Faculty of Health, Science and Technology
Mechanical Engineering

Syllabus

Production Systems II

Course Code:	MSGC20
Course Title:	Production Systems II *Produktionssystem II*
Credits:	7.5
Degree Level:	Undergraduate level
Progressive Specialisation:	First cycle, has less than 60 credits in first-cycle course/s as entry requirements (G1F)

Major Field of Study:
MTA (Mechanical Engineering)

Course Approval
The syllabus was approved by the Faculty of Health, Science and Technology 2018-02-06, and is valid from the Spring semester 2018 at Karlstad University.

Prerequisites
Production Systems I, 15 ECTS cr or equivalent

Learning Outcomes
The aim of the course is that students acquire further knowledge in the area of production in terms of a systems perspective. The course builds on Production Systems I.

Upon completion of the course, students should be able to:

Quality and operations development
- give an account of theoretical concepts of quality assurance and quality development,
- apply the methods and models of statistical process control and design of industrial experiments in practice,
- give an account of strategies and tools for production development.

Reliability technology
- give an account of the basics of different maintenance strategies and methods such as TPM and the connection between maintenance and reliability,
- apply methods such as FTA (Fault Tree Analysis) and FMEA in practice.

Lean production
- give an account of lean production as an overall concept and apply basic principles such as 5S, JIT (Just in Time), 6 sigma, visual control, team development and continuous improvement,
- apply lean principles to a an actual practice-related case carried out in a group.

Content
The course focuses on production systems control, quality and improvement. Leadership and organization aspects of quality and reliability are treated in terms of TQM (Total Quality Management) and TPM (Total Productive Maintenance). Also treated are models for quality improvement and operations development along with methods to control and ensure quality in a company's whole product development process such as SPC (Statistical Process Control) and FMEA (Failure Mode and Effect Analysis). In the segment lean production, there is a specialisation primarily in value stream mapping. Instruction is in the form of lectures, study visits, seminars and case studies.

Reading List
See separate document.

Examination
Assessment is based on a written exam, mandatory literature seminars, laboratory sessions and on hand-in assignments and a practical case report.

Grades
One of the grades Fail (U), Pass (G), or Distinction (VG) is awarded in the examination of the course.

Quality Assurance
Follow-up relating to learning conditions and goal-fulfilment takes place both during and upon completion of the course in order to ensure continuous improvement. Course evaluation is partly based on student views and experiences obtained in accordance with current regulations and partly on other data and documentation. Students will be informed of the result of the evaluation and of any measures to be taken.

Course Certificate
A course certificate will be provided upon request.

Additional information
The local regulations for studies at the Bachelor and Master levels at Karlstad University stipulate the obligations and rights of students and staff.