Course description

Department/Unit /	KCH / SPRUC			**Academic Year**	2016/2017
Title	Seminar - Industrial Chemistry			**Type of completion**	Pre-Exam Credit
Accredited/Credits	Yes, 2 Cred.			**Type of completion**	Oral
Number of hours	Seminář 1 [Hours/Week]				
Occ/max	Status A	Status B	Status C	**Course credit prior to**	NO
Summer semester	0 / -	0 / -	0 / -	**Counted into average**	NO
Winter semester	0 / 0	0 / 0	0 / 0	**Min. (B+C) students**	not determined
Timetable	No			**Repeated registration**	NO
Language of instruction	Czech			**Semester taught**	Winter 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 subject covers basic calculations connected with the liquids flow problems, convection and conduction of heat, and with some separation methods (distillation, rectification, extraction etc.).

Requirements on student

Requirements
Condition of the credits awarding is a gain of 75 % of the total summary of two partial tests points. In the case of the lower point level, it is possible to write one corrective test in the credit week (total content of the course) with the minimum gain of 75 % of the total points.

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
Learning runs 2 hours biweekly.
1. The introductory seminar. The recommended literature. Familiarization with the seminar content. Requirement for the credits awarding. The dimensional analysis use in the calculations.
2. Steady flow of the ideal liquid (Bernoulli equation, continuity equation).
3. Test from the liquids flow.
4. Balance of the apparatus heat (heat capacity of substances, convection and conduction of heat, calculation of heat insulation).
5. Test from the heat calculations.
6. Distillation and rectification (graphical calculation of rectification column in the steady state, material balance in the vapour distillation etc.).
7. Extraction (balances of mass for the single and repeated extraction).
The seminar evaluation, the credits awarding.

Prerequisites - other information about course preconditions

Competences acquired

Competences
The students know basic calculations connected with the chemical production processes. They can solve the problems connected with the liquids flow. They are able to calculate examples connected with convection and conduction of heat. They know some the selected separation procedures (distillation, rectification, extraction etc. They can apply their knowledge for the concrete examples calculations. They can orientate in the relevant professional literature.

Fields of study

Guarantors and lecturers

- **Guarantors:** doc. RNDr. Roman Maršálek, Ph.D.
- **Seminar lecturer:** doc. RNDr. Roman Maršálek, Ph.D.

Literature

- **Basic:** Neiser J. a kol. *Obecná chemická technologie, SPN, Praha 1981.*.
- **Recommended:** Marek J., Novosad Z., Standart G. *Chemické inženýrství (Základy výpočtů zařízení), SNTL, Praha 1956.*.
- **Recommended:** Steidl H., Neužil L., Fořt I., Vlček J.:. *Úvod do proudění tekutin a sdílení tepla, Academia, Praha 1975.*.
- **Recommended:** Míka V. *Základy chemického inženýrství, SNTL/ALFA, Praha 1977.*.

Time requirements

Activities	Time requirements for activity [h]
Being present in classes	13
Preparation for test	15
Self-tutoring	22
Total:	**50**

assessment methods

professional knowledge

Continuous analysis of student´s achievements

Written examination

teaching methods

professional knowledge

Briefing

Dialogic (discussion, dialogue, brainstorming)

Kinetic and practical skills training

learning outcomes

professional knowledge - knowledge resulting from the course:

Competences
The students know basic calculations connected with the chemical production processes. They can solve the problems connected with the liquids flow. They are able to calculate examples connected with convection and conduction of heat. They know some the selected separation procedures (distillation, rectification, extraction etc. They can apply their knowledge for the concrete examples calculations. They can orientate in the relevant professional literature.

Course is included in study programmes:

Study Programme	Type of	Form of	Branch	Stage	St. plan v.	Year	Block	Status	R.year	R.
Chemistry	Postgraduate Master	Full-time	Teaching for Secondary Schools - Chemistry,	1	2	2016	Povinně volitelné	B	2	ZS

Study Programme	Type of	Form of	Branch	Stage	St. plan v.	Year		Block	Status	R.year	R.
			Didactic Specializations					předměty			
Chemistry	Postgraduate Master	Full-time	Teaching for Secondary Schools - Single-Specialization Chemistry	1	2015	2016		Povinně volitelné předměty	B	2	ZS