

Erasmus Mundus Joint Master GREENANO

SYLLABUS

Semester 2

COURSE NAME:	Chemical Sensors		
HOSTING UNIVERSITY:	Tor Vergata University of Rome		
SEMESTER:	NUMBER OF ECTS:		PILLAR:
II	6		3-4
DISTRIBUTION OF HOURS			
Lectures	Seminars	Lab work	Individual student work
40	6	20	84
PROFESSOR:	Roberto Paolesse		
LEARNING AND TEACHING METHODS:	frontal		
PREREQUISITES:	Basic knowledge of Chemistry		
OBJECTIVES OF THE COURSE:	Give students a knowledge of the fundamental of chemical sensors		
CONTENT OF THE COURSE:	Definition of Chemical Sensor. Properties of a chemical sensor. Transducers: description of the different transduction mechanisms. Sensing layers: description of the different classes of materials used as receptors. Thin film depositions: spray e spin coating; Langmuir-Blodgett and Langmuir-Schaefer Techniques; self-assembling monolayers. Characterization of thin films. Sensors for gas phase analysis. Development of sensor devices: sensor arrays. Electronic nose concept. Sensors for liquid phase analysis. Electronic tongue concept. Example of applications in the real field.		
INTENDED LEARNING OUTCOMES:	Students should know the kind and working mechanism of chemical sensors		
FORM OF ASSESSMENT:	Oral exam		