BM6221

Study program / course: **Mechanical Engineering**

Type and level of study: **Bachelor academic studies**

Course: **Fundamentals of material handling machinery**

Lecturers: **Radovan B. Slavkovic, Ph.D., full professor, Svetislav R. Jovicic, Ph.D., full professor**

Status of course: **Obligatory for module M_2, VI semester**

Number of ECTS: **6**

Precondition: **none**

The objective of course

Introducing students with basic concepts from the area of material handling devices, ways of functioning and selection of material handling machinery mechanisms. Qualification of students for independent solving of problems from industry praxis.

The outcome of course

After passing the exam, the students are expected:

- to know and understand operating principles of hoisting machinery and its mechanisms
- to independently research and design constituent elements of hoisting mechanisms
- to estimate the condition of a real construction of a crane according to standards

Syllabus

1. Introduction. Course contents.
2. Subdivision of material handling devices and basic characteristics of the machinery from each group.
3. Operating regimes.
4. Machinery with periodic operation.
5. Gripping devices. Classification, selection methods, properties.
6. Calculation and selection of ropes, pulleys, drums, brakes.
7. Material handling mechanisms.
8. Motion mechanisms.
9. Properties, design, fundamentals of characteristic types calculation of discontinuous transport machinery.
10. Fundamental characteristics of continuous transport machinery. Area of application and capacity calculation.
11. Properties, design, fundamentals of characteristic types calculation of continuous transport machinery.

Recommended reading

1. Ostrić D.: "Cranes", (in Serbian), FME Belgrade, 1992
2. Tošić S.: "Material handling devices – continuous transport", (in Serbian), FME Belgrade, 1990 3. Mijajlović R., Marinković Z., Jovanović M.: "Material handling machinery – practical course", (in Serbian), Niš, 1988
4. Šaljić D.: "Material handling devices – instructions for projects and collection of solved problems", (in Serbian), FME Kragujevac, 1978
5. Dedijer S.: "Fundamentals of material handling devices", (in Serbian), "Građevinska knjiga", Belgrade, 1970

The number of hours of active teaching:				Other classes: **1**
Theory: **3**	Practical classes: **1.6**	Other forms of teaching: **0.4**	Research study: **0**	

Methods of teaching

Teaching consists from lectures, exercises and independent work of students. Theoretical basis and information on material handling machinery are given within lectures. Calculation problems from specific areas are solved during exercises and one independent project task is done.

Evaluation of knowledge

Pre-final exam obligations	**points**	**Final exam**	**points**
Activities during the classes:	**5**	written (verbal) exam	**30**
Colloquiums(s) :	**40 (2 x 20)**		
Seminar(s) :	**25**		