

Course description

Course abbreviation:	KANT/C067A	Page:	1 / 2
Course name:	Properties of Inorganic Pigments		
Academic Year:	2020/2021	Printed:	24.05.2024 21:14

Department/Unit /	KANT / C067A			Academic Year	2020/2021
Title	Properties of Inorganic Pigments			Type of completion	Examination
Accredited/Credits	Yes, 5 Cred.			Type of completion	Combined
Number of hours	Lecture 2 [HRS/WEEK]				
Occ/max	Status A	Status B	Status C	Course credit prior to	NO
Summer semester	0 / -	0 / -	0 / -	Counted into average	YES
Winter semester	0 / -	0 / -	0 / -	Min. (B+C) students	not determined
Timetable	Yes			Repeated registration	NO
Language of instruction	English			Semester taught	Winter semester
Optional course	Yes			Internship duration	0
Evaluation scale	A B C D E F				
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:

Students make the acquaintance of problems concerning inorganic pigments, their properties and production including theoretical principles of their synthesis.

Requirements on student

Final test (written)

Content

Properties of powdery materials, especially pigments and fillers (their chemical, structural, physical and technological properties).
 Colour properties of inorganic pigments (reasons of colour, objective methods of colour measurements - systems XYZ, xyz, CIE L*a*b*, standardization of measurement conditions, calculation of colour difference and its meaning)
 Optical properties of pigments (hiding power and its connection with refractive index and particle size, Kubelka-Munk theory, tinting strength, lightfastness and weather resistance).
 Classification of inorganic pigments and technology.
 Basic principles of coloured high-temperature stable pigments preparation (thermodynamic and kinetic factors) and their survey.
 Other groups of special inorganic pigments - nacreous and metallic pigments, luminescent pigments (their optical principles and preparation).

Prerequisites - other information about course preconditions

Knowledge of course: Technology of Inorganic Production, Experimental methods for Inorganic Technology

Competences acquired

Students receive information about effect of different methods of pigment preparation, possibilities of increase of reactivity of raw materials and mechanisms used for their synthesis. The students can characterize physical-chemical, application and technology properties of inorganic pigments and discuss their influence on quality of pigments.

Fields of study

Guarantors and lecturers

- **Guarantors:** prof. Ing. Petra Šulcová, Ph.D. (100%)
- **Lecturer:** Ing. Natalia Reinders, Ph.D. (100%)

Literature

- **Basic:** Buxbaum G. *Industrial Inorganic Pigments*. Wiley-VCH, Weinheim, 1993.
- **Basic:** Trojan M., Šolc Z., Novotny M. *Pigments, Kirk-Othmer Encyclopedia of Chem. Technol., Vol. 19*. J. Wile and Sons Inc., New York, 1996.
- **Recommended:** Völz H.G. *Industrial Color testing*. VCH, Weinheim, 1995.
- **Recommended:** Oyarzin J. M. *Pigment processing*. Vincentz Verlag, Hannover, 2000.
- **Recommended:** *Ullmanns Encyclopedia of Industrial Chemistry*. VCH, Weinheim, 1992.

Teaching methods

Monologic (reading, lecture, briefing)

Assessment methods

Written examination

Course is included in study programmes: