

COURSE OUTLINE

(1) GENERAL

SCHOOL	Social Sciences		
ACADEMIC UNIT	Department of Cultural Technology and Communication		
LEVEL OF STUDIES	Postgraduate Studies		
COURSE CODE	UA-EC6	SEMESTER	2
COURSE TITLE	Data-driven Circular Economy for Social Economy		
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, state the weekly teaching hours and the total credits</i>	WEEKLY TEACHING HOURS	CREDITS	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail in section (4).</i>	3	6	
COURSE TYPE <i>general background, special background, specialization, general education, skills development</i>	specialised (technical)	general knowledge	skills development
PREREQUISITE COURSES	No		
LANGUAGE OF INSTRUCTION AND OF ASSESSMENT	English		
MODE OF TEACHING <i>in-person (%) synchronous distance learning (%) asynchronous distance learning (%) (In the case of synchronous distance learning, the total weekly duration of teaching is recorded)</i>	The course is delivered exclusively through synchronous distance learning. Each weekly lecture lasts 180 minutes.		
AVAILABILITY TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)	TBA		

(2) LEARNING OUTCOMES

<p>Learning Outcomes</p> <p><i>The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> • <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> • <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> • <i>Brief Guide for drafting Learning Outcomes</i>
<p>After the successful completion of the course, the student will be able to:</p> <p>In terms of knowledge:</p> <ul style="list-style-type: none"> • Critically evaluate how data-driven approaches enable circular strategies in the social economy, including resource optimisation, community reuse, and impact generation. • Analyse how data flows, digital infrastructures, and platform-based ecosystems support traceability, transparency, and decision-making across circular social-economy value chains. • Demonstrate advanced understanding of ethical, legal, and governance issues surrounding data use in social circular systems, including fairness, digital inclusion, privacy, and community trust.

- Explain the principles, methodologies, and indicator systems used to measure social impact, social circularity, and community value creation (e.g., Social LCA, multidimensional indicators).

In terms of skills:

- Design data-driven circular solutions for cooperatives, social enterprises, and community organisations, integrating environmental, social, and economic dimensions.
- Apply analytical tools to map material, social, and environmental data flows and propose optimisation strategies for social circular initiatives (e.g., sharing platforms, reuse systems).
- Integrate multiple datasets (material, lifecycle, social, behavioural) to assess circular performance, social outcomes, and resource-efficiency opportunities.
- Assess the social impact of circular initiatives using appropriate assessment methods, metrics, and reporting frameworks.
- Analyse organisational, regulatory, and cultural barriers to data-driven circularity and propose evidence-based strategies to overcome them.

In terms of responsibility and autonomy:

- Lead strategic initiatives that embed data-driven circularity in social-economy organisations, coordinating diverse stakeholders under conditions of uncertainty.
- Take responsibility for implementing ethical, inclusive, and community-centred data practices that protect vulnerable groups and support equitable circular transitions.
- Manage cross-sector projects combining digital tools, circular-economy principles, and social-innovation approaches to generate measurable community value.
- Exercise critical judgement when balancing environmental, social, technological, and governance considerations in designing circular models for social-economy actors.
- Synthesise course concepts to propose innovative, future-oriented pathways for data-enabled social circularity that enhance inclusion, resilience, and social value creation.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and are stated below), at which of the following does the course aim?

Search, analysis and synthesis of data and information, with the use of the necessary technology

Adaptability to new situations

Decision-making

Working independently

Team work

Working in an international environment

Working in an interdisciplinary environment

Production of new research ideas

Project planning and management

Respect for difference and multiculturalism

Respect for the natural environment

Showing social, professional and ethical responsibility and sensitivity to gender issues

Criticism and self-criticism

Production of free, creative and inductive thinking

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Other...

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The current course will enable students to acquire the following competences:

- Search for, analysis and synthesis of data and information, with the use of the necessary technology, as UA-EC6 is fundamentally about using data analytics, digital platforms, and data flows to enable circular and social-impact models.
- Ethical, responsible, and sustainable decision-making in business contexts, as many of the lectures emphasise data ethics, inclusion, fairness, social justice, and responsible circular practices.
- Working in an interdisciplinary environment, as UA-EC6 combines data science, social economy, circular economy, governance, ethics, and community development, requiring strong interdisciplinary capability.
- Production of new research ideas, as students are asked to design analytical frameworks, social circularity indicators, data models, and innovative community-based circular solutions.
- Strategic and innovative thinking for managerial problem-solving, as the course requires students to design data-driven circular strategies, evaluate policies, create new business and governance models, and propose solutions for social enterprises and cooperatives.

(3) COURSE SYLLABUS

UA-EC6: Data-driven Circular Economy for Social Economy focuses on how data analytics and digital technologies can drive circular economy initiatives in the social economy sector. Students will learn how to leverage data-driven insights to optimize resource use, enhance sustainability, and promote social impact through circular models in cooperatives, social enterprises, and community-based organisations.

1. **Introduction to the Data-Driven Circular Economy for Social Impact (Instructor: UNL):** CE principles, how data enables circular strategies, data sources.
2. **Data Flows in the Circular Economy: Mapping, Integration, and Use Cases (Instructor: UM):** This lecture explains how material, environmental, and social data are generated, exchanged, and integrated across circular value chains. It highlights how data flows support traceability, system optimisation, and informed decision-making in circular systems. Practical examples illustrate how interconnected datasets enable transparency and improve circular performance.
3. **Data-Driven Impact in Sharing Platforms: Libraries of Things and Community Reuse (Instructor: SmartUse):** This session uses data from real case studies of sharing solutions—such as libraries of things, e-bike lending, clothing and baby libraries, and tools marketplaces—to explore how data from digital platforms can drive circular initiatives in the social economy. Students work with datasets and initiative profiles to see how social enterprises and public–community partnerships can use data to optimise resource use, demonstrate social and environmental impact, and inform key stakeholders, including cities, public bodies and funders.
4. **Data-driven circular economy initiatives in social economy (Instructor: IETU):** The lecture will explore how data and digital technologies allow to implement and optimize circular economy practices, enabling more efficient resource management and greater social impact. Key data-driven initiatives and practices in the social economy will be presented and discussed including optimisation of waste management and resource recovery, enhancing supply chain transparency and traceability, fostering life extension of products and sharing and empowering communities and consumers to implement circular economy practices
5. **Promoting circularity in cooperatives, social enterprises and community-based organizations (Instructor: UNL):** This session presents practical strategies for integrating circular economy principles into cooperatives, social enterprises, and community-based organizations.
6. **Data Ethics and Governance in the Social Circular Economy (Instructor: DBL):** This lecture explores how data is collected, shared, and governed within socially oriented circular economy initiatives, with a focus on fairness, transparency, and community trust. It examines ethical challenges related to data ownership, surveillance, digital inclusion, and the protection of vulnerable groups, especially when digital tools are used to support circular services or public participation. Practical examples illustrate how governance frameworks, consent models, and responsible data practices can ensure that digital circular solutions remain socially just and equitable. The session highlights strategies for balancing innovation with ethical safeguards to strengthen trust, accountability, and social value creation.
7. **Social Impact Assessment and Reporting in Data-Driven Circular Models (Instructor: IETU):** Students will learn about systematic identification, evaluation, and communication of the social effects of circular activities, using data analytics to enhance accuracy and transparency. The lecture will present and discuss the following aspects: process for Social Impact Assessment and the respective methods (e.g Social Life Cycle Assessment), role of data and technology, key social indicators for reporting frameworks, best practices and challenges. Practical exercise will be carried out for selected examples.
8. **Challenges and Barriers in Data-Driven Social Circularity (Instructor: UMA):** This session explores how current data protection regulations influence the implementation of smart, data-intensive circular solutions in urban environments. It highlights both foundational concepts and emerging challenges, emphasizing how privacy rules affect data flows critical to circular processes.

9. **Policy and Data Infrastructures Supporting Social Circular Economies (Instructor: IETU):** In the lecture critical enablers for developing social circular economies will be explored with the focus on merging the environmental goals of a circular economy with social objectives like job creation, community well-being, and social inclusion. Students will learn about policy infrastructures (economic instruments, regulatory framework, public procurement and strategic planning, schemes supporting social enterprises) supported with data infrastructures. Real life examples and best practices will be discussed and evaluated.
10. **The Social Dimension of Circularity: From Inclusion to Community Empowerment (Instructor: DBL):** This lecture examines how circular and sustainable initiatives can be designed with community inclusion and social impact at their core. Drawing on practical case studies, it highlights how technological innovation can be integrated with social acceptability, and how citizen science and participatory approaches can inform climate and energy decisions. The session also discusses how social economy models and digital tools can be used to measure and enhance impact, emphasizing strategies to empower communities, foster inclusion, and co-create solutions that maximize social benefits while overcoming barriers and opposition.
11. **Indicators for Social Circularity: Measuring What Matters (Instructor: ASF):** This lecture addresses a critical gap in circular economy frameworks: the underrepresentation of the social pillar alongside environmental and economic dimensions. Students will explore why strengthening the social dimension of circularity is essential for community understanding, acceptance, and engagement with regulators and policymakers in implementing circular transitions. The session examines how to develop and adapt metrics from multiple disciplines (social science, psychology, human resources, management, and others) to create robust, multidisciplinary indicators that capture social circularity outcomes. Through this integrated approach, students will learn how to design measurement frameworks that ensure circular economy initiatives create genuine social value while building the stakeholder consensus needed for effective policy implementation.
12. **Cultural implications in circular economy – organizational perspective (Instructor: CEF):** This lecture explores how organizational culture shapes, and is reshaped by, the transition to circular practices. It examines mindsets, norms, and behavioural patterns that enable circular thinking, along with cultural barriers that prevent systemic change.
13. **Future Outlook: Data, Inclusion, and the Next Generation of Social Circular Economy (Instructor: CEF):** This lecture provides a forward-looking perspective on how data-driven tools, inclusive design, and community-centered innovation will shape the evolution of the social circular economy. It discusses emerging trends such as digital inclusion, participatory data ecosystems, and socially responsive circular services. The session highlights opportunities for building equitable, tech-enabled circular systems that empower citizens and expand social value creation.

(4) TEACHING AND LEARNING METHODS - ASSESSMENT

MODE OF TEACHING <i>Face-to-face, distance learning, etc.</i>	Distance Learning
MODE AND FREQUENCY OF COMMUNICATION WITH THE STUDENTS	Synchronous distance communication on a weekly basis, asynchronous on a daily basis through LMS platform
ENSURING THE MODE OF COMMUNICATION AMONG STUDENTS <i>Team assignments and discussions, collaborative learning platforms with the use of AI, video conference, QA sessions, κ.α.</i>	Weekly assignments, discussions through dedicated discussion forum, dedicated space per module on the learning platform, schedule video conference meetings through MS Teams, dedicated QA sessions per module
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, in laboratory training, in the communication with students</i>	Use of ICT in Teaching, Communication with students Online Platforms will be used for teaching, tutorials, students' guidance, students' self-assessment and support on group projects

TECHNOLOGICAL EQUIPMENT REQUIREMENTS	PC /laptop for video conference meeting	
PLAGIARISM POLICY/ PLAGIARISM DETECTION TOOLS	Gradescope, Turnitin	
ARTIFICIAL INTELLIGENCE POLICY (1) <i>The use of Artificial Intelligence is prohibited in all circumstances</i> (2) <i>The use of Artificial Intelligence is allowed only with the permission of the instructor</i> (3) <i>The use of Artificial Intelligence is allowed only with an explicit reference to the literature</i> (4) <i>Students are free to use Artificial Intelligence</i>	The use of Artificial Intelligence is allowed only with an explicit reference to the literature. Additionally, students are free to use AI provided by the master programmes for contacting stimulations, practicing purposes, etc.	
ORGANISATION OF TEACHING <i>The mode and methods of teaching are described in detail.</i> <i>Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, work placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artworks, etc.</i> <i>The student's study hours for each learning activity are stated, as well as the hours of independent study, according to the principles of the ECTS.</i>	Activity	Semester workload
	Lectures	39
	Participation in forum discussions	16,5
	Study, analysis of bibliography and supplementary consolidation activities	73,5
	Self-Assessment Evaluations	21
	Course total	150
STUDENT ASSESSMENT <i>Description of the assessment method</i> <i>Language of assessment, methods of assessment, formative or summative assessment, multiple choice questions test, short answer questions, essay questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory assignment, clinical examination of patient, art interpretation, other</i> <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	Students will be evaluated following multiple-choice, short-answer, and open-ended questions. The assessment formula is the following: Self-Assessment Evaluations: 50% Final Assessment: 50%	

(5) RECOMMENDED BIBLIOGRAPHY

<p>[1] L. Cotino Hueso, <i>Explotación y Regulación del Uso del Big Data e Inteligencia Artificial para los Servicios Públicos y la Ciudad Inteligente</i>. Valencia, Spain: Tirant lo Blanch, 2022.</p> <p>[2] Ortega Ruiz, <i>Manual de Privacidad, Protección de Datos y Ciberseguridad</i>, 2025.</p> <p>[3] Kemp, "Unlocking the secrets of GDPR effectiveness," <i>The Lawyer</i>, vol. 31, no. 42, 2016.</p> <p>[4] V. Pál, Ed., <i>Social and Cultural Aspects of the Circular Economy: Toward Solidarity and Inclusivity</i>. Abingdon, Oxon, U.K.: Routledge, Taylor & Francis Group, 2022. doi: 10.4324/9781003255246.</p> <p>[5] J. Kujala, A. Heikkinen, and A. Blomberg, Eds., <i>Stakeholder Engagement in a Sustainable Circular Economy: Theoretical and Practical Perspectives</i>. Cham, Switzerland: Palgrave Macmillan, 2023. doi: 10.1007/978-3-031-31937-2.</p> <p>[6] K. Nowicka, Ed., <i>Circular Economy Solutions for Sustainable Development: Perspective from Europe</i>. Abingdon, Oxon, U.K.: Routledge, 2026. doi: 10.4324/9781003538127.</p> <p>[7] F. Vanclay, "After 50 years of social impact assessment, is it still fit for purpose?," <i>Current Sociology</i>, vol. 72, no. 4, pp. 774–788, 2023, doi: 10.1177/00113921231203189. (Orig. work publ. 2024.)</p> <p>[8] F. Vanclay, <i>Social Impact Assessment: Guidance for Assessing and Managing the Social Impacts of Projects</i>. International Association for Impact Assessment, 2015.</p> <p>[9] UNEP/SETAC, <i>Guidelines for Social Life Cycle Assessment of Products</i>. United Nations Environment Programme, 2009.</p>
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- [16] A. Abina et al., "Decision support concept for improvement of sustainability-related competences," Sustainability, vol. 14, no. 14, pp. 8539–1–8539–21, 2022.
- [17] A. Vayona, H. Hartwell, R. Britton, and P. Gillingham, "Human-in-the-circular-loop (HITCL): A human-centric approach in circular economy ecosystems research," in Proc. 2024 20th Int. Conf. Distributed Computing in Smart Systems and the Internet of Things (DCOSS-IoT), pp. 653–660, 2024.