Syllabus
2023 - 2024

TECHNICAL SHEET OF THE SUBJECT

Data of the subject	
Subject name	Sustainable Development Agenda and Circular Economy
Subject code	DIM-MESEM-557
Involved programs	Máster Universitario en Ingeniería Industrial + Máster en Medioambien. y Gest. Intel. de la Energía [First year] Máster Universitario en Ingeniería Industrial + Máster en Medioambiente y Transición Energética [First year]
Quarter	Semestral
Credits	2,0 ECTS
Type	Obligatoria
Department	Department of Mechanical Engineering
Coordinator	José Carlos Romero and Jaime Tatay
Schedule	Thursday15:00-17:00
Office hours	By appointment (email)

Teacher Information	
Teacher	
Name	Jaime Tatay Nieto
Department	Departamento de Teología Moral y Praxis de la vida Cristiana
Office	ICAI-421
EMail	jtatay@comillas.edu
Teacher	
Name	José Carlos Romero Mora
Department	Department of Industrial Organization
Office	Santa Cruz de Marcenado 26
EMail	Jose.Romero@iit.comillas.edu

SPECIFIC DATA OF THE SUBJECT

Contextualization of the subject

Prerequisites

There are no formal prerequisites.

Competencies - Objectives

Competences

Competences - Objectives		
Instrumental		
CGI1	***Capacity for analysis and synthesis***	
	RA1	Describes, relates and interprets cor situations and approaches
	RA2	Selects the most significant elements their relationships in complex texts
CGI2	***Organizational and planning skills***	
	RA2	Integrates and participates in the orga development of a group work.
	RA3	Plan a complex project
CGI7	***Ability to search for and manage information***	
	RA1	Is able to search for and analyze inform from diverse sources.
	RA2	Various document search strategies available
	RA3	Properly cite these sources
	RA4	Incorporates the information into its discourse
	RA5	Manages databases relevant to the ar study.
	RA6	Contrast sources, criticize them and own assessments
CGI8	***Troubleshooting***	
	RA1	Adequately identifies and defines problem and its possible causes.
	RA2	Proposes possible relevant solutions designs a plan of action for implementation
Interpersonales		
CGP11	***Critical and self-critical capacity***	
	RA3	Detects and identifies inconsistencies, shortcomings and problems in a situation
CGP12	***Teamwork***	
	RA1	Actively participates in group wor sharing information, knowledge

		experiences.
CGP16	***Working in an international context***	
	RA1	Proficient in the vehicular language(s)
	RA2	Values multiculturalism and diversity
	RA3	Detects problems arising from cu differences
	RA4	Knows the specific needs of the job international context.
Sistémicas		
CGS19	***Ability to apply knowledge to practice***	
	RA1	Determines the scope and pra usefulness of theoretical notions
CGS23	***Understanding the cultures and customs of other countries.***	

THEMATIC BLOCKS AND CONTENTS

Contents - Thematic Blocks

Contents - Thematic Blocks

Block 1: Introduction to the challenge of sustainability

- Definition of environment and sustainability.
- Key terms: anthropocene, planetary boundaries, sustainable development, resilience.
- Components that integrate the environmental system, both natural (biotic and abiotic) and anthropic. Analysis of socio-environmental interrelationships.
- Sustainability indicators: weak and strong.
- Actors in the sustainability scenario.
- Introduction to environmental legislation

Block 2: Tools for sustainability

- ISO 14001 Environmental Management Systems
- Environmental Impact Study.
- Integrated Environmental Authorization
- Life Cycle Analysis

Block 3: Circular Economy

- Introduction to the Circular Economy as a new paradigm.
- Presentation of case examples

TEACHING METHODOLOGY

General methodological aspects of the subject

General methodological aspects of the course

The teaching methodology combines lectures with group presentations by students, reading and analysis of texts selected by the profes

Training activities	Skills	Percentage of attendance
Lectures (AF1): Scheduled exposition of the class syllabus.	-CGI3 Basic knowledge of the area of study. -CGPI1 Capacity for analysis and synthesis. 1. Comments on readings and videos of different environmental problems. Causes, consequences, perspectives and actions. -CGS24 Ability to work and learn independently -CGS25 Concern for quality	100%
Practical Exercises/Problem Solving (AF2)	-CE17 Knowledge and critical analysis of the environment and sustainability. -CE14 Ability to use analytical and analytical and interpretative skills in international issues and phenomena - CGP16 Working in an international international context	25%
Personal study and documentation (AF5)	**-CGS24 Ability to work and learn autonomously**	0%
Individual/Group Exhibitions (AF4)	-CGI1 Capacity for analysis and synthesis -CGI2 Capacity for organization and planning -CGI3 Basic knowledge of the area of study -CE15 Knowledge and ability to analyze relevant issues and events of the current international agenda. -CGP11 Capacity for criticism and self-criticism	40%

Individual/group work (AF3)	-CGS23 Understanding of cultures and customs of other countries. -CGS24 Ability to work and learn autonomously. -CGS25 Concern for quality.	20%

EVALUATION AND CRITERIA

Evaluation activities	Valuation criteria	Weight
SE1 Exam: Final written test in which questions of knowledge and understanding of the whole must be answered.	- Knowledge mastery. - Ability to relate knowledge for an overall understanding. - Clarity and conciseness of the exposition.	60 %
SE2 Evaluation of works: Various works that will be proposed throughout the course.	-Punctuality in delivery and following the guidelines established by the teacher. -Originality -Analytical skills	30%
SE5 Active student participation:	-Class participation - Attendance -Class behavior	10%

BIBLIOGRAPHY AND RESOURCES

Basic Bibliography

DOBSON, A. (2016) Environmental Politics. A Very Short Introduction, Oxford University Press.

FRANCISCO (2015) *Laudato si'*, www.vatican.vat

GARCÍA GÓMEZ-HERAS, J. M. (2010), *En armonía con la naturaleza. Reconstrucción medioambiental de la filosofía*. Madrid. Biblioteca Nueva.

JONAS, H. (1995) *El principio de responsabilidad*, Madrid: Herder.

RADKAU, J. (2014). *The Age of Ecology. A Global History*. Polity.

ROLSTON, H. (1988) *Environmental Ethics. Duties and Values in the Natural World*. Philadelphia. Temple University Press.

SPETH, J. (2008) *The Bridge at the Edge of the World*. New Haven. Yale University Press.

BEYERLIN, U. – MARAUHN, T. (2011) *International Environmental Law*. Hart Publishing.

Daly, H. (1977). "Steady state economy". *San Francisco*.

MEADOWS, D. H., et al. "The limits to growth: a report to the club of Rome (1972)".

SCHUMACHER, E. F. "Small is beautiful: A study of economics as if people mattered", Random House, 2011.

IEA (2017), "World Energy Outlook 2018", OECD Publishing, Paris/International Energy Agency, Paris

BELL, S.; MORSE, S. "Measuring the immeasurable". *The Theory and Use of Sustainability Indicators in Development, Earthscan, London*, 1999.

SMIL, V. "Energy at the crossroads: global perspectives and uncertainties", MIT press, 2005.

Journal articles

HARDIN, G. (1968) "The Tragedy of the Commons", *Science*.

ROCKSTROM, J., et al. (2009) "Planetary Boundaries: Exploring the Safe Operating Space for Humanity", *Ecology and Society* 14(2): 32.

STEFFEN, W. et al. (2015) "The Trajectory of the Anthropocene: The Great Acceleration", *The Anthropocene Review*.

STONE, C., (1975) "Should Trees Have Moral Standing? Toward Legal Rights for Natural Objects", *California Law Review*.

ROLSTON, H., (1975) "Is There an Ecological Ethic?", *Ethics: An International Journal of Social, Political, and Legal Philosophy,* 93-109.

MARTINEZ-ALIER, J., (2016) "Is There a Global Environmental Movement?", *The Journal of Peasant Studies*. DOI: 10.1080/03066150.2016.1141198

PEZZEY, J. "Sustainability: an interdisciplinary guide", *Environmental values*, 1992, p. 321-362.

BÖHRINGER, C.; JOCHEM, P. "Measuring the immeasurable—A survey of sustainability indices". *Ecological economics*, 2007, vol. 63, no 1, p. 1-8.