COURSE SYLLABUS
Developing Sustainable Supply Chain Operations, 7.5 credits

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Course Code:	TSSS22		**Education Cycle:**	Second-cycle level
Confirmed by:	Dean Mar 1, 2021		**Disciplinary domain:**	Technology
Valid From:	Jan 1, 2022		**Subject group:**	IE1
Version:	1		**Specialised in:**	A1F
			Main field of study:	Production Systems

Intended Learning Outcomes (ILO)

After a successful course, the student shall

Knowledge and understanding
- show familiarity with the implications of digitalisation and connectivity on operations development
- display knowledge of key elements and broad approaches to development of operations
- demonstrate comprehension of continuous development of operations for improvement
- demonstrate comprehension of ways to manage improvement processes

Skills and abilities
- demonstrate skills of problem identification and applications of various concepts in operations development activities
- demonstrate the ability in speech and writing to clearly report and discuss development of operations
- demonstrate the ability to understand the approaches applicable for operations improvement, in particular the application of quality management principles, practices and tools

Judgement and approach
- demonstrate the ability to make assessments of different measures taken for development of operations and be able to evaluate such initiatives
- demonstrate the ability to critically analyse the impact the development of operations has on economic, social and environmental sustainable development

Contents

The course covers the topics below in relation both to digitalization and connectivity and to economic, social and ecological sustainable development.

- PDSA and DMAIC cycles
- Evidence-based problem solving

- Customer centricity
- Waste and variation identification
- Total Quality Management (TQM)
- Lean
- Business Process Re-engineering (BPR)
- Six Sigma
- Quality Excellence and standards
- Statistical Process Control (SPC)
- Risk Management
- Failure Mode and Effects Analysis (FMEA)

Type of instruction

Active learning and participation of students are encouraged; therefore the course is designed to include seminars and assignments in connection to industry examples. Students are required to work in groups on case studies. The teaching consists of lectures, where concepts and frameworks are presented; seminars for discussion of journal articles and cases; exercises for opportunities to apply the tools and methodologies; and regular supervision to support the assignments.

The teaching is conducted in English.

Prerequisites

Passed courses of at least 90 credits within the major subject industrial engineering and management, mechanical engineering, civil engineering, computer engineering (or the equivalent), 15 credits in mathematics, and completed course Introduction to Supply Chain Operations Management, 7,5 credits (or the equivalent). Proof of English proficiency is required.

Examination and grades

The course is graded 5,4,3 or Fail.

The course is examined through group and individual assignments, and a written exam. In order to pass the course, the students need to be approved on all three parts: group and individual assignment, and written examination.

Registration of examination:

Name of the Test	Value	Grading
Examination[I]	3 credits	5/4/3/U
Assignments	4.5 credits	U/G

[I] Determines the final grade of the course, which is issued only when all course units have been passed.

Other information

All course information and communication throughout the course are managed through the education platform Canvas. Each student must register to participate in the Inspera examination.

Course literature

The literature list for the course will be provided two months before the course starts.

Quality Management – An Introduction (QM), Ida Gremyr, Bjarne Bergquist & Mattias Elg, 1st Ed, 2020, Studentlitteratur, ISBN 978-91-44-13214-3.

SCOM Program Book: ***Operations Management*** (OM), Nigel Slack & Alistair Brandon-Jones, 9th Ed, 2019, Pearson