

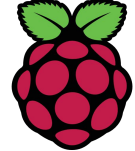
# Embedded Systems

## **Course introduction**

**winter 2025**

# Basic information

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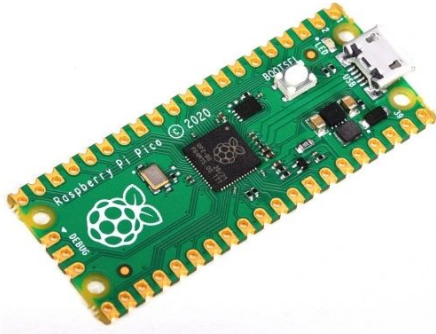
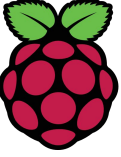
- classes - 32h
- meetings - 8 x 4h
- laboratory - B109P (build. B)
- recommended IDE - [thonny.org](https://thonny.org)

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# Hardware

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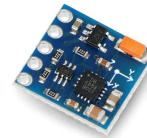
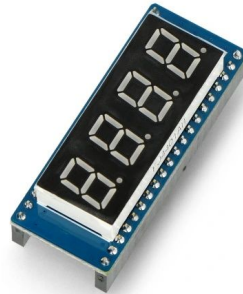
Raspberry Pi  
Pico



Raspberry Pi  
Pico W

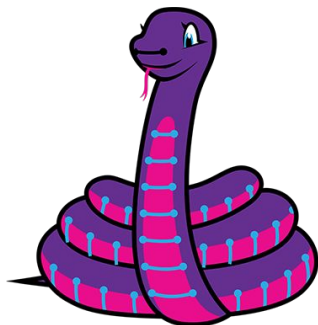
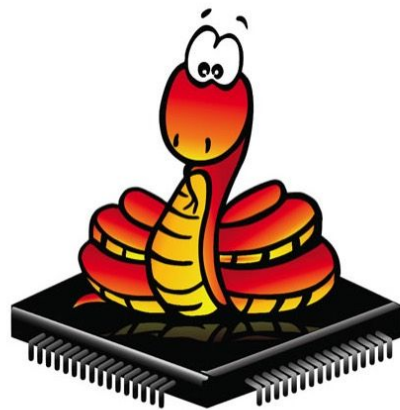
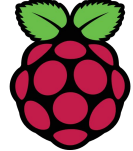


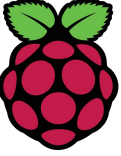
Raspberry Pi 4B



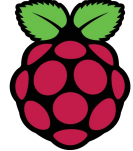
# Programming language

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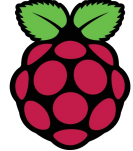
- **class #1** - Raspberry Pi Pico - General Purpose  
Inputs/Outputs, Multi Thread Coding
- **class #2** - Raspberry Pi Pico - Analog inputs, UART,  
Asynchronous I/O Scheduler, Files
- **class #3** - Raspberry Pi Pico - Interrupts



- **class #4** - Raspberry Pi Pico W - Networking
- **class #5** - Raspberry Pi Pico W - Communication

Interfaces

- **class #6** - Raspberry Pi Pico W - IOT, MQTT

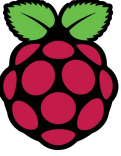


- **class #7** - Raspberry Pi - Python introduction, GUI
- **class #8** - Raspberry Pi - More on Communication

Interfaces

# Grades - option 1 - solve tasks

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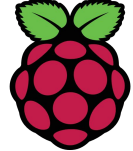


- 3.0 - present a solution for one unsolved task from every manual - class 1 to 5;
- 3.5 - present a solution for one unsolved task from every manual - class 1 to 6;
- 4.0 - present a solution for one unsolved task from every manual - class 1 to 7.



# Grades - option 2 - mini projects

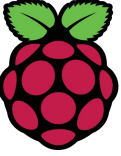
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- 4.0 - project 1 (classes from 1 to 3 combined);
- 4.5 - project 1 and project 2 (classes from 4 to 6 combined);
- 5.0 - project 1 and project 2, and project 3 (class 7).

# Grades - option 3 - project path

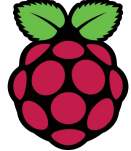
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- individual project;
- deadline #1 - 30.11.2025 - design;
- deadline #2 - 27.01.2026 - project presentation;
- grade depends on quality of a presented solution and answers for questions about the solution;

# Grades - summary

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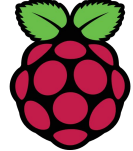


- deadline - 27.01.2026
- 2 tasks per meeting
- presentation is mandatory
- sending the solution is mandatory

**Do not send files with the .py extension**

# Classes organization

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- **1st hour** - own work - solutions presentation
- **2nd hour** - new topic introduction
- **3rd hour** - own work - time to solve tasks
- **4th hour** - own work - time to solve tasks