INTRODUCTION TO ROBOTICS

1	Course Title:	INTRODUCTION TO ROBOTICS
2	Course Code:	MAK4081
3	Type of Course:	Optional
4	Level of Course:	First Cycle
5	Year of Study:	4
6	Semester:	7
7	ECTS Credits Allocated:	3.00
8	Theoretical (hour/week):	2.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	Yok
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Dr. Ögr. Üyesi SEVDA TELLİ
15	Course Lecturers:	Yok
16	Contact information of the Course Coordinator:	E-Mail: sevda@uludag.edu.tr, Tel: 0 224 2941983 Adres: U.Ü.Müh.Mim.Fak.Makine Müh. Bölümü Görükle-BURSA
17	Website:	
18	Objective of the Course:	This course aims to give the students the fundamental concepts of robotics. It covers robot kinematics and dynamics.
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	

	1	To able to introduce robots that are used very commonly in mechanical engineering, to the students during their training.
	2	To gain basics knowledge to the students about the robot kinematics and dynamics.
	3	To give opportunity to apply the subjects that are learned in the different courses and semesters, on a system .
	4	To provide the ability to think and detection as an engineer.
	5	
	6	
	7	
	8	
	9	
	10	

21	Course Content:

Course Content:

Week	Theoretical	Practice
1	Introduction	
2	Classifications of Robots, Basic Robot Parts	
3	Robot Motion	
4	Industrial Manipulators	

5	Coordinate Transformations	
6	Manipulator Kinematics	
7	Inverse Kinematics	
8	Jacobian	
9	Repeating courses and midterm exam	
10	Velocity and Acceleration Analysis	
11	Static Force Analysis	
12	Denavit-Hartenberg Notation	
13	Manipulator Dynamics	
14	Lagrangian Dynamics	

22	Textbooks, References and/or Other Materials:	1) Robotics: An Introduction, D.R.Malcolm 2) Robotics: Basic Analysis and Design, W.A. Wolovich 3) Mechanical Design of Robots, E.I. Rivin 4) Robot Analysis and Control, H.Asada, J.E. Slotine.
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	1	30.00
Quiz	0	0.00
Home work-project	2	20.00
Final Exam	1	50.00
Contribution of Final Exam to Success Grade		50.00
Measurement and Evaluation Techniques Used in the		

24 ECTS / WORK LOAD TABLE

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	1.00	14.00
Homeworks	2	15.00	30.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	8.00	8.00
Others	0	0.00	0.00
Final Exams	1	10.00	10.00
Total Work Load			90.00
Total work load/ 30 hr			3.00
ECTS Credit of the Course			3.00

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	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
ÖK3	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	3	0	0	0	0	0	0	0	0	0	0	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