COURSE SYLLABUS AND COURSE REQUIREMENTS
ACADEMIC YEAR 2023/2024 SEMESTER 1

Course title	***Programming Paradigms***
Course Code	***IVB339ANMI***
Hours/Week: le/pr/lab	***1/0/2***
Credits	***4***
Degree Programme	***Computer Science Engineering BSc***
Study Mode	***Full time***
Requirements	***Term grade***
Teaching Period	***2023/2024-1***
Prerequisites	
Department(s)	***System and Software Technologies***
Course Director	***Péter NOVÁK***
Teaching Staff	***Péter NOVÁK***

COURSE DESCRIPTION

A short description of the course (max. 10 sentences).
Neptun: Instruction/Subjects/Subject Details/Basic data/Subject description

Assembly language, control structures, stack and its usage, functions, connection with C programs. Practical use of
assembler, linker and debugger programs.

SYLLABUS

Neptun: Instruction/Subjects/Subject Details/Syllabus

1. GOALS AND OBJECTIVES

Goals, student learning outcome.
Neptun: Instruction/Subjects/Subject Details/Syllabus/Goal of Instruction

Upon completion of the course, the student will be able to write 64 bit programs in Assembly language. Furthermore, the
student will confidently use the necessary development tools and will understand the relations of Assembly language with
the hardware, high-level languages and operating systems.

2. COURSE CONTENT

Neptun: Instruction/Subjects/Subject Details/Syllabus/Subject content

TOPICS	
LECTURE	1. *topic* 2. *topic* 3. *topic* 4. *etc.*

PRACTICE	1. topic
	2. topic
	3. topic
	4. etc.
LABORATOR Y PRACTICE	1. topic
	2. topic
	3. topic
	4. etc.

DETAILED SYLLABUS AND COURSE SCHEDULE

ACADEMIC HOLIDAYS INCLUDED

LECTURE

week	Topic	Compulsory reading; page number (from … to …)	Required tasks (assignments, tests, etc.)	Completion date, due date
1.	Introduction, numeral systems, data representation	[1] 1-25	…	…
2.	CPU, memory, address space, process	[1] 27-40		
3.	Registers, data moving	[1] 43-49		
4.	Arithmetic and bitwise operations	[1] 51-68		
5.	Branches and loops	[1] 71-82		
6.	Addressing modes			
7.	Stack, functions	[1] 89-94		
8.	Stack, functions	[1] 89-94		
9.	Stack, functions	[1] 89-94		
10.	Connection with C language programs	[1] 129-135		
11.	Floating point operations, SIMD	[1] 115-124		
12.	SIMD	[1] 115-124		
13.	Mid-term exam			

PRACTICE, LABORATORY PRACTICE

week	Topic	Compulsory reading; page number (from … to …)	Required tasks (assignments, tests, etc.)	Completion date, due date
1.	Introduction, numeral systems, data representation			
2.	CPU, memory, address space, process			
3.	Registers, data moving			
4.	Arithmetic and bitwise operations			
5.	Branches and loops			
6.	Addressing modes			
7.	Stack, functions			
8.	Stack, functions			
9.	Stack, functions			
10.	Connection with C language			

	programs			
11.	Floating point operations, SIMD			
12.	SIMD			
13.	Mid-term exam			

3. ASSESSMENT AND EVALUATION

(Neptun: Instruction/Subjects/Subject Details/Syllabus/Examination and Evaluation System)

ATTENDANCE

In accordance with the Code of Studies and Examinations of the University of Pécs, Article 45 (2) and Annex 9. (Article 3) a student may be refused a grade or qualification in the given full-time course if the number of class absences exceeds 30% of the contact hours stipulated in the course description.

Method for monitoring attendance *(e.g.: attendance sheet / online test/ register, etc.)*
Attendance sheet

ASSESSMENT

Cells of the appropriate type of requirement is to be filled out (course-units resulting in mid-term grade or examination). Cells of the other type can be deleted.

Course resulting in mid-term grade *(PTE TVSz 40§(3))*

Mid-term assessments, performance evaluation and their ratio in the final grade *(The samples in the table to be deleted.)*

Type	Assessment	Ratio in the final grade
Mid-term exam	*30*	*100%*

Opportunity and procedure for re-takes (PTE TVSz 47§(4))
The specific regulations for improving grades and resitting tests must be read and applied according to the general Code of Studies and Examinations. E.g.: all tests and assessment tasks can be repeated/improved at least once every semester, and the tests and home assignments can be repeated/improved at least once in the first two weeks of the examination period.

15th week of the learning period: retake opportunity
1st week of the examination period: retake opportunity

Grade calculation as a percentage
based on the aggregate performance according to the following table

Course grade	Performance in %
excellent (5)	85 % ...
good (4)	70 % ... 85 %
satisfactory (3)	55 % ... 70 %
pass (2)	40 % ... 55 %
fail (1)	below 40 %

The lower limit given at each grade belongs to that grade.

4. SPECIFIED LITERATURE

In order of relevance. (In Neptun ES: Instruction/Subject/Subject details/Syllabus/Literature)

COMPULSORY READING AND AVAILABILITY

[1.] Students will be provided with the PDF version of all slides and classroom presentations of the course.

RECOMMENDED LITERATURE AND AVAILABILITY

[2.] SEYFARTH, Ray: Introduction to 64 Bit Intel Assembly Language Programming for Linux