

Faculty of Architecture

Department of Construction of Buildings and Structures

Professional Area: Architecture, Civil Engineering and Geodesy

Major: Fire and Emergency Safety of Buildings and Structures

Educational and Qualification Degree: Master

1. **Course unit title:** Combustion and blast physics
2. **Course unit code:** PHY 3001
3. **Type of the course unit:** compulsory
4. **Cycle:** Master
5. **Year of study when the component is delivered:** first
6. **Semester:** first
7. **Number of ECTS credits allocated:** 3
8. **Name of lecturer(s):** Assoc. Prof. Galina Todorova, PhD
9. **Learning outcomes:** The main aim of the course in Combustion and Blast Physics is to provide the students with specialized knowledge about the physical laws which have a direct bearing on the profession of fire and emergency safety specialists.
10. **Mode of delivery:** face-to-face
11. **Prerequisites and co-requisites:** The course in Combustion and Blast Physics is based on the knowledge gained in the Bachelor's degree programme in Fire and Emergency Safety at VFU "Chernorizets Hrabar" and the knowledge of the fundamental and technical sciences at higher education schools.
12. **Course content (annotation):** This specialized knowledge is preceded by a brief overview of thermodynamic processes, and then the burning processes in different environments are studied. Explosive processes are considered from the point of view of the mechanism of occurrence and the energy characteristics of the explosion, with particular attention being paid to the propagation of the detonation wave and the destructive action of the blast. The course also contains specific knowledge about nuclear chain reactions and nuclear explosion features.
13. **Recommended or required reading and other learning resources/tools:**
 - Required reading
 - " " ()
 - 2003
 - Recommended reading
 - 1997

- . , 1986
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14. Planned learning activities and teaching methods: lectures, contact hours, self-study

15. Assessment methods and criteria: The following elements are included in the assessment of the student's individual performance: 10% attendance, 1 test and / or development of a paper on an assigned topic (in case of very good performance - mark above 4.50, the student could exempt from the final exam) - 20%, final exam (test) - 70%.

16. Language of instruction: Bulgarian

17. Placement: none