Zurich University of Applied Sciences

School of Engineering

t.ACMV2 - General Chemistry for Materials Engineering 2

Person responsible for the course:	Dirk Penner, penr
Credits:	2
Valid for:	2010/2011
Last saved:	23.08.2010 17:02

Learning objectives:

Resources, applications, structures, properties of inorganic materials and chemicals

Most important technical applications of inorganic nonmetallic materials

Most important industrial processes for the production of inorganic basic chemicals

Analytical methods for structure and composition determination

Environmental chemistry

Course content:

Elements of group 1, resources, properties and applications of elements and their compounds, flame colours, atomspectrometry, ICP, Downs-process, chlor-alkali-elektrolysis, Solvay-process, crystal structure types, XRD

Elements of group 2, resources, properties and applications of elements and their compounds, water hardness, cement, Perovskite, piezo effect

Elements of group 3, resources, properties and applications of elements and their compounds, boron - types of bonds, aluminium process, amphoteric hydroxides, semiconductors, band model

Elements of group 4, resources, properties and applications of elements and their compounds, carbon modifikationen, CO2, green house effect, silicon production, zone melting, integrated circuits, SiC, quartz, silicates, clays, zeolithes, glass

Elements of group 5, resources, properties and applications of elements and their compounds, nitrogen cycle, Linde-process, Haber-Bosch-process, Ostwald-process, structure of nitrogen compounds, phosphorus production, modifications, compounds

Elements of group 6, resources, properties and applications of elements and their compounds, oxygen, ozone, Smog, ozone layer, Frasch-process, acid rain, flue gas cleaning

Elements of group Elements of group 7, resources, properties and applications of elements and their compounds, industrial chlorine chemistry, comproportionation/disproportionation

Elements of group 8, resources, properties and applications of elements and their compounds, light technique

Transition metals, resources, properties and applications of elements and their compounds, Kroll-process, blast furnace process, steel production, gold production, complex chemistry

Previous knowledge:

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Teaching method:

Type of lesson:	**Number of lessons per week:**
Lecture	14x2L
Tutorial/Practicum	
Group teaching	
Block instruction	
Seminar	

Assessment:

According to the table or as specified in writing by the lecture at the beginning of the semester!

Number	**Type**	**Weighting**
1	End of term exam	
	wöchentliche Übungsaufgaben	
	Further assessments	

Language of instruction:

Deutsch

Instruction material:

Vorlesungsfolien

Mortimer Ch.E., Müller U. : Chemie, Thieme, Stuttgart (2008)

Briehl, H. : Chemie der Werkstoffe, Teubner (2008)

Hollemann E., Wiberg N. : Lehrbuch der Anorganischen Chemie

Vollrath Hopp, Grundlagen der Chemischen Technologie, Wiley-VCH

Comments:

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