a) General			
School	ENGINEERING		
Academic unit	MECHANICAL ENGINEERING		
Level of studies	Undergraduate		
Course code	MM006Y01	*Semester*	6
Course title	**Industrial automation**		

Independent teaching activities	*Weekly teaching hours*	*ECTS*
Lectures	5	6.5
Laboratory exercises	0	

Course type	Special background
Course category	Compulsory
Prerequisite courses	-
Language of instruction and examinations	Greek
Is the course offered to Erasmus students	Yes (EN)
Course website (url)	https://eclass.uniwa.gr/courses/MECH130/

b) Learning outcomes and general competences

b1. Learning outcomes

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

- Recognize automatic control systems in industrial situations and identify the information flows involved.
- Establish technical plans for implementing industrial control systems.
- Identify and evaluate technologies and resources used in automation applications.
- Develop simple automation applications, based on sequential systems
- Design and program applications of digital industrial control, based on micro-controlers and Programmable Logic Controllers.

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

Control system architectures for industrial applications, discrete state automation, combinatorial and sequential systems, relay diagrams. Programmable Logic Controllers, technologies, operation, memory organization, programming languages, applications. Supervisory Control and Data Acquisition systems in industry.

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	13
	Laboratory exercises	26
	Computational exercises	
	Individual work	91
	Course total	156
Student performance evaluation	Written final examination and student project (coursework).	

e) Suggested bibliography

1. Dunning G. (2005). *Introduction to Programmable Logic Controllers*. Thomson-Delmar.
2. Petruzella, F. (2016). *Programmable Logic Controllers.* McGraw-Hill Education.
3. Karl Heinz J. (2010). *IEC 61131-3*: *Programming Industrial Automation Systems: Concepts and Programming Languages, Requirements for Programming Systems, Decision-Making Aids*. Springer
4. Collins K. (2007). *PLC Programming for Industrial Automation.* Exposure Publishing, https://pdfs.semanticscholar.org/ac4a/8e4dd19132f1cd521cb0b6e3d6bf0d5538fb.pdf