## COURSE DESCRIPTION CARD – SPECIMEN

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|---|---|---|---|
| **Faculty of Mechanical Engineering** | | | |
| **Field of study** | **Mechatronics** | **Degree level and programme type** | **1st degree full-time studies** |
| **Specialization/ diploma path** | **Common subject** | **Study profile** | |
| **Course name** | **Structural Programming** | **Course code** | IS-FME-00215S |
| | | **Course type** | obligatory |

| **Forms and number of hours of tuition** | **L** | **C** | **LC** | **P** | **SW** | **FW** | **S** | **Semester** | **summer** |
|---|---|---|---|---|---|---|---|---|---|
| | **30** | | | **30** | | | | **No. of ECTS credits** | **5** |

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| **Entry requirements** | Mathematics I, Introduction to computer science |
| **Course objectives** | Acquainting with basic programming concepts and mastering the skill of writing programs in C language (in a text environment - console - Visual Studio). |
| **Course content** | Lecture: High level programming languages. General characteristics of the C language, standards. The structure of a simple program. Terms of declarations, definitions, expressions and instructions. The logic expressions, bit operations, relations - operator priorities. Block diagrams and control instructions. Overview of basic data types. Floating point arithmetic. Pointers and tables. Functions and its parameters. Standard library. Project: Designing a game or application program of a complexity level that enforces the use of all C language instructions presented in the lecture. |
| **Teaching methods** | Lecture - multimedia presentation, Project - program implementation. |
| **Assessment method** | Lecture: two tests; Project: assessment of completed projects, current work progress, discussions and class participation |

| **Symbol of learning outcome** | **Learning outcomes** | **Reference to the learning outcomes for the field of study** |
|---|---|---|
| LO1 | knows and understands the basic concepts of programming | MK1_W05 |
| LO2 | knows and understands basically the programming language syntax | MK1_W05 |
| LO3 | can read and interpret program code correctly | MK1_U05 |
| LO4 | can formulate a simple algorithm, write it in a programming language, run the program, create the necessary documentation | MK1_U05 |
| LO5 | can use programming language documentation, procedure libraries and programming environment | MK1_U05 |
| **Symbol of** | **Methods of assessing the learning outcomes** | **Type of tuition during** |

| learning outcome | | which the outcome is assessed |
|---|---|---|
| LO1 | Lecture: two tests; | L |
| LO2 | Lecture: two tests; | L |
| LO3 | Project: assessment of completed projects, current work progress, discussions and class participation; | P |
| LO4 | Project: assessment of completed projects, current work progress, discussions and class participation; | P |
| LO5 | Project: assessment of completed projects, current work progress, discussions and class participation; | P |

| Student workload (in hours) | | No. of hours |
|---|---|---|
| **Calculation** | Participation in lectures | 30 |
| | Participation in projects | 30 |
| | Preparation for exam | 23 |
| | Preparation for project | 29 |
| | Performing project tasks (including preparing presentations) | 12 |
| | Preparation for passing project tasks | 9 |
| | Participation in consultations | 4 |
| | TOTAL: | 137 |

| Quantitative indicators | HOURS | No. of ECTS credits |
|---|---|---|
| **Student workload – activities that require direct teacher participation** | **64** | **2** |
| **Student workload – practical activities** | 82 | 3 |

| Basic references | 1. Nyhoff L., Programming in C++ for engineering and science, Boca Raton : CRC/Taylor & Francis, 2013. <br> 2. Savitch W.J., Absolute C++ , Boston : Addison-Wesley Publ., 2002. <br> 3. Prata S., Język C. Szkoła programowania. Wydanie VI, Helion 2016. <br> 4. Perry G., Miller D., Język C: programowanie dla początkujących: przewodnik dla adeptów programowania!, Helion, Gliwice 2016. |
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| Supplementary references | 1. Kelley A., A book on C: programming in C, Redwood City, California: The Benjamin/Cummings Publishing, 1990. <br> 2. Jones R., The art of C programming, New York: Springer-Verlag, 1987. <br> 3. Kassab V., Technical C programming , Englewood Cliffs: Prentice-Hall, 1989. |

| Organisational unit conducting the course | Department of Mechanics and Applied Computer Science | Date of issuing the programme |
|---|---|---|
| Author of the programme | Prof. Romuald Mosdorf | 2021-04-20 |

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

**S – seminar**