DEPARTMENT OF MECHATRONICS ENGINEERING
COURSE SYLLABUS

Course Details										
Code					**Academic Year**			**Semester**		
WIN314					3			Spring		
Title					**T**	**A**	**L**	**ECTS**		
Machine Learning					3	1	1	6		
Language	German									
Level	**Undergraduate**	**X**	**Graduate**		**Postgraduate**					
Department / Program	Industrial Engineering									
Forms of Teaching and Learning	Lecture									
Course Type	**Compulsory**	**X**	**Elective**							
Objectives	After successful completion of the module, students will have fundamental knowledge of quality management and will be able to apply this independently in problem-solving processes. The acquired knowledge of tools and methods of quality management are used by the students to pursue systematic and holistic approaches. Furthermore, students are able to prepare elaborated project results and to present and defend them under practical conditions.									
Content	The concept of quality; introduction to quality management (QM); history of QM; quality awards; problem solving models (PDCA, DMAIC); Q techniques (M7, D7, Q7); creativity techniques; quality requirements for products: Kano model, Market tension, requirements management; Quality requirements for processes: The process concept, process capability, basics of process management; Q-requirements on systems: (QM) systems according to DIN EN ISO 9000ff, tasks and organization of quality management, special standards of the automotive industry, audits as a management tool, basics of lean management and Six Sigma.									
Prerequisites	-									
Coordinator	Dr. Öğr. Üyesi Damla Durak Uşar									
Lecturer(s)	Prof. Dr. Roland JOCHEM, Marcel RANDERMANN, Msc.									
Assistant(s)	Arş. Gör. Kübra YAZICI									
Work Placement	-									
Recommended or Required Reading										

DEPARTMENT OF MECHATRONICS ENGINEERING
COURSE SYLLABUS

Books / Lecture Notes	Recommended literature: • Jochem, R; Mertins, K.; Knothe, T. (Hrsg.): Prozessmanagement - Strategien, Methoden, Umsetzung, Symposium Publishing, Düsseldorf, ISBN 978-3-939707-56-1 • Jochem, R.: Was kostet Qualität? - Wirtschaftlichkeit von Qualität ermitteln, Hanser Verlag, München, 2010, ISBN 978-3-446-42182-0 • Kamiske, G. F.; Brauer, J.-P.: Qualitätsmanagement von A bis Z – Erläuterungen moderner Begriffe des Qualitätsmanagements, 4. aktual. und erg. Auflage, Hanser Verlag, München, 2003, ISBN 3-446-22458-0 • Schmitt, R.; Pfeiffer, T.: Masing Handbuch Qualitätsmanagement, 5., vollst. Neu bearb. Aufl., Hanser Verlag, München, 2007, ISBN 978-3-446-40752-7
Other Sources	-

Additional Course Material	
Documents	Lecture and exercise script
Assignments	-
Exams	Two tests and a final exam

Course Composition		
Mathematics und Basic Sciences		%
Engineering	50	%
Engineering Design		%
Social Sciences		%
Educational Sciences		%
Natural Sciences		%
Health Sciences		%
Expert Knowledge	50	%

Assessment

Activity	Count	Percentage (%)
Midterm Exam	2	40
Quiz		
Assignments		
Attendance		
Recitations		

DEPARTMENT OF MECHATRONICS ENGINEERING
COURSE SYLLABUS

Projects		
Final Exam	1	60
	Total	**100**

ECTS Points and Work Load			
Activity	**Count**	**Duration**	**Work Load (Hours)**
Lectures	4	4	16
Self-Study	8	4	32
Assignments			
Presentation / Seminar Preparation	10	5	50
Midterm Exam	2	1	2
Recitations	8	4	32
Laboratory			
Projects			
Final Exam	1	2	2
		Total Work Load	**150**
		ECTS Points (Total Work Load / 28)	**5**

Learning Outcomes	
1	Basic knowledge of quality management
2	Independent application of the problem solving process
3	Application of customer and process-oriented thinking
4	Recognizing cause-effect relationships in systems or organizations
5	Basic skills for the establishment and further development of effective quality management systems

Weekly Content	
1	Introduction and history of quality management
2	Tools of Quality Management: Q7, M7
3	Voice of Customer / Requirements Engineering
4	Standards in Quality Management
5	Audits

DEPARTMENT OF MECHATRONICS ENGINEERING
COURSE SYLLABUS

6	Introduction and certification of a QM system
7	Measurement system analysis (MSA), machine capability study (MCS), Process capability study (PSC)
8	Lean Management
9	
10	
11	
12	
13	
14	

Contribution of Learning Outcomes to Program Objectives (1-5)

	P1	P2	P3	P4	P5	P6	P7
1	2	4	5	3	1	4	4
2	3	5	3	3	4	5	3
3	2	3	4	2	4	3	3
4	3	5	3	3	4	5	3
5	2	4	5	3	2	4	4

Contribution Level	1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High
Compiled by:	MSc. Marcel RANDERMANN
Date of Compilation:	01.11.2021