

## Subject card

|                                             |                                                                                                                                                                                                                                                    |                                                          |                                                          |                                     |                                                                          |            |     |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------|------------|-----|
| Subject name and code                       | Circular Economy, PG_00178099                                                                                                                                                                                                                      |                                                          |                                                          |                                     |                                                                          |            |     |
| Field of study                              | Economics, International Economic Relations, International Business                                                                                                                                                                                |                                                          |                                                          |                                     |                                                                          |            |     |
| Date of commencement of studies             | October 2023                                                                                                                                                                                                                                       |                                                          | Academic year of realisation of subject                  |                                     | 2025/2026                                                                |            |     |
| Education level                             | Bachelor'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                               | 3                                                                                                                                                                                                                                                  |                                                          | Language of instruction                                  |                                     | English<br>English                                                       |            |     |
| Semester of study                           | 5                                                                                                                                                                                                                                                  |                                                          | ECTS credits                                             |                                     | 5.0                                                                      |            |     |
| Learning profile                            | academic                                                                                                                                                                                                                                           |                                                          | Assessment form                                          |                                     | credit                                                                   |            |     |
| Conducting unit                             |                                                                                                                                                                                                                                                    |                                                          |                                                          |                                     |                                                                          |            |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor                                                                                                                                                                                                                                 |                                                          | dr hab. Marcin Wolek                                     |                                     |                                                                          |            |     |
|                                             | Teachers                                                                                                                                                                                                                                           |                                                          | dr hab. Marcin Wolek<br><br>dr Agnieszka Szmelter-Jarosz |                                     |                                                                          |            |     |
|                                             |                                                                                                                                                                                                                                                    |                                                          |                                                          |                                     |                                                                          |            |     |
| Lesson types                                | Lesson type                                                                                                                                                                                                                                        | Lecture                                                  | Tutorial                                                 | Laboratory                          | Project                                                                  | Seminar    | SUM |
|                                             | Number of study hours                                                                                                                                                                                                                              | 30.0                                                     | 0.0                                                      | 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                                 |                                                                          | 0.0        | 30  |
| 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                                                                  |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
|                   | [MSG3_U03] can identify and analyse relations between economic entities and public institutions in the national and international environment; using the acquired theoretical knowledge can critically evaluate these relations and indicate directions for their further development or changes | The student is able to identify and analyze the relationships between business entities and public institutions that make up the domestic and international environment of the circular economy, and, using their theoretical knowledge, can critically assess these relationships and propose directions for their further development or modification. | [SU1] oral statement/conversation/discussion<br>[SU2] 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 the field of economics in the process of identifying and solving economic problems in the area of the circular economy and seeks expert opinions in case of difficulties in solving them independently.                                                                                            | [SK1] oral statement/conversation/discussion<br>[SK2] presentation/project/paper/report |
|                   | [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 economic and social phenomena occurring in the field of the circular economy and apply knowledge from economics, finance, and management sciences to explain phenomena taking place within the sphere of the circular economy.                                                                                | [SU1] oral statement/conversation/discussion<br>[SU2] presentation/project/paper/report |
|                   | [IBL3_W06] knows and understands the relations and regularities between international business stakeholders i.a. business entities, public institutions, organisations; functioning in the national, international and intercultural realms                                                      | The student knows and understands the relationships and patterns among international business stakeholders in the field of the circular economy, including business entities, public institutions, and organizations operating at the national, international, and intercultural levels.                                                                 | [SW1] oral statement/conversation/discussion<br>[SW2] presentation/project/paper/report |
|                   | [EKONL3_K02] is aware of the level of knowledge in the field of economics and understands the need to deepen and update this knowledge throughout life                                                                                                                                           | The student is aware of their level of knowledge in the economic aspects of the circular economy and understands the need to deepen and update this knowledge throughout their life.                                                                                                                                                                     | [SK1] oral statement/conversation/discussion<br>[SK2] presentation/project/paper/report |
|                   | [MSG3_U02] can assess economic and social phenomena occurring in an open economy, interpret necessary statistical data and economic indicators, as well as forecast economic phenomena and processes, using standard methods and tools applied in economic sciences                              | ChatGPT powiedział:<br>The student is able to assess economic and social phenomena occurring in the open economy, interpret the necessary statistical data and economic indicators in this regard, and forecast economic phenomena and processes using standard methods and tools applied in economic sciences.                                          | [SU1] oral statement/conversation/discussion<br>[SU2] presentation/project/paper/report |
|                   | [EKONL3_W04] knows the types of economic and social ties and the regularities governing them                                                                                                                                                                                                     | The student knows the types of economic and social ties essential for the functioning of the circular economy market and the principles governing them.                                                                                                                                                                                                  | [SW1] oral statement/conversation/discussion<br>[SW2] 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 ready to recognize the importance of knowledge in the field of economics in the process of identifying and solving economic problems in the area of the circular economy and to seek expert opinions in case of difficulties in solving them independently.                                                                               | [SK1] oral statement/conversation/discussion<br>[SK2] presentation/project/paper/report |
|                   | [EKONL3_W03] has advanced knowledge of the relations between economic agents and social organisations operating in the national, international and intercultural arenas                                                                                                                          | The student has advanced knowledge of the relationships between business entities and social organizations that are important for the circular economy and operate in the national, international, and intercultural spheres.                                                                                                                            | [SW1] oral statement/conversation/discussion<br>[SW2] presentation/project/paper/report |

| Course outcome                                                                                                                                                                                                                                                                    | Subject outcome                                                                                                                                                                                                                                                                                                                                     | Method of verification                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| [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 ready to recognize the importance of knowledge in the field of international business in identifying and solving theoretical and practical problems in the area of the circular economy; they are prepared to consult experts when encountering difficulties in independently solving business problems within the circular economy. | [SK1] oral statement/conversation/discussion<br>[SK2] presentation/project/paper/report |
| [IBL3_K02] is ready to critically assess own knowledge in the field of international business, economics and finance and complementary disciplines                                                                                                                                | The student is ready to critically assess their own knowledge of the circular economy in connection with international business, economics, finance, and related fields.                                                                                                                                                                            | [SK1] oral statement/conversation/discussion<br>[SK2] presentation/project/paper/report |
| [IBL3_W08] knows and understands principles of economic decision making by individuals acting within social and business structures                                                                                                                                               | The student knows and understands the principles of making economic decisions by entities operating in the field of the circular economy.                                                                                                                                                                                                           | [SW1] oral statement/conversation/discussion<br>[SW2] 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 |
| [EKONL3_U02] is able to use the knowledge of theory and data to analyse concrete economic and social processes and phenomena and to analyse these phenomena using methods developed in economics, finance and management sciences                                                 | The student is able to use their theoretical knowledge and obtain data to analyze specific economic and social processes and phenomena occurring within the sphere of the circular economy, and to examine these phenomena using methods developed in economics, finance, and management sciences.                                                  | [SU1] oral statement/conversation/discussion<br>[SU2] presentation/project/paper/report |
| [EKONL3_U03] is able to analyse the causes and course of specific economic and social processes and phenomena, and accurately analyse these phenomena using adequate methods and tools economic and social                                                                        | The student is able to analyze the causes and course of specific economic and social processes and phenomena occurring within the sphere of the circular economy and accurately examine these phenomena using appropriate economic and social methods and tools.                                                                                    | [SU1] oral statement/conversation/discussion<br>[SU2] presentation/project/paper/report |
| [MSG3_K02] critically assesses the level of his/her knowledge in the field of economics; is willing to deepen and update this knowledge throughout his/her life                                                                                                                   | The student critically evaluates their level of knowledge in the field of the circular economy and is ready to deepen and update this knowledge throughout their life.                                                                                                                                                                              | [SK1] oral statement/conversation/discussion<br>[SK2] presentation/project/paper/report |
| [MSG3_W03] has an advanced and structured knowledge of the world economy and international economic relations; understands the process of their evolution, including its causes and consequences                                                                                  | The student has advanced and structured knowledge of the role of the circular economy in the global economy and in international economic relations, and understands the process of its evolution, including its causes and consequences for various sectors of the economy.                                                                        | [SW1] oral statement/conversation/discussion<br>[SW2] 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 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 |

|  | Course outcome                                                                                                                                                                                                                           | Subject outcome                                                                                                                                                                                                                                                                              | Method of verification                                                                  |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
|  | [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 occurring in the sphere of the circular economy, analyze their causes, course, and interrelations, using acquired knowledge in the fields of international business, economics, and finance, as well as related disciplines. | [SU1] oral statement/conversation/discussion<br>[SU2] presentation/project/paper/report |
|  | [IBL3_U09] is able to work individually and within teams, also of interdisciplinary character; can plan and organize own tasks and the works of teams                                                                                    | The student is able to work individually and in teams, including interdisciplinary ones; they can plan and organize their own tasks as well as the work of the team in relation to the sphere of the circular economy.                                                                       | [SU1] oral statement/conversation/discussion<br>[SU2] presentation/project/paper/report |

**1. Introduction to the Circular Economy**

- Concept of sustainable development
- Renewable and non-renewable resources and environmental economics
- UN 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 part of non-financial reporting
- Implementing the circular economy in an enterprise

**4. Levels of Implementing the Circular Economy (macro, meso, micro)**

- Circular economy at the macroeconomic level [EU Circular Economy Action Plan, 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**

- Loops (technical loops, biomass-based loops)
- Carbon footprint
- RESOLVE framework
- Introduction to life cycle assessment (LCA)

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|  | <ul style="list-style-type: none"> <li>• Environmental impact assessment</li> <li>• Establishing 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 among 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>• KPI indicators for the circular economy in business process management</li> </ul>                                                                                                                                        |
|  | <b>9. Managing 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 areas of resource management (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 the field of energy, fuels, and similar resources case studies based on the CE4CE project</li> </ul> |
|  | <b>11. Circular Economy in Practice: Study Visit to the GAIT Tram Depot</b> <ul style="list-style-type: none"> <li>• (Municipal public transport operator in Gdańsk) equivalent to 4 lecture hours</li> </ul>                                                                                                                                                                                                                                |
|  | <b>12. Circular Economy in the Automotive Sector</b> <ul style="list-style-type: none"> <li>• CLSCM in the automotive industry</li> <li>• Recycling in the automotive sector case studies based on the CE4CE project</li> <li>• Reverse logistics and CLSCM models in various capital groups in the automotive sector case studies</li> </ul>                                                                                                |

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|                                                                | Questions or doubts regarding the discussed topics can be addressed with the lecturer during consultations.                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                          |                               |
| 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 of the project                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 65.0%                                                                                                                                                                                                                                                                                                                                                    | 75.0%                         |
| Recommended reading                                            | Basic literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | C. Weetman: A Circular Economy Handbook for Business and Supply Chains. Kogan Page 2017<br><br>H. Lehmann and others: The Impossibilities of the Circular Economy: Separating Aspirations From Reality. Routledge. 2023<br><br>The Circularity Gap Report 2024. Circle Foundation 2024.<br><br>World Economic Forum publications on the Circular Economy |                               |
|                                                                | 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 | The phenomenon of greenwashing in the selected industry<br><br>Circular economy in a chosen country.<br><br>Environmental Impact Assessment in the circular economy<br><br>Circular business models<br><br>Is my city circular? An evaluation of the circularity level of a selected city.<br><br>Circularity assessment of the selected company.<br><br>Carbon footprint in the evaluation of circularity.<br><br>Life Cycle Assessment in the evaluation of circularity.<br><br>Circularity at a household level. |                                                                                                                                                                                                                                                                                                                                                          |                               |
| Work placement                                                 | Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                          |                               |

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