**Federal State Autonomous Educational Institution for Higher Education**
**PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA (RUDN University named after Patrice Lumumba)**

**Institute of Environmental Engineering**

**COURSE SYLLABUS**

# Green Economy and Tools for Enterprises Sustainable Development

**Recommended by the Didactic Council for the Education Field for the specialization:**
05.04.06 "Ecology and Nature Management"

**The mastering of the course is carried out as part of the implementation of the main professional syllabus (Higher Education programme, specialization)**

«Integrated Solid Waste Management»

**2024**

## 1. COURSE GOAL(s)

**The course is designed to help students to** obtain the complex theoretical and applied knowledge on the "green" or circular economy and the enterprises sustainable development, acquiring skills in the field of economic mechanisms for environmental protection, as well as studying the conditions and possibilities for transforming a technogenic type of economic development into a circular economy

## • 2. REQUIREMENTS FOR COURSE OUTCOMES

The process of studying the discipline is aimed at the formation of the following competencies:

| Code | Code and name of the graduate's competence | Code and name of the indicator of achievement of competence |
|---|---|---|
| **GPC-2** | Able to use special and new sections of ecology, geoecology and nature management in solving research and applied problems of professional activity | **GPC-2.1** Has a systematic understanding of the theoretical and methodological foundations of environmental regulation |
| | | **GPC-2.2** Owns modern methods for obtaining and evaluating geochemical information to solve theoretical and practical problems of environmental geochemistry in the field of ecology and nature management in order to protect the environment |
| | | **GPC-2.3** Knows the basic knowledge of the fundamental sections of biology to the extent necessary to master the basics in ecology and nature management |
| | | **GPC-2.3** Analyzes the current system of environmental regulation for various areas of nature management |
| | | **GPC-2.4** Analyzes the current system of environmental regulation for various areas of nature management |
| | | **GPC-2.5** Identifies and describes biological diversity, evaluates it using modern methods of quantitative information processing |
| **PC-6** | the ability to diagnose problems of nature conservation, develop practical recommendations for its protection and sustainable development | **PC-1.1** Capable of carrying out the necessary calculations for planning, modeling and forecasting the development of a territorial object |
| | | **PC-1.2** Is able to analyze and evaluate the available resources and conditions necessary for the implementation of research |
| | | **PC-1.3** Capable of conducting spatial, territorial, demographic, sociological, economic research, topographic and geodetic, engineering geological, cartographic surveys |

As a result of studying the discipline, the student must:

***Know:***

- theoretical foundations of the "green" economy;
- principles of circular economy;
- regulatory framework in the field of "green" economy and sustainable development; • technological features of MSW sorting in order to obtain energy -containing components;
- technological features of MSW processing.

- fundamentals for the development of environmental management solutions for the use of waste as a resource for the development of territories
- ***Be able to:***
- develop a strategy for the development of a "green" economy in the region;
- evaluate external effects in the economic development of regions;
- draw up a technological scheme for sorting MSW;
- select best available techniques (BAT) from reference books in accordance with performance criteria;

***Own*** *:*

- skills in working with design and engineering documentation;
- skills of working with normative - legal documentation;
- the skills of creating regional eco-clusters for waste processing.

## 3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

Discipline ***Green Economy and Tools for Enterprises Sustainable*** refers to the **Electives** block 1 of the curriculum.

Within the higher education programme students also master other disciplines (modules) and / or internships that contribute to the achievement of the expected learning outcomes as results of the course.

**Table 3.1**

*The list of the higher education programme components that contribute to the achievement of the expected learning outcomes*

| Competence code | Competence descriptor | Previous courses/modules, internships* | Subsequent courses/modules, internships* |
|---|---|---|---|
| **GPC-2** | Able to use special and new sections of ecology, geoecology and nature management in solving research and applied problems of professional activity | нет | MSW Recycling and Utilization Technics / Monitoring of Environmental Impacts / |
| **PC-6** | the ability to diagnose problems of nature conservation, develop practical recommendations for its protection and sustainable development | | Nature Protection and Accumulated Environmental Damage (AED) Elimination Tools / Management of Environmental-economic Risks |

## 4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

The total workload of the discipline is **3** credit units.

*Table 4.1.* Types of academic activities during the period of the HE program(me) mastering

| Types of academic activities | Total hours | Semester(s) | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| *Contact academic hours* | | | | | |
| | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Lectures | | 11 | | 11 | | |
| Lab works | | | | | | |
| Seminars (workshops/tutorials) | | 11 | | 11 | | |
| *Self-study* | | *59* | | *59* | | |
| *Evaluation and assessment (exam; pass/fail grading)* | | *27* | | *27* | | |
| **The total course workload** | hours | **108** | | **108** | | |
| | credits | **3** | | **3** | | |

## 5. COURSE CONTENT

*Table 5.1. The content of the discipline (module) by type of educational work*

| Title of Course Modules | Content | Types of academic activities |
|---|---|---|
| Module 1. Fundamentals of a green economy | Topic 1.1. The concept and essence of the "green" economy. The international context for the formation of a "green" economy. | L, S |
| | Topic 1.2. The concept of the circular economy: its origins and evolution. Industrial ecology. The concept of "From cradle to cradle". Circular economy. Blue economy. Biomimicry . | L, S |
| Module 2 Transition from a linear economy to a circular economy | Topic 2.1. Limits of development of linear economy. Barriers and drivers of development circular economy. Environmental, resource, economic and social benefits of a circular economy. | L, S |
| | Topic 2.2. Basic principles and mechanisms of the circular economy. Possibilities of material recycling. Types of cycles within the green economy. Ways to preserve the value of products. New cyclical business models. | L, S |
| | Topic 2.3. Fundamentals of green growth. Methodological approaches to assessing the potential of green growth of territories and regions. | L, S |
| Module 3 Economic Valuation of Ecosystem Services | Topic 3.1. Types of capital involved in the green economy. The concept of ecosystem services. Classification of ecosystem services. | L, S |
| | Topic 3.2. The use of remote sensing technologies in the valuation of ecosystem services | |
| | Topic 3.3. An overview of approaches to the economic valuation of ecosystem services. | |
| Module 4 Product life cycle assessment as one of the tools of the circular economy | Topic 4.1. Using the Product Life Cycle Assessment (LCA) Toolkit to Create a Circular Economy. production system. single processes. OZHCP: basic concepts, stages. | L, S |
| | Topic 4.2. Application of life cycle assessment to industrial symbioses. | |

| | | |
|---|---|---|
| Module 5<br>Enterprise sustainability | Topic 5.1. Definitions of sustainable development of enterprises. Components of sustainable development of enterprises: economic sustainability, social responsibility, environmental performance | L, S |
| | Topic 5.2. Corporate Social Responsibility and Environmental Efficiency The concept of corporate social responsibility (CSR). Evolution of views on the role of business in society. CSR principles. Elements of CSR. Models and standards of CSR. Evaluation of the social efficiency of enterprises. Non-financial reporting of the enterprise. Evaluation of the environmental efficiency of the enterprise. ISO 14031 | L, S |

## 6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

*Table 6.1. Classroom equipment and technology support requirements*

| **Classroom for Academic Activity Type** | **Classroom equipment** | **Specialized educational / laboratory equipment, software and materials for mastering the course (if necessary)** |
|---|---|---|
| Lecture | Classroom, equipped with a set of specialized furniture; whiteboard; a set of devices includes portable multimedia projector, laptop, projection screen, stable wireless | Classroom, equipped with a set of specialized furniture; whiteboard; a set of devices includes portable multimedia projector, laptop, projection screen, stable wireless Internet connection. Software: Microsoft Windows, MS Office / Office 365, MS Teams, Chrome (latest stable release), Skype.<br>Microsoft Windows 7 corporate. License No. 5190227, date of issue March 16, 2010 MS Office 2007 Prof , License # 6842818, date of issue 09/07/2009 |
| Seminars | Classroom, equipped with a set of specialized furniture; whiteboard; a set of devices includes portable multimedia projector, laptop, projection screen, stable wireless | |
| Computer Lab | Computer Lab for conducting classes, group and individual consultations, current control and intermediate certification, equipped with personal computers (in the amount of 12), a board (screen) and technical devices of multimedia presentations. | INTEGRAL |

| | | |
|---|---|---|
| For Self-Study | Classroom for self-study (can be used for seminars and consultations), equipped with a set of devices includes laptop, stable wireless. | No |

## 7. RECOMMENDED SOURCES FOR COURSE STUDIES

*Main reading:*


1. The Ellen MacArthur Foundation's report “Towards the circular economy. Economic and business rationale for an accelerated transition”, 2013 Vol. 1.- 91 pp., materials posted in system TUIS RUDN University
2. The report of Material Economics. The Circular Economy – a Powerful Force for Climate Mitigation, 2018, 176 pp ., materials posted in system TUIS RUDN University
3. Sopilko N. Yu. Theoretical Foundations of the Economics of Sustainable Development [Text / electronic resource]: Textbook / N. Yu. Sopilko , A.F. Orlova, S.M. Lissitskaya. - Electronic text data. - M.: Publishing House of RUDN University, 2017. - 165 p.: ill. - ISBN 978-5-209-07861-6 : 219.48. Library of RUDN University.


*Additional reading:*


4. Gusev, Novoselov, Novoselova: Modeling a "green" economy. Theory and Practice // Economics Publishing House. - 2013.- 207 p., materials are placed in the TUIS RUDN University
5. Ecosystem Management: adaptive, community-based conservation / by Gary K. Meffe ... [ et al .] Island Press .- 2002.- 333 p ., materials are placed in the TUIS RUDN University
6. Neugarten , R. _ A ., Langhammer , P . F ., Osipova , E ., Bagstad , K . J ., Bhagabati , N ., Butchart , S . H. _ M ., Dudley , N ., Elliott , V ., Gerber , L . R. , Gutierrez Arrellano , C ., Ivani ć, K . - Z ., Kettunen , M ., Mandle , L ., Merriman , J . C ., Mulligan , M ., Peh , K . S.-H. , Raudsepp - Hearne , C. , Semmens , D. J ., Stolton , S ., Willcock , S . (2018). Tools for measuring, modeling, and valuing ecosystem services: Guidance for Key Biodiversity Areas, natural World Heritage Sites, and protected areas. Gland , Switzerland : IUCN . x + 70 pp ., materials are placed in the TUIS RUDN University
7. Akimova T. A. Economics of sustainable development: Textbook / T.A. Akimova, Yu.N. Moseykin . - M.: Economics, 2009. - 430 p. - ISBN 978-5-282-02916-1 : 515.00.
   *65 - A39* RUDN Library.


*Internet-based sources*

1. ELS of RUDN University and third-party ELS, to which university students have access on the basis of concluded agreements:

- RUDN Electronic Library System - RUDN EBS http://lib.rudn.ru/MegaPro/Web
- ELS "University Library Online" http://www.biblioclub.ru
- EBS Yurayt http://www.biblio-online.ru
- ELS "Student Consultant" www.studentlibrary.ru
- EBS "Lan" http://e.lanbook.com/
- EBS "Trinity Bridge"

2. Databases and search engines:

- electronic fund of legal and normative-technical documentation http://docs.cntd.ru/
- Yandex search engine https:// www .yandex.ru/

- Google search engine https://www.google.ru/
- abstract database SCOPUS http:// www .elsevierscience.ru/ products / scopus /

## 8. MID-TERM ASSESSMENT AND EVALUATION TOOLKIT

The assessment toolkit and the grading system to evaluate the level of competences (competences in part) formation as results of mastering the discipline are specified in the Appendix to the syllabus.

**DEVELOPER:**

| | | |
|---|---|---|
| Associate Professor of the ES&PQM Department | | **Popkova A.V.** |
| Position | Signature | Name, Surname |

**HEAD OF DEPARTMENT:**

| | | |
|---|---|---|
| Director of ES&PQM Department | | **Savenkova E.V.** |
| Position | Signature | Name, Surname |

**HEAD OF PROGRAMME:**

| | | |
|---|---|---|
| Associate Professor of the EM Department | | **Kapralova D.O>** |
| Position | Signature | Name, Surname |

**Department** Environmental Safety and Product Quality Management

educational department to be specified

APPROVED
Department meeting protocol No_____,
Dated _____
day, month, year
Head of Educational Department
_____(Savenkova E.V.)
signature

# ASSESSMENT N TOOLKIT

**for the course**

## Green Economy and Tools for Enterprises Sustainable Development

05.04.06 "Ecology and Nature Management"
field of studies / speciality code and title

«Integrated Solid Waste Management»
higher education programme profile/specialisation title

Master
graduate's qualification (degree)

# **Passport to Assessment Toolkit for Course** Green Economy and Tools for Enterprises Sustainable Development

Field of Studies / Speciality 05.04.06 "Ecology and nature management"/ «Integrated Solid Waste Management»
Course: Green Economy and Tools for Enterprises Sustainable Development

| **Competences (competences in part ) under assessment** | **Course module under assessment** | **Course topic under assessment** | **Tools to assess higher education programme mastering level** | | | | | | | | | | **Points for topic** | **Points for module** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **Class work** | | | | | **Self-studies** | | | | **Exam/Pass-fail assessment** | | |
| | | | **Quiz** | **Test** | **Work with lecture materials** | **Work at the seminars** | **Lab work** | **Homework** | **Research essay/ Library research paper** | **Calculation and graphic work** | **Group work project** | | | |
| GPC-2 | Module 1. A GREEN ECONOMY FUNDAMENTALS | Topic 1.1. The concept and essence of the "green" economy. The international context for the formation of a "green" economy. | 1 | 1 | 1 | 1 | | | | | 3 | | 7 | 14 |
| | | Topic 1.2. The concept of the circular economy: its origins and evolution. Industrial ecology. The concept of "From cradle to cradle". | 1 | 1 | 1 | 1 | | | | | 3 | | 7 | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Circular economy. Blue economy. Biomimicry . | | | | | | | | | | | | |
| GPC-2 PC-6 | Module 2 TRANSITION FROM A LINEAR ECONOMY TO A CIRCULAR ECONOMY | Topic 2.1. Limits of development of linear economy. Barriers and drivers of development circular economy. Environmental, resource, economic and social benefits of a circular economy. | 1 | 1 | 1 | 1 | | | | | 2 | | 6 | 19 |
| | | Topic 2.2. Basic principles and mechanisms of the circular economy. Possibilities of material recycling. Types of cycles within the green economy. Ways to preserve the value of products. New cyclical business models. | 1 | 2 | 1 | 1 | | | | | 2 | | 7 | |
| | | Topic 2.3. Fundamentals of green growth. Methodological approaches to assessing the potential of green growth of territories and regions. | 1 | 1 | 1 | 1 | | | | | 2 | | 6 | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GPC-2 PC-6 | Module 3 ECONOMIC VALUATION OF ECOSYSTEM SERVICES | Topic 3.1. Types of capital involved in the green economy. The concept of ecosystem services. Classification of ecosystem services. | 1 | 2 | 1 | 1 | | | | | 3 | | 8 | 24 |
| | | Topic 3.2. The use of remote sensing technologies in the valuation of ecosystem services | 1 | 2 | 1 | 1 | | | | | 3 | | 8 | |
| | | Topic 3.3. An overview of approaches to the economic valuation of ecosystem services. | 1 | 2 | 1 | 1 | | | | | 3 | | 8 | |
| GPC-2 PC-6 | Module 4 PRODUCT LIFE CYCLE ASSESSMENT | Topic 4.2. Using the Product Life Cycle Assessment (LCA) Toolkit to Create a Circular Economy. production system. single processes. OZHCP: basic concepts, stages. | 1 | 1 | 1 | 1 | | | | | 2 | | 6 | 17 |
| | | Application of life cycle assessment to industrial symbioses. | 2 | 3 | 2 | 2 | | | | | 2 | | 11 | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GPC-2 | Module 5 ENTERPRISE SUSTAINABILITY | Topic 5.1. Definitions of sustainable development of enterprises. Components of sustainable development of enterprises: economic sustainability, social responsibility, environmental performance | 1 | 1 | 1 | 1 | | | | | 2 | | 6 | 10 |
| | | Topic 5.2. Corporate Social Responsibility and Environmental Efficiency The concept of corporate social responsibility (CSR). Evolution of views on the | 1 | 1 | | 1 | | | | | 1 | | 4 | |
| | | role of business in society. CSR principles. Elements of CSR. Models and standards of CSR. Evaluation of the social efficiency of enterprises. Non-financial reporting of the enterprise. Evaluation of the environmental efficiency of the enterprise. ISO 14031 | | | | | | | | | | | | |
| | | **TOTAL** | **13** | **18** | **12** | **13** | | | | | **30** | **14** | **86** | **86** |

**Course Green Economy and Tools for Enterprises Sustainable Development**

# QUESTION CARD No 1

QUESTION 1 Closed-loop Economy.
QUESTION 2 Indicators of environmental performance of the enterprise.
3 * …….

**Developer**_____(Popkova Anna)
signature

Head of Educational Department_____(Savenkova Elena)
signature

_____
day, month, year

Note * Practice case/task inclusion is subject to the teacher's discretion.

The set of exam question cards is complemented by the assessment criteria developed by the teacher and approved at the department meeting.

Assessment criteria:
(*in compliance with the legal regulations in force*)

## EXAM QUESTIONS

1. Green economy. Definition. Main features.
2. Evolution of green economy ideas.
3. International aspects of the formation of a green economy.
4. Resolution of the UN Conference on Sustainable Development "The Future We Want" on the ideas of a green economy. Green economy in the context of sustainable development.
5. Capital. Definition. Types of capital within the framework of the green economy concept.
6. Human capital. Natural capital. Physical capital.
7. Ecosystem services. Definition. Classification.
8. Providing ecosystem services.
9. Regulating ecosystem services.
10. Cultural ecosystem services.
11. Supporting ecosystem services.
12. Methods for the economic valuation of ecosystem services.
13. The potential of remote sensing technologies in ecosystem services assessment
14. The application of NDWI for ecosystem services assessment15. The concepts of green economy: it's origins and evolution.
16. Closed-loop Economy.
17. Diversification and decarbonization of the economy.
18. The concept of a low-carbon economy.
19. Comparative analysis of traditional and alternative energy chains.
20. Cyclical economy. Basic principles and instruments.
21. Framework indicators for sustainable development, developed by the UN Commission on Sustainable Development.
22. Linear and circular business models.

23. Stages of product life cycle assessment.
24. Closed loop and open loop material recycling systems.
25. Approaches to the definition of enterprises sustainable development.
26. Components of corporate sustainable development of the enterprise.
27. Corporate social responsibility and methods of its assessment.
28. Indicators of environmental performance of the enterprise.
29. Industrial symbiosis.
30. The main stages of assessing the life cycle of products.
31. Setting goals and defining the scope in assessing the life cycle of products.
32. Production system. Unit processes. Inventory of data during product life cycle assessment.
33. Life Cycle Impact Assessment (LCA). Basic concepts.
34. Phases of life cycle impact assessment.
35. LCA. Definition of impact categories. Examples of impact categories.
36. LCA. Assignment of categories (data classification.)
37. LCA. Calculation of the values of indicators of categories (data characterization).
38. LCA. Data normalization.
39. LCA. Assessment of significance, grouping, weighing.
40. LCA. Interpretation of data in the assessment of the life cycle of products.

**Tentative list of assessment tools**

| **No** | **Assessment tool** | **Brief features** | **Assessment tool representation in the kit** |
|---|---|---|---|
| ***Class work*** | | | |
| 1 | Survey/Quiz | A tool of control, organised as a special conversation between a teacher and students on topics related to the course under study, and designed to clarify the amount of students' knowledge in a particular section, topic, problem, etc. | Questions on the course topics /modules |
| 2 | Test | A system of standardised tasks that allows the teacher to automate the procedure for measuring the student's level of knowledge and skills | Tests bank |
| 3 | Control work | A tool of control organised as a classroom lesson, at which students need to independently demonstrate the acquisition and mastering of the educational material of the course topic, section, or sections. | Questions on the course topics /modules |
| 4 | Round table, discussion, polemic, dispute, debate, (class work) | Evaluation tools that allow the teacher to engage students in the process of discussing controversial issues, problems and assess their ability to argue their own point of view. | List of themes for round tables, discussions, polemics, disputes, debates. |

| | | | |
|---|---|---|---|
| 5 | Business game and/or role play | Joint activities of a student group under the teacher's control to solve educational and professionally oriented tasks through the simulation of a real-world problem; this activity allows the teacher to assess the students' ability to analyse and solve typical professional challenges. | Topic (problem), concept, roles and expected results for each game |
| 6. | Presentation (defence) of project/report/ Library research paper /briefs * | A tool for monitoring the students' ability to present the work results to the audience. | Themes for projects/reports/ Library research paper/ briefs |
| 7 | Pass/Fail assessment | A tool for checking the quality of students' performance of laboratory work, acquisition and mastering of the practice training and seminar educational material, successful completion of the advanced field internship and pre-graduate internship and fulfillment of all training assignments in the course of these internships in accordance with the approved programme. | Tasks examples |
| 8 | Exam | The evaluation of the student's work during the semester (year, the entire period of study, etc.); it is designed to identify the level, soundness and systematic nature of theoretical and practical knowledge gained by the student, formation of independent work skills, development of creative thinking, ability to synthesise the acquired knowledge and apply it to solve practice tasks. | Examples of tasks/questions/exam question cards |
| 9 | Case | A problem-solving task in which the student is asked to comprehend the real work-related (occupational) situation necessary to solve the problem. | Assignments to solve the case |

| | | | |
|---|---|---|---|
| 10 | Multi-level tasks and assignments with varying difficulty | The tasks and assignments differ in terms of the following levels:<br>a) reproductive level allows the teacher to evaluate and diagnose the students' knowledge of factual material (basic concepts, algorithms, facts) and the students' ability to correctly use special terms and concepts, recognize objects of study within a certain section of the discipline,<br>b) reconstructive level allows the teacher toevaluate and diagnose the students' abilities to synthesise, analyse, generalise factual and theoretical material and formulate specific conclusions, establish cause-and-effect relationships,<br>c) creative level allows to evaluate and diagnose students' skills to integrate knowledge of various fields, argue their own point of view. | Set of multi-level tasks and assignments with varying difficulty |
| | | ***Self- studies*** | |
| 1 | Calculation and graphic work | A tool for checking students' skills in applying the acquired knowledge according to a predetermined methodology in task solving or fulfilling assignments for a module or discipline as a whole. | Set of tasks for calculation and graphic work |
| 2 | Course work/project | A type of independent written work aimed at the creative development of general professional and specialised professional disciplines (modules) and the development of relevant professional competences | Course assignment themes |
| 3 | Project | The final "product" that results from planning and performance of educational and research tasks set; it allows the teacher to assess the students' ability to independently shape their knowledge in the course of solving practice tasks and problems, navigate in the information environment and the students' level of analytical, research skills, skills of practical and creative thinking; it can be implemented individually or by a group of students. | Themes for team-based or individual projects |
| 4 | Research essay (Library research paper) | The student's independent work in writing that summarises the results of the theoretical analysis of a certain scientific (educational and research) topic, where the author reveals the essence of the problem under study, considers different points of view, as well as argues his/her views on the material under consideration. | Themes for research essay ( library research papers) |

| | | | |
|---|---|---|---|
| 5 | Reports, briefs | The product of the student's independent work, which is a public performance on the presentation of the results of solving a specific educational, practical, research or scientific topic. | Themes for reports, briefs |
| 6 | Essay and other creative assignments | A partially regulated assignment that has a nonstandard solution and allows the teacher to diagnose students' skills in integrating knowledge from various fields and arguing their own point of view; it can be prepared individually or by a group of students. | Themes for team-based or individual creative assignments |
| 7 | Standard calculations | A tool to test skills in applying the acquired knowledge, according to a predetermined methodology, solving tasks or fulfilling assignments for a module or discipline as a whole. | Set of tasks for standard calculations |
| 8 | Homework | The tasks and assignments differ in terms of the following levels:<br>a) reproductive level allows the teacher toevaluate and diagnose the students' knowledge of factual material (basic concepts, algorithms, facts) and the students' ability to correctly use special terms and concepts, recognize objects of study within a certain section of the discipline,<br>b) reconstructive level allows the teacher toevaluate and diagnose the students' abilities to synthesise, analyse, generalise factual and theoretical material and formulate specific conclusions, establish cause-and-effect relationships,<br>c) creative level allows the teacher to evaluate and diagnose students' skills to integrate knowledge of various fields, argue their own point of view. | Set of multi-level tasks and assignments with varying difficulty |

# Set of assignments for control work

for the course Green Economy and Tools for Enterprises Sustainable Development

**Industrial symbiosis is** establishing integration links with the supplier enterprise in order to increase profits association of two or more enterprises for the purpose of organizing joint production the exchange of materials and energy between various industrial facilities, in which the
waste of one production becomes the resource of another integration
of production and a network of sales enterprises

**To accurately determine the type of enterprise (fund-intensive / labor-intensive / material-intensive), you can analyze:**
production cost
organizational and legal structure of the
enterprise enterprise tax systems enterprise
management systems

**What is intangible assets of a company?**
buildings and constructions land
company reputation client
base

**The internal stakeholders of the enterprise include:**
suppliers workers creditors investors

**Corporate Social Responsibility is:**
voluntary contribution of business to the development of society in the social, economic and environmental spheres, directly related to the main activity of the company and going beyond the legal minimum the obligation to fulfill the obligations assumed, contracts, comply with laws, established
norms and rules of economic activity financing of social projects
initiated exclusively by state bodies production of socially
oriented products

**Which of the following standards is focused solely on improving the working conditions and living standards of workers?**
SA8000 (Social Accountability 8000)
AccountAbility Principles Standard (AA1000APS)
ISO26000
ICCSR-08260008000 or CSR

**The GRI report allows you to present the organization's performance in terms of: economic aspects**
environmental
aspects social aspects

all answers are
correct

**Assessment criteria:**
*(in compliance with the legal regulations in force)*

Developer _____ (Anna Popkova)
signature

_____
day, month, year

**Department of Environmental Management and Product Quality Management**

# Team-based or individual creative assignments/projects

for the course Green Economy and Tools for Enterprises Sustainable Development

For the successful implementation of the green economy concept, it is necessary to take into account the country specifics and green growth potential. GGGI defines green growth as a development approach that seeks to deliver economic growth that is both environmentally unstainable and socially inclusive. Through the green growth model, countries seek opportunities for economic growth that are low-carbon and climate resilient, prevent or remediate pollution, and maintain healthy and productive ecosystems as well as create green jobs, reduce poverty, and enhance social inclusion. Several definitions and concepts of green growth exist in different development organizations, such as the OECD, UNEP, and World Bank. Common to all these definitions is that green growth balances economic growth, environmental sustainability, and social inclusion, aiming to minimize the trade-offs and maximize the synergies between them.

The purpose of the project is to assess the green growth potential in different countries.

**Algorithm**

1. Select country.
2. Determine the values of indicators for 38 OECD countries across five categories: (1) environmental efficiency of production and changes in production patterns, (2) environmental efficiency of consumption and changes in consumption patterns, (3) natural capital stocks and environmental quality, (4) objective and subjective environmental quality of life, and (5) economic actor responses (the full list of indicators is present in the article *Kim, S. E., Kim, H., & Chae, Y. (2014). A new approach to measuring green growth: Application to the OECD and Korea. Futures, 63, 37-48):*

| | **Environmental efficiency of production and changes in production patterns** | | **Environmental efficiency of consumption and changes in consumption pattern** | | | …. |
|---|---|---|---|---|---|---|
| | GHG emissions per unit of GDP | Percent GDP from Services | Energy use per unit of GDP | Share of renewable energy consumption | Withdrawal of ground and surface water of total available water | …... |
| Australia | | | | | | |
| Austria | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| …. | | | | | | |

3. For each international indicator calculate the 10th percentile value based on all OECD countries using PERCENTILE function in Microsoft Excel
4. For each international indicator, the value for a given country compare to the 10th percentile value for that indicator across all OECD countries and evaluate on a scale of 1–10, with 10 being the highest score.
5. Create a Radar Chart of five categories of international indicators.
6. Make an analysis of green growth potential of selected country.

**Task defense form – Power Point presentation of the report.**

**Assessment criteria:**

*(in compliance with the legal regulations in force)*

Developer _____ (Anna Popkova)
signature

_____
day, month, year