Production, maintenance, and quality development
Agenda 2016-03-29

Role call

Course info
- The course curriculum

Course plan
- Schedules and lectures

Introduction to the project assignment
- Projects assignment and groups
- Pulse meetings
Course objective

- Lectures and theory
- Project assignment

Understanding and application
Course objective

Objective
The objective of the course is to provide the students with a general understanding of production-, maintenance-, and quality development within industrial environments. Conduct a pre-study to analyze a part of a production system in search for improvements.

Learning Outcomes
The student should, after graduating from the course be able to;
- apply modern methods and tools for conducting rationalization projects within a production process
- ability to manage an improvement project within industry
- analyze and estimate problems within the production process and developed corrective actions and improvement plans.
- conduct machine- and process capability calculations
- apply performance indicators for evaluation and development of maintenance
From the Course plan

Examination
Project  4,5 hp
Written exam  3 hp

Grades
3, 4 or 5  or grade A-B-C etc
Apply methods and tools for improvements in a "real" industrial project

⇒ A prestudy to analyze a part of a production system in search for improvements
⇒ A smaller improvement project
The Six Sigma DMAIC method is about “solving a problem with an unknown solution.”

DMAIC for improvements
Examination

PROJECT:
Grades based on project work, theory and solutions and the company benefit in the study.

WRITTEN EXAM:
A smaller written exam, based on the theories, presented at the lectures and the associated research papers.
Grades: 3-5 (Swedish), E-A (ECTS)

This year the exam will be even more (but not only) based on the research papers discussed in the course!
Course evaluation 2015

Overall grade: 4.2 (scale, 1-5)

Pros:
• The industrial projects
• The guest lectures

Cons:
• The course content was too familiar from previous courses
• The course was a bit “low level” for an advanced course

Changes 2016:
• Increased use of scientific research papers in the lectures
• More exam questions based on the scientific literature
Lecture 1: 2016-03-29

- Groups
- Companies
- Projects start-up
Lecture 2: 2016-04-05

Industrial process development
- Lecture: Process mapping
- Seminar: Chen, et.al. 2010

• Responsible teacher: Antti
Pulse meeting 1: 2016-04-08

P1: Pre-study plan and deliveries
Lecture 3: 2016-04-12

Quality development
- Lecture: Quality development
- Seminar: Stålberg & Fundin, 2016

• Responsible teacher: Antti
Lecture 4: 2016-04-15

Measuring loss
- Lecture: Quantification of loss
- Seminar: Wisner & Fawcett, 1991

• Responsible teacher: Antti
Pulse meeting 2: 2016-04-19

P2: Process definition
Production system development

Guest lecturers: Jessica Bruch, Mdh
Erik Flores, Mdh/Volvo CE
Lecture 6: 2016-05-03

Change management
- Lecture: TBA
  - Guest lecturer: Christer Osterman, Scania
Maintenance development
- Lecture: Reducing maintenance related waste

- Guest lecturer: Marcus Bengtsson, Volvo CE
Pulse meeting 3: 2016-05-13

P3, Actual status
Root Cause Analysis
- Lecture: Tools for RCA
- Seminar: MacDuffie, 1997

- Responsible teacher: Antti
Pulse meeting 4: 2016-05-20

P4: Root Cause Analysis
Lecture 9: 2016-05-24

Investment calculations
- Lecture: Calculation models
- Seminar: TBA

- Responsible teacher: Antti
Project presentations: 2016-05-27

- **P5: Final Project presentations**
  - Suggestions for improvement
  - Final presentation about 15 min/group
    (Mandatory)
The projects

**Applied industrial projects**
- Groups of 4-5 students
- Minimum 1 Swedish speaking student/group
- Real industrial problems
- Car costs outside of Eskilstuna and Västerås will be paid
The projects 2016

ICA, Västerås
- Work efficiency at voice controlled storage

A-betong, Hallstahammar
- Increase productivity

Gnutti Carlo, Kungsör
- To be defined

Scania, Södertälje
- Mapping of material flow and sources of contamination

Westermo, Stora Sundby
- Pre-study of possibilities of later customer order point

Alfa-Laval, Eskilstuna
- Pre-study of advanced technology for quality assurance

Husmuttern, Eskilstuna
- Several projects to be defined
Pulse meetings

**Groups evaluate each other**
- Evaluation on pre-defined criteria

**Groups coach each other**
- Staff coaching only if necessary

**Document**
- Use Pulse protocol to visualize the project status
Criteria for evaluation

DELIVERABLES

COOPERATION WITHIN THE GROUP

RELATION WITH THE COMPANY

PROJECT REPORT
Comunication

Course material:
http://zoomin.idt.mdh.se/course/PPU404/

Contact me:
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Next lecture: 2016-04-05

- Industrial process development

As preparation, please read: