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| Course: | ***Basics of Hydraulics*** |
| Course id: ЗОUV5022 |
| Number of ECTS: 6 |
| Teacher: | Prof. Atila Salvai, Ph.D. |
| Course status | Mandatory |
| Number of active teaching classes (weekly) |
| Lectures: 45 | Practical classes: 45 | Other teaching types: | Study research work: | Other classes: |
| Precondition courses | None |
| 1. Educational goal

 Introducing students to the basics of hydraulics and application in water management. |
| 1. Educational outcomes

 Ability of students to apply the fundamentals of hydraulics in water management. |
| 1. Course content
* PROPERTIES OF FLUIDS (Fluid mechanics and hydraulics. Definition of a fluid. Specific weight. Mass density. Specific gravity. Viscosity. Vapor pressure. Surface tension. Capillarity. Fluid pressure).
* HYDROSTATIC FORCE ON SURFACES (Force exerted on plane area. Line of action of force. Horizontal and vertical component of force).
* BUOYANCY AND FLOTATION (Archimedes’ Principle. Stability of submerged and floating bodies).
* TRANSLATION AND ROTATION OF LIQUID MASSES (Horizontal motion. Vertical motion. Rotation of open and closed vessels).
* DIMENSIONAL ANALYSIS AND HYDRAULIC SIMILITUDE (Buckingham Pi theorem. Hydraulic models).
* FUNDAMENTALS OF FLUID FLOW (Three significant concepts of fluid flow. Steady flow. Uniform flow. Equation of continuity. Energy equation. Velocity head and kinetic-energy correction factor. Bernoulli theorem. Energy line. Hydraulic grade line. Power).
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| 1. Teaching methods

 Practice, Consultations. |
| Knowledge evaluation (maximum 100 points) |
| Pre-examination obligations | Mandatory | Points | Final exam | Mandatory | Points |
| Lecture attendance | No |  | Oral part of the exam | Yes | 40 |
| Exercise attendance | No |  |  |
|  Term paper | Yes | 60 |
| Literature  |
| Ord. | Author | Title | Publisher | Year |
|  | Salvai, A. | Hydraulics | Script (in Serbian) | 2014. |
|  | Ranald V. Giles | Theory and Problems of Fluid Mechanics and Hydraulics | McGrow-Hill book Company | 1962. |
|  | Victor, L., Streetar, E., Benjamin, W. | Fluid Mechanics | McGrow-Hill book Company | 1985. |
|  | Ven Te Chow | Open-Channel Hydraulics | McGraw-Hill book Company | 1959. |

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| Znak univerziteta | UNIVERSITY OF NOVI SADFACULTY OF AGRICULTURE 21000 NOVI SAD, TRG DOSITEJA OBRADOVIĆA 8 | Znak fakulteta2 |
| Study Programme AccreditationUNDERGRADUATE ACADEMIC STUDIES WATER MANAGEMENT |
| Table 5.2 Course specification |