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ФИО: Ястребов Олег Александрович
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**Federal State Autonomous Educational Institution for Higher Education
PEOPLES FRIENDSHIP UNIVERSITY OF RUSSIA NAMED AFTER PATRICE
LUMUMBA
(RUDN University)**

Higher School of Industrial Policy and Entrepreneurship

(faculty/institute/academy - the higher education program developer)

COURSE SYLLABUS

Economics and Management of Energy & Environment

(name of the discipline/module)

Recommended by the Didactic Council for the Education Field of:

38.04.02 Management

(field of studies / speciality code and title)

The study of the discipline is conducted as part of the professional program of higher education.

Engineering Management

(name (track/specialization) of professional program of higher education)

1. THE GOAL OF THE DISCIPLINE

The goal of mastering the *Economics and Management of Energy & Environment* discipline is to comprehend the role of the Fuel and Energy Complex in the national economy, its contents, structure, and management system.

2. REQUIREMENTS FOR DISCIPLINE OUTCOMES

The mastering of the *Economics and Management of Energy & Environment* discipline envisages building the following competencies (parts of competencies) in students:

Table 2.1. The list of competencies acquired by students in the course of the discipline (outcomes of the discipline)

| Competence Code | Competence Descriptor | Competence Formation Indicators (within this discipline) |
|-----------------|---|---|
| GC-1 | Ability to perform critical analysis of problematic situations based on the systemic approach and to develop a plan of action | GC-1.1 Analyzes the task and singles out its basic components GC-1.2 Defines and prioritizes the information needed to solve the task GC-1.3 Searches the information to solve the task by various types of queries GC-1.4 Offers solutions to the problem, analyzes the possible consequences of their use GC-1.5 Analyzes the ways of solving problems of worldview, moral and personal nature based on the use of fundamental philosophical ideas and categories in their historical development and socio-cultural context |
| GC-2 | Ability to manage a project at all lifecycle stages | GC-2.1 Specifies a problem, the solution of which is linked to the achievement of the project goal |
| PC-1 | Capability to manage the efficiency of an investment project | PC-1.1 Defines the operations and their sequence to implement the investment project. PC-1.2 Evaluates operational, estimates human resources and determines the participants in the investment project PC-1.3 Plans the implementation stages of the investment project, ensures the quality and quality control of the investment project implementation PC-1.4 Can work in specialized computer programs for the preparation and implementation of an investment project PC-1.5 Can search the necessary information for the preparation and implementation of an investment project PC-1.6 Can identify and assess the degree (level) of an investment project risks and develop measures to manage them |

3. THE PLACE OF DISCIPLINE IN HIGHER EDUCATION PROGRAM STRUCTURE

The *Economics and Management of Energy & Environment* is an elective block formed by students.

Within the higher education program students also take other disciplines and/or internships that contribute to the achievement of the expected learning outcomes as results of mastering the *Economics and Management of Energy & Environment* discipline.

Table 3.1. The list of the higher education program components that contribute to the achievement of the expected learning outcomes as the disciplines results.

| No | Competence Code and Name | Previous Disciplines | Subsequent Disciplines (Disciplines Groups) |
|---------------------------|--------------------------|--|--|
| | GC-1 | Innovation Management | Business Process Management Cloud Technologies in Enterprise Management |
| 1. | GC-2, | Strategic Management in Industrial Companies | Fundamentals of Logistics and Supply Chain Management Enterprise Management Information System |
| Professional Competencies | | | |
| 3. | PC-1 | Innovation Management | Lean Manufacturing Data Mining and Decision Making |

4. SCOPE OF DISCIPLINE AND TYPES OF SCHOLASTIC WORK

The total workload of the discipline is 3 credits.

Table 4.1. Types of educational work according to the periods of mastering the higher education program for **FULL-TIME** students

| Type of Educational Work | | Total hours | Semesters | | | |
|--------------------------|---|-------------|-----------|--|--|--|
| | | | 2 | | | |
| 1. | Classroom Classes (total) | 36 | 36 | | | |
| | Including: | - | - | | | |
| 1.1. | Lectures | 18 | 18 | | | |
| 1.2. | Other activities | | | | | |
| | Including: | | | | | |
| 1.2.1. | Seminars (C) | 18 | 18 | | | |
| | Practice training (PT) | | | | | |
| 2. | Autonomous Work (total) | 54 | 54 | | | |
| | Including: | | | | | |
| 2.1. | Calculation and graphic works | - | | | | |
| | <i>Other types of autonomous work</i> | | | | | |
| | Preparation and passing of midterm assessment | 18 | 18 | | | |
| 3. | Total Workload (academic hours) | 108 | 108 | | | |
| | Total workload (credits) | 3 | 3 | | | |

5. DISCIPLINE CONTENT

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

| No | Name of the Discipline Section | Content of the Section (topics) | Type of Educational Work |
|----|---|---|--------------------------|
| 1. | Subject 1. Energy Enterprise in the Market Relations System | The goal and objectives of the discipline. The discipline in education program structure. Planned results of the discipline outcomes. The enterprise as the basis of the economy. Classification of enterprises. The legal basis of the enterprises operations. Organizational and | Lecture, self study |

| | | | |
|----|--|---|---------------------|
| | | legal forms of enterprises. Energy enterprise and its features. Enterprise resources. | |
| 2. | Subject 2. Fixed Assets and Capital of an Energy Company | The essence, classification and structure of fixed assets of an energy enterprise. Methods of fixed assets evaluation. Depreciation and amortization of fixed assets. The concepts of "investments" and "capital expenditures", their structure. Classification and structure of capital of an energy enterprise. Indicators of the efficiency of the use of fixed assets and capital of the enterprise and techniques to improve them. | Lecture, self study |
| 3. | Subject 3. Human Resources of an Energy Company | Human resources (personnel) as the main resource of the enterprise. Labor productivity. Organization and rationing of work at an energy enterprise. Work discipline. Salary and its functions. Motivation and remuneration. | Lecture, self study |
| 4. | Subject 4. Organization of Production and Management of an Energy Enterprise | Production and production systems. Forms, types and methods of production organization. Characteristics and principles of the organization of the production process in space and time. The production cycle and the factors determining its duration. The essence of the organization of enterprise management. Types of enterprise management structures (general, organizational and production). | Lecture, self study |
| 5. | Subject 5. The Economic Mechanism of Enterprise Functioning | External and internal environment of an energy enterprise. The essence and main elements of the economic mechanism of enterprise functioning (the mechanism of market regulation of an enterprise; the internal mechanism of enterprise management; the mechanism of state regulation of the energy enterprise). Enterprise activity planning system: classification of enterprise plans; principles and methods of planning; strategic planning; business planning. Product quality and competitiveness. | Lecture, self study |

6. EQUIPMENT AND TECHNOLOGICAL SUPPORT OF THE DISCIPLINE

Table 6.1. Equipment and technological support of the discipline

| Classroom Type | Equipment of the Classroom | Specialized Educational/Laboratory Equipment, Software and Materials for the Discipline (if necessary) |
|-----------------------------|---|---|
| Lecture Hall | An auditorium for conducting lecture-type classes, equipped with a set of specialized furniture; a board (screen) and technical means of multimedia presentations. | 21 workplaces: system unit P4 C2D/3160 MHz MB/ 320 GB/DVD±RW/ LCD monitor 19"+ 1 projector |
| Colloquium | A classroom for conducting colloquium-type classes, group and individual consultations, ongoing monitoring and midterm assessment, equipped with a set of specialized furniture and multimedia presentation equipment. | 21 workplace: Celeron system unit/2600 MHz/1280 MB/ 40 GB/DVD ROM/ LCD monitor 17"+ 1 projector + WiFi access point |
| Computer Class | A computer classroom for conducting classes, group and individual consultations, continuous control and midterm assessment, equipped with personal computers (___ pcs.), a blackboard (screen) and multimedia presentation technical means. | 21 workplace: Celeron system unit/2600 MHz/1280 MB/ 40 GB/DVD ROM/ LCD monitor 17"+ 1 projector + WiFi access point |
| Autonomous Work of Students | A classroom for autonomous work of students (can be used for seminars and consultations), equipped with a set of specialized furniture and computers with access to EIEE. | 21 workplace: Celeron system unit/2600 MHz/1280 MB/ 40 GB/DVD ROM/ LCD monitor 17"+ 1 projector + WiFi access point |

7. INFRASTRUCTURE AND INFORMATIONAL SUPPORT NECESSARY FOR THE DISCIPLINE

a) Main Readings:

1. *Economika i upravlenie prirodopolzovanim. Resursosberezhenie.* [Economics and environmental management. Resource saving] : textbook and workshop for universities / A. L. Novoselov, I. Yu. Novoselova, I. M. Potravny, E. S. Melekhin. — 2nd ed., reprint. and add. — Moscow : Yurayt Publishing House, 2023. — 390 p. — (Higher education). — ISBN 978-5-534-12355. — Text : electronic // Yurayt Educational Platform [website]. — URL: <https://urait.ru/bcode/511467>

2. Korshunov, V.V. *Economika organizatsii (predpriyatiya).* [The economy of the organization (enterprise). Theory and practice]: textb. / V. V. Korshunov; University of Science and Technology "MISIS". - 2nd ed., reprint. and add. - Moscow: Yurayt, 2019. - 433 p.

b) Additional Readings:

3. *Belov, S. V. Bezopasnost zhiznedeyatel'nosti i zashita okruzhaiushchei sredy* [Life safety and environmental protection] (technosphere safety) : textbook for universities / S. V. Belov. — 6th ed., reprint. and add. — Moscow : Yurayt Publishing House, 2023. — 638 p. — (Higher education). — ISBN 978-5-534-16270-7. — Text : electronic // Educational platform Yurayt [website]. — URL: <https://urait.ru/bcode/530724>

4. Karakeyan, V. I. *Monitoring zagryazneniya okruzhaiushchei sredy.*[Environmental pollution monitoring: textbook for secondary vocational education] / E. A. Sevryukova ; under the general editorship of V. I. Karakeyan. — Moscow : Yurayt Publishing House, 2023. - 397 p. — (Professional education). — ISBN 978-5-534-02861-4. — Text : electronic // Yurayt Educational Platform [website]. — URL: <https://urait.ru/bcode/512043>

BiblioRossika An electronic library for students, professors and researchers. <http://www.bibliorossica.com/individuals.html?ln=ru>

Resources of the Internet information and telecommunication network:

1. Electronic libraries (EL) of RUDN University and other institutions, to which university students have access on the basis of concluded agreements

- RUDN Electronic Library System (RUDN ELS) <http://lib.rudn.ru/MegaPro/Web>
- EL "University Library Online" <http://www.biblioclub.ru>
- EL "Yurayt" <http://www.biblio-online.ru>
- EL "Student Consultant" www.studentlibrary.ru

2. Databases and search engines:

- electronic foundation of legal and normative-technical documentation <http://docs.cntd.ru/>
- Yandex search engine <https://www.yandex.ru/>
- Google search engine <https://www.google.ru/>
- SCOPUS abstract database <http://www.elsevierscience.ru/products/scopus/>

The following training toolkit for the student's autonomous work is envisaged as part of mastering the discipline/module:*

1. A course of lectures on the *Economics and Management of Energy & Environment* discipline.

2. Laboratory workshop on the *Economics and Management of Energy & Environment* discipline (if laboratory work is available).

3. Methodological guidelines for drafting and formatting the course paper / project on the *Economics and Management of Energy & Environment* discipline (if there are ones).

8. ASSESSMENT TOOLKIT AND GRADING SYSTEM FOR COMPETENCES LEVEL EVALUATION

The assessment materials and the grading system* to evaluate the graduate's level of competences (part of competences) formation as the results of the *Economics and Management of Energy & Environment* discipline are specified in the Appendix to course syllabus.

DEVELOPERS:

Associate Professor of the
Applied Economics Department

Position, educational department

V.A. Ermakov

Signature

Name, surname

HEAD OF EDUCATIONAL DEPARTMENT:

Deputy Head of the Applied
Economics Department

A.A. Chursin

Name of the educational department

Signature

Name, surname

Program Manager
Associate Professor

of the Applied Economics Department
position, name of the department

signature

A.A. Ostrovskaya
Name, surname

Annex

Methodological guidelines for students on mastering the discipline (module)

The implementation of the course provides interactive lectures, practical classes (colloquiums) using multimedia equipment, preparation of autonomous creative projects and their subsequent presentations, testing, group discussions on the subject of the course, modern knowledge control technologies.

While studying the discipline, the student must attend a course of lectures, participate in the number of colloquiums provided by the course syllabus, study autonomously some topics of the course and confirm their knowledge during control activities.

The student's work in lectures consists in clarifying the basics of the discipline, briefly taking notes of the material, and clarifying issues that cause difficulties. The lecture notes are the basic educational material along with the textbooks recommended in the main list of readings.

The teaching of the main part of the lecture material involves usage of multimedia tools that facilitate the comprehension and consolidation of the material. Presentations are available for download from the RUDN website and can be freely used by students for educational purposes.

The student must master all the topics provided for by the educational and thematic plan of the discipline. Individual topics and training issues must be mastered autonomously. The student studies the recommended literature, briefly outlines the material, and clarifies the most difficult questions that require clarification during consultations. The same should be done with sections of the course that were skipped due to various circumstances.

For an in-depth study of the issue, the student should study the literature from the additional readings list and specialized websites. It is also recommended that students communicate in professional community forums.

Students study educational, scientific literature and periodicals on an autonomous basis. They have the opportunity to discuss what they have read with the teachers of the discipline during scheduled consultations, with other students at colloquiums, as well as at lectures, asking the professor questions.

The control of autonomous work is carried out by the professor in charge. Depending on the teaching methodology, the following forms of continuous assessment can be used: a short oral or written survey before the start of classes, tests, control papers, written homework, essays, etc.

The assessment toolkit for the midterm assessment of students in the discipline (module) (developed and issued in accordance with the requirements of the "Regulations for the Formation of Assessment Toolkit (FOS)", approved by the Rector's order No. 420 dated 05.05.2016).
Economics and Management of Energy & Environment discipline

| The code of the controlled competence or its part | Controlled Discipline Section | Controlled Discipline Topic | Assessment Toolkit (form of control of mastering the professional program) | | | | | | | | | | | Subjects Scores | Section Scores | |
|---|-------------------------------|--|--|------|------------|---------------|----------------|------------|-----------------|----------|--------|-------------------------|------------------------|-----------------|----------------|---------------------|
| | | | Classroom Work | | | | | | Autonomous Work | | | | | | | |
| | | | Survey | Test | Colloquium | Control Paper | LW performance | Class work | Cases | Homework | Report | Graphic and calculation | Course Paper / project | | | Report/presentation |
| GC-1, GPC-3 | Section 1. | Subject 1. Energy Enterprise in the Market Relations System | 1 | | | | | | 4 | | | | | | 5 | 14 |
| | | Subject 2. Fixed Assets and Capital of an Energy Company | 1 | | | | | 3 | 2 | | | | | | 6 | |
| | | Subject 3. Human Resources of an Energy Company | 1 | | | | | | 2 | | | | | | 3 | |
| GC-1, GPC-3 | Section 2. | Subject 4. Organization of Production and Management of an Energy Enterprise | 1 | | | | | | 4 | | | | | 5 | 24 | |

| | | | | | | | | | | | | | | | | |
|--|---|---|--|----|--|--|----|----|---|---|--|--|--|----|---|-----|
| | Subject 5. The Economic Mechanism of Enterprise Functioning | 1 | | | | | | 6 | 2 | | | | | | 9 | |
| | Report | | | | | | | | | 8 | | | | | | 8 |
| | Milestone Certification | | | 15 | | | | | | | | | | | | 15 |
| | Final Certification | | | | | | | | | | | | | 30 | | 30 |
| | TOTAL | 9 | | 15 | | | 12 | 26 | 8 | | | | | 30 | | 100 |

Applied Economics Department

Examination Cards

Economics and Management of Energy & Environment discipline

Discipline _____ Economics and Management of Energy & Environment _____
(name of the discipline)

EXAMINATION CARD No. 1

1 International commercial contract in the energy business.

2 International trading platforms for energy resources.

EXAMINATION CARD No. 2

1 Analysis of the specifics of pricing for oil, gas, and coal in the Russian and international energy markets.

2 The raw material base of the main energy supplies in Russia and the world.

EXAMINATION CARD No. 3

1 Factors determining the level of supply and demand of energy resources in the world.

2 Goals and objectives of state regulation in the energy sector.

As part of the exam, the level of mastering all the competencies of the discipline can be controlled (depending on the question).

The set of examination cards includes assessment criteria for the discipline developed by the teacher and approved at the meeting of the department.

Criteria for assessing of answers to exam questions:

The answer to each exam is valued from 0 to 10 points:

| Answer Assessment Criteria: | Scores | | |
|-----------------------------|---------------------------------------|---|-------------------------------------|
| | The answer does not meet the criteria | The answer partially meets the criteria | The answer fully meets the criteria |
| The answer is correct | 0 | 1 | 2 |


| | | | |
|--|---|-----|---|
| The student answers without suggestive questions from the examiner | 0 | 0.5 | 1 |
| The student practically does not use the prepared draft | 0 | 0.5 | 1 |
| The answer demonstrates the student's confident command of the terminological and methodological apparatus of the discipline | 0 | 1 | 2 |
| The answer has a clear logical structure | 0 | 1 | 2 |
| The answer demonstrates the student's understanding of the connections between the subject of the question and other sections of the discipline and/or other disciplines | 0 | 1 | 2 |

This Program has been developed in line with the requirements of the RUDN University Educational Standards.

Developers:

Ph.D., Associate Professor of the Applied Economics Department _____ N. A. Diesperova
position, name of the department signature Name, surname

Program Manager
Associate Professor

Of the Applied Economics Department _____  _____ A.A. Ostrovskaya
position, name of the department signature Name, surname

**Head of the Applied
Economics Department**

 _____ A.A. Chursin
signature