	UNIVERSITY OF NIŠ	
Course Unit Descriptor	**Faculty**	Faculty of Mechanical Engineering

Study Program	**Energy and Process Engineering**
Study Module (if applicable)	-
Course Title	Small hydro power plants and wind turbines
Level of Study	☐ Bachelor ☒ Master's ☐ Doctoral
Type of Course	☐ Obligatory ☒ Elective
Semester	☐ Autumn ☒ Spring
Year of Study	I
Number of ECTS Allocated	6
Name of Lecturer/Lecturers	Dragica R. Milenković
Teaching Mode	☒ Lectures ☐ Group tutorials ☐ Individual tutorials ☐ Laboratory work ☒ Project work ☐ Seminar ☐ Distance learning ☐ Blended learning ☐ Other

Purpose and Overview (max. 5 sentences)

The course program is conceptualized so that the student at the end of course should understand the function of a small hydro power plants and wind turbines, and be able to design them. The course contains both the theoretical and practical aspects of the design and construction of a small hydro power plants and wind turbines.

Syllabus (brief outline and summary of topics, max. 10 sentences)

Small hydro power plant:
1) The classification of water turbines which are used in small hydro power plants. 2) Work principles of action and reaction water turbines. 3) Calculation of impellers in water turbines. 4) The working performances of the water turbine. 5) Cavitation and hydraulic transient in small hydro power plants. 6) Work regulation of water turbine. 7) Baseline data necessary for the selection of turbines and generators. 8) Construction of small hydropower plants.
Wind turbines:
1) Classification of wind turbines. 2) The power and the forces acting on the impeller turbines. 3) Sizing of the impeller. 4) The design of the blades of the impeller. 5) The aerodynamic characteristics of wind turbines. 6) Wind turbines with higher power. 7) The use of wind energy for water transportation. 8) Measures to protect wind generators. 8) Baseline data necessary to choose the type of wind turbines.

Language of Instruction

☒Serbian (complete course)   ☐ English (complete course)   ☐ Other _____ (complete course)

☐Serbian with English mentoring   ☐Serbian with other mentoring _____

Assessment Methods and Criteria			
Pre exam Duties	Points	Final Exam	Points
Lecture (participation)	5	Written Examination	0* (50)
Homework	5	Oral Examination	Max. 50
Project work	40	Overall Sum	100
* Refers to students who have already gained points by completing pre-exam requirements			