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** | **Object-Oriented Programming** | **Course code** | **IS-FEE-10062S** |
| **Course type** | **elective** |
| **Forms and number of hours of tuition**  | **L** | **C** | **LC** | **P** | **SW** | **FW** | **S** | **Semester** | **summer** |
|  |  |  |  | **30** |  |  | **No. of ECTS credits** | **3** |
| **Entry requirements** | **-** |
| **Course objectives** | Familiarising students with the methods and structures used in object-oriented programming in C language. Implementation of a project consisting in self-writing the program in C with the practical application of methods of object-oriented programming |
| **Course content** | **Pointers and functions. Overloading. An object and a class. Creation and destruction of the object. Objects and pointers. Properties and methods. Overloading of methods and operators. Encapsulation. Inheritance. Polymorphism and virtual methods. Standard Template Library.** |
| **Teaching methods** | **practical work and reports,** |
| **Assessment method** | **verification of preparation for classes, evaluation of written programs** |
| **Symbol of learning outcome**  | **Learning outcomes** | **Reference to the learning outcomes for the field of study** |
| **LO1** | **Student defines and uses in practice concepts in object-oriented programming** |  |
| **LO2** | **Student designs, starts and tests the program in C++ written in accordance with the principles of object-oriented programming** |  |
| **LO3** | **Student analyzes and corrects errors in the program** |  |
| **LO4** | **Student uses libraries of classes and templates during practical writing of the program** |  |
| **Symbol of learning outcome** | **Methods of assessing the learning outcomes** | **Type of tuition during which the outcome is assessed** |
| **LO1** | **assessment during the classes, evaluation of the projects**  |  |
| **LO2** | **assessment during the classes, evaluation of the projects** |  |
| **LO3** | **assessment during the classes, evaluation of the projects** |  |
| **LO4** | **assessment during the classes, evaluation of the projects,** |  |
| **Student workload (in hours)** | **No. of hours** |
| **Calculation** | **participation in the laboratory** | **30** |
| **preparation for the laboratory** | **20** |
| **working and description of laboratory reports** | **20** |
| **participation in student-teacher sessions related to the laboratory classes** | **5** |
| **analysis and improvement of programs** | **30** |
| **TOTAL:** | **105** |
| **Quantitative indicators** | **HOURS** | **No. of ECTS credits** |
| **Student workload – activities that require direct teacher participation** | **35** | **1,5** |
| **Student workload – practical activities** | **105** | **4** |
| **Basic references** | **1. B. Stroustrup - Programming C - The C++ Programming Language 4th Ed., Addison-Wesley 2013****2. W. Savitch - Absolute C++ 5th Ed., Pearson, 2013** **3. B. Stroustrup - A Tour of C++, Addison-Wesley, 2014** **4. M. Gregoire - Professional C++, 3rd Ed., Wrox-Wiley, 2016** **5. B. Johnson - Professional Visual Studio 2015, Wrox, 2015** |
| **Supplementary references** | **1. J. Liberty, S. Rao, B. Jones - Teach Yourself C++ in One Hour a Day 8th Ed., SAMS, 2017****2. H. Schildt - C++ The Complete Reference, 4th Ed., McGraw-Hil, 2000** |
| **Organisational unit conducting the course** | **Department of Photonics, Electronics and Light Technique** | **Date of issuing the programme** |
| **Author of the programme** | **Adam Nikołajew, Ph.D.** | **27.01.2020** |

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

**S – seminar**