Załącznik nr 2 do Zarządzenia Nr 915 z 2019 r. Rektora PB

**COURSE DESCRIPTION CARD**

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| **Faculty of Electrical Engineering** |
| **Field of study** | **Electrical and Electronics Engineering** | **Degree level and programme type** | **bachelor's degree, full time programme** |
| **Specialization/ diploma path** | **-** | **Study profile** | **-** |
| **Course name** | **Automotive lighting** | **Course code** | **IS-FEE-10023S** |
| **Course type** | **elective** |
| **Forms and number of hours of tuition**  | **L** | **C** | **LC** | **P** | **SW** | **FW** | **S** | **Semester** | **summer** |
| **15** |  | **15** |  |  |  |  | **No. of ECTS credits** | **4** |
| **Entry requirements** | **-** |
| **Course objectives** | **To familiarize students withautomotive lighting. Presentation of design methods of lightingequipment inautomotive lighting. Classification and investigation of light fittings used in automotive lighting. Presentation of methods of luminous flux emmision verification in automotive lighting. Examination of the characteristics of road lighting and horizontal and vertical marking.** |
| **Course content** | **Automotive lighting. Light sources for automotive lighting equipment. Automotive lighting control systems. Headlamps and signal lamps design methods. Photometric measurements of automobile fittings. Construction of daytime running lamps, road lamps, signal lamps and others. Adaptive systems in automotive lighting.** |
| **Teaching methods** | **laboratory experiments, consultations, lecture, self-work, discussion** |
| **Assessment method** | **lecture: written exam; laboratory class - verification of preparation for classes, evaluation of the reports.** |
| **Symbol of learning outcome**  | **Learning outcomes** | **Reference to the learning outcomes for the field of study** |
| **LO1** | **lists and distinguishes appropriate lighting equipment used in automotive engineering** |  |
| **LO2** | **describes the design principles of automobile lamps;** |  |
| **LO3** | **measures required illumination distributions caused by automobile lamps;** |  |
| **LO4** | **selects components and light sources for automobile lamps properly;** |  |
| **LO5** | **classifies and explains control methods in automotive lighting.** |  |
| **LO6** |  |  |
| **Symbol of learning outcome** | **Methods of assessing the learning outcomes** | **Type of tuition during which the outcome is assessed** |
| **LO1** | **exam, duscussion during laboratory classes** | **L, LC** |
| **LO2** | **exam** | **L** |
| **LO3** | **evaluation of the report on exercise, discussion during the laboratory classes** | **LC** |
| **LO4** | **exam, duscussion during laboratory classes** | **L, LC** |
| **LO5** | **exam, duscussion during laboratory classes** | **L, LC** |
| **LO6** |  |  |
| **Student workload (in hours)** | **No. of hours** |
| **Calculation** | **attending the lecture** | **15** |
| **participation in the laboratory classes** | **15** |
| **preparation for the laboratory classes** | **20** |
| **preparation of laboratory reports or doing homework assignments (homework)** | **20** |
| **participation in consultations** | **10** |
| **preparation to the exam** | **30** |
|  |  |
| **TOTAL:** | **110** |
| **Quantitative indicators** | **HOURS** | **No. of ECTS credits** |
| **Student workload – activities that require direct teacher participation** | **35** | **1,5** |
| **Student workload – practical activities** | **35** | **1,5** |
| **Basic references** | **1. Wordenweber B., Wallaschek J., Boyce P., Hoffman D.: Automotive lighting and human vision, Springer, 2007.** **2. Bauer H.: Automotive handbook, Bosch, 2000.** |
| **Supplementary references** | **1. E/ECE/TRANS/505, addendum 36, regulation no. 37, rev. 5: Uniform provisions concerning the approval of filament lamps for use in approved lamp units on power; Driven vehicles and of their trailers. 2. E/ECE/TRANS/505, addendum 3, regulation no. 4, rev. 2: Uniform provisions for the approval of devices for the illumination of rear registration plates of motor vehicles (except motor cycles) and their trailers. 3. E/ECE/TRANS/505, addendum 48, regulation no. 48, rev. 6: Uniform provisions concerning the approval of vehicles with regard to the installation of lighting and light; Signalling devices.** |
| **Organisational unit conducting the course** | **Department of Photonics, Electronics and Lighting Technology** | **Date of issuing the programme** |
| **Author of the programme** | **Maciej Zajkowski, Ph.D. Eng. Urszula Blaszczak, Lukasz Budzynski** | **30.01.2020** |

**L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work,**

**S – seminar**