Fire University of Warsaw, Poland
Faculty of Security Engineering and Civil Protection
Syllabus 2018 -

# Hydromechanics

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| profile | general academics |
| degree | first degree |
| programme | ERASMUS |
| semester | 1 |
| part time / full time | full time |
| ECTS | 3 |
| coordinator | dr inż. Anna Szajewska |

## form of the activity: exercise

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| hours | 30 |
| prerequisites | Has basic knowledge of mathematics, physics and mechanics necessary to understand problems related to processes occurring in fluids at rest and during fluid motion. |
| objectives | The basic didactic goal is to acquire concepts and understand processes related to fluid equilibrium and motion and to use the theory learned to solve practical problems. |
| methods | Performing an exercise at a laboratory station |
| own work | Studying literature, solving practical problems (tasks) from the scope indicated by the instructor, performing an exercise, preparing a report. |
| basic literature | Gałaj J., Zegar W., Pawlak E., Pawlak A.: Ćwiczenia laboratoryjne z hydromechaniki dla studentów SGSP z przykładami. Wydawnictwo SGSP, 2016 |
| supplementary literature | |

| contents | hours |
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| Introductory classes. Familiarization with the laboratory regulations, individual positions, health and safety regulations, division into groups. Providing general information on pressure units and error analysis. | 2 |
| Examination of water flow through vessel holes. | 2 |
| Determination of pressure losses in fire hoses. | 2 |
| Determination of pressure changes in the Venturi nozzle. | 2 |
| Determination of water pressure on vessel walls. | 2 |
| Carrying out a laboratory exercise involving the determination of the characteristics of rotary pumps connected in series and parallel. | 2 |

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| Carrying out a laboratory exercise involving the determination of linear and local losses in smooth pipes using piezometric tubes. Determination of the critical Reynolds number. | 2 |
| Carrying out a laboratory exercise involving the determination of air flow in axially symmetric flow. | 2 |
| Performing a laboratory exercise involving the study of a model peripheral water supply network. | 2 |
| Performing a laboratory exercise involving the study of the characteristics of a centrifugal pump | 2 |
| Carrying out a laboratory exercise involving the examination of the process of generating negative pressure in the suction system using a vacuum pump. | 2 |
| Carrying out a laboratory exercise involving the examination of the properties of liquid jets used in fire protection. | 2 |
| Carrying out a laboratory exercise involving the determination of air flow in axially symmetric flow. | 2 |
| Performing a laboratory exercise involving the study of water hammer in rigid pipes. | 2 |
| Carrying out a laboratory exercise involving the determination of air flow in axially symmetric flow. | 2 |