Materials Chemistry for Environmental Applications
7.5 Higher Education Credits
7.5 ECTS

Forms of examination

a. The course is examined as follows:
Part 1 - Written exam (4 ECTS)
Part 2 – Lab/ project work and reports (2.5 ECTS)
Part 3 – Seminar presentation and report (1ECTS)

Course	Date	Type	Time	Teacher	Contents
L1	17/2	Lecture	9:15- 12:00 Room C516	AM	Introduction Pollution remediation and related circularity concepts (process efficiency, recyclability, recovery of valuable chemicals, end-of-use)
	18/2 Tue	**Class work**	9:00-12:00 Room C516	**NF (lead) /VS**	**Introduction to seminar topics**
L2	21/2	Lecture	9:15- 12:00 Room C516	AM	Introduction to membrane based processes, associated materials and characterisation Processes for water purification, air treatment and gas separation, energy efficiency and cost.
L3	22/2 Mon	Lecture	9:15- 12:00 Room C516	NH	Introduction to adsorption-driven processes, associated materials and characterisation Processes for water purification, air treatment and gas separation, energy efficiency and cost.
Lb1	23/2 Wed	Lab	9:15- 12:00 Room C516	VT	**BET analysis, Pore size analysis** **(Group 1, 2 morning session)**
Lb 2	24/2 Thu)	Lab	9:15- 12:00 Room C516	NF	**Permeability measurement** **(Group 1,2 morning session)**
L4	25/2 Fri	Lecture	9:15- 12:00 Room C516	AM	Porous materials used in water treatment processes
L5	28/2 Mon	Lecture	9:15- 12:00 Room C516	AM	Biobased materials and hybrids for water treatment
	28/2	**Class work**	13- 16:00 Lab(K207, C435)	**NF /VS/ HH**	**Introduction to project work**
L6	1/3 Tue)	Lecture	9:15- 12:00 Room C516	NH	Photocatalytic processes and materials for water purification
L7	2/3 (Wed)	Lecture	9:15- 12:00 Room C516	NH	Nanoporous materials (adsorbents) for air treatment and gas separation
L8	3/3 (Thur)	Lecture	9:15- 12:00 Room C516	AM	Membrane materials for air treatment and gas separation
L9	4/3 (Fri)	Lecture	9:15- 12:00 Room C516	NH	CO2 capture and storage (CCS), CO2 as a base chemical, CO2 capture and utilization (CCU)
L11	7/3	Seminar	9:15- 12:00 Room C516	AM/NH (lead)	(Group 1, 2)

		2 weeks Project work, Report writing (28/2-14/3)			
Lb 3	11/3	**Class Work**	**9:15- 12:00 Room C516**	**AM/NH/ HH**	**LCA Implementation**
	14/3	Project Presentation	9:15- 12:00 Room C516	AM/NH	(Group 1, 2)
		18/3 9:00-13:00 Examination			

AM- Aji Mathew, NH -Niklas Hedin, NF- Natalia Fijol, VS- Vahid Saadattalab , HH- Hanna Holmquist