Course Title:	**PLC – Programmable Logic Controllers**
Institute/Division:	Department of Automation and Computer Engineering Faculty of Electrical and Computer Engineering
Course code:	**E-PLC**
Erasmus subject code:	0714 Electronics and automation
Number of contact hours:	45
Course duration:	1 semester (Spring/Summer)
ECTS credits:	6
Course description:	The course comprises lectures and laboratory exercises. It aims to provide the student with an understanding of programmable logic controllers (PLC) and the acquisition of the ability to design automation systems. • Introduction to programmable logic controllers and programming language using Siemens controllers. • Basic and advanced elements of ladder programming language. Ladder diagram and other utils for PLC programming like function block diagrams, structured text, instructions lists and sequential control language in a TIA Portal programming environment. • Human-machine interface (HMI) and PLC cooperations in a network. • Control and monitoring operator panels design and implementations. • Functions and Functions Blocks, Data Blocks, Organisations Blocks. Structured and unstructured applications building. Sequential functions charts. Different methods of function chart implementation. • Examples of industrial control applications. Intended platform and software: Siemens PLC (S7-1200) and Siemens HMI screen, TIA Portal (software) At-home practice: the possibility of downloading a trial version of TIA Portal and PLCSim (PLC simulator)
Course type:	Lectures (10h), Laboratory (25h), Project (10h)
Literature:	Mitra, Madhuchhanda; Gupta, Samarjit Sen: *Programmable logic controllers and industrial automation* Mehta, Bharat; Reddy, Y. Jaganmohan: *Industrial process automation systems: design and implementation* Dey, Chanchal; Sen, Sunit Kuma: *Industrial automation technologies*
Assessment method:	The final project, laboratory exercises
Prerequisites:	-
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