Course title:	Computer architecture II			
Course code	**Course status**	**Semester**	**Number of ECTS credits**	**Lecture hours**
PA2101	Mandatory	I	6	3L+1E

Study program:
Graduate academic studies, ELECTRICAL ENGINEERING, study program: Electronics, Telecommunications and Computer engineering (studies last for 4 semesters, 120 ECTS credits).

Prerequisites:
Basic computer engineering and Digital elektronics.

Course aims:
Students will be introduced to the organization and design of modern computers systems via design of MIPS computers systems.

Teacher(s) first and last names: ***Doc. dr. Veselin IVANOVIĆ - teacher, Mr Millutin RADONJIĆ, Assistant***

Studying method:
Lectures, exercises, laboratory exercises, individual work on practical tasks, consultations.

Course synopsis:

Preliminary week	Preparation and semester enrolment.
I week	Simplifying the control unit using microprograming;
II week	Pipelining – Basics;
III week	Data hazards, Stalls, Forwarding;
IV week	Performanse of pipeline systems;
V week	***I coloquium***;
VI week	Hierarchy of memory and its exploatation in order toimprove the computer performanses;
VII week	**Free week**
VIII week	Virtuel memory and cash memory;
IX week	Input/Output devices;
X week	Connections between input/output devices and memory;
XI week	Communication between input/output devices and memory, processor and operating system;
XII week	***II coloquium***
XIII week	Paralel processing - basics;
XIV week	SIMD and MIMD computers;
XV week	MIMD connected via bus and networked MIMD;
XVI week	*Final exam*
Final week	Administrative procedures.
XVIII-XXI week	Additional lessons, correction of the final exam and administrative procedures.

STUDENT WORKLOAD

per week	per semester
Working hours: 6 credits x **40/30** = **8** hours. **Working hours structure**: **3** hours for teaching **1** hour for exercises 4 hours for individual work, including consultations.	**Teaching and the final exam**: (**8**hours) x **16** = **128**ours. **Necessary preparation** (before semester): **2** x (8hours) = **16**hours. **Total work hours for the course**: **176**hours **Additional hours** for preparing correction of the final exam, including the exam taking: up to **36**hours. **Work hours structure**: 128hours (lectures) + 16hours (preparation) + 36hours (additional work)

Lessons attendance is mandatory for students, as well as doing homeworks and coloquiums, etc.

Literatura:
J.L. Hennessy and D.A. Petterson, *Computer architecture, a quantitative approach,* Morgan Kaufmann Publishers, San Mateo, California, 2003.
D.A. Paterson, J.L. Hennessy, Computer organization & Design, The hardware/Software interface, Morgan Kaufmann Publishers, San Mateo, California, 1994.

The forms of knowledge testing and grading:
- Home exercises carry **5** points.
- Activities durong the lectures and exercises 5 points,
- Each coloquium carries 20 point (40 points in total),
- Final exam 50 points.

Student gets the passing grade by collecting **50** points at least.

Special remarks for the course : If needed, the course can also be taught in English.

Teacher(s) who provided the information: Doc. Dr Veselin N. Ivanović

Note: