

DESCRIPTION OF A STUDY COURSE – SYLLABUS

Title of a course	Safety measures in electric power exploitation				
Head of course	Associate Professor, PhD Vitomir Komen				
Study programme	Professional undergraduate study Occupational Safety				
Status of a course	Obligatory				
Year of study	1.	Semester	II	ECTS credits	4
Teaching plan (L + E + S+ Pr)	2+2+0+0				
Goals of a course					
Acquaintance and technical description of the dangers of electricity (electricity), technical safeguards applied in the design, production and construction phase of electrical plants, installations and devices, and organizational and technical safeguards for the safe use and safe operation of electrical installations, installations and devices, while respecting the levels of danger of electric shock to man at various sources of danger, technical regulations and standards, methods and procedures for safe operation, and the equipment and technical safeguards available. To enable students to independently perform the risk assessment of electricity and to determine the application of technical and organizational safety measures for electrical installations, installations and devices.					
Conditions for enrolling course					
No conditions					
Learning outcomes on a level of a study programme which includes course					
Outcome 3: Assess risk and recommend protective measures.					
Outcome 4: Evaluate protective measures with respect to danger encountered in the work process.					
Outcome 8: Organize a system of prescribed procedures and documents in the field of occupational safety.					
Outcome 9: Conduct training of subjects in the field of occupational safety.					
Outcome 15: Identify the basic characteristics of production processes, machines and materials.					
Expected learning outcomes on a level of a course					
1. Analyse electrical conditions in different electrical plants, distribution lines and devices.					
2. Evaluate the effect of electricity on humans.					
3. Explain the types and sources of dangers from electricity to humans.					
4. Recommend technical safety precautions for low voltage installations and consumers at the design and construction stages.					
5. Recommend technical safety precautions for high voltage plants and lines at the design and construction stages.					
6. Recommend safety rules and measures when working on electrical plants, lines and installations.					
7. Interpret technical and organizational requirements for safe live working.					
8. Carry out measures of removal from the circuit and first aid measures for persons injured by electricity.					
Content of a course					
Introduction to safety measures in electric power exploitation. Fundamental concepts and principles of basic electrotechnics. Impact of electric power on human beings. Kinds of electric power hazards. Technical safety in constructing high and low voltage plants. Technical safety in creating overhead power lines and cable lines. Regulations and safety measures when working on electric power plants. Safety measures in electric transformer stations, regulating plants, power plants; safety measures when working at overhead power lines, cable lines, underground plants, low voltage plants. Work under voltage exposure in power plants. Technical and personal safety equipment, tools and safety equipment in power plants. Regulations (internal regulations and national laws) and organization of safety at work. Offering emergency medical assistance and liberating injured people from electrical circuits.					
Teaching modes	<input checked="" type="checkbox"/> lectures <input type="checkbox"/> auditory exercises <input checked="" type="checkbox"/> seminars and workshops <input type="checkbox"/> distance learning		<input checked="" type="checkbox"/> individual assignments <input type="checkbox"/> multimedia and network <input type="checkbox"/> laboratory <input type="checkbox"/> supervisor's work		

	<input type="checkbox"/> field classes	<input type="checkbox"/> other _____
Comments		

Students' obligations

Grading, evaluation and monitoring of students' work continuously during lectures and exams

Grading is based upon evaluation of course's learning outcomes' adoption. Grading is performed continuously during lectures and/or during exam, in compliance with the provisions of Regulation on the assessment of students.

Continuous check-up:

Outcomes	Pre-exam I	Pre-exam 2	Seminar work	Project task	Threshold	Max
Outcome 1	6%			5%	5,5%	11%
Outcome 2	8%				4%	8%
Outcome 3	10%		2%		6%	12%
Outcome 4	16%			6%	11%	22%
Outcome 5		10%			5%	10%
Outcome 6		16%		5%	10,5%	21%
Outcome 7		8%	2%		5%	10%
Outcome 8		6%			3%	6%
Percentage of ECTS	1,5	1,5	0,2	0,8		
Total	40%	40%	4%	16%	50 %	100 %

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

Exam term:

Outcomes	Written exam	Oral exam	Max
Outcome 1	9%	2%	11%
Outcome 2	6%	2%	8%
Outcome 3	10%	2%	12%
Outcome 4	18%	4%	22%
Outcome 5	8%	2%	10%
Outcome 6	17%	4%	21%
Outcome 7	8%	2%	10%
Outcome 8	5%	1%	6%
Percentage of ECTS	3	1	
Total	81%	19%	100 %

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

Grading:

A student has passed the exam if he has acquired at least 50% of anticipated credits of a specific learning outcome.

If a student has passed learning outcomes of all courses, the accomplished credits (percentages) of all passed learning outcomes are being added, while the final grade is defined upon following table:

Range of credits (percentages)	Numerical grade	ECTS grade
90,00 – 100,00	Excellent (5)	A

	75,00 – 89,99	Very good (4)	B
	60,00 – 74,99	Good (3)	C
	50,00 – 59,99	Sufficient (2)	D
	0,00 – 49,99	Insufficient (1)	F
Obligatory literature			
<ol style="list-style-type: none">1. Teaching materials in electronic form2. Sigurnost u primjeni električne energije, skripta u elektroničkom obliku3. Sigurnost u primjeni električne energije, IPROZ Zagreb, 2014.			
Additional literature			
<ol style="list-style-type: none">1. Tehnički priručnici2. Tehnička literatura za električne instalacije niskog napona3. Mileusnić Egon: Zaštita i sigurnost pri radu na elektroenergetskim postrojenjima, ZIRS Zagreb, 1991.4. Priručnici za osposobljavanje za rad na siguran način na elektroenergetskim postrojenjima i instalacijama5. Pravilnik o sigurnosti i zdravlju pri radu s električnom energijom			

