

Course description

Course abbreviation:	KME/RDS	Page:	1 / 4
Course name:	Reconstruction and Diagnostics		
Academic Year:	2023/2024	Printed:	01.06.2024 08:02

Department/Unit /	KME / RDS			Academic Year	2023/2024
Title	Reconstruction and Diagnostics			Type of completion	Exam
Accredited/Credits	Yes, 7 Cred.			Type of completion	Combined
Number of hours	Lecture 4 [Hours/Week] Tutorial 3 [Hours/Week]				
Occ/max	Status A	Status B	Status C	Course credit prior to	YES
Summer semester	0 / -	0 / -	0 / -	Counted into average	YES
Winter semester	1 / -	0 / -	0 / -	Min. (B+C) students	10
Timetable	Yes			Repeated registration	NO
Language of instruction	Czech			Semester taught	Winter semester
Optional course	Yes			Internship duration	0
Evaluation scale	1 2 3 4			Ev. sc. – cred.	S N
No. of hours of on-premise					
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 student:

- will get acquainted with designing reconstructions of building structures
- will understand the principles used structures, building materials by reconstructions
- will acquaint with the principles of analysis and assessment of mechanical, physical, chemical degradation and corrosive processes and with the design- principles of renewal, modernization and maintenance of buildings.
- assessing traditional housing for rehabilitation will learn

Requirements on student

Requirements for credit

The student will elaborate and hand in a semestral project of an adequate level

Credit obtained in previous years of study is not accepted.

Requirements for exam

Active knowledge of the content of the course, ability to apply the knowledge to solve practical exercises

Content

1. Content and measuring range of the building prospecting, building diagnostic
2. Main concepts, defect and failure, standards, evaluation
3. Foundations ? detection of technical condition, reinstating and strengthening foundations
- 4 Foundations ? detection of technical condition, reinstating and strengthening foundations
5. Vertical bearing structure - detection of technical condition, reinstating and strengthening structures
6. Vertical bearing structures ? detection of technical condition, reinstating and strengthening structures
7. Horizontal bearing structures ? detection of technical condition, reinstating and strengthening structures
8. Horizontal bearing structures ? detection of technical condition, reinstating and strengthening structures

9. Roofs ? detection of technical condition, reinstating and strengthening roofs
10. Roofs ? detection of technical condition, reinstating and strengthening roofs
11. Staircases ? detection of technical condition, reinstating and strengthening staircases
12. Defects and failures of panel buildings, possibilities of repair
13. Summary- reconstructions building structures

Fields of study

Guarantors and lecturers

- **Guarantors:** Ing. Luděk Vejvara, Ph.D. (100%)
- **Lecturer:** Ing. Luděk Vejvara, Ph.D. (100%)
- **Tutorial lecturer:** Ing. Luděk Vejvara, Ph.D. (100%)

Literature

- **Basic:** Jiří Witzany. *Konstrukce pozemních staveb 50, 60*. ČVUT, fak. Stav.
- **Basic:** Jiří Witzany a kol. *Obnova a rekonstrukce staveb : poruchy, degradace, sanace*. 2018.
- **Recommended:** Vlček. *Poruchy a rekonstrukce staveb*. edice Tech. knihovna , Era nakladatelství.
- **Recommended:** Jiří Witzany. *Poruchy a rekonstrukce zděných budov*. knižnice ČKAIT.

Time requirements

All forms of study

Activities	Time requirements for activity [h]
Contact hours	65
Preparation for an examination (30-60)	40
Undergraduate study programme term essay (20-40)	40
Total:	145

assessment methods

Knowledge - knowledge achieved by taking this course are verified by the following means:

- Oral exam
- Seminar work

Skills - skills achieved by taking this course are verified by the following means:

- Combined exam

Competences - competence achieved by taking this course are verified by the following means:

- Combined exam

prerequisite

Knowledge - students are expected to possess the following knowledge before the course commences to finish it successfully:

- know the individual structural elements and their interconnections
- have knowledge of the subjects of Construction 1 2 3, Building Materials, Building Design
- orient yourself in building materials
- describe the technologies of classical and modern construction

Skills - students are expected to possess the following skills before the course commences to finish it successfully:

to Draw Construction Drawings Using the Drawing Programs
 dimension and assess simple structures
 use modern building materials
 to solve the continuity of individual building structures

Competences - students are expected to possess the following competences before the course commences to finish it successfully:

N/A
 N/A
 N/A

teaching methods**Knowledge - the following training methods are used to achieve the required knowledge:**

Lecture
 Practicum

Skills - the following training methods are used to achieve the required skills:

Lecture
 Practicum

Competences - the following training methods are used to achieve the required competences:

Lecture
 Practicum

learning outcomes**Knowledge - knowledge resulting from the course:**

The student
 - take on's bearings in traditional and modern systems of buildings
 - is able to define importance of single structural members
 - can solve disposition ? layout of buildings
 - is able to determine and analyse failure of building
 - is able to design appropriate interventions into building structures

define the importance of individual structural elements and their function within the entire object
 define suitable materials for building modifications
 list and explain the applicable regulations and standards for a comprehensive design of the building

Skills - skills resulting from the course:

to solve the layout of the building object
 determine the causes of the fault in the building
 select the appropriate content and scope of the construction intervention in the building during its reconstruction
 select suitable materials for building modifications
 o propose modifications to the building in accordance with applicable general technical regulations, hygienic and fire regulations, regulations for persons with reduced mobility and orientation and with the required energy requirements

Competences - competences resulting from the course:

N/A
 N/A

Course is included in study programmes:

Study Programme	Type of	Form of	Branch	Stage	St. plan v.	Year	Block	Status	R.year	R.
Stavební inženýrství - Bachelor Pozemní stavby		Full-time	Stavební inženýrství - Pozemní stavby	1	2023	2023	Povinné předměty	A	4	ZS

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