

Erasmus Mundus Joint Master GREENANO

SYLLABUS

Semester 1

COURSE NAME:	Sustainable Materials by Design		
HOSTING UNIVERSITY:	University of Lorraine, Mines Nancy		
SEMESTER:	NUMBER OF ECTS:		PILLAR:
1	6		3
DISTRIBUTION OF HOURS			
Lectures	Seminars	Lab work	Individual student work
20	20	0	30
PROFESSOR:	Alexandre Nominé and external speakers		
LEARNING AND TEACHING METHODS:	Project in autonomy (learning by challenge) Seminars		
PREREQUISITES:	General knowledge in Materials science		
OBJECTIVES OF THE COURSE:	The student will be able to calculate the materials required for different technical solution of the green and digital transition. They will be able to assess the different impacts of the extraction or recycling of these raw materials		
CONTENT OF THE COURSE:	Students will be assigned a challenge, for instance : – Low Energy lighting – Solar Energy – Data in the cloud or at home ? – Autonomous car The students are expected to identify some production objectives based on policy papers, newspaper etc.... In second time they must quantify the amount of materials needed. In a third time they must assess the different impacts (Environmental, Social, Governance, Geopolitics, Economics etc...) For this later part, they will benefit from exchange with different professionals (from Industry and Academia)		
INTENDED LEARNING OUTCOMES:	Ability to scale up an innovation Multidisciplinary vision over the whole value chain of materials sustainability		
FORM OF ASSESSMENT:	Project defense		