Course description

Department/Unit /	KCH / ORGC1			**Academic Year**	2016/2017
Title	Organic Chemistry 1			**Type of completion**	Exam
Accredited/Credits	Yes, 4 Cred.			**Type of completion**	Written
Number of hours	Přednáška 2 [Hours/Week]				
Occ/max	Status A	Status B	Status C	**Course credit prior to**	NO
Summer semester	38 / -	0 / 0	0 / 0	**Counted into average**	YES
Winter semester	1 / -	0 / -	0 / -	**Min. (B+C) students**	not determined
Timetable	Yes			**Repeated registration**	NO
Language of instruction	Czech			**Semester taught**	Summer semester
Substituted course	None			**Internship duration**	0
Preclusive courses	N/A				
Prerequisite	N/A				
Informally recommended courses	N/A				
Courses depending on this Course	N/A				

Course objectives:

Aims
The discipline deals with basic knowledge on the structure, chemical properties and behaviour of the organic compounds. Nomenclature of the organic compounds is taught in detail. The chemical properties and preparation of the individual types of the organic compounds are taught by classical way.

Requirements on student

Evaluation of the subject as well as the exam grading is made according to the articles No 31 - 33 in the Regulations on Study and Examinations University of Ostrava

Content

Content
1. Structure of the organic compounds (kinds of bonds, bond length, bond angles, isomerism). Alkanes (nomenclature, reactivity, preparation).
2. Alkenes (nomenclature, electron structure of double bond, isomerism of double bond, reactivity, preparation).
3. Alkynes (nomenclature, the electron structure of triple bond, reactivity, preparation). Arenes (nomenclature, the electron structure and theory of aromatic state, reactivity, preparation).
4. Halogen derivatives (nomenclature, reactivity, preparation).
5. The organometallic compounds, the complex hybrids (preparation and use in organic chemistry).
6. Hydroxy derivatives, sulfanyl derivatives (nomenclature, chemical properties and reactivity, preparation).
7. Ethers and sulphides (nomenclature, the chemical properties and reactivity, preparation).
8. Sulfonic, sulfinic and sulfenic acids and their derivatives (nomenclature, properties, preparation)
9. Nitrogenous derivatives of hydrocarbons (classification, nomenclature, the chemical properties and preparation).
10. Carbonyl compounds (classification, nomenclature, the chemical properties and reactivity, preparation).
11. Carboxylic acids and their function and substitution derivatives (structure and nomenclature, the chemical properties and reactivity, preparation).
12. Heterocyclic compounds (classification and nomenclature, the chemical properties and reactivity, preparation).

Prerequisites - other information about course preconditions

none

Competences acquired

Competences
The students know basic concepts from the field of organic chemistry
and basic types of reactions.
They can give reasons for the general laws validity from the field of organic chemistry. They can explain the selected phenomena and processes
from the field of organic chemistry (especially application of electronegativity, inductive and mesomeric effect). They explain formation and properties of the individual types of bonds in the organic compounds. They consciously use connection between the structure and properties of the organic compounds for explaining and justifying their properties.

Fields of study

Guarantors and lecturers

- **Guarantors:** Ing. Rudolf Peter, CSc.
- **Lecturer:** Ing. Rudolf Peter, CSc.

Literature

- **Basic:** Červinka O., Dědek V., Ferles M. *Organická chemie (druhé, přepracovaná vydání), SNTL/ALFA, Praha 1980.*.
- **Recommended:** Červinka O. a kol. *Červinka O. a kol.: Chemie organických sloučenin (2), SNTL/ALFA, Praha 1987.*.
- **Recommended:** Červinka O. a kol. *Chemie organických sloučenin (1), SNTL/ALFA, Praha 1985.*.
- **Recommended:** Bláha O. a kol. *Nomenklatura organické chemie, ACADEMIA, Praha 1985*.
- **Recommended:** McMurry, J. *Organic chemistry, 6th ed. 2004, Brooks/Cole, a Thomson Learning Company, Český překlad 2007*.
- **Recommended:** Richer J.-C. a kol. *Průvodce názvoslovím organických sloučenin podle IUPAC, ACADEMIA, Praha 2000*.

Time requirements

Activities	Time requirements for activity [h]
Being present in classes	26
Consultation of work with the teacher/tutor (incl. electronic)	10
Preparation for an exam	50
Self-tutoring	14
Total:	**100**

assessment methods

Knowledge

Written examination

teaching methods

Knowledge

Monologic (explanation, lecture, briefing)

learning outcomes

Knowledge - knowledge resulting from the course:

Competences
The students know basic concepts from the field of organic chemistry
and basic types of reactions.
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from the field of organic chemistry (especially application of electronegativity, inductive and mesomeric effect). They explain formation and properties of the individual types of bonds in the organic compounds. They consciously use connection between the structure and properties of the organic compounds for explaining and justifying their properties.

Course is included in study programmes:

Study Programme	Type of	Form of	Branch	Stage	St. plan v.	Year	Block	Status	R.year	R.
Applied Physics	Bachelor	Full-time	Biophysics	1	2012	2016	Povinné předměty	A	1	LS
Applied Physics	Bachelor	Full-time	Biophysics	1	2014	2016	Povinné předměty	A	2	LS
Chemistry	Bachelor	Full-time	Chemistry	1	2012	2016	Povinné předměty	A	2	LS
Chemistry	Bachelor	Full-time	Chemistry with Other Degree Specialization	1	2	2016	Povinné předměty	A	2	LS
Chemistry	Bachelor	Full-time	Chemistry with Other Degree Specialization	1	2014	2016	Povinné předměty	A	2	LS
Physics	Bachelor	Full-time	Chemistry with Other Degree Specialization	1	2014	2016	Povinné předměty	A	2	LS