COURSE DESCRIPTION CARD

<table>
<tr><td colspan="10">Faculty of Electrical Engineering</td></tr>
<tr><td>Field of study</td><td colspan="6">Electrical Engineering</td><td>Degree level and programme type</td><td>Bachelor's degree</td></tr>
<tr><td>Specialization/ diploma path</td><td colspan="6">-</td><td>Study profile</td><td>-</td></tr>
<tr><td rowspan="2">Course name</td><td colspan="6" rowspan="2">Electrical Equipment and Installations</td><td>Course code</td><td>IS-FEE 100028</td></tr>
<tr><td>Course type</td><td>elective</td></tr>
<tr><td rowspan="2">Forms and number of hours of tuition</td><td>L</td><td>C</td><td>LC</td><td>P</td><td>SW</td><td>FW</td><td>S</td><td>Semester</td><td>winter</td></tr>
<tr><td>15</td><td></td><td>15</td><td>30</td><td></td><td></td><td></td><td>No. of ECTS credits</td><td>6</td></tr>
<tr><td>Entry requirements</td><td colspan="9">Electrical Circuits, 1,2 or relevant</td></tr>
<tr><td>Course objectives</td><td colspan="9">To familiarize students with the construction equipment and low voltage electrical installations. Learning the basic principles of the selection of electrical equipment in normal operating conditions and fault conditions. To know the principles and criteria of the dimension of electric shock protections in low and high voltage installations. Education rules for the use of diagnostic equipment and conduct testing of electrical equipment with the basic physical phenomena occurring in them. To familiarize students with rules preparation of technical documentation for the electrical installation.</td></tr>
<tr><td>Course content</td><td colspan="9">Complete with module content:Environment of electrical equipment. Standardization and typification. Insulation of electrical equipment. Work and short currents. Impedance of electric power system elements. Thermal effect of work and short currents. Electromagnetic effect of short currents. Electrical arc and arc interruption. Switches. Short currents suppresion. Measuring transformers. Low-voltage power networks. Voltage range of an electrical installations. Selection of electrical devices. Live potection conductors against overcurrent. Supply of buildings. Electrical installations of buildings. Requirements for special installations, locations (construction and demolation site of buildings, caravan parks, swimming pools). Design principles of electrical installations. Switch in low voltage installation. Cables and conductors of electric power system. Selection of conductors.</td></tr>
<tr><td>Teaching methods</td><td colspan="9">lecture, discussion, experiment, presentation</td></tr>
<tr><td>Assessment method</td><td colspan="9">lecture - written exam; project - completion, presentation and discussion of the project, laboratory - written test, raports from laboratory</td></tr>
<tr><td>Symbol of learning outcome</td><td colspan="8">Learning outcomes</td><td>Reference to the learning outcomes for the field of study</td></tr>
<tr><td>LO1</td><td colspan="8">The student knows the basic requirements of the applicable regulations for the construction and selection of equipment in electrical installations</td><td></td></tr>
<tr><td>LO2</td><td colspan="8">The student knows and understands the electrical design methodology</td><td></td></tr>
<tr><td>LO3</td><td colspan="8">The student knows the basic rules of dimensioning of electric shock protections and safety rules for the use of equipment and electrical installations</td><td></td></tr>
<tr><td>LO4</td><td colspan="8">The student executes basic operations research of installations and electrical equipment</td><td></td></tr>
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LO5	The student applies the principles of safety rules when testing electrical equipment and installations	
LO6	Students can work in a team, able to develop and implement a schedule of work required to achieve the objective	
LO7	Students can design and compare the basic systems of electrical installations, including the selected utility and economic criteria, using appropriate methods, techniques and tools.	
Symbol of learning outcome	**Methods of assessing the learning outcomes**	**Type of tuition during which the outcome is assessed**
LO1	lecture exam, project,	**L, P**
LO2	project and performance in project's classes	**P**
LO3	lecture exam, project, raport from laboratory	**L, P, LC**
LO4	evaluating the student's reports,working on the project, working on the laboratory class	**P, LC**
LO5	evaluating the student's project	**P**
LO6	evaluating the student's project, discussion of the student's project, raport from laboratory, working on the laboratory class	**P, LC**
LO7	project and performance in project's classes	**P**
Student workload (in hours)		**No. of hours**
Calculation	lecture attendance	**15**
	participation in classes, laboratory classes, etc.	**45**
	preparation for classes, laboratory classes, projects, seminars, etc.	**15**
	working on projects, reports, etc.	**25**
	participation in student-teacher sessions related to the classes/seminar/project	**5**
	implementation of project tasks	**30**
	preparation for and participation in exams/tests	**21**
	TOTAL:	**156**

Quantitative indicators	**HOURS**	**No. of ECTS credits**
Student workload – activities that require direct teacher participation	**66**	**2,5**
Student workload – practical activities	**100**	**4**

Basic references	1. Seip G.G.: Electrical Installations Handbook. John Wiley and Sons. Third Edition, 2000. 2. Atkinson Bill: Electrical installation design. John Wiley and Sons, Fourth Edition, 2013. 3. Standards IEC 60364:Low voltage installations 4. Electrical installation guide. According to IEC international standards. Schneider Electric. Edition 2016
Supplementary references	1. Electrical installation handbook. Protection, control and electrical devices. Technical guide-6-th edition 2010. ABB Sace
Organisational unit conducting the course	**Department of Electrotechnics, Power Electronics and Power Engineering** — **Date of issuing the programme**
Author of the programme	**Marcin Andrzej Sulkowski Ph.D. Eng.** — **20.02.2018**