



UNIVERSITY OF NIŠ

Course Unit Descriptor

Faculty

Faculty of Mechanical Engineering

GENERAL INFORMATION

Study Program	Mechanical Engineering
Study Module (if applicable)	-
Course Title	THERMODYNAMICS OF MULTIPHASE FLOWS
Level of Study	<input type="checkbox"/> Bachelor <input type="checkbox"/> Master's <input checked="" type="checkbox"/> Doctoral
Type of Course	<input type="checkbox"/> Obligatory <input checked="" type="checkbox"/> Elective
Semester	<input type="checkbox"/> Autumn <input checked="" type="checkbox"/> Spring
Year of Study	I
Number of ECTS Allocated	10
Name of Lecturer/Lecturers	Živković S. Dragoljub, Janevski N. Jelena
Teaching Mode	<input checked="" type="checkbox"/> Lectures <input type="checkbox"/> Group tutorials <input type="checkbox"/> Individual tutorials <input type="checkbox"/> Laboratory work <input checked="" type="checkbox"/> Project work <input checked="" type="checkbox"/> Seminar <input type="checkbox"/> Distance learning <input type="checkbox"/> Blended learning <input type="checkbox"/> Other

Purpose and Overview (max. 5 sentences)

- To introduce students to various thermodynamic phenomena occurring during various multi phase flows.
- To enable students to consider and solve various phenomena independently, based on scientific principles, to define adequate physical and mathematical models and perform numerical simulations in the field of thermodynamics of multi phase flows.

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

1) Two phase flows; 2) Regimes of two phase flows; 3) Basic equations of two phase flows; 4) Pressure change in two phase flow; 5) Annular flow; 6) Heat transfer in two phase flow; 7) Two phase flow water vapour-water droplet type; 8) Generation of vapour phase in free and forced convection boiling; 9) Generation of vapour phase in non-equilibrium conditions; 10) Crisis of heat transfer during boiling in large liquid volumes and in an evaporative channel; 11) Heat transfer during condensation; 12) Instability of two phase flow; 13) Two phase flows in energy and process engineering; 14) Safety of nuclear power plants; 15) Safety of chemical plants.

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
Activity During Lectures	5	Written Examination	50
Practical Teaching	10	Oral Examination	Max. 35 (depending on Teaching Colloquia)
Teaching Colloquia	35	Overall Sum	100

***Final examination mark is formed in accordance with the Institutional documents**