Faculty of Information and Communication Technology/Department of Fundamentals of Computer Science
COURSE CARD

| | |
|---|---|
| Name of the course in polish | : **Laboratorium Programowania w Cyberbezpieczeństwie** |
| Name of the course in english | : **Software Engineering Lab in Cybersecurity** |
| Field of study | : Algoritmic Computer Science |
| Specialty (if applicable) | : |
| Level and form of studies | : II degree, stationary |
| Type of course | : compulsory |
| Course code | : W04INA-SM4012G |
| Group of courses | : Yes |

| | Lectures | Exercides | Laboratory | Project | Seminar |
|---|---|---|---|---|---|
| Number of classes held in schools (ZZU) | | | 30 | | |
| The total number of hours of student workload (CNPS) | | | 60 | | |
| Assesment | pass | | | | |
| For a group of courses final course mark | X | | | | |
| Number of ECTS credits | | | 2 | | |
| including the number of points corresponding to the classes of practical (P) | | | 2 | | |
| including the number of points corresponding occupations requiring direct contact (BK) | | | 2 | | |

PREREQUISITES FOR KNOWLEDGE, SKILLS AND OTHER POWERS

COURSE OBJECTIVES

**C1** acquisition of practical programming skills on one of the key platforms for ensuring security

## COURSE LEARNING OUTCOMES

The scope of the student's knowledge:

**W1** learn about one of the selected systems (FPGA, graphics cards, cryptographic cards, Android, ...)

**W2** has knowledge in the field of building documentation of secure IT systems

**W3** has knowledge in the field of product quality testing and evaluation

The student skills:

**U1** ability to design a solution specification

**U2** ability to create software in accordance with the regime of a specific system

**U3** can test software among others regarding security aspects

**U4** is able to present the final documentation covering security aspects for the audit

The student's social competence:

**K1** the ability to design the product according to the real threats of social engineeringering

**K2** is able to implement a project based on non-technical specifications resulting from business needs

**K3** is able to implement projects in a transparent manner for audit certification

## COURSE CONTENT

| Type of classes - laboratory | | |
|---|---|---|
| Lab1 | basics of hardware/software architecture | 6h |
| Lab2 | principles of building secure software | 2h |
| Lab3 | designing solution specification | 2h |
| Lab4 | software implementation | 10h |
| Lab5 | product testing and optimization | 8h |
| Lab6 | final evaluation | 2h |
| | Sum of hours | 30h |

| Applied learning tools |
|---|

1. Solving programming tasks

2. Creating programming projects

3. Self-study students

## EVALUATION OF THE EFFECTS OF EDUCATION ACHIEVEMENTS

| Value | Number of training effect | Way to evaluate the effect of education |
|---|---|---|
| F1 | W1-W3, U1-U4, K1-K3 | implementation of programming tasks |
| P=100%*F1 | | |

| BASIC AND ADDITIONAL READING |
| --- |
| |
| 1. technical documentation for the software/hardware used |

| SUPERVISOR OF COURSE |
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| |
| prof. Mirosław Kutyłowski |

MATRIX OF LEARNING OUTCOMES FOR THE SUBJECT
Laboratorium Programowania w Cyberbezpieczeństwie
WITH LEARNING OUTCOMES IN THE FIELD OF ALGORITHMIC COMPUTER SCIENCE

| Subject learning effect | Relating the subject effect to the learning outcomes defined for the field of study | Objectives of the course** | Program content** | Teaching tool number** |
|---|---|---|---|---|
| W1 | K2_W01  K2_W02  K2_W03  K2_W04 K2_W05  K2_W06  K2_W07  K2_W08 K2_W09 | C1 | Lab1-Lab6 | 3 |
| W2 | K2_W01  K2_W02  K2_W03  K2_W04 K2_W05  K2_W06  K2_W07  K2_W08 K2_W09 | C1 | Lab1-Lab6 | 3 |
| W3 | K2_W01  K2_W02  K2_W03  K2_W04 K2_W05  K2_W06  K2_W07  K2_W08 K2_W09 | C1 | Lab1-Lab6 | 3 |
| U1 | K2_U03  K2_U05  K2_U06  K2_U10 K2_U12 K2_U13 | C1 | Lab1-Lab6 | 1 2 3 |
| U2 | K2_U03  K2_U05  K2_U06  K2_U09 K2_U10 K2_U11 K2_U13 | C1 | Lab1-Lab6 | 1 2 3 |
| U3 | K2_U01  K2_U02  K2_U03  K2_U04 K2_U05  K2_U08  K2_U09  K2_U10 K2_U11 K2_U12 K2_U13 | C1 | Lab1-Lab6 | 1 2 3 |
| U4 | K2_U05  K2_U07  K2_U08  K2_U10 K2_U12 K2_U13 | C1 | Lab1-Lab6 | 1 2 3 |
| K1 | K2_K01  K2_K02  K2_K03  K2_K04 K2_K05  K2_K07  K2_K08  K2_K09 K2_K10 K2_K11 K2_K12 | C1 | Lab1-Lab6 | 1 2 3 |
| K2 | K2_K01  K2_K02  K2_K03  K2_K04 K2_K05  K2_K06  K2_K07  K2_K08 K2_K09 K2_K10 K2_K11 K2_K12 | C1 | Lab1-Lab6 | 1 2 3 |
| K3 | K2_K01  K2_K03  K2_K04  K2_K05 K2_K07  K2_K09  K2_K10  K2_K11 K2_K12 | C1 | Lab1-Lab6 | 1 2 3 |