



# TOTAL QUALITY MANAGEMENT

<b>Course code</b>	<i>MNG164</i>
<b>Course title</b>	<i>Total Quality Management</i>
<b>Type of course</b>	<i>Compulsory</i>
<b>Stage of study</b>	<i>Undergraduate</i>
<b>Year of study</b>	<i>Third</i>
<b>Semester</b>	<i>Spring</i>
<b>ECTS</b>	<i>6; 24 hrs. of lectures, 24 hrs. of workshops; 114 hrs. of individual study</i>
<b>Lecturer</b>	<i>Vidas Petraitis</i>
<b>Study form</b>	<i>Full-time</i>
<b>Course prerequisites</b>	-
<b>Language of instruction</b>	<i>English</i>

## Course description

Total quality management is an introductory course for understanding quality management and its role in today's management theory and practices. Quality management theories, concepts, techniques, methods, tools and their wide practical application are introduced to the students during the course. It starts with the definitions of quality, quality management and total quality management, key tools and techniques for quality management, and their implementation in a contemporary way of management of manufacturing processes, i.e. lean manufacturing system. The course ends with the company visits which profess lean manufacturing philosophy.

## Course objectives

There are two objectives of this course. The first is to introduce students into the universe of values, principles, and tools of total quality management to continuously identify the needs and wants of customers. The second objective is to learn the ways for synchronisation of manufacturing processes by application of the variety of methodologies, methods, and tools to fulfil the needs of customers by continuously identifying and removing various kinds of sources of waste in the manufacturing environment.

## Course learning outcomes

<b>Course learning outcomes (CLO)</b>	<b>Learning methods</b>	<b>Assessment methods</b>
CLO1. Ability to operate the main concepts, laws, and techniques of total quality management	Lectures, tutorials, exercises, examples, simulations, homework assignments	Homework presentations, simulations, final examination, retake
CLO2. Ability to operate the methodologies, methods, and tools of lean manufacturing system	Lectures, tutorials, exercises, examples, simulations, homework assignments, in-company visits	Homework presentations, assignment for in-company visit, simulations, final examination, retake
CLO3. Ability to apply these concepts of total quality management and lean manufacturing for investigation and synchronisation of manufacturing processes.	Lectures, tutorials, exercises, examples, simulations, homework assignments, in-company visits	Homework presentations, assignment for in-company visit, simulations, final examination, retake

## Teaching and learning methods

Lectures, workshops, in-company visits, simulations, individual work by students. Activities will include participation in problem solving, giving oral presentations.

## Quality management

Applying critical thinking skills. Regular group and individual feedback.



**Course schedule**

Week No.	Topics	Lecture hours	Workshop hours	Readings & exercises (pages)
1.	<b>Customer-focused quality:</b> What is lean. History of lean. Lean system. Lean methods. Lean leadership and culture.	2	2	Chapter 4. 89–106
2.	<b>Value-added and waste elimination:</b> What is waste. Edward Deming's and Taichi Ohno approach. VACA and VSM methods.	2	2	Chapter 3. 57–87
3.	<b>Fundamentals of continuous improvement:</b> What is Kaizen. Kaizen Teian system: eliminate root cause and improve. Standardisation. Nail simulation.	2	2	Chapter 2. 21–53
4.	<b>Fundamentals of continuous improvement:</b> PDCA problem solving. 8 steps problem solving. Catapult simulation	2	2	Chapter 2. 21–53
5.	<b>Standard operations:</b> Standardised work and Yamazumi chart. Standard work instructions (SWIs) and skill matrix.	2	2	Chapter 11. 311–329
6.	<b>Standard operations:</b> Lego simulation of work standardisation.	2	2	Chapter 11. 311–329
7.	<b>Small lot production and setup-time reduction:</b> What is SMED. SMED history and SMED implementation. Coins and T-Shirt simulations.	4	4	Chapter 5. 111–131; Chapter 6. 135–158
8.	<b>Maintaining and improving equipment:</b> Maintenance history. What is total productive maintenance (TPM), Mean time to repair and Mean time to recovery (MTTR & MTTR).	1	1	Chapter 7. 161–197
9.	<b>Maintaining and improving equipment:</b> Overall equipment effectiveness (OEE) and Pareto principle.	1	1	Chapter 7. 161–197
10.	In-company visit	2	2	
11.	Practical session in company	4	4	
	Total	24	24	

**Self-study and assessment**

Assignment	Number of self-study hours	Percentage of the total grade
1. Homework assignments (Totally 3, each is 5% of weight)	27	15%
2. Final examination	50	40%
3. Practice session at the company	37	25%
4. Active participation		20%
<b>Total:</b>	<b>114</b>	<b>100%</b>

1. Final exam is closed book exam. Final exam covers all topics.
2. Active participation
3. Practice session at the company

**Textbooks**

1. John Nicholas. Lean production for competitive advantage. CRC Press (2011). ISBN 978-1-4398-2096-4

**Additional readings**

2. James Womack, Daniel Jones and Daniel Roos. The Machine that Changed the World (1990).