



STUDY GUIDE

[Industrial process development, Spring 2018]
[PPU413, 7.5 credits]

ANTTI SALONEN

INNEHÅLL

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1 INTRODUCTION

Welcome to the course PPU413, Industrial Process Development. This study guide is intended to inform and guide you on what to expect and how to approach the course. I hope the guidance provided in this document will be helpful in achieving the study goals you have for this course. I recommend that you read this guide as soon as possible so that you see what to expect, and plan your studies in a sufficient way. Further I recommend that you search and download each paper/article in due time so you can read them before the relating lecture.

Antti Salonen
Ph.D, Senior lecturer

2 COURSE DESIGN AND EXAMINATION

2.1 Lecture plan (preliminary)

2018-03-27: Introduction

- Guest lecture: Time studies (Associate professor Peter Almström, Chalmers)
- Setting up project groups

2018-04-03 ; Lecture 1

- **Lecture: Process mapping**
- **Seminar: Chen, et.al., 2008**

2018-04-05; Lecture 2

- **PULSE 1: Problem definition**
- **Lecture: Ergonomics**

2018-04-10; Lecture 3

- **Guest lecture: Kaizen and Kaikakku**
- **Seminar: Yamamoto & Bellgran, 2010**

2018-04-12; Lecture 4

- **Guest lecture: Time studies**

2018-04-17; Lecture 5

- **PULSE 2: Process mapping**
- **Lecture: Performance measures**
- **Seminar: Susilawati, et.al., 2013**

2018-04-19; Lecture 6

- **Guest lecture: Production System Development**

2018-04-24; Lecture 7

- **Guest lecture: Improvement cases**
- **Seminar: Bengtsson & Osterman, 2014**

2018-04-26; Lecture 8

- **Guest lecture: Condition Based Maintenance**
- **Lecture: Maintenance development**

2018-05-03; Lecture 9

- **Lecture: Root Cause Analysis**

2018-05-08; Lecture 10

- **PULSE 3: Current status**
- **Lecture: Investment analysis**

2018-05-15; Lecture 11

- **Guest lecture: TBD**

2018-05-17; Lecture 12

- **PULSE 4: Root Cause Analysis**
- **Guest lecture: TBD**

2018-05-22; Lecture 13

- Guest lecture: Professional maintenance in WCM
- Seminar: Bengtsson & Salonen, 2016

2018-05-24; Lecture 14

- Final Presentations
- Course evaluation

2.2 Communication

Webpage: <http://zoomin.idt.mdh.se/course/ppu413>

E-mail: san.aziz@mdh.se

antti.salonen@mdh.se

2.3 Paper seminars

During the course, five seminars will be given, covering five scientific papers related to the subject of the course. For each paper, we will state which focus you should have, when reading the paper.

The papers:

Chen, J., Li, Y. & Shady, B., (2010), "From value stream mapping toward a lean/sigma continuous improvement proves: an industrial case study", International Journal of Production Research, Vol. 48, No 4 , pp. 1069-1086

Bengtsson, M. & Osterman, C., (2014), "Improvements in vain – The 9th waste", The 6th International Swedish Production Symposium 2014, Göteborg, Sweden, Editor(s): Stahre, J., Johansson, B., and Björkman, M.

Susilawat, A., Tan, J., Bell, D., and Sarwar, M., (2013) "Develop a Framework of Performance Measurement and Improvement System for Lean Manufacturing Activity", International Journal of Lean Thinking, Vol. 4, Issue 1, pp. 51-64.

Bellgran, M.; Yamamoto, Y., (2010), "Fundamental mindset that drives improvements towards lean production", Assembly Automation, Vol. 30, No. 2 , pp. 124-130

Bengtsson, M. & Salonen, A. (2016). "Requirements and Needs – A foundation to reducing maintenance-related waste", Published at 10th World Congress on Engineering Asset Management (WCEAM 2015), Tampere, Finland.

The last two articles are not available through open data bases, but will be provided through the course web page.

2.4 Group project

A major part of this course is the applied industrial project. During the course period you will perform a pre-study in an industrial setting. The aim of your pre-studies is to identify and quantify waste, and further to identify root causes of these problems and give suggestions on how to eliminate them.

Example of projects:

- Low capacity/utilization in a production cell.
- Low capacity/utilization in an assembly line.
- Poor quality from a production unit.
- Low availability of a machine/cell.

The pre-study shall be documented in a technical report and presented at a mandatory seminar on May 27th.

2.5 Theoretical foundation

There is no mandatory book for this course. The theoretical foundation will be the Powerpoint slides and the five scientific papers.

2.6 Examination

The course will be examined through the following:

1. The execution, documentation, and presentation of the industrial projects.
 - a. The execution of the project will be evaluated through feedback from the companies
 - b. The documentation of the projects, through the project report and your personal project diaries.
 - c. The presentation, by your active participation during the presentations.
2. A written exam, based on:
 - a. The Powerpoint slides
 - b. The oral presentations from the guest lecturers
 - c. The five scientific papers

3 YOUR RESPONSIBILITY

You are expected to take responsibility for your own studies and actively participate in the course's various learning activities. You are expected to be well prepared for the different moments of the course. You are also responsible for receiving information about the course through the information channels that are available. As a student, you also have an obligation to know the rules for examination.

You are expected to inform the course administrator if there are any problems for you to participate in the course activities and if you need to cancel the course.

More information about rules and rights for you as a student can be found on the MDH website (www.mdh.se).

3.1 Cheating and Plagiarism

Cheating on examination means that the student tries to perform a task or part of a task without having done it himself. It may be a question of using unauthorized resources in an exam, such as cheats, mobile phones or the like. It can also be about plagiarism. Plagiarism means that the student in his work uses someone else's ideas, but describes them as their own. Reusing their own previously examined work in an unauthorized manner for the task also means plagiarism. Copying text from the Internet, course literature, other students' work, own previous submitted assignments or by making direct translations without referring to the source are examples of plagiarism.

To detect plagiarism, Mälardalen University uses "Urkund", a software for plagiarism control. Urkund's source material is extensive and consists of both published and unpublished texts, such as previous student's work.

A teacher who suspects cheating or attempting cheating is required to report this to the College Disciplinary Board. In the Disciplinary Board, the student may be switched off for a period which is usually 6 weeks. During the shutdown period, the student is not entitled to student loans from CSN. Students at all Swedish institutions of higher education are obliged to comply with current rules on cheating. The Disciplinary Board therefore normally does not take into account the alleged ignorance of the student as to what rules apply.

3.2 Course evaluation

Upon completion of the course, you will receive a course evaluation. It is very important that you answer this evaluation so that we get a good basis from which this and other courses can be improved.

3.3 Disabilities

For those with a disability, the university offers various types of support and assistance to enable you to study on the same terms as all other students. On the university's web pages (www.mdh.se) you will find information on how to access this support. When you have a certificate of support measures, show it to the course manager and inform about the specific actions that need to be taken during the course. It is an examiner who decides which adjustments can and should be made during the course exam.

4 THE LECTURERS' RESPONSIBILITIES

The teacher / teacher takes overall responsibility for planning the course activities and creates the conditions for the implementation of it, as well as following up the students' learning (exam) and the course's implementation (course analysis). Teachers and course

managers set out frameworks for which theoretical knowledge relevant to the course. Overall responsibility also means that the teacher indicates the practical skills and approaches that the student is expected to develop in various activities, and what practical skills and approaches he or she is expected to demonstrate, as described in the course's learning objectives.

The teacher / teachers are responsible for:

- The students are given the opportunity for relevant examination that is linked to the learning objectives of the course
- Inform students about the conditions and implementation of the course
- follow the course's implementation and results in a course analysis where results from course evaluation are an important part

5 LECTURERS

San Aziz (Course responsible)

Antti Salonen (Examiner)

Guests:

Dr. Yuji Yamamoto, Mälardalen University

Associate professor Peter Almström, Chalmers University of Technology

Erik Flores, Mälardalen University

Daniel Gåsvaer, Swerea IVF

Dr. Ali Rastegari, Volvo GTO

Per Hansson, Volvo GTO