



## Syllabus

**Term:** 2023/24/2      **Subject name:** Embedded Computer Programming 1.      **Subject code:** IVB335ANVM

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**Unit (Unit code)** (MIK-IV)

**Lecturer responsible for the course:** ZIDARICS Zoltán  
**Requirement:** Mid-semester grade  
**Classes per week :** 1/0/1/0  
**Classes per term:** 5/0/5/0

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### Purpose of education:

Students will learn the basics of embedded Linux-based programming based on what they have learned in Programming I. They learn the basics of parallel programming, the operation and use of development tools needed to build applications. Learn about automated software testing solutions and libraries. They learn to use modern software documentation systems.

At the end of the course, they will be able to build multithreaded real-time applications for embedded Linux-based operating systems in C language.

### Contents:

During the course, students will be introduced to the following topics:

1. Git advanced handling, teamwork
2. Make
3. Automake
4. CMake
5. Testing
6. Software documentation
7. Complex data structures
8. Sys / queue implementation
9. Parallel programming
10. Thread treatment
11. Coding recommendations
12. Regular expressions
13. Implementation of MQTT protocol
14. project work
15. consultation

### System of examining and valuation:

During the course, students are given homework as well as a large assignment. The big task can only be started



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### System of examing and valuation:

by those who have submitted their homework on time and none of them have mark 1 evaluation.

### Task presentation

- The student must upload the assignment to the git repository specified by the instructor.
- The student can only share this repository with the instructor.
- If the repository is not private or can be accessed by others, the task will not be accepted.
- the instructor may optionally request a code review to clarify the problems or possible suspicion of plagiarism.
- the instructor can check the uploaded code three times. During an examination, the instructor can make objections in the commit comment, request changes to the code, and set a new deadline for it.
- If the student does not correct the alleged errors after the third examination, or does not fulfill the change requests by the specified deadline, the instructor may decide not to accept the assignment.
- in case of plagiarism, the task is invalid and the student is assigned a new task by the instructor, if plagiarism is the first case.
- In the case of a second plagiarism, there is no way to assign a new task, that task will be invalid.
- after the deadline for submission of the task, it is not possible to submit the task, it will be invalid.

### Code review

A personal or committee code checking that helps the instructor make sure that the code is the student's intellectual product or is aware of how the code works, understands its structure, and can change it as needed. During the code review, the instructor or committee may ask the student to explain how the code works, the libraries used, variables, and functions.

The instructor or the committee may also ask the student to change the code, for which he or she may set a new deadline.

### Plagiarism

Plagiarism is when someone uses the work of another person (the original author) in their own work without reference, citation, and / or copyright permission, pretending to be their own, and thereby violating the rights of the original author.

The instructor or committee evaluating the task is authorized to diagnose plagiarism.

Plagiarism may be suspected in the following cases:



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- the student does not know what variables and functions he/she is using that particular piece of code - which he theoretically wrote - works.
- the student must be aware of the structure of the libraries he/she uses, the parameterization of the function used in the given code and the processing of the return value.
- the student is not able to find out in the code or in the development environment used, for example in the case of “please show that...” type questions

The evaluation is based on the following weighting:

- Homework 50%
- Large assignment: 50%

Determination of the grade:

	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Evaluation:	89%-100%	77%-88%	66%-76%	55%-65%	0%-54%

### Bibliography:

recommended literature:

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- [Git documenttation](#)
- [GNU Libc manual](#)
- [GNU Make manual](#)
- [Automake manual](#)
- [CMake manual](#)
- [CUnit manual](#)
- [Doxygen manual](#)



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### Bibliography:

- [sys/queue.h manual](#)
- [Getting started MQTT](#)
- [Regular expression manual](#)
- [C notes for professionals](#)

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