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EUROPEAN UNIVERSITY FOR CUSTOMISED EDUCATION

STUDY GUIDE

Porous Materials

Organised by

Brandenburg University of Technology Cottbus-Senftenberg

1. IDENTIFYING DATA.	
· Course Name.	Porous Materials
· Coordinating University.	Brandenburg University of Technology Cottbus-Senftenberg, Germany
· Partner Universities Involved.	
· Course Field(s).	Chemistry / Engineering: Energy, Transport/Mobility
· Related Study Programme.	
· ISCED Code.	ISCED Code 7 (Master or equivalent level)
· SDG.	SDG 7 - Affordable and clean energy
· Study Level.	Master
· EUNICE Key Competencies	[Indicate the Key Competencies required for the course.] • Green – strongly • Orange - moderately • Red – partially • Blank cell - not at all

Problem solving	not at all
Teamworking	not at all
Communication	not at all
Self-management	strongly
Cognitive flexibility	strongly
Digital competence	moderately
Technical competence	moderately

	Global intercultural competence	not at all

· Number of ECTS credits allocated.	6
· Mode of Delivery.	Online self-study
· Language of Instruction.	English
· Course Dates.	13 April - 26 July, 2026
· Precise Schedule of the Lectures.	Self organised studies / 165 Hours Online live-Seminar on demand / 1 Hours per Week per Semester
· Key Words.	chemistry porous materials
· Catchy Phrase.	The course deals with the synthesis, characterization and application of highly porous materials.

· Prerequisites and co-requisites.	- comprehensive knowledge in chemistry and physics - Master (M) / Doctorate (D)
· Number of EUNICE students that can attend the Course.	20 (2 per partner university)
· Course inscription procedure(s).	EUNICE platform

2. CONTACT DETAILS.

· Department.	Chair Technical Chemistry
· Name of Lecturer.	Prof. Dr. habil. Olaf Klepel
· E-mail.	olaf.klepel@b-tu.de
· Other Lecturers.	

3. COURSE CONTENT.

- nature of porosity
- textural characterization of porous materials by adsorption methods
- material classes: zeolites, activated carbons, silica gel, porous glass, metal organic frameworks, porous polymers, ordered mesoporous material, membranes

4. LEARNING OUTCOMES.

The students acquire comprehensive knowledge on important classes of porous materials, their preparation and characterization. By studying original scientific literature on their own, students are able to analyse scientific texts and reflect on their content in the context of the lecture material.

5. OBJECTIVES.

Graduates are qualified to work on scientific tasks in the field of porous materials.

6. COURSE ORGANISATION.

UNITS

1.	Characterisation of porous materials
2.	Important classes of porous materials: Silicatic materials, porous carbons, metal organic frameworks, porous glasses, porous polymers)
3.	
4.	

LEARNING RESOURCES AND TOOLS.

videos

PLANNED LEARNING ACTIVITIES AND TEACHING METHODS.

self-study videos, online-seminars on demand

7. ASSESSMENT METHODS, CRITERIA AND PERIOD.

Final module examination: Written exam, 120 min

OBSERVATIONS.

8. BIBLIOGRAPHY AND TEACHING MATERIALS.

Handbook of porous Solids, Editor(s): F. Schüth, K.S.W. Sing, J. Weitkamp, WILEY-VCH, (2002), ISBN:9783527302468, DOI:10.1002/9783527618286