management. Teaching is exciting and challenging and very different dependent on the topic, the target audience and the purpose.

My philosophy is that learning has to be fun, motivating, varied with the right mix of theory and practice. One of the reasons why I had 6 years in industry was to get practical experience as a teacher. This may be important in any topic, but especially within engineering I found it unsatisfactory and to some extent untrustworthy to teach the engineers of the future without never tried to work as an engineer.

In teaching it is important to have the target audience in mind and to be aware of their professional level, their knowledge, competence, motivation and of course the purpose with the teaching. You have to apply different pedagogical principles and methods if you are teaching a masters student, a company manager, a production worker, but no matter who you teach the connection to the students is important. Personally I try to involve the students as much as possible in the learning process.

The good learning process is where the students are challenged e.g. by applying the theories connected to projects or exercises. At the university the problem based learning combined with reflection is exciting and challenging for both students and teachers. In a situation where new principles, working methods or facts have to be explained then lectures with exercise might be the right method.

To apply games or simulation models can be very useful in many situations. A game may be a production game e.g. by applying fictive and simple Lego products, it may be role games in an organisation to try different situations or solutions. The good thing about games is that people are removed from their daily routines and play in a controlled and safe environment, where experience can be discussed and afterwards connected to the real world or situation.

Learning takes place through reflection and in contact with other people. Pupils are different, as well are the learning principles and methods, it is therefore often a good idea to combine and vary the different methods and tools. At the university the students are responsible for their own learning, where we as teachers have to support the frames and give the opportunities. To work problem based and in teams are important in the modern society. As a graduate you may be an expert, who has to be able to perform in a team. I am among other courses teaching the course "Experts in Teams" which I find very interesting from a professional as well as a human point of view.

2. Teaching experience:

Below a list of courses on Master and Bachelor level. At Phd level I have been teaching research methodology and scientific writing.

Course

Institution

Course name

ECTS

year

DTU

Styrkelære 1 og 2 (hjælpeleærer)

1983-85

8415

DTU

CAD/CAM

6

1989-93

8006

DTU

Computer Integreret Proces og Produktionsteknologi

6

1991-93

SUNY¹

Computer Integreret Produktion

1990-91

SUNY

Computer simulation

1990-91

DTU

CIM lab demo

1986-94

DTU

CSP – Computer Simulering af Produktionssystemer

6

1993-98

CCC-1P

SDU

Computer Integreret Produktion

5

1998

SDU

CSP – Computer Simulering af Produktionssystemer

5

1998-2001

DIV 1P

SDU

Den Integrerede Virksomhed

5

1999-2001

IFT

SDU

CIM – Computer Integrated Manufacturing

5

1999-2002

PRT

SDU

Produktionsteknik

5

2004-2005

PRM

SDU

Production Management

5

2006-2009

OPM1

SDU

Operations Management 1

5

2010-2019

OPM2

SDU

Operations Management 2

5

2010-2018

ITB/STM

SDU

Innovation of Technology and Business

10

2012

EXT
SDU
Experts in Teams
10
2010-2012
SPRO4
SDU
Semester project
10
2011-2019
GLP
SDU
Glocalized Production
5
2013-2018

¹ SUNY = State University of New York

Supervision of projects

At DTU in the period 1990 – 1998 I have supervised app. 15 masters projects. At Linak I had the overall responsibility for contact to universities and supervised in the period 1998-2004 app. 20 final projects from different Danish institutions. At SDU in the period 2004-2015 I have supervised app. 50 students in final projects. From the list below the students since 2009 is documented.

Bachelor projects/year

Student

Subject

Juni 2010

Rasmus Lyck Petersen

Optimization of switch-over in the SMT area

Juni 2011

Ómar Grétarsson

Undersøge muligheden af metan produktion og udnyttelse i Sønderborg

Rúnar Smáráson

Undersøge muligheden af metan produktion og udnyttelse i Sønderborg

Einar Árni Sigurdsson

Autotrailer alarm

Jimmi Andersen

Digitalisering af DBU`s system

Juni 2012

Zaid Bahaa Bader Al.Azawi

Innovative and sustainable youth accommodations

Lasse Justesen

Change management – LEAN implementation and culture change

Juni 2013

Anette V. Bernbom

Kvalitetsoptimering ved hjælp af fejlrettelsesdatabase

Mathias Bek, Tim Bøgh Morthorst
Protection of Boats – Innovative solutions
Juni 2014
Finn Döhring
Productivity and Lean in a German SME

Henrik Nicolaisen
Lean transformation in service environment

Julius Born
Sönke Wolter
Optimization of Production Facilities and Business model at Wenckstern GmbH

Tony Skov Mathiesen
Quick Response Manufacturing
June 2015
Ernestas Galgatavicius
Flexible Assembly Cells
Januar 2016
Frederik Klakk Jeppesen
INDUSTRY 4.0 MANUFACTURING at Danfoss Gråsten
June 2016
Nikolaj Sørensen & Annemette Kjær
Collaborative resource sharing in small and medium-sized enterprises

Marcus Alexander Byrgesen
Operations management project at Delfi Electronics
June 2017
André Agertoft Condamine
Computer simulation and Virtual reality

Mark Kronborg
Simulation with Tecnomatix

Tinus B. Byrgesen and Mark J.S. Yeoman
Resource sharing platform for Danish SMEs
June 2018
Olga Kunanets and Tommy Bager
Lean Manufacturing And Management – Experience And Impact

Sigurd Vive Bergstrøm
Simulation and research project, Invector

Ibrahim Mohammad and Abdelaziz O. Abdallah
Diagnostics Tool To Optimize Manufacturing Companies
Diplom afgangprojekter

Jan 2009
Jakob Kentzer

LEAN på LINAK med focus på kvalitet og flow

Muniru Mohamed

Implement lean at Danfoss Nessie

Sune Solberg Hjorth

Reducering af VIA gennem LEAN og Activity Based Costing

Anja Thingholm Jørgensen

Fra LEAN til CLEAN – Bæredygtig produktion

Silvia Margot Sørensen

Fra LEAN til CLEAN – Bæredygtig produktion
Jan 2011
Thomas Mark Jensen

Tilbehørsposer til frekvensomformer – Kvalitetssikring af ilægningsproces

Jesper Brumvig

Global produktion og logistik setup for Danfoss Solar Inverters

Brian Slotved

Løbende kvalitets kontrol for motorbeskyttelses moduler

Lasse Fangel Nielsen

Innovationskulturen på Søby Værft AS
June 2011
Jetta Højgaard

Sikring af forsyningsvejene

January 2018
Patrick Jepsen (Mekatronik stud)
Automation of rearing insects

Sveinn Daði Einarsson (Mekatronik stud)
Implementation Of Reconfigurable
Manufacturing System Test-Lab
Including Collaborative Robot
Master projects

June 2009
Ying Sun

Green and Innovative Container Flooring Manufacturing
June 2010
Yousef Iskandarani

2D controller using DEAP technology
June 2011
Marcin Szarek

Relationship between energy optimization and lean philosophy

Bin Zhang

Mearuring and Monitoring Physiological Parameters at Human Body: Motion Data Analysis

Yue Wang

Sensor Networks in Biomechatronics – Hexapod Robot

Nicolaas T. Hulskamp
Generic framework for an emulator testbed
June 2012
Audrius Klimas

Intelligent electric vehicle battery recycling

Kristian Rasmus Petersen
Decentralized Supply Chains at LEGO A/S

Ying Wang

Manufacturing Concepts of the Future based on Reconfigurable Manufacturing System

Karamtej Singh

Computer simulation of logistics systems

Chousein Molla

DEAP based sensors for use on the EMICAB

Mikkel Børlum Petersen

Dynamic Tactile Sensing: Identification of Slip and Surface Textures

June 2013

Marianna Chavez Cobo

Glocalized Production

Poonam Chapade

Complexity Management by cases from Danfoss

June 2014

Elisabete Ezeiza Ibarguren

An Integrated Maintenance Management System Model for Offshore Wind Farms – a Management towards Complexity

Mohammad Shahabeddini Parizi

Zaid Al Azawi

Automation Solution in SMEs

Xiaojing Su

Low Carbon Emission Solutions and Policies in Sønderborg and How It Can Lead to New Green Business Opportunity in China

June 2015

Ali Ahmad Malik

Factories and Production System of the Future

Niels Albert van Dulmen

Identification of potential for implementation of Modular Architecture – Danfoss case

Pu Wang

Supply Chain and New Business Models

Raluca Nemes

Qi Chen

Innovation Ecosystems- Exploring SME collaborations

Thor Lassen

Financing- and Collaboration Models in SME Collaborations

June 2016

Silvio Juliano

Technology morphology classification of manufacturing processes for automation solutions

Stefan Otzen

Purification and Control Systems in Hospitals

June 2017

Gul Abeer Khan

IMPLEMENTATION OF VIRTUAL & AUGMENTED REALITY IN MANUFACTURING INDUSTRY

Niklas Franke

The impact and prospects of additive manufacturing in the metal industry

Shiyu Peng

The 4th industrial revolution in a Sino-Danish

context
June 2018
Christian Petersson Nielsen
Digital Twins in Smart Factories

Julia Bertels
Flexible Lean Automation

Julius Ferdinand Andreas Born
Virtual twin in design of lean automation cells

Mirco Gwozdz
How easy is the integration of a collaborative robot in SMEs
with High Mix Low Volume – HMLV Production?

Saad Ahmad
Operator 4.0

Xuan Lyu (Melody)
Reducing Procurement Complexity Research -through digitalization
June 2019
Malik Shahzaib Saleem
Optimization of Packaging line with Tecnomatix Plant Simulation and Digital Twin

Yara Álvarez Torres
Implementing Process Simulate in production assembly cells at Danfoss

Robin Schreiber
From Prototype to Commercialization - How can startups shape the transition?

Robin Sandomeer
Development of a Picking and Kitting System for Automated Manufacturing at Danfoss Drives

Usama Bajwa
Development of an Event-Based Robotic Simulation for a workstation

Marcus Alexander Byrgesen
How may simulation tools help SME's carry out optimization- and automation projects

Vysakh Raj
Optimization of simulation model and automatic data integration using Tecnomatix plant simulation and Teamcenter

PhD projects

Below a list of PhD projects supervised. At the projects before 1999 operated as assistant supervisor. At SDU after 2004 full responsible as supervisor.

PhD projects/ graduate year

Student

Subject

1996

Hans Jørgen Lynggaard

Models and Methods for Design and Implementation of Computer
Based Control and Monitoring Systems for Production Cells

1999

Gilad Langer

HoMucs A Methodology and Architecture for Holonic Multi-Cell Control Systems

1999

Michael Holm Larsen

CALS – Continuous Acquisition and Life Cycle Support

2002

Kim Siggaard

Development and implementation of Shop Floor Control systems

Jul 2011

Fei Yu

Non – invasive Sensors in Medical Applications – Measuring and Monitoring of Fatigue

Oct 2011
Alin Drimus
Sensory Robot Grippers
Feb 2012
Ruslan Lazarev (Co supervisor)
Monitoring and Control of Fine Abrasive Polishing - Robot Assisted Polishing
Jan 2014
Ronen Hadar
Glocalized Production – A Holistic Approach for Future Production at the LEGO Group
Feb 2016
Kristian Petersen (Co supervisor)
Maintenance of Offshore Wind turbines
Feb 2017
Agnieszka Radziwon
The Smart Factory
Nov 2017
Henrik Blichfeldt
Adaptable Technology – focus at SMEs
April 2018
Ole Wennerberg Nielsen (Co supervisor)
Hyper flexible automation
January 2020
David Grube Hansen
Automation of High-Mix Low-Volume production by SMEs.
March 2020
Ali Ahmad Malik
Flexible Lean Automation – Human robot Teams driven by Digital Twins

I have been project and intern ship responsible at MCI, where the task is to inform and supervise students in the choice of project and finding companies for internship.

I have been part of the censor corps and been censor at projects at most of the Danish engineering educations.

3. Pedagogical education:

Completed the course **Applied pedagogy** in October 1997 at "Pædagogiske serviceenhed, Handelshøjskolen i København."

Courses in pedagogy

Kursus i **Kvalitet og Samarbejde** incl. struktureret problemløsning, kommunikation intern/ekstern PM konsulentfirma på LINAK 1999

Indstillingsmodellen **Kvalitet i livet** LINAK 1999 ved Meng & Company.

Kursus i **Værdibaseret ledelse** incl. strategiudvikling, kundefokus, den gode cirkel osv. LINAK august 2000 ved Meng & Co.

Kursus i **Personlig udvikling** incl. målstyring, coaching, helhedsforståelse osv. ved Mercuri Urval 2000.

Kursus i **Projektstyring og -ledelse** ved Mercuri Urval incl. planlægning, organisering, DISC/Belbin, risikostyring, konflikthåndtering i 2001.

Kursus i **Lederudvikling**incl. NLP, DISC modellen, kommunikation, konflikthåndtering osv. ved Mercuri Urval 2002

Kursus i **Mødeteknik og -ledelse** ved Syddansk Universitet marts 2007

Kursus **Personlig Planlægning** incl. prioritering, stress faktorer, planlægningens ABC, assertiv kommunikation, handlingsplan September 2007 på SDU

Kursus **Medarbejderudviklingssamtaler**incl. spørgeteknik, kommunikation, uddannelsesplanlægning, November 2007 på SDU

Institutederkursus2008-2009 ved Danske Universiteter og Syddansk Universitet incl. Strategisk ledelse, undervisnings-/forskningsevaluering, undervisningsledelse, MUS, JTI, coaching osv.

Pedagogical development projects

Have been involved in development of study programs for bachelor as well as master studies at the Mads Clausen Institute. This has been for the studies "Økonomi og Teknologi", "Produktionsingeniører", Management and Technology, Mechatronics and Innovation and Business.

Have been involved in the development and implementation of the DSMI- "Den Syddanske Model for ingeniørstuderende på SDU" particularly when it comes to the internship model.

Conferences

Logistik seminarincl. ordrestyring, leverandørstyring, planlægning, styringskoncepter, marts 1999 på LINAK ved P.E. Christiansen, CBS

LeanSigma Transformation workshop November 2001, TBM Institute

Piezo Actuators/Introductory Course april 2005 på Cedrat Technologies.

LEAN Management – Kvanteforspring i produktiviteten for få midler ved Teknologisk Institut januar 2006

Contribution to pedagogical development planning conferences etc.

ATV Semapp, been part of the board and have arranged professional workshops and conferences for Danish Industry in the period 1996-2004

Teknik og Data, part of the work group to arrange annual conferences for Danish Industry in the period 1994-1998

In the regime of Mekatronisk Selskab made conferences and work shops at DTU og SDU

Pedagogical development project

At DTU developed the CIM laboratory for teaching in automated production.

At Linak and later at MCI developed and applied production games for teaching innovation, logistics, manufacturing principles, Lean, quality management etc.

Additional.

Has students at the Wall of Fame for best project 2010.

Has been awarded the Best teacher of the Year at SDU/MCI Sønderborg 2016