COURSE SYLLABUS AND COURSE REQUIREMENTS

ACADEMIC YEAR ... SEMESTER ...

Course title	*Computer Architectures 2.*
Course Code	**IVB367AN**
Hours/Week: le/pr/lab	2/0/0
Credits	4
Degree Programme	IT Engineering BSC
Study Mode	
Requirements	
Teaching Period	Sep. 6th - May. 16th
Prerequisites	
Department(s)	System and Software Technologies
Course Director/ Teaching Staff	*Géza Várady*

COURSE DESCRIPTION

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

The course is the continuation of the Computer Architecture I. course. The subject examines the structured computer organization from the transistor level (starting in Arch.I.), through further abstract levels, through the operating system level to the level of advanced programming languages. The aim of the course is to understand the structured functioning of computers.

The Comp.Arch..II. course starts with the basic cpu design on microarchitecture level, the possible system/logic upgrades to it and goes on to further possible performance improvements.

SYLLABUS

Neptun: Instruction/Subjects/Subject Details/Syllabus

1. GOALS AND OBJECTIVES

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

The course will follow the logic of the structured architecture of computers, and will examine the main services of Operating Systems, virtual memory, virtual I/O and basic process management. The software and hardware support of parallel systems, the assembly level programming process, all form a good basis for further and parallel subjects. Parallel architectures also prepares the students for the later parallel programming techniques studied at MSc level. In addition to general-purpose machines, the target hardware section also gives the student an insight into lower-powered solutions that serve a purpose and can therefore be operated efficiently.

2. COURSE CONTENT

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

TOPICS		
LECTURE	*1.*	*Microarchitecture level, IJVM Mic-1*
	2.	*Microarchitecture level, Mic-2*
	3.	*Microarchitecture level, Mic-3*
	4.	*Microarchitecture level, Mic-4*
	5.	*Caches, strategies*
	6.	*Branch prediction*
	7.	*Out-of-order execution*
	8.	*ISA level, Instructions*
	9.	*SPRING BREAK*
	10.	*EASTER MONDAY*
	11.	*ISA level, data types*
	12.	*IA-64 architecture advantages*

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.	Microarchitecture level, IJVM Mic-1	243-290		week 2
2.	Microarchitecture level, Mic-2	291-293		week 3
3.	Microarchitecture level, Mic-3	294-300		week 4
4.	Microarchitecture level, Mic-4	300-303		week 5
5.	Caches, strategies	303-310		week 6
6.	Branch prediction	310-315		week 7
7.	Out-of-order execution	315-323		week 8
8.	ISA level, Instructions	345-358		
9.	SPRING BREAK			
10.	EASTER MONDAY			week 11
11.	ISA level, data types	358-362		week 12
12.	IA-64 architecture advantages			week 13
13.	BREAK (May 1)			week 14
14.	Trends, target machines			
15.	Consultation			

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.)*
Attending is not required but is strongly recommended. Preparation for the exams can be done according to the handout slides and the reference materials. The course is part of the state exam for students.

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
Possible pre-exam on last week for proposed mark (3+)	*written exam*	

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.
One pre-exam, everything after that are normal exams

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.

Course-unit with final examination

Mid-term assessments, performance evaluation and their weighting as a pre-requisite for taking the final exam
(The samples in the table to be deleted.)

Type	Assessment	Weighting as a proportion of the pre-requisite for taking the exam
1. *Written exam during exam period*	*Written exam*	*last exam mark is the final mark*

Requirements for the end-of-semester signature
(Eg.: mid-term assessment of 40%)

Attendance at classes.

Re-takes for the end-of-semester signature (PTE TVSz 50§(2))
The specific regulations for grade betterment and re-take must be read and applied according to the general Code of Studies and Examinations. E.g.: all the tests and the records to be submitted can be repeated/improved each 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.

Type of examination *(written, oral):* written

The exam is successful if the result is minimum 40 %. *(The minimum cannot exceed 40%.)*

Calculation of the grade *(TVSz 47§ (3))*
The mid-term performance accounts for a possible proposed mark. The performance at the final exam accounts for the final grade.

Calculation of the final grade based on aggregate performance in percentage.

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.] AS Tanenbaum, Structured Computer Organization, PEARSON
RECOMMENDED LITERATURE AND AVAILABILITY
[2.] JL Hennessy, DA Patterson, Computer Architecture a quantitative approach, Elsevier, Morgan Kaufmann