	University of East Sarajevo Faculty of Electrical Engineering	
	Study program:Automation and electronics	
	Study degree: Master / **Year:** I/II	

Course title	**Distributed control system with PLC**
Department	Automation and electronics
Target group	Ordinary students
Is the course offered to ERASMUS students?	Yes
Language:	English

Course code	**Course status**	**Semester**	**ECTS**
RI-ME0123	Obligatory	VII/VIII	5

Lecturer/Instructor	Prof dr Slobodan Lubura
Course Assistant(s)	

Course Meeting Times (weekly)	**L (lecture)**	**T (tutorial)**	**P (lab)**
	2	0	2

Course goals	This module is intended to familiarize the student with the most important aspects of Distributed Control Systems. Topics covered in the module include remote terminal units (RTUs), HMIs and an introduction to LANs. The student will also learn the differences between star, bus, and ring topology and their applications in automation systems. In addition to covering system architecture and algorithms, the course also provides detailed information on practical applications for DCS. Emphasis is placed on design, problem solving and analysis of industrial automation systems.
Learning Outcomes	1. Define task architecture and hardware architecture of DCS, 2. Explain the purpose of a remote terminal unit (RTU). 3. Identify three components of quality of use in HMI. 4. Define the terms topology of AS-i network 5. Define the terms topology of PROFIBUS network
Admission and requirements	none
Teaching Methods	• Interactive lectures and communication with students • Discussion and Group Works • Presentation • Homework • Project
Course Content per Week	1. Introduction to industrial control networks and protocols 2. Specifications of AS-i communication interface 3. Components of AS-i communication networks 4. Addressing AS-i discrete and analogue I/O modules 5. AS-i networks in SIMATIC S7 environment 6. Analysis of simple DCS with AS-i network 7. PROFIBUS communication interface 8. PROFIBUS RS-485 network components 9. PROFIBUS DP protocols 10. PROFIBUS networks in SIMATIC S7 environment 11. Analysis of simple DCS with PROFIBUS network 12. Coupling AS-i and PROFIBUS network 13. Analysis of complex DCS with PROFIBUS and AS-i network
Quality assessment methods	....
Specific note if any	-

Mandatory Literature

Author(s)	**Title, Publisher**	**Year**	**Pages**
Moustafa Elshafei	Modern Distributed Control Systems: A Comprehensive Coverage of DCS Technologies and Standards, CreateSpace Independent Publishing Platform	2016	all

Recommended Literature

Author(s)	**Title, Publisher**	**Year**	**Pages**

John W. Webb, Ronald A. Reis,	Practical Distributed Control Systems (DCS) for Engineers & Technicians, DC Technologies Pvt. Ltd.		2004	all

Method of knowledge assessment Description (%) (Grading)	**Activity**	**Percentage**	**Activity**	**Percentage**
	Attendance	**5%**	Lab/Practical Exam	**20%**
	Quiz	**-**	Term Paper	**-**
	Homework	**10%**	Class Deliverables	**-**
	Project	**40%**	Presentation	**-**
	Midterm Exam	**-**	**Final Exam**	**25%**

ECTS (ALLOCATED BASED ON STUDENT'S WORKLOAD)

Activities	**Quantity**	**Duration**	**Workload**
Lecture (15 weeks x Lecture hours per week)	15	3	45
Laboratory / Practice (15 weeks x Laboratory / Practice hours per week)	15	1	15
Assignment / Homework / Project	7	4	28
Seminar / Presentation			0
Preparation for Midterm Examination			0
Preparation for Final Examination	1	35	35
Midterm Examination (1 week)			10
Final Examination (1 week)	1	2	2
Total Workload (ETCS)			**5**

Web page	http://www.etf.ues.rs.ba
Date	