COURSE DESCRIPTION CARD- SYLLABUS

Course name
Introduction to programming

Course

Field of study
Mathematics in Technology
Area of study (specialization)
—
Level of study
first-cycle studies
Form of study
full-time

Year/Semester
1/1
Profile of study
general academic
Course offered in
Polish
Requirements
compulsory

Number of hours

Lectures
15
Laboratory classes
30
Other (e.g. online)
—
Tutorials
—
Projects/seminars
—

Number of credit points

4

Lecturers

Responsible for the course/lecturer::

dr inż. Barbara Szyszka

Responsible for the course/lecturer::

—

Prerequisites

Basic knowledge of high school. Computer skills. The ability to effectively self-education in a field related to the chosen field of study. Knowledge of the limits of their knowledge and understanding of the need for further education. Ability to obtain information from indicated sources.

Course objective

Familiarize students with the concepts of algorithm and program/script. Teach, how to design simple algorithms, write them down and prove their correctness.

Course-related learning outcomes

Knowledge

- the student has knowledge about the use of mathematical tools;
- the student knows the basics of computational and programming techniques.

Skills

- the student is able to construct an algorithm for solving a simple engineering task, implement and test it in a chosen programming environment;
- the student is able to operate the devices in accordance with general requirements and knows how to apply the principles of health and safety at work in a computer laboratory.

Social competences

- the student is aware of the level of his knowledge;
- the student is aware of deepening and broadening the knowledge of programming.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lectures: knowledge acquired during the lectures is verified by three 15-min. tests carried out in the second part of semester. Each test consists of the implementation and analysis of an algorithm.

Laboratory classes: skills acquired as part of the laboratory are verified on the basis of two 15-min. tests (implementation of algorithms) and skills related to the implementation of the project task (carried out outside the lab. classes).

Programme content

Update: 10.09.2020r.

Computer arithmetic. Introduction to work in the Matlab environment. Syntax and semantics of expressions. Number representations. Instructions: if, for, while, switch. Graphics. Correctness of programs/ scripts. Functions, local and global variables. Introduction to algorithms.

Teaching methods

Lectures:

- lecture with multimedia presentation supplemented by examples given on the board;
- lecture conducted in an interactive manner with the formulation of student questions;
- student activity is taken into account during the course of the assessment;
- the initiating of discussion during the lecture;

- theory presented in connection with practice;
- theory presented in connection with the current knowledge of students;
- taking into consideration various aspects of the presented issues;
- presenting a new topic preceded by a reminder of related content known to students from other subjects.

Laboratory classes:

- laboratories supplemented with multimedia presentations;
- detailed review of the reports by the teacher and discussion of the comments;
- computational experiments.

Bibliography

Basic

- Ćwiczenia z Matlab: przykłady i zadania; Anna Kamińska, Beata Pańczyk, Warszawa : Wydaw. MIKOM, 2002.
- MATLAB : środowisko obliczeń naukowo-technicznych; Jerzy Brzózka, Lech Dorobczyński, Warszawa : Wydaw. MIKOM, 2005.

Additional

- MATLAB : dla naukowców i inżynierów; Rudra Pratap, Warszawa : Wydawnictwo Naukowe PWN, 2015.

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,0
Classes requiring direct contact with the teacher	50	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests, project preparation)	50	2,0