

Course description

Course abbreviation:	UENM/C688	Page:	1 / 2
Course name:	Theory of Explosions I		
Academic Year:	2023/2024	Printed:	29.05.2024 09:34

Department/Unit /	UENM / C688			Academic Year	2023/2024
Title	Theory of Explosions I			Type of completion	Examination
Accredited/Credits	Yes, 5 Cred.			Type of completion	Combined
Number of hours	Lecture 2 [HRS/WEEK] Seminar 1 [HRS/WEEK]			Course credit prior to	NO
Occ/max	Status A	Status B	Status C	Counted into average	YES
Summer semester	0 / -	0 / -	0 / -	Min. (B+C) students	not determined
Winter semester	3 / -	0 / -	0 / -	Repeated registration	NO
Timetable	Yes			Semester taught	Winter semester
Language of instruction	Czech			Internship duration	0
Optional course	Yes				
Evaluation scale	A B C D E F				
No. of hours of on-premise	0				
Auto acc. of credit	No				
Periodicity	K				
Substituted course	None				
Preclusive courses	N/A				
Prerequisite courses	N/A				
Informally recommended courses	N/A				
Courses depending on this Course	N/A				

Course objectives:

The aim of this course is to introduce students to the basic principles behind energetic materials, theoretical relations among structure of the substances and their parameters.

Requirements on student

combined - written followed by oral

Content

Introduction, classification of explosives and explosions, energetic aspects of explosions, thermal decomposition, combustion, detonation, initiation, DDT, sensitivity, sensitiveness, stability, explosions of gasses, dust clouds, hybrid mixtures and aerosols, physical explosion

Prerequisites - other information about course preconditions

Competences acquired

The student will acquire basic understanding of energetic materials.

Fields of study

Guarantors and lecturers

- **Guarantors:** doc. Ing. Jiří Pachman, Ph.D.
- **Lecturer:** doc. Ing. Jiří Pachman, Ph.D. (50%), Ing. Jakub Šelešovský, Ph.D. (50%)
- **Seminar lecturer:** doc. Ing. Jiří Pachman, Ph.D. (50%), Ing. Jakub Šelešovský, Ph.D. (50%)

Literature

- **Recommended:** Cooper P.W. *Explosives Engineering*. Wiley VCH, N.Y., 1996.. Wiley VCH, N.Y., 1996.
- **Recommended:** Eckhoff, R. K. *Dust explosions in the process industries*. 1997.
- **Recommended:** Bjerketvedt, D., Bakke, J.R., van Wingerden, K. *Gas Explosion Handbook*. 1997.
- **Recommended:** Kubota N. *Propellant and Explosives*. Wiley-VCH, Weinheim, 2002.. Wiley-VCH, Weinheim, 2002.

Teaching methods

Monologic (reading, lecture, briefing)

Assessment methods

Oral examination

Written examination

Course is included in study programmes:

Study Programme	Type of	Form of	Branch	Stage	St. plan	v.	Year	Block	Status	R.year	R.
Engineering of Energetic Materials	Follow-up study	Full-time	Engineering of Energetic Materials	1	2023	2023		povinné předměty	A	1	ZS
Engineering of Energetic Materials	Follow-up study	Full-time	Engineering of Energetic Materials	1	2022	2023		povinné předměty	A	1	ZS