

Course description

Course abbreviation:	KKS/KVO	Page:	1 / 3
Course name:	Design of Vehicles		
Academic Year:	2023/2024	Printed:	13.07.2025 09:18

Department/Unit /	KKS / KVO			Academic Year	2023/2024
Title	Design of Vehicles			Type of completion	Exam
Accredited/Credits	Yes, 5 Cred.			Type of completion	Combined
Number of hours	Lecture 3 [Hours/Week] Tutorial 2 [Hours/Week]			Course credit prior to	Yes
Occ/max	Status A	Status B	Status C	Counted into average	YES
Summer semester	0 / -	0 / -	0 / -	Min. (B+C) students	10
Winter semester	23 / -	0 / -	3 / -	Repeated registration	NO
Timetable	Yes			Semester taught	Winter semester
Language of instruction	Czech			Internship duration	0
Optional course	Yes			Ev. sc. – cred.	S N
Evaluation scale	1 2 3 4				
No. of hours of on-premise					
Auto acc. of credit	Yes in the case of a previous evaluation 4 nebo nic.				
Periodicity	every year				
Specification periodicity					
Substituted course	None				
Preclusive courses	N/A				
Prerequisite courses	N/A				
Informally recommended courses	N/A				
Courses depending on this Course	KEV/SNEMB				

Course objectives:

The aim of the course is to provide students with knowledge of basic functions and parameters of ground vehicles (road and rail vehicles), with the general calculations related to the design of these vehicles and their main components and of the main conceptual and constructional structures of these vehicles and their components. The acquired knowledge is the basic information about the construction of these vehicles and it should be the starting point for the detailed study of the construction of these types of vehicles

Requirements on student

Credit based on the active work on the exercises and the fulfillment of conditions set by the teacher at the beginning of the semester (submission of the correctly prepared semester work and fulfillment of the specified minimum attendance at the seminars).

Exam - combined exam (written and oral) related to the teaching material included in the lectures.

Content

The subject KKS / KVO is a basic subject of the construction of vehicles in the Master's study in the field of Transport and Handling Technology. It is divided into a section devoted to the issue of rail vehicles and the issue of road vehicles. The basic vehicle functional units are discussed in terms of their theory and rough construction (in the case of road vehicles the e.g. components of the chassis, the components of the traction power transmission system, the bodyworks, the assistance and comfort systems, in the case of the rail vehicles e.g. the vehicle bogies, suspensions, brakes, etc.).

Fields of study

viz COURSEWARE

Guarantors and lecturers

- **Guarantors:** doc. Ing. Ladislav Němec, CSc. (100%)
- **Lecturer:** Ing. Václav Kraus, Ph.D. (50%), doc. Ing. Ladislav Němec, CSc. (50%)
- **Tutorial lecturer:** Ing. Jiří Kořínek (25%), doc. Ing. Ladislav Němec, CSc. (50%), doc. Ing. Karel Ráž, Ph.D. (25%)

Literature

- **Basic:** Heller, P. *Kolejová vozidla I.* ZČU v Plzni, 2017.
- **Basic:** VLK, F. *Stavba motorových vozidel.* nakl. VLK, Brno, 2003.
- **Recommended:** VLK, F. *Automobilová technická příručka.* nakl. VLK, Brno, 2003.
- **Recommended:** DOSTÁL, J., HELLER, P. *Kolejová vozidla I.* ZČU v Plzni, 2007.

Time requirements**All forms of study**

Activities	Time requirements for activity [h]
Preparation for an examination (30-60)	50
Contact hours	65
Presentation preparation (report) (1-10)	10
Preparation for formative assessments (2-20)	10
Total:	135

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

Combined exam

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

Seminar work

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

Skills demonstration during practicum

Seminar work

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

to be well versed in the knowledge of previous theoretical and vocational subjects.

to be familiar with the basic description (ie basic knowledge of functions and rough structure) of land vehicles.

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

to apply knowledge of preparatory scientific disciplines in the analysis and synthesis of machine and equipment design.

to communicate relevantly with experts in the field of machine and equipment design.

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 supplemented with a discussion

Self-study of literature

Seminar classes

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

Practicum

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

Practicum

Skills demonstration

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

to have basic functions and parameters of land vehicles (road and rail), general calculations related to the design of these vehicles and their main components, and the main conceptual and constructional structures of such vehicles and their components.

Skills - skills resulting from the course:

to identify and solve problems related to vehicle design.

to apply the acquired knowledge creatively in the solution of construction projects in the field of vehicles.

to communicate professionally with experts in the field of vehicle design.

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.
Design Engineering of Machines and Technical Devices	Postgraduate Master	Full-time	Design Engineering of Health and Cooperative Technology	1	2020	2023	Compulsory courses	A	1	ZS
Design Engineering of Machines and Technical Devices	Postgraduate Master	Combined	Design Engineering of Health and Cooperative Technology	1	2020	2023	Compulsory courses	A	1	ZS
Design Engineering of Machines and Technical Devices	Postgraduate Master	Full-time	Design Engineering of Manufacturing Machines and Equipment	1	2020	2023	Compulsory courses	A	1	ZS
Design Engineering of Machines and Technical Devices	Postgraduate Master	Combined	Design Engineering of Manufacturing Machines and Equipment	1	2020	2023	Compulsory courses	A	1	ZS
Design Engineering of Machines and Technical Devices	Postgraduate Master	Full-time	Design Engineering of Vehicles and Handling Machinery	1	2020	2023	Compulsory courses	A	1	ZS
Design Engineering of Machines and Technical Devices	Postgraduate Master	Combined	Design Engineering of Vehicles and Handling Machinery	1	2020	2023	Compulsory courses	A	1	ZS