Study program: Industrial engineering – Mechanical engineering

Course title: Mechatronics

Professor/assistant: Aleksandrović Branislav

Type of course: Compulsory

ECTS credits: 6

Prerequisites: none

Aims of the course:

Students gain knowledge about new technologies, especially about how mechatronic systems and their elements improve technical products by incorporating mechanical, electronic and informatic components in one functional unit.

Learning outcomes:

Students acquire special knowledge about mechanical engineering, electronic control, informatics and other areas dealing with mechatronic systems, which enables them to solve technical problems.

Syllabus:

Theoretical part:

Basic theoretical settings of mechatronic systems. The structure and characteristics of parts of the system for measuring and controlling. Systems of data transfer and function management. Electronic system architecture and data transfer networks. Network protocols. Input instruments – measuring sensors and transformers. Output executive instruments, actuators. Mechatronic system for controlling functions of technical systems.

Practical part:

Auditory exercises, presentations, solving practical tasks, term papers

Literature:

1. D. Nestorović, B. Aleksandrović: Mehatronika, nastavna publikacija-skripta, Visoka tehnička škola strukovnih studija u Kragujevcu, 2014. god.
2. D. Marinković: Programabilni logički kontroleri-Uvod u programiranje i primenu, Mikroknjiga, Beograd, 2013. god.
3. A. Grujović: Elektronika automobila, Mašinski fakultet u Kragujevcu, 2008. god.
4. A. Micić, D. Radenković: Elektronski elementi u mehatronici, Mašinski fakultet u Nišu, 2006. god.
5. Kou Benjamin: Automatic Control System, 8 Edition, Wiley International Edition, New York, 2005

Total number of active classes: 60	**Lectures: 3**0	**Practical classes:** 30

Teaching methods:

Interactive lectures, auditory exercises, presentations, a visit to a company;

Grading system (maximum 100 points)

grading scale from 5 to 10: below 51 points – student fails the exam, grade 6 from 51- 60 points, grade 7 from 61-70 points, grade 8 from 71-80 points, grade 9 from 81-90 points, grade 10 from 91- 100 points.

Pre-exam obligations:	**Points:**	**Final exam:**	**Points:**
Activity during lectures	max 5	Oral exam	50
Practical training	max 5		
Written test(s)	max 20		
Term papers	max 20		
Minimum requirement for the final exam	30		