INDUSTRIAL ENGINEERING LABORATORY

1	Course Title:	INDUSTRIAL ENGINEERING LABORATORY	
2	Course Code:	END4010	
3	Type of Course:	Compulsory	
4	Level of Course:	First Cycle	
5	Year of Study:	4	
6	Semester:	8	
7	ECTS Credits Allocated:	4.00	
8	Theoretical (hour/week):	0.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	3	
11	Prerequisites:	None	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Doç.Dr. ALI YURDUN ORBAK	
15	Course Lecturers:	Bölüm öğretim üye ve elemanları	
16	Contact information of the Course Coordinator:	orbak@uludag.edu.tr, 0(224)2942086, Uludağ Üniversitesi Endüstri Mühendisliği Bölümü Oda Y315 Görükle, 16059, Bursa	
17	Website:		
18	Objective of the Course:	Provide information and in depth knowledge on the equipment, machine, measurement tools and analysis that are commonly used in the industrial engineering application areas.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Students grasp the knowledge and ability to understand, use, and design equipment that are commmonly used in the manufacturing areas such as PLC, CNC, logic circuits, robot arm, and statistical process control. They also get the ability to analyze data obtained from these equipments.
		2	Students grasp the knowledge and ability to understand, use, and design equipment that are commmonly used in the human factors area such as noise analysis, vision ability, hearing ability, EKG+walking band, and human vibration. They also get the ability to analyze data obtained from these equipments.
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21	Course Content:		
	Course Content:		
Week	Theoretical		Practice

1		Introduction to laboratory course
2		PLC
3		Logic Circuits
4		CNC Machine
5		Noise Analysis
6		Vision Ability
7		Robot Arm
8		Hearing Ability
9		EKG+Walking Band
10		Human Vibration
11		Statistical Process Control
12		Excuse Week
13		Excuse Week
14		Repeating courses and midterm exam

22	Textbooks, References and/or Other Materials:	• END4010 Industrial Engineering Laboratory manuals.
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	1	30.00
Total	12	100.00

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	0	0.00	0.00
Practicals/Labs	14	3.00	42.00
Self study and preperation	14	2.00	28.00
Homeworks	10	5.00	50.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	1.50	1.50
Others	0	0.00	0.00
Final Exams	1	1.50	1.50
Total Work Load			123.00
Total work load/ 30 hr			4.10
ECTS Credit of the Course			4.00

25	**CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS**															
	PQ1	**PQ2**	**PQ3**	**PQ4**	**PQ5**	**PQ6**	**PQ7**	**PQ8**	**PQ9**	**PQ10**	**PQ11**	**PQ12**	**PQ13**	**PQ14**	**PQ15**	**PQ16**
ÖK1	5	0	0	5	0	0	0	5	0	0	5	0	0	0	0	0
ÖK2	5	0	0	5	0	0	0	5	0	0	5	0	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	**1 very low**	**2 low**	**3 Medium**	**4 High**	**5 Very High**