

Документ подписан простой электронной подписью
Информация о владельце:
ФИО: Ястребов Олег Александрович
Должность: Ректор
Дата подписания: 24.09.2024 10:29:17
Уникальный программный ключ:
ca953a0120d891083f939673078ef1a989dae18a

Federal State Autonomous Educational Institution of Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA NAMED AFTER PATRICE
LUMUMBA
RUDN University

Academy of Engineering

educational division (faculty/institute/academy) as higher education programme developer

COURSE SYLLABUS

PHILOSOPHICAL ISSUES OF TECHNICAL KNOWLEDGE

course title

Recommended by the Didactic Council for the Education Field of:

13.04.03. POWER ENGINEERING

field of studies / speciality code and title

The course instruction is implemented within the professional education programme of higher education:

Mechanical Engineering

higher education programme profile/specialisation title

1. The COURSE GOAL

The discipline "Philosophical issues of technical knowledge" is included in the master's degree program "Mechanical Engineering" in the direction of 13.04.03 "Energy Engineering" and is studied in the 1st semester of the 1st year. The discipline is implemented by the Basic Department of Energy Engineering. The discipline consists of 9 sections and 9 topics and is aimed at studying the history of research in the field of energy, research methods in energy engineering.

The purpose of mastering the discipline is to deepen knowledge about the main stages, principles and trends in the development of science and technical knowledge, to form undergraduates a holistic view of the development of science and technology as historical and cultural phenomena; to structure information about the achievements of human thought in the field of science and technology in various historical epochs..

2. REQUIREMENTS FOR LEARNING OUTCOMES:

The following competences are formed in the study process.

Table 2.1. List of competences that students acquire during the course

Competence code	Competence descriptor	Competence formation indicators
GC-1	Ability to carry out a critical analysis of problematic situations based on a systematic approach, develop a strategy for action.	GC-1.1. Analyzes the problematic situation and decomposes it into separate tasks; GC-1.2. Develops a strategy for solving the task; GC-1.3. Forms possible solutions to problems.
GC-6	Ability determine and implement the priorities of his own activities and ways to improve them based on self-assessment	GC-6.1. Controls the amount of time spent on specific activities; GC-6.2. Develops tools and methods of time management in the performance of specific tasks, projects, goals; GC-6.3. Analyzes your resources and their limits (personal, situational, temporary, etc.) for the successful completion of the task.

3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The subject refers to the variable component of (B1) block of the higher educational programme curriculum.

Within the higher education programme students also master other disciplines and internships that contribute to the achievement of the expected learning outcomes as results of the subject mastery

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

Competence code	Competence descriptor	Previous courses/modules, internships*	Subsequent courses/modules, internships*
GC-1	Ability to carry out a critical analysis of problematic situations based on a systematic approach, develop a strategy for action.		Special chapters of the theory of heat engines / Спец главы теории тепловых двигателей Automatic heat engine control / Автоматическое регулирование тепловых двигателей Alternative Energy Sources / Альтернативные

			источники энергии Practice in obtaining primary skills of research work / Практика по получение первичных навыков научно- исследовательской работы
GC-6	Ability determine and implement the priorities of his own activities and ways to improve them based on self-assessment	-	

* - in accordance with the matrix of competencies and the SUP EP VO

4. WORKLOAD OF THE COURSE AND FORMS OF STUDY WORK

General workload of the course *3 credits, 108*

hours. Table 4.1. Form of study work of EP HE

Type of academic activities		Total academic hours	Semester(s)			
			1			
<i>Contact academic hours</i>		36	36			
including:						
Lectures (LC)		18	18			
Lab works (LW)		0	0			
Seminars (workshops / tutorials) (S)		18	18			
<i>Self-studies academic hours</i>		72	72			
<i>Evaluation and assessment academic hours</i>		27	27			
<i>Course work / project, credits</i>		0				
Course workload	academic hours	108	108			
	credits	3	3			

5. CONTENT OF THE COURSE

Table 5.1. Content of the course

The title of the section of the discipline	Content of the section (topic)	Types of educational work*
Section 1 Scientific and technical knowledge in the socio-cultural dimension.	Traditional culture and man-made civilization: problems of development and interaction. The place and role of science and technology in the culture of man-made civilization. Global crises and the problem of the value of scientific and technological progress.	LC, SM, AW

Section 2 The philosophy of technology: problems, tasks and role in culture.	The philosophy of technology as a modern non-classical philosophical discipline. The object and subject of the philosophy of technology. The main problems and tasks of the philosophy of technology. The main sections of the philosophy of technology. The specifics of the philosophy of technology.	LC, SM, AW
Section 3 Scientific and technical knowledge of the ancient world and antiquity.	Technical knowledge of the Ancient world and Antiquity. Religious and mythological understanding of practical activity in ancient cultures (Egypt and Mesopotamia). The distinction between "techne" and "episteme" in antiquity.	LC, SM, AW
Section 4 Scientific and technical knowledge in the Middle Ages.	The Christian worldview and the peculiarities of science and technology in the Middle Ages. Work as a form of service to God. The role of universities in bringing a practical orientation in the field of intellectual activity. The influence of Arabic sources and techniques of the medieval East.	LC, SM, AW
Section 5 The emergence of interrelations between science and technology. Technical knowledge of the Renaissance.	Changing attitudes towards invention. Personalized synthesis of scientific and technical knowledge: artists and engineers, universal scientists of the Renaissance: Leon Batista Alberti, Leonardo da Vinci, Albrecht Durer, etc.	LC, SM, AW
Section 6 The change of the socio-cultural paradigm of the development of technology and science in modern times.	The Scientific Revolution of the 17th century: the formation of the experimental method and the mathematization of natural science as prerequisites for the application of results in technology. Francis Bacon's "sciences and arts" reunion program.	LC, SM, AW
Section 7 Science as a factor of technogenic civilization.	Organizational design of science. Universities and academies as communities of experimental scientists: academies in Italy, the Royal Society of London, the Paris Academy of Sciences, the St. Petersburg Academy of Sciences. The beginning of the convergence of science and various spheres of human practice – crafts, military affairs, navigation. The Industrial Revolution of the 18th – 19th centuries.	LC, SM, AW
Section 8 Science and technology as sociocultural phenomena.	The versatility of science. The main ideas about the scientific means of "knowledge production" - theories, methods, technical equipment of scientific research. Science and technology from interaction to integration. Science as an integral part of the modern market.	LC, SM, AW
Section 9 Science and technology in the culture of the future.	The danger of alienating science and technology, their goals and results from humans. Will science remain a knowledge factory serving the different needs of a man-made civilization? Science and technology and global problems. The "Philosophy of optimism" before the new challenge of history. Culture at the turn of the millennium in search of new spiritual landmarks.	LC, SM, AW

* - LC – lecture, LR – laboratory work, SM – seminars; AW – Autonomous work

6. INTERNSHIP EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Technical Support Requirements

A type of aclassroom	Technical Support Requirements	Special equipment, software
----------------------	--------------------------------	-----------------------------

For lectures	An auditorium for lecture-type classes, equipped with a set of specialized furniture; board (screen) and technical means of multimedia presentations	Technical means: projector Epson EH- TW5300 (LCD, 1080p 1920 x 1080, 2200Lm, 35000:1, 2 x HDMI, MHL, экран Draper Bar-onet NTSC (3:4) 244/96(8) 152*203 MW
For seminars	Auditorium for seminar-type classes, group and individual consultations, current control and intermediate certification, equipped with a set of specialized furniture and technical means of multimedia presentations	Computer class; technical equipment: personal computers, projection screen, multimedia projector, NEC NP-V302XG, Internet access. Software: Microsoft products (OS, office suite, incl. MS Office/Office 365, Teams, Skype),
For autonomous work	Auditorium for independent work of students (can be used for seminars and consultations), equipped with a set of specialized furniture and computers with access to the EIOS	Computer class; technical equipment: personal computers, projection screen, multimedia projector, NEC NP-V302XG, Internet access. Software: Microsoft products (OS, office suite, including. MS Office/Office 365, Teams, Skype)

7. RESOURCES RECOMMENDED FOR THE COURSE:

Main literature:

1. Philosophy of Science: a textbook for graduate studies / A. I. Lipkin [et al.]; edited by A. I. Lipkin. — 2nd ed., reprint. and additional. — M. : Yurayt Publishing House, 2017. — 512 p. — (Series : Master). — ISBN 978-5-534-01198-2.; Access mode: <https://biblionline.ru/book/B24AD3C5-604D-438C-9CAF-643BA58041FD>
2. Ivin, A. A. Philosophy of science in 2 hours. Part 2 : textbook for undergraduate and graduate studies / A. A. Ivin. — 2nd ed., ispr. and additional. — M. : Yurayt Publishing House, 2017. — 272 p. — (Series : Bachelor and Master. Academic course). — ISBN 978-5-534-00150-1.. Access mode: <https://biblio-online.ru/book/6F6B7BAB-997B-4CBA-8751-7D42A4AF39C9>
3. Rozin, V. M. Philosophy of technology : a textbook for universities / V. M. Rozin. — 2nd ed., ispr. and add. - M. : Yurayt Publishing House, 2017. — 296 p. — (Series : Author's textbook). — ISBN 978-5-534-05511-5. Access mode: <https://biblio-online.ru/book/94FAAE2D6ED3-4F9B-A3C9-EADC23660608>

Additional readings:

1. Ushakov, E. V. Philosophy of engineering and technology : textbook for undergraduate and graduate studies / E. V. Ushakov. — M. : Yurayt Publishing House, 2017. — 307 p. — (Series : Bachelor and Master. Academic course). — ISBN 978-5-534-04704-2.; Access mode: <https://biblio-online.ru/book/9DE7CE45-671F-4D45-B7E4-56E866A73D2D>
2. Shapovalov, V. F. Philosophical problems of science and technology : textbook for undergraduate and graduate studies / V. F. Shapovalov. — 2nd ed., ispr. and add. — M. : Yurayt Publishing House, 2017. — 312 p. — (Series : Bachelor and Master. Academic course). — ISBN 978-5-534-01401-3. Access mode: <https://biblio-online.ru/book/25199454-FAEA4BA9-96E7-FF7880009388>
3. Ushakov, E. V. Philosophy and methodology of science : textbook and workshop for undergraduate and graduate studies / E. V. Ushakov. — M. : Yurayt Publishing House, 2017. — 392 p. — (Series : Bachelor and Master. Academic course). — ISBN 978-5-534-02637-5. Access mode: <https://biblio-online.ru/book/FA079D3D-2982-4784-B001-5FC5A9EC4806>

Electronic library systems:

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

- EL "Lan" <http://e.lanbook.com/>
- EL "Trinity Bridge"

2. Databases and search engines:

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

The training toolkit and guidelines for a student:

1. Collection of lectures on the course PHILOSOPHICAL ISSUES OF TECHNICAL KNOWLEDGE.

* The training toolkit and guidelines for the course are placed on the internship page in the university telecommunication training and information system under the set procedure.

8. ASSESSMENT TOOLKIT AND GRADING SYSTEM* FOR EVALUATION OF STUDENTS' COMPETENCES LEVEL AS INTERNSHIP RESULTS

The assessment toolkit and the grading system* to evaluate the level of competences (competences in part) formation as the course PHILOSOPHICAL ISSUES OF TECHNICAL KNOWLEDGE results are specified in the Appendix to the internship syllabus.

* The assessment toolkit and the grading system are formed on the basis of the requirements of the relevant local normative act of RUDN University (regulations / order).

DEVELOPERS:

Associate Professor in the Department
of Energy Engineering

position, educational department

signature

Oshchepkov P.P.

name and surname

HEAD OF EDUCATIONAL DEPARTMENT:

Head of the Department of
Energy Engineering

position, educational department

signature

Yu.A. Radin

name and surname

HEAD OF HIGHER EDUCATION PROGRAMME:

Head of the Department of
Energy Engineering

position, educational department

signature

Yu.A. Radin

name and surname