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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 extend 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 ne 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 (hjælpelærer)

1983-85
8415
DTU
CAD/CAM

6
1989-93
8006
DTU
Computer Integreret Proces og Produktionsteknologi
6
1991-93

SUNY[1]
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

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
Òmar Grétarsson

Undersøge muligheden af metan produktion og udnyttelse i Sønderborg

Rúnar Smárason

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 ManufacturingCompanies
Diplom afgangsprojekter

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 Productiom

Poonam Chapade
Complexity Managemnt 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 Atchitecture for Holonic Multi-Cell Control Systems
1999
Michael Holm Larsen
CALS – Continuous Acquestion 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

Institutlederkursus2008-2009 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 – Kvantespring i produktiviteten for få midler ved Teknologisk Institut januar 2006

Contribution to pedagogical developement 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

I 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