

Ministry of Science and Higher Education of the Russian Federation



Federal State Budgetary Educational Institution of Higher Education  
**Perm National Research Polytechnic University**



**APPROVED BY**  
Pro-rector for Academic Affairs

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### ACADEMIC COURSE WORKING PROGRAM

**Academic course:** Methodology of Economic Research  
(Name)

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

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

**Workload in hours (in credits)** 144 (4)  
(Hours (CU))

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

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

Perm 2020

## 1. General Provisions

### 1.1. Goals and Objectives of the Course

The goal of the course is to provide students with comprehensive understanding of economic research methodology and technology at the theoretical and applied levels. The study of the course enables the student to generalize and critically evaluate scientific research in economics.

The objectives of the course is:

- to know the world economic science methodology and methods, its achievements in the chosen field of scientific interest in last decades;
- to be able to plan and select research methods based on various economic scientific research strengths and weaknesses, to form and test scientific research hypothesis;
- to master the skills of scientific discussions and round tables on topics related to comparative analysis of economic research.

### 1.2. Prescribed Objects of the Course

- Socio-economic systems;
- Methodology of economic science, economic research.

### 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 be able to, to master)   | Indicator of Attaining Competence which the planned results of training are correlated with  | Means of Assessment |
|------------|-------------------|--|--|---------------------|
| GPC-3      | IA-1.GPC-3        | <b>To know</b> the world economic science achievements in the chosen field of scientific interests for the last decades; the main current disagreements in economic science. | <b>Knows</b> the world economic science achievements in the chosen field of scientific interests for the last decades; the main current disagreements in economic science. | Exam                |
| GPC-3      | IA-2.GPC-3        | <b>To be able to</b> identify strengths and weaknesses in economic scientific research.  | <b>Is able to</b> identify strengths and weaknesses in economic scientific research.   | Control work        |
| GPC-3      | IA-3.GPC-3        | <b>To master</b> the skills of   | <b>Has mastered</b> the skills of  | Case-task           |

|      |           |   |   |              |
|------|-----------|---|---|--------------|
|      |           | scientific economic research comparative analysis.  | scientific economic research comparative analysis.  |              |
| GC-2 | IA-1.GC-2 | <b>To know</b> how to present and describe the project results; methods, criteria and parameters for evaluating project performance; principles, methods and requirements for the project work.   | <b>Knows</b> how to present and describe the project results; methods, criteria and parameters for evaluating project performance; principles, methods and requirements for the project work.   | Exam         |
| GC-2 | IA-2.GC-2 | <b>To be able to</b> prove the practical and theoretical significance of the results obtained; to check and analyse project documents; to forecast the development of project professional processes; to propose innovative ideas and non-standard approaches to the project realization; to calculate qualitative and quantitative results and the project work scheduling.  | <b>Is able to</b> prove the practical and theoretical significance of the results obtained; to check and analyse project documents; to forecast the development of project professional processes; to propose innovative ideas and non-standard approaches to the project realization; to calculate qualitative and quantitative results and the project work scheduling.   | Control work |
| GC-2 | IA-3.GC-2 | <b>To master</b> the skills of project management in the relevant professional activity including: skills in assigning tasks and motivating others to achieve objectives; skills in managing the development terms of reference for a project, in project-related processes management; the project discussion process and its completion management; the skills to develop a professional project programme; skills to organize professional project discussions, participate in filing the project documents; the skills in project scheduling; the skills to list requirements for project results, the skills for participating | <b>Has mastered</b> the skills of project management in relevant professional activity including: skills in assigning tasks and motivating others to achieve objectives; skills in managing the development terms of reference for a project, in project-related processes management; the project discussion process and its completion management; skills to develop a professional project programme; the skills to organize professional project discussions, to participate in filing the project documents; the skills in project scheduling; the skills to list requirements for project results, the skills for participating in scientific discussions and round tables. | Case-task    |

|  |  |   |  |  |
|--|--|---|--|--|
|  |  | in scientific discussions and round tables. |  |  |
|--|--|---|--|--|

### 3. Full time and forms of academic work

| Form of academic work  | Hours in all | Distribution in hours according to semesters |  |
|--|--------------|--|--|
|  |              | Number of semester                           |  |
|  |              | 1  |  |
| 1. Holding classes (including results monitoring) in the form: | 54           | 54   |  |
| 1.1. Contact classwork, including:                             |              |  |  |
| - lectures (L)   | 14           | 14   |  |
| - laboratory work (LW)   |              |  |  |
| - practice, seminars and/or other seminar-type work (PW)       | 36           | 36   |  |
| - control of self-work (CSW)                                   | 4            | 4  |  |
| - test   |              |  |  |
| 1.2. Students' self-work (SSW)                                 | 54           | 54   |  |
| 2. Intermediate attestation                                    |              |  |  |
| Exam   | 36           | 36   |  |
| Grading test   |              |  |  |
| Test (Credit)  |              |  |  |
| Course Project (CP)  |              |  |  |
| Course Work (CW)   |              |  |  |
| <b>Workload in hours</b>                                       | <b>144</b>   | <b>144</b>                                   |  |

### 4. Course contents

| 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   |
| Semester I  |   |    |    |   |
| Methodological foundations in economic sciences and project management processes  | 6   | 0  | 12 | 16  |
| Topic 1. Method, methodology and science.<br>Main terminology features of methodological approaches to methodology definition. Methodology structure chart. Components of methodological structure: the object, the subject, the form, means, methods and results. The science. Criteria of knowledge scientific character.<br>Topic 2. Model features of the scientific knowledge subject.<br>Basic methodological concepts in philosophy and science in the 20th century. Specifics of economic science. Relationships between the model of the research subject and the methodology as a result of its research activities. The human model in political |   |    |    |   |

|   |   |   |    |    |
|---|---|---|----|----|
| <p>economy theories, modern concepts of institutional, neoinstitutional and evolutionary economic theories. Major current disagreements in economic science.</p> <p>Topic 3. Peculiarity of methodology formation for solving economic and management tasks</p> <p>Differences in methodology structure for economic and management tasks. The concept of paradigm in economic science. The problem of truth in socio-economic research. Main schools of economic methodology (Classical Political Economy Methodology, Marxism Economic Methodology, Marginalism Methodology and Cambridge School Methodology)</p>   |   |   |    |    |
| <p>Forms and principles of scientific knowledge organization</p>  | 8 | 0 | 24 | 38 |
| <p>Topic 4. Principles of scientific knowledge and its organization forms.</p> <p>Project activity. Concept of new scientific knowledge and project activities. The principles of relationships between the cognizing subject, the object of reality and the preceding scientific knowledge: principles of complementarity, determinism and conformity. Systematic approach of scientific knowledge and project activity. Assignment principles, management of the project SOW development and implementation, project discussion and completion, development of the project programme in the professional field. Content of project documentation and project scheduling, project results planning.</p> <p>Topic 5. Forms of scientific knowledge organization. Features of scientific knowledge organization form as the fact, the position, the concept, the category, principles, the theory, the metatheory, the idea, the doctrine, and the paradigm. Principles of hypothesis formation and its development. Methods and criteria for project results evaluation. Individual and collective organization features of scientific activity.</p> <p>Topic 6. Means and methods of scientific knowledge. Means of scientific knowledge (material, informational, mathematical, logical and cognitive) and features of their selection for specific scientific purposes. Relevance and scientific innovation of research as a basis for the selection of research methods (historical, evolutionary, revolutionary, observation and experiment, statistical and mathematical methods). Principles and criteria of selection in theoretical and empirical scientific research methods.</p> <p>Topic 7. Methods for assessing the validity of scientific knowledge</p> <p>Classification of scientific research objectives and their relationships with the multi-criteria choice of alternatives.</p> <p>Criteria for assessing the credibility of theoretical</p> |   |   |    |    |

|   |    |   |    |    |
|---|----|---|----|----|
| research and project work: relevance, completeness, coherence, interpretability, verifiability and reliability. Criteria for assessing the credibility of empirical research and project work: objectivity, adequacy, neutrality and completeness. Hierarchical organization of approaches and methods of socio-economic phenomena studies in the field of economics and management, in project activities. |    |   |    |    |
| Total with regard to 1st semester   | 14 | 0 | 36 | 54 |
| Total with regard to the course   | 14 | 0 | 36 | 54 |

### Topics of exemplary practical work

| Sl. № | Topic of practical (seminar) work   |
|-------|---|
| 1.    | The problem of method and methodology in research   |
| 2.    | Features of the subject's model in scientific knowledge   |
| 3.    | Formulation of research (project) goals and objectives according to the research topic and hypothesis                 |
| 4.    | Choice of the research methods  |
| 5.    | Choice of evaluation criteria for expected research results according to the type of scientific research organization |
| 6.    | Choice of means and methods of scientific knowledge according to the research (project) task                          |
| 7.    | Methods for assessing the credibility of research (project) results   |

## 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 formulated 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.

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, it is advisable for students to implement the following recommendations:

1. Learning of the discipline should be done systematically.
2. After learning one of the course units with the help of the text-book or lecture notes it is recommended to reproduce the basic terms, definitions, notions of the unit from memory.
3. Special attention should be paid to the reports on practical studies and individual complex tasks for self-work.

4. The topics list for individual study is given by the teacher at the lectures. The teacher also provides students with literary sources (first of all, new ones in the periodical scientific literature) for a more detailed under-standing of the issues presented at the lectures.

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

### 6.1. Paper-based courseware

| Sl.No   | Bibliographic entry<br>(author, title, mode of publication, place, publishing house, year of publication, number of pages )   | Number of copies in the library |
|---|---|---------------------------------|
| <b>1. Basic literature</b>  |   |                                 |
| 1.  | Ivanova T.V. Methodology of Scientific Research (Methodology of Scientific Research): Training Manual / Ivanov T.V., Kozlov A.A., Zhuravlev E.A. - Moscow : Peoples' Friendship University of Russia, 2012. - 80 c. - ISBN 978-5-209-03657-9. - Text : Electronic // Electronic Library System IPR BOOKS : [Site]. - URL: <a href="http://wwwwww.iprbookshop.ru/11580.htm">http://wwwwww.iprbookshop.ru/11580.htm</a> |                                 |
| <b>2. Additional literature</b>                                   |   |                                 |
| <b>2.1. Educational and scientific literature</b>                 |   |                                 |
| 2.  | Journal of Applied Economic Research / Ural Federal University- Text : Electronic // Electronic Library System IPR BOOKS. - Yekaterinburg, 2002   |                                 |
| 3.  | Bulletin Social-Economic and Humanitarian Research / International Standard Number of Electronic Network Edition, № 2658-5561. - Voronezh, 2018   |                                 |
| <b>2.2. Standardized and Technical literature</b>                 |   |                                 |
|   |   |                                 |
| <b>3. Students' manual in mastering discipline</b>                |   |                                 |
|   |   |                                 |
| <b>4. Teaching and learning materials for students' self-work</b> |   |                                 |
|   |   |                                 |
|   |   |                                 |

### 6.2. Electronic Courseware

| Kind of literature | Name of training tool | Reference to information resource | Accessibility of EBN<br>(Internet/local net; authorized free access ) |
|--------------------|-----------------------|-----------------------------------|---|
|                    |                       |                                   |   |
|                    |                       |                                   |   |

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

| Type of Software    | Software branding                                 |
|---------------------|---|
| Operating systems   | Windows 10 (подп. Azure Dev Tools for Teaching)   |
| Office applications | Microsoft Office Professional 2007. lic. 42661567 |

### 6.4. Modern Professional Databases and Inquiry Systems Used in the Course Educational Process

| Branding  | Reference to information resource                                       |
|---|---|
| Scopus Database   | <a href="https://www.scopus.com">https://www.scopus.com</a>             |
| Web of Science Database   | <a href="http://www.webofscience.com/">http://www.webofscience.com/</a> |
| Electronic library system Database (eLIBRARY.RU)                    | <a href="https://elibrary.ru/">https://elibrary.ru/</a>                 |
| Scientific Library of Perm National Research Polytechnic University | <a href="http://lib.pstu.ru/">http://lib.pstu.ru/</a>                   |
| Lan' Electronic library system                                      | <a href="https://edanbook.com/">https://edanbook.com/</a>               |
| IPR books Electronic library system                                 | <a href="http://www.iprbookshop.ru/">http://www.iprbookshop.ru/</a>     |
| IPRbooks Electronic Library System                                  | <a href="http://www.iprbookshop.ru/">http://www.iprbookshop.ru/</a>     |
| Information resources of the Network ConsultantPlus                 | <a href="http://www.consultant.ru/">http://www.consultant.ru/</a>       |

### 7. Logistics of the Course Educational Process

| Type of classes | Name of the necessary basic equipment | Number of units |
|-----------------|---------------------------------------|-----------------|
| Lecture         | Computer equipment and projector      | 1               |
| Practicals      | Computer equipment and projector      | 1               |

### 8. Fund of the Course Evaluating Tools

Described in a separate document



**FUND OF ESTIMATING TOOLS**

**For students' midterm assessment in the discipline**  
**"Methodology of Economic Research"**  
*Supplement to the Academic Course Working Program*

|  |   |
|--|---|
| <b>Training program</b>                                  | 38.04.01 Economics  |
| <b>Direction (specialization) of educational program</b> | "Oil and Gas Enterprise Economics and Management"; "Digital Economics and Management in Machine Building Enterprises" |
| <b>Graduate qualification</b>                            | Master's program  |
| <b>Graduate academic chair</b>                           | Economics and Management of Industrial Production   |
| <b>Form of study</b>                                     | Full-time studies   |

**Year (-s):** 1

**Semester (-s):** 1

**Workload:**

in credits: 4 CU

in hours: 144 h

**The form of midterm assessment:**

**Exam** - 1 semester

**Fund of estimating tools** for midterm assessment of students' learning the subject "Methodology of Economic Research" is the part (supplement) to the academic course working program. Fund of estimating tools for midterm assessment of students' learning the discipline has been developed in accordance with the general part of the fund of estimating tools for midterm assessment of the basic educational program which determines the system of the midterm assessment results and criteria of putting marks. Fund of estimating tools for midterm assessment of students' learning the subject determines the forms and procedures of monitoring results and midterm assessment of the subject leaning by the students.

### 1. List of controlled results of studying discipline, objects of assessment and forms of control.

According to the Academic Course Working Program mastering course content is planned during one semester (the first semester of curriculum) and is divided into three educational modules. Classroom activities, lectures and practical work as well as students' self-work are provided for every module. In the frames of mastering course content such competences as *to know, to be able, to master* pointed out in the ACWP are formed. These competences act as the controlled results of learning the discipline (Table 1.1).

Monitoring of the acquired knowledge, abilities and skills is made in the frames of continuous assessment, progress check and formative assessment in the process of studying theoretical material, control works and tests. Types of control is given in Table 1.1

Table 1.1. List of controlled results of learning the discipline

| Controlled results of learning the discipline (KAB)   | Type of control       |    |                 |          |                      |    |
|---|-----------------------|----|-----------------|----------|----------------------|----|
|   | Continuous assessment |    | Progress check  |          | Formative assessment |    |
|   | D                     | AC | LW<br>R/P<br>WR | T/C<br>W |                      | Ex |
| <b>Acquired knowledge</b>   |                       |    |                 |          |                      |    |
| <b>K.1</b> Knows the achievements of the world economic science in the chosen field of scientific interests for the last decades; the major current differences in economic science.  | D                     | AC |                 | CW       |                      | TQ |
| <b>K.2</b> Knows the methods of presentation and description of project results; methods, criteria and parameters for evaluating project performance; project work principles, methods and requirements.  | D                     | AC |                 |          |                      | TQ |
| <b>Acquired abilities</b>   |                       |    |                 |          |                      |    |
| <b>A.1</b> Is able to identify strengths and weaknesses in economic scientific research   |                       |    | CT              | CW       |                      | CT |
| <b>A.2</b> Is able to prove the practical and theoretical significance of the results obtained; to check and analyse project documents; to forecast the development of project professional processes; to propose innovative ideas and non-standard approaches to the project realization; to calculate qualitative and quantitative results and the project work scheduling. |                       |    | CT              | CW       |                      | CT |

| Mastered skills  |   |  |     |  |  |    |
|--|---|--|-----|--|--|----|
| S.1 Has mastered the skills of scientific economic research comparative analysis.  | D |  | PWR |  |  | CT |
| S.2 Has mastered the skills of project management in the field of relevant professional activity including: skills of assigning tasks and motivating others to achieve objectives; skills of project terms of reference management, of project-related processes management; of project discussion process and its completion management; skills to develop a professional project programme; skills to organize professional project discussions, participate in filing the project documents; skills of project scheduling; skills of listing requirements for project results, skills for participation in scientific discussions and round tables. | D |  | PWR |  |  | CT |

*D – topic discussion; AC – colloquium (discussion of theoretical material, academic conference); CT – case-task (individual task); LWR – report on laboratory work; PWR – report on practical work; T/CW – progress check (control work); TQ – theoretical question; PT – practical task; CT – complex task of grading test.*

Final assessment of the learned discipline results is the midterm assessment which is made in the form of test taking into consideration the results of the running and progress check.

## **2. Types of control, standard control tasks and scales of learning results assessment**

Continuous assessment of the academic performance is aimed at maximum effectiveness of the educational process, at monitoring students' specified competencies formation process, at increase of learning motivation and provides the assessment of mastering the discipline. In accordance with the regulations concerning the continuous assessment of the academic performance and midterm assessment of students taught by the educational programs of Higher education – programs of the Bachelor's Course, Specialists' and Master's Course the next types of students' academic performance continuous assessment and its periodicity is stipulated in PNRPU:

- acceptance test, check of the student's original preparedness and his correspondence with the demands for the given discipline learning;
- continuous assessment of mastering the material (the level of mastering the component "to know" defined by the competence) at every group studies and monitoring of lectures attendance;
- interim and progress check of students' mastering the components "to know" and "to be able" of the defined competences by computer-based or written testing, control discussions, control works (individual home tasks), reports on laboratory works, reviews, essays, etc.

Discipline progress check is conducted on the next week after learning the discipline module, while the interim control is made at every monitoring during the discipline module study;

- interim assessment, summarizing of the current students' performance at least once a semester in all disciplines for every training program (specialty), course, group;
- retained knowledge control.

## **2.1. Continuous assessment of education**

Continuous assessment of learning is made in the form of discussion or selective recitation on every topic. According to the four-point system the results of assessment are put into the teachers' note-book and are considered in the form of integral marks in the process of the midterm assessment.

## **2.2. Progress check**

For the complex assessment of the acquired knowledge, abilities and skills (Table 1.1) it is made the progress check in the form of report on practical work and midterm control works (after learning every discipline module).

### **2.2.1. Presentation of report on practical work**

It is planned 18 practical works all in all. Standard topics of practical works are given in ACWP.

Presentation of a report on practical work is made by the student individually or by the group of students. Standard scale and criteria of assessment are given in the general part of FET of the educational program.

### **2.2.2. Presentation of report on individual task**

According to ACWP 1 individual task (CT) is planned to be realized. Presentation of report on individual task is made by the student individually including the following tasks:

1. Setting goals and objectives according to the topic of scientific research.
2. Choice of research methods and experimental models according to the topic of scientific research.
3. Choice of the conceptual methodology framework of scientific knowledge according to the topic of scientific research.
4. Choice of methods to assess the research credibility.

### **2.2.3. Midterm control work**

According to ACWP 2 midterm control works (CW) are planned to be realized after learning the educational modules of the discipline by the students.

The first CW is realized on module 1 "Fundamentals of methodology in economic sciences and project management processes", the second CW on module 2 "Forms of scientific knowledge organization and principles".

### **Standard tasks of the first CW:**

1. Components in the structure of methodological activities.
2. Criteria of knowledge and scientific character.
3. Basic methodological concepts in philosophy and science in the XX century.
4. The basic schools of economic methodology.

### **Standard tasks of the second CW:**

1. The concept of new scientific knowledge.
2. Principles of scientific knowledge.
3. Forms of scientific knowledge organization.

Standard scale and criteria of the results of the midterm control work assessment are given in the general part of FET of the educational program.

## **2.3. Midterm assessment (final control)**

Admission for midterm assessment is made according to the results of

continuous assessment and progress check. Preconditions for admittance are successful reports of all practical works and positive integral estimation with respect to the results of continuous assessment and progress check.

According to ACWP, midterm assessment is made in the form of the exam orally using cards. Every card includes theoretical questions (TQ) aimed at control of the acquired knowledge, practical tasks (PT) aimed at mastered abilities, and complex tasks (CT) aimed at control of the acquired skills of all declared competences.

The card is formed so that the included questions and practical tasks could estimate the level of maturity of **all** declared competences. A form of the examination paper is given in the general part of FET of the educational program.

### **2.3.1. Standard questions and tasks the discipline testing**

#### **Standard questions for the acquired knowledge control:**

1. Structure chart of methodology.
2. General concept of science.
3. Components of methodological activity structure: the object, the subject, the form, means, methods, and results.
4. Criteria of scientific knowledge.
5. Classification of scientific knowledge.
6. Basic methodological concepts in philosophy and science in the XX century.
7. Concept of scientific revolutions by T. Kuhn.
8. Research programme concept by I. Lacatos.
9. The methodology of scientific research programmes by K. Popper.
10. The concept of the paradigm in economic science.
11. Main schools of economic methodology (Classical Political Economy Methodology, Marxism Economic Methodology, Marginalism Methodology and Cambridge School Methodology).
12. Project life cycle and phases.
13. Principles for project activities.
14. Project management process.

#### **Standard questions and practical tasks for the mastered abilities control:**

15. Specifics of economic science.
16. Relationship between the model of the research's subject and the methodology as a result of its research activities.
17. The human model in political and economic theories, modern concepts of institutional, neoinstitutional and evolutionary economic theories.
18. Differences in methodology structure for economic and management tasks.
19. Principles of scientific knowledge.
20. Forms of scientific knowledge organization.
21. Features of individual scientific activity.
22. Features of collective scientific activity.
23. Means of scientific research.
24. Methods of scientific research.
25. Organization of the research process.
26. Methods of research topic choice and evaluation.
27. Criteria for assessing the theoretical research credibility.

28. Criteria for assessing the empirical research credibility.
29. Main types of modern project analysis.
30. Features , models and principles of the project life cycle.
31. Comparative analysis of research in economics.

**Standard complex tasks for the acquired skills control:**

Standard complex practical tasks include the justification and proof of scientific research methodological model elements and should be developed on the basis of the student's individual research topic.

List of standard practical complex tasks:

1. Define the expected object, subject, goals and objectives of the scientific research.
2. Define the methodological model of scientific research.
3. Define the components in the structure of the methodological activity: the object, the subject, methods, and results of the scientific research.
4. Define the components in the structure of the methodological activity: the object, the subject, goals, and methods of the scientific research.
5. Define the criteria to determine the validity of the study and the results obtained.

A list of standard tasks and case-studies for knowledge and abilities check is given in Appendix 1. *Full list of theoretical questions and practical tasks in the form of an approved set of examination cards is represented at the graduate academic chair.*

**2.3.2. Scales of exam assessment of educational achievements**

Evaluation of discipline achievements in the form of maturity level of the components *to know, to be able, to master* of the declared competences is made according to the four-point assessment scale by selected control during exam.

Standard scale and criteria of estimating educational achievements in the process of exam for the components *to know, to be able, to master* are given in the general part of FET of educational program.

**3. Assessment criteria for components and competences level of maturity**

**3.1. Assessment of competences components level of maturity**

While estimating the level of competences maturity by selective control in the process of exam it is considered that *the mark obtained for the components of the examined competence is combined with the corresponding component of all competences formed in the frames of the given academic course.*

Standard scale and criteria while estimating the level of components of competences maturity are given in the general part of FET of educational program.

**3.2. Assessment of competences level of maturity**

General assessment of maturity level of all competences is made by aggregation of marks obtained by the student for each component of the formed competences taking into account the results of continuous assessment and progress check in the form of integral mark according to the four-point scale. All control results are put into the assessment sheet by the teacher according to the results of midterm attestation.

The form of the assessment sheet and requirements for its completion are given in the general part of FET of the educational program.

While making the final assessment of the midterm attestation in the form of exam standard criteria given in the general part of FET of the educational program are used.

## **Appendix 1.**

***Standard practical tasks for the mastered abilities control and acquired skills control.***

***Task №1 Define the expected object, subject, goals and objectives of your scientific research.***

Controlled results of the studies: A, S

### **Assessment criteria for situation tasks**

***Mark “excellent” is put if the student summarizes and evaluates intentionally the sense of the present situation with arguments for own point of view, is able to analyze, deduce and propose right ways of solving the resulting situation.***

***Mark “good” is put if the student understands the sense of the situation, structures their logically own answer, but permits insignificant inaccuracies during definition of ways of solving.***

***Mark “satisfactory” is put if the student orients in the sense of the resulting situation, but needs leading questions, is not able to analyze and propose ways of solving the situation incorrectly.***

***Mark “unsatisfactory” is put if the student does not orient and does not understand the sense of the present situation, cannot propose the ways of its solving, makes significant mistakes.***

***Task №2 Define the methodological model of your scientific research***

Controlled results of the studies: A, S

### **Assessment criteria for situation tasks**

***Mark “excellent” is put if the student summarizes and evaluates intentionally the sense of the present situation with arguments for own point of view, is able to analyze, deduce and propose right ways of solving the resulting situation.***

***Mark “good” is put if the student understands the sense of the situation, structures their logically own answer, but permits insignificant inaccuracies during definition of ways of solving.***

***Mark “satisfactory” is put if the student orients in the sense of the resulting situation, but needs leading questions, is not able to analyze and propose ways of solving the situation incorrectly.***

***Mark “unsatisfactory” is put if the student does not orient and does not understand the sense of the present situation, cannot propose the ways of its solving, makes significant mistakes.***

***Task №3 Define the components in the structure of methodological activity: the object, the subject, methods, and results of your scientific research***

Controlled results of the studies: A, S

**Assessment criteria for situation tasks**

**Mark “excellent” is put** if the student summarizes and evaluates intentionally the sense of the present situation with arguments for own point of view, is able to analyze, deduce and propose right ways of solving the resulting situation.

**Mark “good” is put** if the student understands the sense of the situation, structures their logically own answer, but permits insignificant inaccuracies during definition of ways of solving.

**Mark “satisfactory” is put** if the student orients in the sense of the resulting situation, but needs leading questions, is not able to analyze and propose ways of solving the situation incorrectly.

**Mark “unsatisfactory” is put** if the student does not orient and does not understand the sense of the present situation, cannot propose the ways of its solving, makes significant mistakes.

**Task №4 Define the components in the structure of the methodological activity: the object, the subject, goals, and methods of the scientific research.**

Controlled results of the studies: A, S

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