COURSE FOR EXCHANGE STUDENTS

1. **Course title** Fluid Mechanics

2. **Course code**	3. **Teaching method** The major parts of the course are prepared in electronics form and will be delivered to the students systematically during the course.
4. **Type of course** Optional	5. **Semester winter or summer**
6. **Number of credits** 4	7. **Level of course** basic
8. **Numbers of hours** 30	9. **Numbers of hours per semester** Lectures 15h and Exercises 15h

10. **Language of instruction:** English

11. **Name of lecturer** dr inż Katarzyna Kazimierska-Drobny, email: kkd@ukw.edu.pl

12. **Prerequisites**
Linear Algebra and Differential Equations

13. **Goal of the course**

This course covers important topics in fluid mechanics. It will cover basic concept in mechanics and fluid mechanics and then it shift to solving particular problems in fluid mechanics. Students completing this course will understand basic fluid mechanics, including fluid properties, fluid statics, the origin of conservation of mass, energy and momentum equations and their application to a range of internal and external flow problems, and laminar and turbulent flow conditions. They will also acquire an introductory knowledge of non-Newtownia fluids, dimensional analysis, open-channel flow, and flow through porous media.

14. **Course contents**

Fluid properties; fluid statics; conservation of mass, energy, and momentum equations; pipe and other internal flow; Bernoulli equation; hydrostatic pressure; dimensionless numbers; laminar and turbulent flow; velocity head; friction losses (e.g., pipe, valves, fittings); pipe networks; flow measurement; pumps, turbines, and compressors; non-Newtonian flow; flow through porous media

15. **Assessment methods**
There is no exam during the lectures. Only active participation in the lectures and passing test will be required.

16. **Recommended Reading**
1. Marek J Bergander, "Fluid Mechanics" Vol. 1 Basic Principles, Vol. 2 Applications. Wyd. AGH Krakow 2010-2011
2. Yunus Cengel, John Cimbala, "Fluid Mechanics, Fundamentals and Applications", McGraw-Hill, 2006