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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty** | Faculty of Occupational Safety in Niš |
| **GENERAL INFORMATION** |
| Study program  | Occupational Safety |
| Study Module (if applicable) | / |
| Course title | Applied Fluid Mechanics |
| Level of study | ☒ Bachelor ☐ Master’s ☐ Doctoral |
| Type of course | ☐ Obligatory ☒ Elective |
| Semester  | ☒ Autumn ☐ Spring |
| Year of study  | Third Year |
| Number of ECTS allocated | 6 |
| Name of lecturer/lecturers | Dragiša Nikodijević |
| Teaching mode | ☒ Lectures ☐Group tutorials ☐ Individual tutorials☐Laboratory work ☐ Project work ☐ Seminar☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| *Acquiring basic knowledge about physical properties of fluids and basic equations for fluid equilibrium in quiescence and motion, and familiarizing with real fluid flow problems. Students’ ability to solve problems pertaining to fluid quiescence and flow (laminar and turbulent) and to calculate flow, pressure, and loss of flow energy of fluid flow.* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Physical properties of fluids: basic terms and definitions. Liquid properties. Fluid statics: basic equations and laws of fluid statics. Pressure (basic properties, basic equations). Pascal’s Law. Connected vessels. Pressure force on flat and crooked surfaces, walls, pipes, and tanks. Fluid kinematics. Continuity equation. Flow visualisation. Fluid dynamics: ideal fluid dynamics (Euler‐Bernoulli Equation). Real fluid dynamics (Navier‐Stokes and Reynolds’ equations). Laminar and turbulent flow. Similarity theory and dimensional analysis. Hydraulics: mean values of hydro‐mechanical quantities, basic hydraulics equations. Extension of Bernoulli equation to real liquid flow. Straight‐lined and local losses of flow energy. Leakage from openings and sleeves. Simple and complex piping. Pump piping. Hydraulic blow. Nonstationary leakage. |
| **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** | **10** | **Written examination** | **20** |
| **Practical teaching** | **0** | **Oral examination** | **20** |
| **Teaching colloquia** | **50** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |