

1. Key Information		
<b>Module Code:</b> 13623	<b>Module Title:</b> Operational Excellence	
<b>Credit Points:</b> 6	<b>Module Status:</b> Compulsory	<b>Module Block:</b> Business Technologies
<b>Course Title:</b> BSc in Engineering and Management		<b>Module Theme:</b> Production and logistics

<b>2. Lecturer:</b> Nuria Martínez Berenguer	<b>Tutorial Hours:</b> Friday 19:00-21:00
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3. Required Reading:	
<i>Lean thinking</i>	<i>James P. Womack</i>
<i>Learning to see</i>	<i>Mike Rother / John Shook</i>
<i>The Toyota Way Fieldbook</i>	<i>Jeffrey K. Liker/David Meier</i>
<i>Seis-Sigma. Metodología y Técnicas</i>	<i>Escalante</i>

4. General overview of the module
<p>In the subject the student is given the basic knowledge to implement the lean manufacturing tools or adjusted production in both industrial and service companies, The course aim to provide students with specific knowledge about the philosophy and tools of one of the most widespread production systems in leading organizations, The Toyota production system</p> <p>At the end of the course the student will have worked, both the part of use of the tools, as the management part of people and multidisciplinary teams, essential aspects for any engineer in the workplace.</p>

5. Recommended prior knowledge	
13621	<i>Supply Chain Design</i>
13622	<i>Supply Chain Management</i>

6. Module objectives – Learning outcomes	
<b>Basic and general competencies</b>	
02- Use the technological and economic techniques, skills and tolos necessary for the profesional practice of engineering and business management	
03-Define, solve and exposesystemically complex technical problems	
04-Learn to analyze the different elements that interact in business decision making	
05 - Know how to express oneself in formal, graphic and symbolic languages necessary to be understood in engineering environments and business	
06-Ability to make decisions in environments of uncertainty and business uncertainty	
CB3- students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include a reflection on releant issues of a social, scientific or ethical nature	
CB4- Students can transmit information, ideas, problems and solutions to a specialized and non-specialized public	
CB5 - That the students have developed those learning skills necessary to undertake further studies with a high degree of autonomy	
<b>Specific Competences</b>	
04- Understand the rationale and functioning of companies, as well as their systemic nature and the processes and implications linked to its development and growth	
07- Acquire the necessary knowledge of supply, production, distribution and logistic systems of a company	

7. Teaching and learning units	
Unit	Schedule
	<i>Session</i>
<b>1.-Introduction to Lean Culture</b>	<b>3</b>
1.1 Business Fundamentals	
1.2 Lean Principles, TPS	
1.3 Waste Elimination	
<b>2.-Lean Enterprise: Foundational Principles</b>	<b>9</b>
2.1 Standard Work & Standard Operating Procedures (SOP)	
2.2 5S and Visual Control	
2.3 Total Productive Maintenance (TPM)	
2.4 Value Stream Mapping	
<b>3.-Flow creation and Management: Just In Time</b>	<b>9</b>
3.1 Continuous Flow: Takt Time, Levelling Production	

3.2 Quick Change Over (SMED)	
3.3 Pull System: Kanban Calculation	
3.4 Creating the future State	
<b>4.-Quality and Continuous Improvement Process &amp; Methodologies</b>	<b>6</b>
4.1 Six Sigma: PDCA Cycle (DMAIC)	
4.2 Error Proofing	
<b>5.-Indicators</b>	<b>1</b>
5.1 KPI definition and characteristics	
5.2 Examples of KPIs, Control panel	
<b>6.-Systems of Quality certification</b>	<b>2</b>
6.1 Concept of quality management. Approaches to quality assurance	
6.2. Quality certification	

7 Teaching and learning methods							
Unit	Theory (Classroom)	Practical (Classroom)	Practical (Laboratory)	Practical (Classroom)	Practical (ICT)	Self-guided study	TOTAL HOURS
1	4	2				17	23
2	9	7			2	18	30
3	9	7			2	18	30
4	5	2			3	25	43
5	2				2	10	14
6	2	2				17	25
<b>TOTAL HOURS</b>	<b>31</b>	<b>20</b>			<b>9</b>	<b>105</b>	<b>165</b>

8 Assessment		
Overview	Nº of activities	Weighting (%)
<b>Continuous assessment</b>		
Individual activities/Exercises	2	20%
Group work participation/presentation	2	20%
<b>Final Exam</b>	1	60%

Student evaluation will consist of both continuous and summative assessments:

- Continuous assessment: The submission of practical work either carried out individually or in groups and participation in the different activities both inside the classroom, such as the analysis, summation and discussion of required readings, and outside including company visits, will account for this mark. This part of the assessment carries a weighting of 40% towards the final mark.
- Summative assessment: These tests can combine both theoretical and practical content. This part of the assessment carries a weighting of 60% towards the final mark.

Continuous assessment is attendance based and non-recoverable. Therefore, the mark obtained for this part of the assessment will serve for both the first summative assessment and any subsequent repeat if required. The repeat will only be available at the end of the semester.

In order to pass the module an average of more than 5 in summative tests must be obtained. The final mark will be calculated by the average weightings of the summative assessment in combination with the continuous assessment. The final mark achieved must be 5 or above to pass the module.

Attendance is compulsory to ensure that you extract the most value from the module and meet the learning requirements. Therefore, session absence accounting for more than 15% of the prescribed hours will result in the inability to be awarded a mark for continuous assessment. Consequently, the maximum mark that can be achieved will be that obtained solely from the summative assessments.

Students enrolling in the module for the second time will receive specific instructions from their lecturer on what is required for them to pass the continuous assessment element. The final mark will be obtained by combining the summative assessment (80%) and the continuous assessment (20%), having to gain a final mark equal to or greater than 5 to pass the module.

All students must comply with the rules of writing, spelling and grammar in the development of their work and their assessment tests.

