a) General			
School	ENGINEERING		
Academic unit	MECHANICAL ENGINEERING		
Level of studies	Undergraduate		
Course code	MM209E02	*Semester*	9
Course title	**Industrial robotics**		

Independent teaching activities	*Weekly teaching hours*	*ECTS*
Lectures	2	4.5
Laboratory exercises	2	

Course type	Knowledge deepening / consolidation
Course category	Compulsory Elective for Direction 2
Prerequisite courses	-
Language of instruction and examinations	Greek
Is the course offered to Erasmus students	Yes (EN)
Course website (url)	

b) Learning outcomes and general competences

b1. Learning outcomes

Upon successful completion of this course, the student will be able to:

- Recognize the parts of a robotic system and, particularly, ythe sub-systems that make up an industrial robotic installation.
- Describe an industrial robotic system in terms of information flows and functions.
- Describe the main problems relating to the design and programming an industrial robotic system.
- Calculate the kinematic and dynamic response of a simple industrial robotic arm.

b2. General competences

- Search for, analysis and synthesis of data and information with the use of the necessary technology
- Adapting to new situations
- Decision making
- Working independently
- Team work
- Working in an international environment
- Working in an interdisciplinary environment.

c) Syllabus

Introduction to Robotics and industrial application of robotics. Structure of robotic systems, typical geometries, kinematics, direct kinematic problem, inverse kinematics. Technologies for actuators and sensors in robotics. Robot dynamics, control, path design, path tracking.

d) Teaching and learning methods - Evaluation

Delivery	Live lectures	
Use of information and communications technology	- Commercial and free / open source software - Multimedia applications - MS Teams, eClass	
Teaching methods	*Activity*	*Semester workload*
	Lectures	26
	Tutorials	

	Laboratory exercises	26
	Computational exercises	
	Individual work	78
	Course total	130
Student performance evaluation	Written final examination and student project (coursework).	

e) Suggested bibliography

1. Graig J.J. (2017). *Introduction to Robotics: Mechanics and Control*. Pearson.
2. Kevin M. Lynch K.M. & Park F.C. (2017). *Modern Robotics: Mechanics, Planning and Control*. Cambridge Univesity Press.