UNIVERSITÀ DI PAVIA

Anno Accademico 2020/2021

MATERIALS' CHARACTERIZATION TECNIQUES

Enrollment year	2020/2021
Academic year	2020/2021
Regulations	DM270
Academic discipline	CHIM/02 (PHYSICAL CHEMISTRY)
Department	DEPARTMENT OF CHEMESTRY
Course	CHEMISTRY
Curriculum	PERCORSO COMUNE
Year of study	1°
Period	2nd semester (01/03/2021 - 18/06/2021)
ECTS	6
Lesson hours	48 lesson hours
Language	Italian
Activity type	ORAL TEST
Teacher	BINI MARCELLA (titolare) - 3 ECTS MILANESE CHIARA - 3 ECTS
Prerequisites	To better understand the lesson topics, physics, inorganic and physical chemistry basic notions are required
Learning outcomes	At the end of the course the students must know the main microscopic, spectroscopic and thermal techniques and their application fields
Course contents	Module 1 - Adsorption phenomenon, main isotherms and their classification; thermal techniques (thermogravimetry TGA, differential thermal analysis DTA, differential scanning calorimetry DSC, DMA and TMA with application in food industry); scanning electron microscopy (SEM and forensic analysis application); electronic microanalysis (EDS and WDX) Module 2 - High pressure thermal techniques (HP TGA and HP DSC) and manometric methods for the gas-solid interactions studies; trasmission electron microscopy; traditional Fourier transform infrared

	spectroscopy and attenuated total reflection IR; Probe Microscopic techniques (STM, AFM). Use of the techniques for energetic, pharmaceutic and nutraceutic applications.
Teaching methods	The couse is based on frontal lessons. No tutoring is present and any minimum of frequency is required.
Reccomended or required readings	The material fro the exam preparation is provided by the teachers
Assessment methods	The assessment of skills will be based on an oral examination to verify the ability to differentiate the techniques explained during the lessons
Further information	The assessment of skills will be based on an oral examination to verify the ability to differentiate the techniques explained during the lessons
Sustainable development goals - Agenda 2030	$lbl_legenda_sviluppo_sostenibile