



APPROVED BY

Pro-rector for Academic Affairs

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ACADEMIC COURSE WORKING PROGRAM

Academic course: Management decision theory
(Name)

Form of education: Full-time
(Full-time /full-time - correspondence/correspondence)

Level of higher education: Master's degree
(Bachelor's program/specialist program/Master's program)

Total labour intensiveness: 108 (3)
(Hours (CU))

Training program (degree): 38.04.01 Economics
(Code and denomination of degree)

Direction: Oil and Gas Enterprise Management and Economics
(Title of curriculum)

1. General Provisions

1.1. Goals and Objectives of the Course

Formation of theoretical knowledge and practical skills for making effective management decisions.

Objectives of the discipline:

- features of management decisions;
- principles and methods of management decision-making;
- assessment and selection of management decisions due to risk and uncertainty;
- rational management decision-making;
- development of investment decisions.

1.2. Studied Objects of the Course

- principles and methods of management decision-making;
- typology and a model of management decisions development;
- techniques for developing and choosing solutions due to uncertainty and risk;
- the process of making rational management decisions.

1.3. Starting Conditions

Unstipulated

2. Planned Results of the Course Training

| Competence | Indicator's Index | Planned Results of the Course Training (to know, to know how, to master) | Indicator of Attaining Competence which the planned results of training are correlated with | Means of Assessment |
|------------|------------------------|---|---|---------------------|
| PC-3.3. | AI-1 _{PC-3.3} | Knows the production, organizational and managerial structure, methods of strategic and tactical planning in enterprises. Know the classification of management decisions, know the requirements for the quality of management decisions | Knows production processes, methods of their organization and workplaces, production, organizational and managerial structure, methods of strategic and tactical planning at oil and gas enterprises | Test |
| PC-3.3. | AI-2 _{PC-3.3} | Is able to organize work of formation of the hierarchy of production process forecast at the strategical and tactical horizons of making managerial decisions in | Is able to organize work of formation of the hierarchy of production process forecast at the strategical and tactical horizons of making man- | Practical review |

| | | | | |
|----------------|------------------------------|--|--|------|
| | | order to define market needs for the products of oil and gas industry. Is able to identify problems when analyzing specific situations, suggest ways to solve them, and evaluate the expected results | agerial decisions in order to define market needs for the products of oil and gas industry, enterprise needs for production resources and facilities; provide smooth work of the enterprise and smooth product release according to the production programmes, contractual obligations, graphical schedules; organize the efficient load of oil and gas equipment. | |
| PC-3.3. | AI-3_{PC-3.3} | Has skills of the correct combination of economic and administrative methods of management. Has skills of developing, making and implementing management decisions | Has skills of the correct combination of economic and administrative methods of management, material and moral stimulations of productivity enhancement as well as client-centered strategic and tactical management of configurations of oil and gas industry products on the grounds of long-term and medium-term forecasts of market development | Test |

3. Full time and forms of academic work

| Form of academic work | Hours in all | Distribution in hours according to semesters | |
|--|--------------|--|--|
| | | Number of semester | |
| | | 2 | |
| 1. Holding classes (including results monitoring) in the form: | 43 | 43 | |
| 1.1. Contact classwork, including: | | | |
| - lectures (L) | 12 | 12 | |
| - laboratory work (LW) | - | - | |
| - practice, seminars and/or other seminar-type work (PW) | 25 | 25 | |
| - control of self-work (CSW) | 6 | 6 | |
| - test | - | - | |
| 1.2. Students' self-work (SSW) | 65 | 65 | |
| 2. Intermediate attestation | - | - | |
| Exam | - | - | |
| Grading test | - | - | |
| Test (Credit) | 9 | 9 | |
| Course Project (CP) | - | - | |
| Course Work (CW) | - | - | |

| Form of academic work | Hours in all | Distribution in hours according to semesters |
|-----------------------------------|--------------|--|
| | | Number of semester |
| | | 2 |
| Total Course Labour Intensiveness | 108 | 108 |

4. Course outline

| Name of the units with the course outline | Full time of classroom activity in hours according to the forms | | | Full time of extracurricular work in hours according to the forms |
|---|---|----|----|---|
| | L | LW | PW | SSW |
| 2 semester | | | | |
| <i>Fundamentals of the managerial decision-making theory</i> | 4 | 0 | 4 | 20 |
| <p>Topic 1. The emergence of the management decision science and its connection with other management sciences. Decision as an alternative choice. Management decision as a special type of decision. The object and subject of the management decision. Distinctive features of the management solution. Classification of management decisions.</p> <p>The main stages of the management solution development. Forms of management decision preparation. Forms of management decision implementation. A combination of preparation and implementation forms of management decisions.</p> <p>Topic 2. Application of scientific approaches to management solution development</p> <p>Application of scientific approaches to management decisions development. System, functional and situational approaches to management solution development.</p> | | | | |
| <i>Methods of development, adoption and implementation of management decisions</i> | 8 | 0 | 21 | 45 |
| <p>Topic 3. Methods used at the stage of problem diagnosis and formulation of constraints and criteria.</p> <p>Situational analysis: concept, stages. Methods of situational analysis: case-method (step-by-step analysis of the situation), "brain attack", two-round questionnaire, multidimensional scaling. The concept of modeling, the concept of a model, and the reasons for using models. Types of models. The main models used for the development of management decisions: game theory models, queuing theory models, inventory management models, simulation modeling, economic analysis, optimal linear modeling.</p> <p>Topic 4. Methods used at the stage of identification and evaluation of alternatives</p> <p>The method of "brainstorming". Morphological analysis. Methods of associations and analogies. The method of control questions. The collective notepad method. The synectics. Application of methods of alternatives multi-criteria evaluation. Application of expert methods for alternatives evaluation. Methods of quantitative expert assessments. Methods of qualitative expert assessments. Application of forecasting methods to determine the possible consequences of making a deci-</p> | | | | |

| Name of the units with the course outline | Full time of classroom activity in hours according to the forms | | | Full time of extracurricular work in hours according to the forms |
|--|---|---|----|---|
| <p>sion. Types of forecasts used for the purposes of managerial decision-making. The use of expert forecasting methods in order to make management decisions. Individual expert methods. Collective expert methods.</p> <p>Topic 5. Methods used at the stages of selection, implementation of the solution and result evaluation</p> <p>The method of functional cost analysis. The main stages of functional cost analysis. The method of chain substitutions. The method of causal analysis. The sequence of steps of causal analysis.</p> <p>Topic 6. Development of a management decision in conditions of uncertainty and risk</p> <p>The essence of uncertainty and risk. Uncertainty factors. Classification of risks. Risk assessment. Methods of development and selection of management decisions in conditions of uncertainty and risk.</p> <p>Topic 7. Control of management decision implementation. Control as a way to ensure goals achievement. Control necessity. Control types. Requirements for effective control of management decisions implementation. Monitoring process of management decision implementation. Tools for monitoring the implementation of management decisions.</p> | | | | |
| Total | 12 | 0 | 25 | 65 |
| Total | 12 | 0 | 25 | 65 |

Topics of exemplary practical work

| Sl.№ | Topic of practical (seminar) work |
|------|---|
| 1 | Step-by-step development of management solutions. Forms of management decisions preparation. Forms of management decision implementation. |
| 2 | Application of system, functional and situational approaches to the development of management decisions |
| 3 | Situational analysis: concept, stages. Methods of situational analysis |
| 4 | Basic models for management solutions development |
| 5 | Alternatives in the choice of management decisions |
| 6 | Methods of multi-criteria assessment. Forecasting methods. Expert methods. |
| 7 | Comparison of alternatives in the development of management solutions. Methods for evaluating alternatives |
| 8 | Methods of decision results evaluating |
| 9 | Uncertainty of the external environment, risks and management decision-making in the organization. The essence, types and quantitative criteria of risks of management decisions. |
| 10 | Features of decision-making in extreme situations |
| 11 | The essence of the control function and types of control. Organization of implementation of the adopted decisions |
| 12 | Control methods and mechanism |

Topics of exemplary laboratory practice – Unstipulated

| Sl. № | Topic of laboratory work |
|-------|--------------------------|
| | |
| | |

5. Organizational and Pedagogical Conditions

5.1. Educational Technologies Used for Competences Formation

Holding lectures in the discipline is based on the active method of training in the process of which students are not passive but active participants of the lesson answering questions of the teacher. Teacher's questions are aimed at activating the process of learning material as well as at the development of logical thinking. The questions stimulating associative thinking and connecting new material with the previous one are identified by the teacher in advance.

Practical lessons are held by realization of the method based on active training: problem areas are determined, groups are formed. The following aims are pursued in the process of practical education: use of definite disciplines knowledge and creative methods in solving problems and decision-making; students' skill-building of teamwork, interpersonal communication and development of leadership skills; consolidation of the basic theoretical knowledge.

Laboratory classes are based on an interactive learning method in which students communicate not only with the teacher but also with each other. At the same time, students' activity in the learning process dominates. The teacher's place in interactive classes is reduced to orienting students' activities to achievement of the goals of studies. Interactive lectures, group discussions, role-playing games, training sessions, and analysis of situations and simulation models are used in academic studies

5.2. Students' Manual for the Course Study

Learning the course students are recommended to fulfill the following positions:

1. Learning of the discipline should be done systematically.
2. After learning one of the course unit with the help of the text-book or lecture notes it is recommended to reproduce in memory the basic terms, definitions, notions of the unit.
3. Special attention should be paid to the reports on practical studies, laboratory works and individual complex tasks for self-work.
4. The topic of questions studied individually is given by the teacher at the lectures. Also the teacher refers to the literary resources (first of all, to the newly published in periodicals) in order the students understand the problems touched on the lectures in detail.

6. List of Teaching Materials and Information Supply for Students' Self work in the Discipline

6.1. Paper-based courseware

| Sl.№ | Bibliographic entry (author, title, mode of publication, place, publishing house, year of publication, number of pages) | Number of copies in the library |
|----------------------------|---|---------------------------------|
| 1. Basic literature | | |
| 1 | Методы принятия управленческих решений : учебное пособие / П. В. Иванов [и др.]. - Ростов-на-Дону: Феникс, 2014. | 2 |

| Sl.№ | Bibliographic entry (author, title, mode of publication, place, publishing house, year of publication, number of pages) | Number of copies in the library |
|---|--|---------------------------------|
| 2 | Тебекин А. В. Методы принятия управленческих решений : учебник для академического бакалавриата / А. В. Тебекин. - Москва: Юрайт, 2015. | 10 |
| 3 | Теория и практика принятия управленческих решений : учебник для магистратуры / Г. И. Москвитин [и др.]. - Москва: КНОРУС, 2017. | 4 |
| 2. Additional literature | | |
| 2.1. Educational and scientific literature | | |
| 1 | Методы принятия управленческих решений : учебник для бакалавров / Л. А. Трофимова, В. В. Трофимов ; Санкт-Петербургский государственный университет экономики и финансов .— Москва Юрайт, 2013 .— 335 с. | 7 |
| 2 | Методы принятия управленческих решений : учебник для вузов / В. З. Черняк, И. В. Довдиенко .— 2-е изд., стер .— Москва : Академия, 2013, 2014 .— 236 с. | 7 |
| 3 | Разработка управленческих решений : учебное пособие / А. Г. Ивасенко, Я. И. Никонова, Е. Н. Плотникова .— 4-е изд., стер .— Москва : КНОРУС, 2014 .— 168 с. | 1 |
| 4 | Теория и методы принятия решений, а также Хроника событий в Волшебных странах : учебник для вузов / О. И. Ларичев .— 3-е изд., перераб. и доп .— Москва : Логос, 2008 .— 391 с. | 15 |
| 5 | Управленческие решения : учебное пособие для вузов / А.С. Лифшиц .— Москва : КНОРУС, 2009 .— 245 с. | 2 |
| 2.2. Standardized and Technical literature | | |
| 1 | Известия РАН. Теория и системы управления: журнал | 1 |
| 2 | Проблемы теории и практики управления | 1 |
| 3. Students' manual in mastering discipline | | |
| 1 | Управленческие решения : учебно-методическое пособие / Л. В. Невская — Пермь : Изд-во ПГТУ, 2009 .— 182 с. | 29 |
| 4. Teaching and learning materials for students' self work | | |
| | | |
| | | |

6.2. Electronic Courseware

| Kind of literature | Name of training tool | Link to information resource | Accessibility of EBN (Internet/local net; authorized free assess) |
|--------------------------|---|---|--|
| Supplementary literature | Управленческие решения : учебно-методическое пособие / Л.В. Невская — Пермь : Изд-во ПГТУ, 2009 .— 182 с. | https://elib.pstu.ru/Record/RUPNRPUelib2862 | Internet free assess |

6.3. License and Free Distributed Software used in the Course Educational Process

| Type of Software | Software branding |
|---|---|
| OS | Windows 10 (Azure Dev Tools for Teaching) |
| Office Applications | Adobe Acrobat Reader DC |
| Image processing software | Corel CorelDRAW Suite X4 |
| General purpose application software | Mathematica Professional Version (license L3263-7820*) |
| General purpose application software | Microsoft Office Visio Professional 2016 (Azure Dev Tools for Teaching) |
| General purpose application software | WinRAR (license №879261.1493674) |
| Management systems for projects, research, development, design, modeling and implementation | Autodesk AutoCAD 2019 Education Multi-seat Stand-alone |

6.4. Modern Professional Data bases and Inquiry Systems Used in the Course Educational Process

| Branding | Reference to information resource |
|---|---|
| Scopus database | https://www.scopus.com/ |
| Web of Science Database | https://www.webofscience.com/ |
| Scientific electronic library database (eLIBRARY.RU) | https://elibrary.ru/ |
| Scientific Library of the Perm National Research Polytechnic University | https://lib.pstu/ |
| Lan Electronic Library System | https://e.lanbook.com/ |
| Electronic library system IPRbooks | https://www.iprbookshop.ru/ |
| Information resources of the Network ConsultantPlus | https://www.consultant.ru/ |
| Company database EBSCO | https://www.ebsco.com/ |

7. Logistics of the Course Educational Process

| Type of classes | Name of the necessary basic equipment | Number of units |
|-----------------|---------------------------------------|-----------------|
| Practice | projector apparatus | 1 |

8. Fund of the Course Evaluating Tools

Described in a separate document