

## Subject card

|                                             |                                                                                                                                                                                                                                                    |                                                          |                                         |                                     |                                                                          |            |     |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------|-------------------------------------|--------------------------------------------------------------------------|------------|-----|
| Subject name and code                       | Circular Economy, PG_00202516                                                                                                                                                                                                                      |                                                          |                                         |                                     |                                                                          |            |     |
| Field of study                              | Economics, International Economic Relations, International Business, Logistics and Mobility                                                                                                                                                        |                                                          |                                         |                                     |                                                                          |            |     |
| Date of commencement of studies             | October 2025                                                                                                                                                                                                                                       |                                                          | Academic year of realisation of subject |                                     | 2026/2027                                                                |            |     |
| Education level                             | Master's studies                                                                                                                                                                                                                                   |                                                          | Subject group                           |                                     | Obligatory subject group in the field of study<br>Optional subject group |            |     |
| Mode of study                               | full-time studies                                                                                                                                                                                                                                  |                                                          | Mode of delivery                        |                                     | at the university                                                        |            |     |
| Year of study                               | 2                                                                                                                                                                                                                                                  |                                                          | Language of instruction                 |                                     | English                                                                  |            |     |
| Semester of study                           | 3                                                                                                                                                                                                                                                  |                                                          | ECTS credits                            |                                     | 5.0                                                                      |            |     |
| Learning profile                            | academic                                                                                                                                                                                                                                           |                                                          | Assessment form                         |                                     | credit                                                                   |            |     |
| Conducting unit                             |                                                                                                                                                                                                                                                    |                                                          |                                         |                                     |                                                                          |            |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor                                                                                                                                                                                                                                 |                                                          | dr hab. Marcin Wołek                    |                                     |                                                                          |            |     |
|                                             | Teachers                                                                                                                                                                                                                                           |                                                          | dr hab. Marcin Wołek                    |                                     |                                                                          |            |     |
|                                             |                                                                                                                                                                                                                                                    |                                                          | dr Agnieszka Szmelter-Jarosz            |                                     |                                                                          |            |     |
| Lesson types                                | Lesson type                                                                                                                                                                                                                                        | Lecture                                                  | Tutorial                                | Laboratory                          | Project                                                                  | Seminar    | SUM |
|                                             | Number of study hours                                                                                                                                                                                                                              | 0.0                                                      | 30.0                                    | 0.0                                 | 0.0                                                                      | 0.0        | 30  |
|                                             | E-learning hours included: 0.0                                                                                                                                                                                                                     |                                                          |                                         |                                     |                                                                          |            |     |
| Learning activity and number of study hours | Learning activity                                                                                                                                                                                                                                  | Participation in didactic classes included in study plan |                                         | Participation in consultation hours |                                                                          | Self-study | SUM |
|                                             | Number of study hours                                                                                                                                                                                                                              | 30                                                       |                                         | 0.0                                 |                                                                          | 95.0       | 125 |
| Subject objectives                          | To make participants familiar with the concept, theoretical background, goals and principles of circular economy supported with living examples from the selected sectors (including city level, waste management, urban mobility and automotive). |                                                          |                                         |                                     |                                                                          |            |     |

| Learning outcomes | Course outcome                                                                                                                                                                                                                             | Subject outcome                                                                                                                                                                                                                                                                                                                                                 | Method of verification                                                                  |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
|                   | [LMMU2_K01] recognises the importance of knowledge in the field of logistics and mobility in the process of identifying and solving work-related problems and of consulting experts when having difficulties in solving them independently | The students should be aware of the complexity of the circular economy and the connection with a holistic approach to sustainable development.<br>The students should be able to address opportunities for the circular economy in an optional case.<br>The students should be able to use an expert's opinions on very complex topics in the circular economy. | [SK1] oral statement/conversation/discussion<br>[SK2] presentation/project/paper/report |
|                   | [MSG3_U01] can correctly interpret and explain economic and social phenomena, analyse their causes, course and connections between these phenomena using the acquired knowledge of economics, finance and international economic relations | The student is able to correctly interpret and explain economic and social phenomena occurring within the circular economy, analyze their causes, course, and interrelations, using their knowledge of economics, finance, and international economic relations.                                                                                                | [SU1] oral statement/conversation/discussion<br>[SU2] presentation/project/paper/report |
|                   | [IBMU2_K01] Is ready to recognise the importance of knowledge of international business in the process of identifying and solving business problems and the need to consult experts in cases of complex issues                             | The student is ready to recognize the importance of knowledge of the circular economy in the process of identifying and solving business problems, as well as the need to consult experts in the case of complex issues.                                                                                                                                        | [SK1] oral statement/conversation/discussion<br>[SK2] presentation/project/paper/report |
|                   | [IBMU2_W01] has an in-depth knowledge of the discipline of economics and finance; understands the differences between contemporary trends in the theory of international business                                                          | The student has in-depth knowledge of the circular economy within the discipline of economics and finance; understands the differences between contemporary approaches to theories of sustainable economic and social development                                                                                                                               | [SW1] oral statement/conversation/discussion<br>[SW2] presentation/project/paper/report |
|                   | [MSGMU2_U01] can creatively interpret and explain complex and atypical economic phenomena and the relations occurring between them, using the acquired knowledge in economics, finance and international economic relations                | The student is able to creatively interpret and explain complex and atypical economic phenomena in the area of the circular economy, as well as the relationships between them, using their knowledge of economics, finance, and international economic relations.                                                                                              | [SU1] oral statement/conversation/discussion<br>[SU2] presentation/project/paper/report |
|                   | [MSG3_K01] is ready to recognise the importance of knowledge in the field of economics in the process of identifying and solving economic problems and to consult experts in case of difficulties in solving them independently            | The student is prepared to recognize the importance of knowledge in economics in the process of identifying and solving economic problems in the area of the circular economy, as well as to seek expert opinions when difficulties arise in solving them independently.                                                                                        | [SK1] oral statement/conversation/discussion<br>[SK2] presentation/project/paper/report |
|                   | [IBMU2_U01] can creatively interpret, explain and analyse complex economic phenomena and the relations occurring between them, using the acquired knowledge in international business and international economic and financial relations   | The student is able to creatively interpret, explain, and analyze complex economic phenomena in the sphere of the circular economy and the relationships between them, using the acquired knowledge in the fields of international business as well as international economic and financial relations.                                                          | [SU1] oral statement/conversation/discussion<br>[SU2] presentation/project/paper/report |
|                   | [MSG3_W01] has an advanced knowledge of economic sciences, in particular of economics and its place in the system of sciences, including within related disciplines                                                                        | The student has advanced knowledge in the field of economic sciences in the area of the circular economy and its place within the system of sciences, including related scientific disciplines.                                                                                                                                                                 | [SW1] oral statement/conversation/discussion<br>[SW2] presentation/project/paper/report |
|                   | [EKONL3_K01] recognises the importance of economic knowledge in identifying and solving economic problems and of consulting experts when difficulties in solving them independently                                                        | The student recognizes the importance of knowledge in economics in the process of identifying and solving economic problems in the area of the circular economy, as well as seeking expert opinions when difficulties arise in solving them independently.                                                                                                      | [SK1] oral statement/conversation/discussion<br>[SK2] presentation/project/paper/report |

|  | Course outcome                                                                                                                                                                                                                                                                    | Subject outcome                                                                                                                                                                                                                                                                                                                                                     | Method of verification                                                                  |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
|  | [EKONL3_U01] can correctly interpret economic and social phenomena and apply knowledge of economics, finance and management sciences to explain economic phenomena                                                                                                                | The student is able to correctly interpret phenomena in the circular economy and apply knowledge of economics, finance, and management sciences to explain them.                                                                                                                                                                                                    | [SU1] oral statement/conversation/discussion<br>[SU2] presentation/project/paper/report |
|  | [EKONMU2_W01] has an in-depth knowledge of the nature of social sciences and their place in the system of sciences; understands the differences between contemporary trends in economic thought; knows the claims of contemporary economic theories                               | The student has in-depth knowledge of the social sciences and their place within the system of sciences, understands the differences between contemporary schools of economic thought, and is familiar with the propositions of contemporary economic theories relating to the circular economy.                                                                    | [SW1] oral statement/conversation/discussion<br>[SW2] presentation/project/paper/report |
|  | [EKONL3_W01] has advanced knowledge of the nature of social sciences, their place in the system of sciences, knows the role of economic sciences in this system and uses universal economic terminology                                                                           | The student possesses advanced knowledge in the field of circular economy, taking into account the foundations of economic sciences, in particular economics and its place within the system of sciences, including related scientific disciplines.                                                                                                                 | [SW1] oral statement/conversation/discussion<br>[SW2] presentation/project/paper/report |
|  | [LMMU2_U01] can creatively interpret and explain economic and social phenomena and relations between them, using acquired knowledge of economics, finance, management sciences, logistics and mobility                                                                            | The student is able to creatively interpret and explain socio-economic phenomena in the field of the circular economy and the relationships between them, using acquired knowledge in economics, finance, management sciences, logistics, and mobility.                                                                                                             | [SU1] oral statement/conversation/discussion<br>[SU2] presentation/project/paper/report |
|  | [MSGMU2_W01] has an in-depth and structured knowledge of economic sciences, in particular economics, its place in the system of sciences, its relations with other sciences and fields of knowledge                                                                               | The student has in-depth and well-structured knowledge in the field of economic sciences, particularly economics, its place within the system of sciences, and its relationships with other sciences and fields of knowledge related to the circular economy.                                                                                                       | [SW1] oral statement/conversation/discussion<br>[SW2] presentation/project/paper/report |
|  | [EKONMU2_U01] can creatively interpret and explain economic and social phenomena and relations between them, using acquired knowledge of economics, finance and management sciences                                                                                               | The student is able to creatively interpret and explain economic and social phenomena in the sphere of the circular economy, as well as the relationships between these phenomena, using their knowledge of economics, finance, and management sciences.                                                                                                            | [SU1] oral statement/conversation/discussion<br>[SU2] presentation/project/paper/report |
|  | [IBL3_U01] can interpret and explain economic phenomena, analyse their causes, course and connections within these phenomena using the acquired knowledge of international business, economics and finance and complementary disciplines                                          | The student is able to interpret and explain economic phenomena in the sphere of the circular economy, analyze their causes, course, and interrelationships, using the acquired knowledge of international business, economics, finance, and related fields.                                                                                                        | [SU1] oral statement/conversation/discussion<br>[SU2] presentation/project/paper/report |
|  | [IBL3_K01] is ready to recognise the importance of knowledge in the field of international business in identifying and solving business theoretical and practical issues; is ready to consult with experts in case of facing difficulties in solving business issues individually | The student is prepared to recognize the importance of knowledge in the field of international business in identifying and solving theoretical and practical business problems in the sphere of the circular economy; is prepared to consult experts when encountering difficulties in independently solving business problems in the area of the circular economy. | [SK1] oral statement/conversation/discussion<br>[SK2] presentation/project/paper/report |
|  | [LMMU2_W01] has an in-depth knowledge of the nature of social sciences and their place in the system of sciences; understands the differences between contemporary trends in theory of logistics and mobility                                                                     | The students should be able to refer to basic knowledge of linear and circular economy and explain the difference between them.                                                                                                                                                                                                                                     | [SW1] oral statement/conversation/discussion<br>[SW2] presentation/project/paper/report |

|  | Course outcome                                                                                                                                                                                                                                              | Subject outcome                                                                                                                                                                                                                                                 | Method of verification                                                                  |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
|  | [EKONMU2_K01] recognises the importance of knowledge in the field of economics in the process of identifying and solving economic problems and of consulting experts when having difficulties in solving them independently                                 | The student recognizes the importance of knowledge in economics in the process of identifying and solving economic problems in the sphere of the circular economy, as well as seeking expert opinions when difficulties arise in solving them independently.    | [SK1] oral statement/conversation/discussion<br>[SK2] presentation/project/paper/report |
|  | [IBL3_W01] has knowledge of the discipline of economics and finance, involving critical understanding of theories of international business                                                                                                                 | The student possesses knowledge in the fields of economics and finance, including a critical understanding of international business theories in the sphere of the circular economy.                                                                            | [SW1] oral statement/conversation/discussion<br>[SW2] presentation/project/paper/report |
|  | [MSGMU2_K01] is ready to recognise the importance of knowledge of economics in the process of identifying and solving problems in the area of international economic relations and to consult experts in case of difficulties in solving them independently | The student is prepared to recognize the importance of knowledge in economics in the process of identifying and solving problems in the area of the circular economy, as well as to seek expert opinions when difficulties arise in solving them independently. | [SK1] oral statement/conversation/discussion<br>[SK2] presentation/project/paper/report |

## **1. Introduction to the Circular Economy**

- The concept of sustainable development
- Renewable and non-renewable resources and environmental economics
- United Nations Sustainable Development Goals (SDGs)

## **2. What is the Circular Economy?**

- Why the circular economy? (Inefficiencies of traditional business models)
- Evolution of the circular economy concept
- Limitations of the circular economy

## **3. Circular Economy as an Element of Corporate Social Responsibility (CSR)**

- Economic, social, and environmental potential of the circular economy
- Circular economy as an element of non-financial reporting
- Implementation of the circular economy in a company

## **4. Levels of Circular Economy Implementation (macro, meso, micro)**

- Circular economy at the macroeconomic level [EU Action Plan for the Circular Economy, comparison of country profiles exercise]
- Circular economy at the mesoeconomic level (region and metropolitan area)
- Circular economy at the microeconomic level (enterprise and organization)

## **5. Impact of the Circular Economy on Business Models**

- What is a business model
- Green business models
- Circular economy in business models

## **6. Measuring the Impact of the Circular Economy**

- Circulations (technical circulations, bio-based circulations)
- Carbon footprint
- RESOLVE framework
- Introduction to Life Cycle Assessment (LCA)

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                           |                   |                               |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------------------|
|                                 | <ul style="list-style-type: none"> <li>Environmental impact assessment</li> <li>Setting standard indicators for monitoring and evaluating the circular economy</li> </ul>                                                                                                                                                                                                                                                 |                   |                               |
|                                 | <b>7. Circular Supply Chains</b> <ul style="list-style-type: none"> <li>Introduction to Closed-Loop Supply Chain Management (CLSCM)</li> <li>CLSCM in enterprises and logistics operators</li> <li>Case studies of CLSCM in various sectors (e.g., pharmaceutical, food, FMCG)</li> </ul>                                                                                                                                 |                   |                               |
|                                 | <b>8. Circular Economy and Processes in Organizations</b> <ul style="list-style-type: none"> <li>Introduction to Business Process Management (BPM)</li> <li>Mapping and measuring business processes</li> <li>KPIs for the circular economy in business process management</li> </ul>                                                                                                                                     |                   |                               |
|                                 | <b>9. Governing the Circular Economy in the Urban Context</b> <ul style="list-style-type: none"> <li>Introduction to urban resource management</li> <li>Case studies of the circular economy in water management (e.g., sponge city) and other resource management areas (e.g., green city, resilient city)</li> <li>Circular economy in the strategic context of selected cities</li> </ul>                              |                   |                               |
|                                 | <b>10. Circular Economy in the Transport Sector Using the Circularity Compass</b> <ul style="list-style-type: none"> <li>Circular economy in infrastructure management case studies based on the CE4CE project</li> <li>Circular economy in fleet management case studies based on the CE4CE project</li> <li>Circular economy in energy, fuels, and similar resources case studies based on the CE4CE project</li> </ul> |                   |                               |
|                                 | <b>11. Circular Economy in Practice: Study Visit to the Tram Depot of GAI T Ltd. (Urban Public Transport Operator in Gdańsk) equivalent of 4 lecture hours</b>                                                                                                                                                                                                                                                            |                   |                               |
|                                 | <b>12. Circular Economy in the Automotive Sector</b> <ul style="list-style-type: none"> <li>CLSCM in the automotive industry</li> </ul>                                                                                                                                                                                                                                                                                   |                   |                               |
| Prerequisites and co-requisites |                                                                                                                                                                                                                                                                                                                                                                                                                           |                   |                               |
| Assessment methods and criteria | Subject passing criteria                                                                                                                                                                                                                                                                                                                                                                                                  | Passing threshold | Percentage of the final grade |
|                                 | Attendance rate                                                                                                                                                                                                                                                                                                                                                                                                           | 75.0%             | 25.0%                         |
|                                 | Final presentation                                                                                                                                                                                                                                                                                                                                                                                                        | 65.0%             | 75.0%                         |

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|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Recommended reading                                            | Basic literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>C. Weetman: A Circular Economy Handbook for Business and Supply Chains. Kogan Page 2017</p> <p>H. Lehmann and others: The Impossibilities of the Circular Economy: Separating Aspirations From Reality. Routledge. 2023</p> <p>The Circularity Gap Report 2024. Circle Foundation 2024.</p> <p>World Economic Forum publications on the Circular Economy</p> |
|                                                                | Supplementary literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Other data sets and websites, including <a href="https://www.circularcityfundingguide.eu/">https://www.circularcityfundingguide.eu/</a>                                                                                                                                                                                                                         |
|                                                                | eResources addresses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                 |
| Example issues/<br>example questions/<br>tasks being completed | <p>The phenomenon of greenwashing in the selected industry</p> <p>Circular economy in a chosen country.</p> <p>Environmental Impact Assessment in the circular economy</p> <p>Circular business models</p> <p>Is my city circular? An evaluation of the circularity level of a selected city.</p> <p>Circularity assessment of the selected company.</p> <p>Carbon footprint in the evaluation of circularity.</p> <p>Life Cycle Assessment in the evaluation of circularity.</p> <p>Circularity at a household level.</p> |                                                                                                                                                                                                                                                                                                                                                                 |
| Work placement                                                 | Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                 |

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