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MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION

FEDERAL STATE AUTONOMOUS EDUCATIONAL INSTITUTION OF HIGHER EDUCATION

"MOSCOW POLYTECHNIC UNIVERSITY"
(MOSCOW POLYTECHNIC UNIVERSITY)

Faculty of Economics and Management

APPROVED BY
FEU Dean
/A. V. Nazarenko/
«27» February 2025

WORKING PROGRAM OF THE DISCIPLINE

«Project Activities»

Direction of training/specialty
38.03.01 Economy

Profile/specialization
International business and foreign economic

Qualification
bachelor

Forms of study
full-time

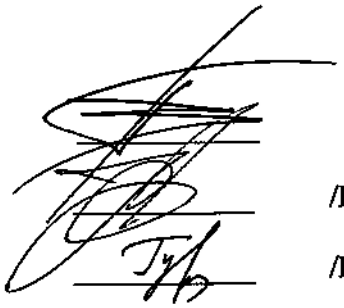
Moscow, 2025

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1. List of planned learning outcomes for the discipline, correlated with the planned learning outcomes for the educational program

This program of the academic discipline "Project Activity" establishes the necessary requirements for the knowledge and skills of students in working in a team, including for effective integration into the project team, meeting project deadlines and obtaining the required results.

The program is designed for the training direction 38.03.01 "Economics", profile "Economics of enterprises and organizations" in accordance with:

- Federal state educational standards;
- Higher education programs;
- Working curricula forPreparations begin in 2023. **Objectives of the discipline**

The purpose of mastering the discipline "Project Activity" is to prepare students for professional activity and to develop their skills and abilities to solve non-standard problems and implement projects in interaction with other students.

Objectives of studying the discipline The main objectives of studying the discipline:

- development of teamwork skills in students;
- development of project work skills;
- increasing students' motivation for self-education;
- provisionmastering by students the basic standards of professional activities;
- students gain experience in using basic professional skills tools for solving non-standard problems within projects;
- development of students' skills in composing and designing presentations and defense achieved project results in front of an audience of listeners.

Training in the discipline "Project activities" is aimed at developing the following competencies in students:

Code and name competencies	Indicators of Competence Achievement
UK-3. Capable of social interaction and fulfilling his/ her role in a team	IUK-3.1. Determines his/her role in the team based on the strategy of cooperation to achieve the set goal, taking into account the behavioral characteristics and interests of other team members; IUK-3.2. Plans and analyzes the consequences of personal actions, adequately evaluates the ideas and proposals of other participants to achieve the set goal in teamwork; IUK-3.3. Carries out the exchange of information, knowledge and experience with team members, observing the established norms and rules of social interaction, bears personal responsibility for his/her contribution to the result of teamwork.

PC-1 Capable of performing calculations and design of parts, units and devices of radio engineering systems in accordance with technical specifications, including the use of funds design automation	IPC-1.1 Understands the principles of designing individual parts, units and devices radio engineering systems, selects automated design systems for radio engineering systems; IPK-1.2 Works with software using modern application programs for calculating radio engineering systems; IPK-1.3 Calculates and designs parts, units and devices of radio engineering systems in in accordance with the technical specifications using automated design tools.
PC-2 Capable of performing mathematical modeling of objects and processes using standard methods, including using standard application software packages	IPC-2.1 Construct physical and mathematical models of units, blocks and devices of radio engineering systems; IPK-2.2 Uses standard software packages for mathematical modeling of nodes, blocks and devices of radio engineering systems; IPK-2.3 Performs computer modeling of mathematical models of units, blocks and devices of radio engineering systems.

2. The place of the discipline in the structure of the educational program

The discipline belongs to the part formed by the participants of educational relations of block B1 “Disciplines (modules)” - B1.2 “Part formed by the participants of educational relations”.

The discipline "Project activity" is studied in the 2nd, 3rd, 4th, 5th, 6th, 7th semesters of study. The discipline is directly related to the following disciplines and practices. OOP:

Introduction to project activities; Fundamentals of technological entrepreneurship; Industrial practice (pre-graduation); Psychology of business communication;
Project management;
Educational practice (project-based);

3. Structure and content of the discipline

The total workload (volume) of the “Project Activity” discipline is 12 credit units.

The volume of the discipline by type of study (in hours) is 432 hours. The discipline is taught in all forms of study.
Type of midterm assessment (form of control): credit.

3.1. Types of academic work and labor intensity

(by form of education)

Type of academic work	**Total hours**	**Semester**					
		2	3	4	5	6	7
3.1.1 Full-time education							
Classroom lessons (total)	**216**	**36**	**36**	**36**	**36**	**36**	**36**
Including:							
Lectures	-	-	-	-	-	-	-
Practical classes (PZ)	216	36	36	36	36	36	36
Seminars (C)	-	-	-	-	-	-	-
Laboratory work (LW)	-	-	-	-	-	-	-
Independent work (total)	**216**	**36**	**36**	**36**	**36**	**36**	**36**
Including:							
Preparation for practical classes	216	36	36	36	36	36	36
Type of intermediate assessment – credit	-	-	-	-	-	-	-
Total labor intensity hours / credit unit	**432/12**	**72**	**72**	**72**	**72**	**72**	**72**
3.1.2 Full-time and part-time education							
Type of academic work	Total hours	Semester					
		2	3	4	5	6	7
Classroom lessons (total)	**108**	**18**	**18**	**18**	**18**	**18**	**18**
Including:							
Lectures	-	-	-	-	-	-	-
Practical classes (PZ)	108	18	18	18	18	18	18
Seminars (C)	-	-	-	-	-	-	-
Laboratory work (LW)	-	-	-	-	-	-	-
Independent work (total)	**324**	**54**	**54**	**54**	**54**	**54**	**54**
Including:							
Preparation for practical classes	452						
Type of intermediate assessment – credit	-	-	-	-	-	-	-
Total labor intensity hours / credit unit	**432/12**	**72**	**72**	**72**	**72**	**72**	**72**

3.2 Thematic plan for studying the discipline

(by form of education)

The subject plan for studying the discipline "Project activity" provides for the implementation of proposed projects by students. The implementation of each project includes typical stages of project implementation, which may overlap in time frames.

Tasks within stages and sub-stages are formed for each project individually. The list of tasks depends on the specifics of the project and the training of the students.

3.2.1 Full-time education

No. p/p	Sections/Topics disciplines	Labor intensity, hour for 2, 3, 5, 7 semesters						Labor intensity, hours for 4, 6 semesters					
		Total	Classroom work				Self obligatory oh Job	All O	Classroom work				Self obligatory oh Job
			Lek tions	Seminarskie/ practical eskie classes	Laboratory ornye classes	Practical icastic oh prep tovka			Lek tions	Seminarskies/ practical skies classes	Laboratory ornye classes	Practical eskaya prepared vka	
1	Stage 1. Concept development and project planning												
1.1	Topic 1. Obtaining input data for the project	16	-	8	-	-	8	8	-	4	-	-	4
1.2	Topic 2. Collection of project materials and analysis	16	-	8	-	-	8	8	-	4	-	-	4
1.3	Topic 3. Development of a solution concept and an image of the product result of the project	16	-	8	-	-	8	8	-	4	-	-	4
1.4	Topic 4. Formation of the project team	16	-	8	-	-	8	8	-	4	-	-	4
1.5	Topic 5. Development of a project passport taking into account deadlines and resources	16	-	8	-	-	8	8	-	4	-	-	4

No. p/p	Sections/Topics disciplines	Labor intensity, hour for 2, 3, 5, 7 semesters						Labor intensity, hours for 4, 6 semesters					
		Total	Classroom work				Self obligatory oh Job	All O	Classroom work				Self obligatory oh Job
			Lek tions	Seminarskie/ practicaleskie classes	Laboratory ornye classes	Practicalicastic oh prep tovka			Lek tions	Seminarskies/ practicalskies classes	Laboratory ornye classes	Practical eskaya prepared vka	
1.6	Interim assessment in the form of a presentation and defense of the solution concept	16	-	8	-	-	8	8	-	4	-	-	4
2.	Stage 2. Project development												
2.1	Topic 6. Distribution of tasks and functions among project participants, selection of development and design tools	16	-	8	-	-	8	8	-	4	-	-	4
2.2	Topic 7. Implementation of the planned development sub-stages	16	-	8	-	-	8	8	-	4	-	-	4
2.3	Topic 8. Discussion of the results of each sub-stage within student project team, exchange of information within the team	16	-	8	-	-	8	8	-	4	-	-	4
2.4	Topic 9. Testing proposed solutions and making adjustments to development	16	-	8	-	-	8	8	-	4	-	-	4
2.5	Topic 10. Formulating requirements for the implementation stage, preparation if necessary	16	-	8	-	-	8	8	-	4	-	-	4

No. p/p	Sections/Topics disciplines	Labor intensity, hour for 2, 3, 5, 7 semesters						Labor intensity, hours for 4, 6 semesters					
		Total	Classroom work				Self obligatory oh Job	All O	Classroom work				Self obligatory oh Job
			Lek tions	Seminarskie/ practical eskie classes	Laboratory ornye classes	Practical icastic oh prep tovka			Lek tions	Seminarskies/ practical skies classes	Laboratory ornye classes	Practical eskaya prepared vka	
	request for consumables												
2.6	Interim assessment in the form of presentation and defense intermediate results of the study	16	-	8	-	-	8	8	-	4	-	-	4
	Stage 3. Obtaining the product result												
3.1	Topic 11. Selection of tools and obtaining materials for product implementation	16	-	8	-	-	8	8	-	4	-	-	4
3.2	Topic 12. Obtaining a product result	16	-	8	-	-	8	8	-	4	-	-	4
3.3	Topic 13. Testing and approbation of the product result	16	-	8	-	-	8	8	-	4	-	-	4
	Stage 4. Presentation of project results	16											
4.1	Topic 14. Design product results and preparation of the final presentation on the project	16	-	8	-	-	8	8	-	4	-	-	4

No. p/p	Sections/Topics disciplines	Labor intensity, hour for 2, 3, 5, 7 semesters						Labor intensity, hours for 4, 6 semesters					
		Total	Classroom work				Self obligatory oh Job	All O	Classroom work				Self obligatory oh Job
			Lek tions	Seminarskie/ practical eskie classes	Laboratory ornye classes	Practical icastic oh prep tovka			Lek tions	Seminarskies/ practical skies classes	Laboratory ornye classes	Practical eskaya prepared vka	
4.2	Project defense and presentation of work results	16	-	8	-	-	8	8	-	4	-	-	4
4.3	Reflection	16	-	8	-	-	8	8	-	4	-	-	4
	Credit												
Total		**288**		**144**			**144**	**144**		**72**			**72**

3.2.2 Part-time and part-time education

No. p/p	Sections/Topics disciplines	Labor intensity, hours for 2, 3, 5, 7 semesters						Labor intensity, hours for 4, 6 semesters					
		Total	Classroom work				Self Oyatel naya Job	Total	Classroom work				Self Oyatel naya Job
			Lek tions	Seminarskie/ practice cheskie classes	Laboratory ornye classes	Practical icastic oh prep tovka			Lek tions	Seminarskie/ practical eskie classes	Laboratorn classes	Practical czech prep ovka	
1	Stage 1. Concept development and project planning												
1.1	Topic 1. Obtaining input data for the project	16	-	4	-	-	12	8	-	2	-	-	6

No. p/p	Sections/Topics disciplines	Labor intensity, hours for 2, 3, 5, 7 semesters						Labor intensity, hours for 4, 6 semesters					
		Total	Classroom work				Self Oyatelnaya Job	Total	Classroom work				Self Oyatelnaya Job
			Lektions	Seminarskie/ practicheskie classes	Laboratory ornye classes	Practicalicastic oh prep tovka			Lektions	Seminarskie/ practicheskie classes	Laboratorn classes	Practical czech prep ovka	
1.2	Topic 2. Collection of project materials and analysis	16	-	4	-	-	12	8	-	2	-	-	6
1.3	Topic 3. Development of a solution concept and an image of the product result of the project	16	-	4	-	-	12	8	-	2	-	-	6
1.4	Topic 4. Formation of the project team	16	-	4	-	-	12	8	-	2	-	-	6
1.5	Topic 5. Development of a project passport taking into account deadlines and resources	16	-	4	-	-	12	8	-	2	-	-	6
1.6	Interim assessment in the form of a presentation and defense of the solution concept	16	-	4	-	-	12	8	-	2	-	-	6
2.	Stage 2. Project development												
2.1	Topic 6. Distribution of tasks and functions among project participants, selection of development and design tools	16	-	4	-	-	12	8	-	2	-	-	6
2.2	Topic 7. Implementation of the planned development sub-stages	16	-	4	-	-	12	8	-	2	-	-	6
2.3	Topic 8. Discussion of the results of each sub-stage within student project team,	16	-	4	-	-	12	8	-	2	-	-	6

No. p/p	Sections/Topics disciplines	Labor intensity, hours for 2, 3, 5, 7 semesters						Labor intensity, hours for 4, 6 semesters					
		Total	Classroom work				Self Oyatel naya Job	Total	Classroom work				Self Oyatel naya Job
			Lek tions	Seminarskie/ practicheskie classes	Laboratory ornye classes	Practical icastic oh prep tovka			Lek tions	Seminarskie/ practical eskie classes	Laboratorn classes	Practical czech prep ovka	
	exchange of information within the team												
2.4	Topic 9. Testing proposed solutions and making adjustments to development	16	-	4	-	-	12	8	-	2	-	-	6
2.5	Topic 10. Formulating requirements for the implementation stage, if necessary, preparing a request for consumables	16	-	4	-	-	12	8	-	2	-	-	6
2.6	Interim assessment in the form of presentation and defense intermediate results of the study	16	-	4	-	-	12	8	-	2	-	-	6
	Stage 3. Obtaining the product result												
3.1	Topic 11. Selection of tools and obtaining materials for product implementation	16	-	4	-	-	12	8	-	2	-	-	6
3.2	Topic 12. Obtaining a product result	16	-	4	-	-	12	8	-	2	-	-	6

No. p/p	Sections/Topics disciplines	Labor intensity, hours for 2, 3, 5, 7 semesters						Labor intensity, hours for 4, 6 semesters					
		Total	Classroom work				Samos T Oyatel naya Job	Total	Classroom work				Self Oyatel naya Job
			Lek tions	Semina rskie/ practice cheskie classes	Laboratory ornye classes	Practical icastic oh prep tovka			Lek tions	Semina rskie/ practical eskie classes	Labora torn classes	Practical czech prep ovka	
3.3	Topic 13. Testing and approbation of the product result	16	-	4	-	-	12	8	-	2	-	-	6
	Stage 4. Presentation of project results												
4.1	Topic 14. Design product results and preparation of the final presentation on the project	16	-	4	-	-	12	8	-	2	-	-	6
4.2	Project defense and presentation of work results	16	-	4	-	-	12	8	-	2	-	-	6
4.3	Reflection	-	-	-	-	-	-	-	-	-	-	-	-
	Credit												
	Total	**288**		**72**			**216**	**144**		**36**			**108**

3.3. Content of the discipline

Stage 1. Concept development and project planning

Topic 1. Obtaining input data for the project

Project planning is a continuous process of determining the best course of action to achieve the project objectives. The purpose of planning is to build a project implementation model. The main result of the planning stage is a comprehensive project implementation plan that combines the planning results for all areas of work on the project.

Planning includes the project goal and strategy, project results. Also The project's manageable parameters and its project environment are defined. The project is structured. Formulation of ideas for the future project, drawing up a work plan for the project. Formulation of ideas and plans on the project topic.

Topic 2. Collection of project materials and analysis

Collection of project materials allows to determine the set of products/services, the production of which should be ensured as a result of completion of the project. The project group should conduct research in terms of:

- analysis of the current state and clarification of the goals and results of the project;
- clarification of the main characteristics of the project;
- confirmation and clarification of the criteria for success and failure of the project;
- analysis and adjustment of limitations and assumptions adopted at the initiation stage project;
- selection of criteria for evaluating intermediate and final results of creation project;
- construction of a structural decomposition of the subject area of the project.

Event-based methods can be used to determine the duration of a project. network analysis or the critical path method, the duration of operations in which is calculated as a weighted average of the optimistic, pessimistic and expected forecasts. Next, a network diagram is built - a graphical display of the project work and the dependencies between them, which will optimize the time frame for completing the project stages. Or a Gantt chart (preferably) - the length of the rectangles in which corresponds to the duration of the work. Arrows also characterize the sequence and interrelation of work. If necessary, it can be supplemented with information on the cost of work, their performers. Based on the results of the analysis, they are subsequently adjusted / changed.

Topic 3. Development of a solution concept and an image of the product result of the project The main result of the project is the achievement of the set main goal of the project. The result of the project is described through the formulation of goals. The description should be as precise as possible, contain both quantitative (how much?) and qualitative (how well?) indicators that should be achieved during the implementation of the project.

The outcome of a project may be a product, change, psychological state, or object that is developed in the project. Outcomes can be divided into intermediate (e.g., a system development plan) and final, or end result (e.g., a finished system).

The basis for evaluating the result is the initial goal of the project. The final result of the project is compared with the set goal of the project.

Three steps for selecting a solution concept and the image of the project product result.

Step 1. Developing a project concept. Developing a project concept includes: defining the goals and objectives of the project, conducting a study on the possibility of successful project implementation (demand, resources), defining the main characteristics of the project (timeframe, cost, quality, risks, team). Step 2. Reviewing and approving the project concept The procedure for reviewing and approving the project concept includes agreeing on the project concept as presented or revising it taking into account adjustments and comments. Step 3. Initiating the project launch The process of initiating the project launch includes: deciding to launch the project, appointing a project manager, making a decision on providing resources for subsequent stages of the project. At the project initiation stage, it is important to define the goals and scale of the project, the list of necessary equipment and materials (taking into account the sources of their receipt), the conditions for implementing the project, and draw up a project implementation plan. As a result, the Project Concept is formed.

Development of a questionnaire for testing potential users of the project solution. Testing among a contingent of consumers of various groups (sample for evaluating the testing results of at least 100 people). Collection and processing of opinions on analogues of the product result. Based on the survey results and taking into account the opinion of the project group, selection of the optimal and most relevant of the proposed product results.

Topic 4. Formation of the project team

The project team isa temporary organizational structure that brings together individual specialists, groups and/or organizations involved in the performance of work projectand responsible to the managerprojectfor their implementation.Project Teamis created specifically for the period of implementationproject.

In project team planning, three main stages can be broadly identified:

1. Determining the volume of available labor resources. In other words, compiling a list of contractors participating in the project.
2. Selection of the project team leader and subgroup leaders.
3. Assignment of performers for each project task.
4. Analysis and resolution of any contradictions that arise in the calendar plan.

Discussion of the tasks of each subgroup and methods for solving them, distribution of tasks between members of the project group will allow us to further form a real Roadmap as a component of the Project Passport.

Stage 2. Project development.

Topic 5. Development of a project passport taking into account deadlines and resources

Project passport as a reporting document on the implementation of the project task and the development of the product result. Project passport isa document regulating the procedure for implementing a projectThe project passport records the content of the project, including the project goals and deliverables, as well as the project manager and curator, constraints, key milestones, etc.To fill in its component, it is necessary to use the Gantt chart (see topics 3 and 4). Construction of a project implementation model and planning of its subject area.

Reflection in the plan of tasks for subgroups participating in the project. Distribution of tasks among all project group members, with the allocation of tasks for the project team leader and subgroup leaders. Project planning by time parameters - drawing up a calendar plan (road map) that meets all the requirements and restrictions of the project and its parts

Topic 6. Distribution of tasks and functions among project participants, selection development and design tools

Work Breakdown Structure (WBS) is the division of a project into its component parts (elements, modules, work, etc.) that are necessary and sufficient for its effective planning and control.

Tasks for developing the project for each of the project group subgroups and discussing the work in the subgroup with its leader. Compiling and approving a list of tasks for each project participant. Subgroup leader – his tasks and actions when distributing tasks to participants, compiling final reports on the tasks completed by the group within the Roadmap. Team leader – his tasks and actions when distributing tasks to subgroup leaders, his control function.

Topic 7. Execution of planned development sub-stages

Stages in project work as central elements of structural decomposition are time parameters that satisfy all project requirements and constraints. They represent the project life cycle and are compiled for various management levels and project participants.

Discussion, clarification, detailing of the Roadmap within the Project Passport by performers. Filling out the Roadmap. Setting approximate deadlines for the implementation of tasks included in the Roadmap. Studying and adjusting the completed Roadmap in the Project Passport.

Topic 8. Discussion of the results of each sub-stage within the student project teams, information exchange within the team

Analysis as a tool for generalizing research results. Conducting analysis and using its results in the work of the project group.

Analysis and generalization of research results in individual and group reports. Preparation, form and content of the report for team hearings. Evaluation of the work performed within the framework of the project roadmap.

Topic 9. Testing proposed solutions and making adjustments to development

Solution testing is a process of verifying functionality based on the use of a finite set of test cases generated based on the requirements for product result and comparison of the obtained results with the target quality indicators set out in the project is appliedA/B testing, or split testing, is a tool that helps test hypotheses and make decisions**based on data,**and not personal experience and intuition.

Options for proposed project subgroups for solutions to develop the project implementation. Specification of directions and clarification of the research plan at the implementation stage - as an opportunity to optimize the receipt of the product result. Evaluation of the completed

work within the framework of the Project Roadmap – compliance with the project implementation within the established deadlines.

Topic 10. Formulating requirements for the implementation phase, if necessary preparing a request for consumables

The requirements for the project implementation stage are the totality of the project resource costs and the costs of performing the work. The cost of the project is determined by the resources required to perform the work, which generally include:

- Equipment (purchase, rent, lease)
- Devices, equipment and production facilities;
- Human resources (full-time and part-time employees);
- Materials, including consumables (for the production of a prototype, office supplies, etc.);
- Training, seminars, conferences;
- Partners, etc.

To implement the project, an estimate is drawn up - a document containing the justification and Calculating the cost of a project, usually based on the project's scope of work, required resources, and prices. Coordinating and approving the estimate. Creating a project budget. A budget is a document that defines the resource constraints of a project.

Requirements at the project implementation stage. Preparation of cost estimates and their inclusion in the project passport. Evaluation of the work performed within the project roadmap.

Stage 3. Obtaining a product result

Topic 11. Selection of tools and obtaining materials for product implementation In order to obtain the product result, the following actions are performed:

1. Search for materials.
2. Interaction with stakeholders.
3. Obtaining initial feedback. Once the project is complete

The customer shares his first impressions. Subsequently, the product solution can be modified as needed until the product is ready for implementation.

An approval stage where final testing of a product is carried out before it is launched.

5. Validation and testing

Before launching a new product, it must first be validated and tested. This will ensure that all elements of the product, from development to marketing, are working effectively before it is distributed to a wider audience.

To ensure high quality of the product it is necessary to:

- concept development and testing. Functionality testing to achieve high quality of development.
- testing of the client part. Ensuring the readiness of the product result.
- testing of the marketing part. Readiness to launch the product result. Selection of methods for analysis and testing of the effectiveness of implementation decisions projects. Evaluation of completed work within the project roadmap

Topic 12. Obtaining a product result

The expected outcome of a project is what you want to achieve as a result of the project. The outcome can be anything - a new product, a marketing campaign, an update

components, sales presentation, reducing customer churn, increasing loyalty index and much more.

A project may have one or more deliverables, but having a clear definition of what you're working on will help your team align tasks and prioritize them so that the most important ones get done first.Product result – manufactured and/or sold products (services). Product result can be measured both in physical units (pieces, tons, liters, hours, etc.) and in monetary units. For the cost characteristics of product result, such concepts as revenue, income, inflow, output, receipt are used.

Discussion of criteria for assessing the conformity of the concept and image of the product result with those stated in the technical specifications. Assessment of the work performed within the framework of the project roadmap.

Topic 13. Testing and approbation of the product result

Approbation is the result of the fusion of two meanings: approval and verification. To approve means to obtain confirmation of a theory in practice. Today the word is used in one of two contexts.

As a process. Testing is the process of conducting verification tests to find out to what extent the object meets the set objectives.

As a result. Approval is the official approval of something based on the results positive result of verification tests.

Testing the product result isthe process of analyzing and forming assumptions based on data from analytics systems, which confirm or refute them using quantitative and qualitative methods.

Conformity of the product result to the technical task (expectations) of the customer. Evaluation of the work performed within the framework of the project roadmap.

Stage 4. Presentation of project results

Topic 14. Registration of the product result and preparation of the final project presentations

An effective presentation is the material that everyone who sells, shares experience, prepares a report or presents any projects dreams of preparing.

A presentation involves publicly delivering information to an audience that is interested in it. Ten rules to follow when creating a presentation and possible solutions.

1. The ability to use ready-made templates in a presentation or create your own template
2. Use 3-5 basic colors when creating presentations
3. Avoid three-dimensional (volumetric) icons from search engines - use linear and flat icons
4. Each slide is a picture, and it needs a frame. Or does it not?
5. Don't use serif fonts

6. Use only high-quality images
7. Do not use outlines.
8. Use shadows wisely. Either big and blurry, or none at all.
9. When using tables and charts, remove all unnecessary information
10. Slide is an experiment

Justification of choice materials, presented V final presentations.

Preparing a video script, filming and viewing it.Three mistakes when writing a script:

The script form is in Firstly, due to lack of experience and knowledge, most professionals choose the wrong form of the script. The script is a structured detailed shooting plan and it has a specific form.

Goals for video - in Secondly, advertising managers and specialists do not always correctly understand the goals of the video and therefore stage it incorrectly. This makes the script unstable, bloated and the viewer loses focus.

Ideas and images -Thirdly, experts use as examples other videos instead of coming up with original ideas. If you liked the video, it doesn't mean it was successful. In order not to copy other people's mistakes, you need to not be afraid to experiment and create your own, try something new, but take into account trends and the client's needs.

Discussion of comments received from customer representatives.

3.4 Topics of seminars/practical and laboratory classes

3.4.1 Topics of seminars/practical and laboratory classes

3.4.1.1 Seminar/practical lesson 1 on topic 1. Obtaining input data on project

Introducing the curator, checking the compliance of study groups and the number of students in them. Forming final lists of students with e-mail addresses.

Discussion in the form of a round table/discussion of the format of educational assignments: individual, collective. Discussion within the framework of the discussion of ideas for a future project, drawing up a comprehensive plan of work on the project. Formulation of ideas and plans on the topic of the project.

Familiarization of students with the plan for conducting seminars/practical classes, which, in addition to a round table/discussion, will include a selective oral survey/ interview and checking of general group creative assignments.

3.4.1.2 Seminar/practical lesson 2 on topic 2. Collection of materials for the project and conducting an analysis

Discussion in the form of a round table/discussion of research directions and materials for study in terms of design - how the project group is going to solve the project problem, are there alternative ways to solve it, if so, which ones need to be studied, are there analogs of the project on the market, if so, which ones have been studied/are you planning to study. What is the advantage of the project in terms of

compared with existing analogues or alternative solutions to the problem.

Conducting a selective oral survey/interview and formulating general group creative tasks.

3.4.1.3 Seminar/practical lesson 3 on topic 3. Development of a solution concept and image of the product result of the project

Discussion in the form of a round table/discussion of the solution concept and the image of the product result of the project: collecting opinions of all participants of the project group subgroups on analogs of the product result, choosing the optimal and most relevant of those proposed. Development of a questionnaire, its approval and testing among a contingent of consumers of various groups.

Conducting a selective oral survey/interview and formulating general group creative tasks.

3.4.1.4 Seminar/practical session 4 on topic 4. Formation of the project team Discussion in the form of a round table/discussion: selection of the project team leader and subgroup leaders. Establishing the relationship between the members of the subgroup and its leader, as well as the relationship between the project team leader and the subgroup leaders. Discussion of the tasks of each subgroup and methods for solving them. Based on the results of the previous lesson, to determine the product result, discuss the results of testing among a contingent of consumers of various groups and select the optimal and most relevant for the implementation of the project goals.

Conducting a selective oral survey/interview and formulating general group creative tasks.

3.4.1.5 Seminar/practical lesson 5 on topic 5. Development of a project passport with taking into account deadlines and resources

Discussion in the form of a round table/discussion of the project's overall plan. Building a project implementation model. Planning the subject area of the project. Allocation of tasks in the plan for the subgroups participating in the project. Distribution of tasks among all project group members, with allocation of tasks for the project team leader and subgroup leaders. Project planning by time parameters - drawing up a calendar plan (road map) that meets all the requirements and constraints of the project and its parts. Drawing up a Project Passport.

Conducting a selective oral survey/interview and formulating general group creative tasks.

3.4.1.6 Seminar/practical session 6. Interim assessment Interim assessment in the form of a presentation and defense of the solution concept: discussion and practical implementation of the conducted research within the formed project subgroups. Presentation of the completed work in the form of a presentation by each subgroup.

Discussion of comments received from the project curator/curators and the topic coordinator.

3.4.1.7 Seminar/practical lesson 7 on topic 6. Distribution of tasks and functions among project participants, selection of development and design tools

Discussion in the form of a round table/discussion of the tasks for developing the project by each subgroup of the project group and discussion of the work in the subgroup with its leader. Approval of the list of tasks for each project participant.

Conducting a selective oral survey/interview and formulating general group creative tasks.

3.4.1.8 Seminar/practical lesson 8 on topic 7. Implementation of planned substages of development

Round table/discussion of the Roadmap within the Project Passport, preparation and discussion. Installation for each project team member

estimated timeframes for the implementation of tasks specified in the Roadmap. Studying and adjusting the completed Roadmap in the Project Passport.

Conducting a selective oral survey/interview and formulating general group creative tasks.

3.4.1.9 Seminar/practical session 9 to topic 8. Discussion of the results of each sub-stage within the student project team, exchange of information within the team

Discussion in the form of a round table/discussion of the conducted analysis and generalization of the research results in individual and group reports. Listening to reports at seminars/practical classes. Evaluation of the work performed within the framework of the project roadmap.

Conducting a selective oral survey/interview and formulating general group creative tasks.

3.4.1.10 Seminar/practical lesson 10 on topic 9. Testing the proposed decisions and making adjustments to the development

Discussion in the form of a round table/discussion of the solutions proposed by the project subgroups for the development of the project implementation. Determination of the final research directions and clarification of the research plan at the implementation stage. Evaluation of the work performed within the framework of the project roadmap.

Conducting a selective oral survey/interview and formulating general group creative tasks.

3.4.1.11 Seminar/practical lesson 11 to topic 10. Formulating requirements for the implementation stage, if necessary, preparing a request for consumables

Discussion in the form of a round table/discussion of the process of implementing the expected product result, specification of requirements at the stage of its implementation. Preparation of an estimate of costs and its inclusion in the project passport. Evaluation of the work performed within the framework of the project roadmap.

Conducting a selective oral survey/interview and formulating general group creative tasks.

3.4.1.12 Seminar/practical session 12. Interim assessment Interim assessment in the

form of a presentation and defense of the interim research results: presentation of the completed work in the form of a presentation by each subgroup. Discussion in the form of a round table/discussion of the comments received from the project curator/curators and the coordinator.

3.4.1.13 Seminar/practical lesson 13 on topic 11. Selection of tools and obtaining materials for product implementation

Discussion in the form of a round table/discussion of tools for obtaining materials on project implementation. Selection of methods for analyzing and testing the effectiveness of project implementation decisions. Evaluation of the work performed within the framework of the project roadmap and, if necessary, its adjustment.

Conducting a selective oral survey/interview and formulating general group creative tasks.

3.4.1.14 Seminar/practical lesson 14 on topic 12. Receiving food result

Discussion in the form of a round table/discussion of the obtained product result. Discussion of the criteria for assessing the conformity of the concept and image of the product result with those stated in the technical specifications. Evaluation of the work performed within the framework of the project roadmap.

Conducting a selective oral survey/interview and formulating general group creative tasks.

3.4.1.15 Seminar/practical lesson 15 to topic 13. Approbation and testing product result

Discussion in the form of a round table/discussion of the process of approbation and testing of the obtained result. For industrial projects, consultation with the customer regarding the compliance of the product result with the technical task (expectations) of the customer. Evaluation of the work performed within the framework of the project roadmap.

Conducting a selective oral survey/interview and formulating general group creative tasks.

3.4.1.16 Seminar/practical lesson 16 on topic 14. Registration of product results and preparation of the final presentation on the project

Round table/discussion discussion:

- the final presentation, justification for the choice of materials presented in it, design and its presentation;

- video script, its shooting and viewing.

Adjustment (if necessary) of project materials. Evaluation of completed work within the framework of the project roadmap.

Conducting a selective oral survey/interview and formulating general group creative tasks.

3.4.1.17 Seminar/practical session 17. Project defense and presentation of results works

Viewing the final presentation and (if available) video. Discussion in the form of a round table/discussion of comments received from the customer's representatives.

Correction (if necessary) of project materials. 3.4.1.18

Seminar/practical lesson 18. Reflection

Discussion in the form of a round table/discussion of the project defense at the final conference. Discussion of long-term plans for work on the project in the next academic year.

3.4.2 Laboratory exercises

(The topics of the classes are indicated with a list of laboratory work) Laboratory classes are not planned.

3.5 Topics of course projects (course papers)

Course projects (coursework) are not planned.

4. Educational, methodological and informational support

4.1 Regulatory documents and GOSTs

Regulatory documents and GOSTs are not used when studying the discipline. The project team can use industry regulatory documents and GOSTs when developing the project.

4.2 Main literature

1. Popov, Yu. I. Project management: a tutorial / Yu. I. Popov, O. V. Yakovenko. - Moscow: INFRA-M, 2021. - 208 p. - (Textbooks for the MBA program). - ISBN 978-5-16-002337-3. - Text: electronic. - URL: https://znanium.com/catalog/product/1153780 (date of access: 02/16/2023). - Access mode: by subscription

2. Potasheva, G. A. Project management: a tutorial / G.A. Potasheva. — Moscow: INFRA-M, 2020. — 224 p. + Add. materials [Electronic resource]. — (Higher education: Bachelor's degree). — DOI 10.12737/17508. - ISBN 978-5-16-

010873-5. - Text: electronic. - URL: https://znanium.com/catalog/product/1055100 (accessed: 16.02.2023). – Access mode: by subscription.

Romanova, M. V. Project Management: a tutorial / M. V. Romanova. - Moscow : ID "FORUM": INFRA-M, 2020. - 256 p.: ill. - (Higher education). - ISBN 978-5-8199-0308-7. - Text: electronic. - URL: https://znanium.com/catalog/product/1039340 (date of access: 02/16/2023). – Access mode: by subscription.

4.3 Further reading

1. Bryksina, O. F. Information and communication technologies in education: textbook / O.F. Bryksina, E.A. Ponomareva, M.N. Sonina. - Moscow: INFRA-M, 2022. - 549 p. - (Higher education: Bachelor's degree). — DOI 10.12737/textbook_59e45e228d2a80.96329695. - ISBN 978-5-16-012818-4. - Text: electronic. - URL: https://znanium.com/catalog/product/1843834 (accessed: 16.02.2023). – Access mode: by subscription.

2. Ilyin, V. V. On the other side of projects. Notes of a consultant: practical manual / V. V. Ilyin. - 4th ed. - Moscow: Knowledge Laboratory, 2020. - 379 p. - (Projects, programs, portfolios). - ISBN 978-5-00101-766-0. - Text: electronic. - URL: https://znanium.com/catalog/product/1094839 (date accessed: 02/16/2023). – Access mode: by subscription.

3.Source: https://www.eg-online.ru/article/410797/

4.4 Electronic educational resources

1. Mospolitekh digital education platform -https://lms.mospolytech.ru/

2. Personal account of the student (portfolio) (the entrance to the personal account is located on the official website of the University and includes a student portfolio, electronic statements, student ratings and provides:

- recording the progress of the educational process, the results of the midterm assessment and the results of mastering educational programs by students,

- formation of an electronic portfolio of the student, including the preservation of works student, reviews and assessments of these works;

3. Access to the information and telecommunications network "Internet" www.mospolytech.ru , which provides:

- access of students to curricula, work programs of disciplines, practices, to publications of electronic library systems, electronic information and educational resources specified in the work programs:

- informing students about all changes in the educational process;

- interaction between participants in the educational process

5. The Mospolitekh Library, containing electronic catalogues, full-text documents and providing access to educational and methodological materials

6. Antiplagiat System - https://www.antiplagiat.ru/

7. The POLYTECH systems system provides informational, documentary automated support of the educational process.

8. Recommended Online Course Platforms - https://ru.coursera.org , https://openedu.ru

9. Participation in regularly held lectures and sessions devoted to modern technological challenges and innovations: Agency for Strategic Initiatives -https://asi.ru .

10. The "Umnik" competition: issues grants to support innovative projects -

http://umnik.fasie.ru

11. Preactum is a program for the development of project-based, practice-oriented and entrepreneurship among young people http://preactum.ru

4.5 Licensed and freely distributed software

1. Microsoft Office suite programs (Word, Excel, PowerPoint)

4.6 Modern professional databases and information reference systems

1. SPS "ConsultantPlus: Non-commercial Internet version". - URL: http://www.consultant.ru/online/ (date accessed: 16.02.2023). –Access mode: free.

5. Logistics

1. Auditorium for practical classes.
2. Interactive whiteboard.
3. Computer class with Internet access.
4. Audience for group and individual consultations, ongoing monitoring and midterm assessment.
5. Audience for independent work.

6. Methodological recommendations

6.1 Methodological recommendations for the teacher on organizing training

This section of this work program is intended for beginning teachers and practicing specialists who do not have experience in teaching, including in project work.

The discipline "Project activity" is a discipline of the part formed by participants in educational relations of the cycle B1 "Disciplines (modules)" - B1.2 "Part formed by participants in educational relations" and provides stages of competence formation in the direction 38.03.01 "Economics" profile "Economics of enterprises and organizations".

In the context of constructing educational systems based on the principles of a competency-based approach, there has been a conceptual change in the role of the project curator, who, along with the traditional role of a knowledge carrier, performs the function of an organizer of the student's scientific research work, a consultant in the procedures for selecting, processing and interpreting information necessary for practical action and further development, which must be taken into account when conducting practical classes in the discipline "Project Activity".

The detailed content of individual sections of the discipline “Project activities” is considered in paragraph 3.3 of the work program.

The topics of practical classes in sections of the discipline and types of classes are reflected in paragraph 3.4 of the work program. Conducting practical classes is aimed at:

- study of specialized literature and popular periodicals;

- formation of a scientifically based understanding of the organization's characteristics project activities of modern students;

- setting goals, defining tasks, planning the expected result from implementation of the project

- achieving product results.

Clause 3.3 specifies the subject content of the discipline. Clause 3.4 specifies the seminar/practical and laboratory classes. The list of primary and secondary literature and regulatory documents required in the course of teaching the discipline "Project Activity" is given in clause 4 of this work program. The subject supervisor should guide students to use the original version of regulatory documents currently in force and modern scientific literature when preparing for seminar/practical classes on the discipline.

The subject matter curator needs to immerse students in the project's problems as deeply as possible. To do this, the teacher is recommended to invite as many experts on the subject matter of the project as possible, and also to encourage students to communicate with relevant specialists. If there is a partner with whom the project is being implemented, it is recommended to organize regular meetings to receive feedback and adjust the overall design course.

The assessment tools for current monitoring and midterm assessment of students are provided in paragraph 7 of the work program, taking into account the competency-based approach in the process of implementing the educational program.

The assessment of the forms of current control and interim certification involves the preparation by the project group of a presentation on the completed stage of the project. The project is considered successfully developed if the product result is achieved.

To assess the achievement of the product result by the project group of students, the subject matter supervisor is recommended to use an expert sheet to assess the achievement of project results.

Expert sheet for collective assessment achieving project results

Project name: _____		
Project criteria	**Evaluation criteria**	**Points**
Project Contents (**points are awarded for each task from 0 to 2)**		∑ ≤ **18**
Relevance of the project and its problems	The project was completed on a current and important issue	
Practical significance of the project (demand and applicability)	The project is in demand by a specific customer or has a clear target audience	
Collected material and analysis conducted	Sufficiency of material reflecting the analysis of the situation, target audience, requirements and alternative concepts	

Interdisciplinarity project	All necessary aspects from different areas of activity are taken into account	
Technical level project (toolkit)	Suitable and modern means of project implementation have been selected	
Professional level of the project (depth of the project and completeness of stages)	All elements of the project are developed in due measure, deeply and professionally	
Testing / piloting / implementation	The project result has been tested/ approved or implemented	
Conformity of the solution the problem posed and its originality	The proposed solution fully meets the task.	
Project prospects (development paths)	The project results have potential for scaling	
Comments: _____		

Organizational framework of the project (**points are awarded for each task from 0 to 2)**		∑ ≤ **17**
Project readiness level	Meeting deadlines for completing tasks	
Project stages and general timing of stages	Correspondence of the distribution of project stages and their deadlines to the task at hand	
Efficiency distribution of tasks and work of the project participants	Clear and reasonable distribution of tasks between project participants	
Risk assessment and management	Dealing with unforeseen situations	
Working with customers and/ or experts	Systematic interaction with customers and experts within the framework of project implementation	
Reporting documentation, project materials	The necessary reporting materials for the project have been submitted	
Project promotion	Activities to promote and broadcast the project and/or its results have been implemented	
General organizational project level	Students' contribution to the overall project management framework**(ranging from0 to 3 points)**	

Project presentation (**points are given for each task from 0 to 5)**		∑ ≤ 15
Quality of presentation	Clarity and quality of presentation design	
Quality of the report	Structure of presentation and quality of performance, timing	
Answers to questions	Team members are free to answer questions	

Final assessment of the project:

30-50 points - the team successfully implemented the project and achieved the planned results,

15-29 points - the team completed the task with some shortcomings,

0-14 points - the team failed to complete the task and did not achieve the planned results

At the end of each stage (at each lesson after the midterm assessment), it is recommended to reflect on the work done. It is important to discuss all aspects of the project - both from the point of view of the process of its implementation and from the point of view of the students' professional activities - it is important to analyze the tools used and encourage students to systematize them.

6.2 Methodological instructions for students on mastering the discipline

6.2.1 Methodological guidelines for seminars/practical classes.

Practical classes allow the student to develop creative theoretical thinking, the ability to independently study literature, analyze practice; they teach how to clearly formulate thoughts, conduct discussions, that is, they are of exceptional importance in the development of independent thinking.

Preparation for a practical lesson includes two stages. At the first stage, the student plans his/her independent work, which includes: understanding the task for independent work; selection of primary and additional literature; drawing up a work plan, which defines the main points of the upcoming preparation. Drawing up a plan disciplines and improves organization in work.

The second stage includes direct preparation for the lesson, which begins with studying the main and additional literature. Particular attention should be paid to the content of the main provisions and conclusions, explanation of phenomena and facts, clarification of the practical application of the theoretical issues under consideration. Next, it is necessary to prepare theses for presentations on all educational issues brought up for practical training or on the topic brought up for discussion (round table), think through examples in order to ensure a close connection between the topic being studied and real life.

When preparing for a presentation in an interactive format (discussion, round table), you should seek help from your teacher if necessary.

6.2.2 Methodological instructions for independent work.

Independent work of the student is the main means of mastering the educational material during time free from compulsory classes. Independent work of the student on mastering the educational material on the academic discipline can be carried out in the University library, classrooms, computer labs, and also at home. The content and amount of independent work of the student is determined by the curriculum of the discipline, methodological materials, practical assignments and instructions of the teacher.

Independent work during class time may include:*:*

- conducting practical research within the framework of the project topic;
- work with regulatory legal acts, with reference and methodological literature;
- participation in weekly consultations conducted by project curators;
- participation in meetings with the project customer at his location or online;
- speaking at discussion events;
- work on solving situational problems/modeling/design/search solutions for the implementation of product results;
- participation in interviews, business (role-playing) games, discussions, round tables, conferences;
- participation in the preparation, design and presentation of project results;
- protection of the completed project.

6.2.3 Features of the implementation of the discipline for disabled people and persons with with disabilities

Teaching in the discipline “Project activities” for disabled people and people with limited health capabilities (hereinafter referred to as PHC) is carried out by a teacher taking into account the characteristics of psychophysical development, individual capabilities and health status of such students.

For students with musculoskeletal disorders and hearing disabilities, lectures and practical classes are supported by multimedia tools and handouts.

For students with visual disabilities, the use of technical means to enhance residual vision is envisaged, and the possibility of developing audio materials is also provided.

In the discipline “Project activities”, training of disabled people and people with limited health capabilities can be carried out both in the classroom and using an electronic information and educational environment, an educational portal and e-mail.

7. Evaluation Fund

7.1 Methods of monitoring and assessing learning outcomes

Code and Name competencies	Indicators of Competence Achievement	Control methods and assessments
UK-3. Capable realize social interaction and to implement its role in team	IUK-3.1. Determines his/her role in the team based on the strategy of cooperation to achieve the set goal, taking into account the behavioral characteristics and interests of other team members; IUK-3.2. Plans and analyzes the consequences of personal actions, adequately evaluates the ideas and proposals of other participants to achieve the set goal in teamwork; IUK-3.3. Carries out the exchange of information, knowledge and experience with team members, observing the established norms and rules of social interaction, bears personal responsibility for his contribution to the result of teamwork.	Intermediate certification: credit Current control: seminars/ practical classes; - intermediate certification in classes 6 and 12 in shape presentations and reports; - final conference at lesson 17 presentation/ video and report to her.
PC-1 Capable perform calculation and design parts, units and devices radio engineering systems in in accordance with technical task, including number with using funds automation design	IPC-1.1 Understands the principles of designing individual parts, units and devices of radio engineering systems, selects automated design systems for radio engineering systems; IPC-1.2 Works with software using modern application programs for calculation radio engineering systems; IPK-1.3 Calculates and designs parts, units and devices radio engineering systems in accordance with the technical specifications using automated design tools.	Intermediate certification: credit Current control: seminars/ practical classes; - intermediate certification in classes 6 and 12 in shape presentations and reports; - final conference at lesson 17 presentation/ video and report to her.
PC-2 Capable fulfill mathematical modeling objects and processes by typical methods, including number with using standard packages applied programs	IPC-2.1 Build physical and mathematical models of nodes, blocks and devices of radio engineering systems; IPC-2.2 Use standard software packages for mathematical modeling of nodes, blocks and devices of radio engineering systems; IPK-2.3 Performs computer modeling of mathematical models of units, blocks and devices radio engineering systems.	Intermediate certification: credit Current control: seminars/ practical classes; - intermediate certification in classes 6 and 12 in shape presentations and reports; - final conference at lesson 17 presentation/

Code and Name competencies	Indicators of Competence Achievement	Control methods and assessments
		video and report to her.

7.2 Scale and criteria for assessing learning outcomes

7.2.1. 1 Criteria for assessing the answer during the test

(formation of competence UK-3, indicators IUK-3.1, IUK-3.2, IUK-3.3)

Midterm assessment of students in the form of a test is carried out based on the results of completing all types of academic work stipulated by the curricula for the discipline "Project Activity", taking into account the results of current monitoring of academic performance during the semester. Assessment of the degree of achievement of planned learning outcomes by students in the discipline is carried out by the project curator, who leads classes in the discipline, the subject coordinator, the expert committee using the expert assessment method based on the results of the project defense and the obtained product result. The assessment is made up of the points received during the defenses of two midterm assessments during the semester and the final defense (see paragraph 7.3). In addition, the project curator can assign one or two stars to the student for active work, which will provide the student with the right of priority choice of a project for the next year of study.

The minimum total number of points required for a student to receive credit for the discipline “Project Activities” is 60 points.

Based on the results of the midterm assessment for a discipline, a grade of “pass” or “fail” is given.

Rating scale	Description
Passed (60 points or more, maximum 100 points)	All types of educational work provided by the curriculum have been completed. The student is able to carry out social interaction and implement his/her role in a team, demonstrates theoretical knowledge, practical skills, knows the terms, makes reasoned conclusions and generalizations, operates with the acquired knowledge, skills, abilities, applies them in situations of increased complexity, demonstrates free command of monologue speech and the ability to quickly respond to clarifying questions. At the same time, minor errors, inaccuracies, difficulties in analytical operations, transfer of knowledge and skills to new, non-standard situations may be allowed. Competencies are formed. Project curator's assessment - 50 points Subject coordinator's assessment - 20 points The expert committee's assessment for the final defense is 30 points.
Failed (less than 60) points)	One or more types of academic work provided for in the curriculum have not been completed. The student does not demonstrate theoretical knowledge and is not able to carry out

Rating scale	Description
	social interaction and to realize his/her role in the team, practical skills are partially or completely absent, does not know the terms, does not know how to make reasoned conclusions and generalizations, does not operate with the acquired knowledge, skills, abilities, does not apply them in situations of increased complexity, does not demonstrate free command of monologue speech and is not able to quickly respond to clarifying questions, experiences significant difficulties in operating knowledge and skills when transferring them to new situations. Competencies are not developed. Project curator's score - less than 50 points Subject coordinator's score - less than 20 points

7.2.1.2 Criteria for assessing the answer during the test

(formation of competence PC-1, indicators IPC-1.1, IPC-1.2, IPC-1.3)

Midterm assessment of students in the form of a test is carried out based on the results of completing all types of academic work stipulated by the curricula for the discipline "Project Activity", taking into account the results of current monitoring of academic performance during the semester. Assessment of the degree of achievement of planned learning outcomes by students in the discipline is carried out by the project curator, who leads classes in the discipline, the subject coordinator, the expert committee using the expert assessment method based on the results of the project defense and the obtained product result. The assessment is made up of the points received during the defenses of two midterm assessments during the semester and the final defense (see paragraph 7.3). In addition, the project curator can assign one or two stars to the student for active work, which will provide the student with the right of priority choice of a project for the next year of study.

The minimum total number of points required for a student to receive credit for the discipline “Project Activities” is 60 points.

Based on the results of the midterm assessment for a discipline, a grade of “pass” or “fail” is given.

Rating scale	Description
Passed (60 points or more, maximum 100 points)	All types of educational work provided for by the curriculum have been completed. The student demonstrates theoretical knowledge, practical skills, is familiar with the terms, makes reasoned conclusions and generalizations, is able to calculate and design parts, units and devices of radio engineering systems in accordance with the technical specifications, including using design automation tools, operates with the acquired knowledge, skills, abilities, applies them in situations of increased complexity, demonstrates free command of monologue speech and the ability to quickly respond to clarifying questions. At the same time, minor errors, inaccuracies, difficulties in analytical operations, transfer of knowledge and skills to new, non-standard situations may be allowed.

Rating scale	Description
	Competencies are formed. Project curator's assessment - 50 points Subject coordinator's assessment - 20 points The expert committee's assessment for the final defense is 30 points.
Failed (less than 60) points)	One or more types of academic work provided for by the curriculum have not been completed. The student does not demonstrate theoretical knowledge, practical skills are partially or completely absent, is unable to calculate and design parts, units and devices of radio engineering systems in accordance with the technical specifications, including using design automation tools, does not know the terms, is unable to make reasoned conclusions and generalizations, does not operate with the acquired knowledge, skills, abilities, does not apply them in situations of increased complexity, does not demonstrate free command of monologue speech and is unable to quickly respond to clarifying questions, experiences significant difficulties in operating knowledge and skills when transferring them to new situations. Competencies are not formed. Project curator's assessment is less than 50 points. Subject coordinator's assessment is less than 20 points.

7.2.1.3 Criteria for assessing the answer during the test

(formation of competence PC-2, indicators IPC-2.1, IPC-2.2, IPC-2.3)

Midterm assessment of students in the form of a test is carried out based on the results of completing all types of academic work stipulated by the curricula for the discipline "Project Activity", taking into account the results of current monitoring of academic performance during the semester. Assessment of the degree of achievement of planned learning outcomes by students in the discipline is carried out by the project curator, who leads classes in the discipline, the subject coordinator, the expert committee using the expert assessment method based on the results of the project defense and the obtained product result. The assessment is made up of the points received during the defenses of two midterm assessments during the semester and the final defense (see paragraph 7.3). In addition, the project curator can assign one or two stars to the student for active work, which will provide the student with the right of priority choice of a project for the next year of study.

The minimum total number of points required for a student to receive credit for the discipline “Project Activities” is 60 points.

Based on the results of the midterm assessment for a discipline, a grade of “pass” or “fail” is given.

Rating scale	Description
Passed (60 points or more, maximum 100 points)	All types of educational work provided for by the curriculum have been completed. The student demonstrates theoretical knowledge, practical skills, is proficient in terms, and is able to perform mathematical modeling of objects and processes according to standard

Rating scale	Description
	methods, including the use of standard packages applied programs, makes reasoned conclusions and generalizations, operates with acquired knowledge, skills, abilities, applies them in situations of increased complexity, demonstrates free command of monologue speech and the ability to quickly respond to clarifying questions. At the same time, minor errors, inaccuracies, difficulties in analytical operations, transfer of knowledge and skills to new, non-standard situations may be allowed. Competencies are formed. Project curator's assessment - 50 points Subject coordinator's assessment - 20 points The expert committee's assessment for the final defense is 30 points.
Failed (less than 60) points)	One or more types of academic work provided for by the curriculum have not been completed. The student does not demonstrate theoretical knowledge, practical skills are partially or completely absent, does not know the terms, is unable to perform mathematical modeling of objects and processes using standard methods, including using standard application software packages, can't do it reasoned conclusions and generalizations, does not operate acquired knowledge, skills, abilities, does not apply them in situations of increased complexity, does not demonstrate fluency in monologue speech and is not able to quickly respond to clarifying questions, experiences significant difficulties in operating knowledge and skills when transferring them to new situations. Competencies are not formed. Project curator's assessment is less than 50 points. Subject coordinator's assessment is less than 20 points.

7.2.2. Criteria for assessing the student's work in practical classes

7.2.2.1 Criteria for assessing the student's work in practical classes
(formation of competence UK-3, indicators IUK-3.1, IUK-3.2, IUK-3.3)

High level - "5" (excellent):the role in the team has been realized, all tasks provided for in the roadmap have been completed; the deadlines for completing tasks specified in the roadmap have been met; the student has answered all test questions clearly and without errors, and has worked actively in practical classes and independently.

Advanced level - "4" (good):the role in is partially realized team, all tasks provided for by the roadmap were completed; the deadlines for completing the tasks were practically met; the student answered all the test questions with corrective comments from the teacher, and worked quite actively during practical classes.

Threshold level - "3" (satisfactory):partially implemented role in the team, all tasks provided for by the roadmap were completed; deadlines for completing tasks were violated; the student answered all the teacher's control questions with comments.

The threshold level is not reached - "2" (unsatisfactory): Not the role in the team was implemented, the student did not complete or completed the tasks assigned to him in the roadmap; the deadlines for completing the tasks specified in the roadmap were violated; the student answered the test questions with errors or did not answer the test questions.

7.2.2.2 Criteria for assessing the student's work in practical classes
(formation of competence PC-1, indicators IPC-1.1, IPC-1.2, IPC-1.3)

High level - "5" (excellent):all tasks, calculations and design of parts, units and devices of radio engineering systems in accordance with the technical specifications, including the use of design automation tools, as provided for in the roadmap; the deadlines for completing the tasks specified in the roadmap are met; the student clearly and without errors answered all test questions, actively worked in practical classes and independently.

Advanced level - "4" (good):almost all are completed assignments, calculations and design of parts, units and devices of radio engineering systems in accordance with the technical assignment, including the use of design automation tools, provided for by the roadmap; the deadlines for completing the assignments were practically met; the student answered all the test questions with corrective comments from the teacher, and worked quite actively in practical classes.

Threshold level - "3" (satisfactory):partially completed all assignments, calculations and design of parts, units and devices of radio engineering systems in accordance with the technical assignment, including the use of design automation tools, provided for by the roadmap; deadlines for completing assignments were violated; the student answered all the teacher's control questions with comments.

The threshold level is not reached - "2" (unsatisfactory): the student did not complete the assignments, calculations and design of parts, units and devices of radio engineering systems in accordance with the technical assignment, including using automated design tools, assigned to him in the roadmap; the deadlines for completing the assignments specified in the roadmap were violated; the student answered the test questions with errors or did not answer the test questions.

7.2.2.3 Criteria for assessing the student's work in practical classes
(formation of competence PC-2, indicators IPC-2.1, IPC-2.2, IPC-2.3)

High level - "5" (excellent): Mathematical work done modeling of objects and processes using standard methods, including the use of standard application software packages; all tasks provided for in the roadmap have been completed; the deadlines for completing tasks specified in the roadmap have been met; the student clearly and without errors answered all test questions, actively worked in practical classes and independently.

Advanced level - "4" (good):almost done mathematical modeling of objects and processes using standard methods, including the use of standard application software packages; all tasks provided for in the roadmap were completed; the deadlines for completing the tasks were practically met; the student answered all the test questions with corrective comments from the teacher, and worked quite actively in practical classes.

Threshold level - "3" (satisfactory):in sufficient quantity Mathematical modeling of objects and processes was performed using standard methods, including the use of standard application software packages; all tasks provided for by the roadmap were completed; deadlines for completing tasks were violated; the student answered all the teacher's control questions with comments.

The threshold level is not reached - "2" (unsatisfactory): the student did not perform mathematical modeling of objects and processes using standard methods, including using standard application software packages; did not complete the tasks assigned to him in the roadmap; the deadlines for completing the tasks specified in the roadmap were violated; the student answered the test questions with errors or did not answer the test questions.

7.2.3. Test results evaluation criteria

Testing for the “Project Activities” discipline is not provided.

7.3. Evaluation tools

7.3.1. Current control

7.3.1.1 List of control questions for conducting a round table tables/discussions at seminars/practical classes

(formation of competence UK-3, indicators IUK-3.1, IUK-3.2, IUK-3.3)

1. Discussion of ideas for future projects, drawing up a work plan for the project.
2. Formulation of ideas and plans on the topic of the project.

3. Changing/adjusting the time frames of project stages.
4. Discussion of the distribution of stage tasks among project teams and individual performers.
5. Selected design and implementation tools for the project.
6. Coordination of the results of work on various tasks of the stage.
7. Project risk analysis.
8. Development of additional ways to support the project.
9. Developing a format for presenting the project at the conference.
10. Discussion of the future project, its continuation.
11. Project difficulties and ways to solve them.
12. Presentation of work to the customer and discussion of the project.
13. Analysis of feedback from the customer/expert and making changes to the technical specifications.
14. Changes and additions to the project taking into account comments and suggestions.
15. Preparation for public defense of the project.

Scale and criteria for assessing answers to questions and the level of mastery of disciplinary parts of competencies acquired through participation in a discussion/round table

Rating scale	Evaluation criteria
High level - "Excellent"/"passed"	the student actively participates in group discussions of all round table issues, demonstrates the results of independent analytical work with information sources, and argues his/her point of view
Advanced level - "Good"/"passed"	the student actively participates in group discussions of all round table issues, demonstrates the results of independent analytical work with information sources, does not always fully argue his point of view
Threshold level - "Satisfactorily"/ "passed"	the student participates in the discussion of only part of the round table issues, using only the main materials, and does not argue his point of view
The threshold level is not achieved - "Unsatisfactory"/ "failed"	the student does not participate in the discussion of controversial issues of the round table, does not have his own point of view

7.3.1.2 General questions on the project topic for the oral survey/interview to assess the development of professional competencies
(formation of competence PC-1, indicators IPC-1.1, IPC-1.2, IPC-1.3)

1. What problem does your project solve?
2. What is the design object - how are you going to solve the problem posed for the project?

3. Are there any alternative ways to solve the problem, if so, what are they?
4. Are there any analogues of your project on the market, if so, which ones?
5. What is the advantage of your project compared to existing analogues or alternative solutions to the problem?
6. What stage is your project at?
7. What are the prospects and further development opportunities for the project?
8. Project stakeholders – who is interested in your project? (target audience, potential customer, user profile, sales markets)
9. What product result do you plan to achieve with the project?
10. Describe the key risks of the project.
11. Formulate the main stages of project implementation.
12.Describe your role in the project team.
13. Resource base required for project implementation.
14.Sources of funding for your project.
15.What production capacities are required to implement the project?

Scale and criteria for assessing answers to questions and the level of mastery of disciplinary parts of competencies acquired through participation in an oral survey/interview

Rating scale	Evaluation criteria
High level - "Excellent"/"passed"	the student freely answers questions on the topic of the project, is able to present a logical chain of making design decisions, explains the logic of calculating and designing parts, units and devices of radio engineering systems in accordance with the technical specifications, including using tools and justify his point of view during an oral survey
Advanced level - "Good"/"passed"	the student confidently answers questions on the topic of the project, is able to present a logical chain of making design decisions, parts, units and devices of radio engineering systems in accordance with the technical specifications, including using tools and justify his point of view during an oral survey, is able to correct a few mistakes independently
Threshold level - "Satisfactorily"/ "passed"	the student is able to answer general questions on the topic of the project, can build logical, well-founded conclusions during an oral survey, there are gaps in the calculations and design of parts, units and devices of radio engineering systems in accordance with the technical specifications, including the use of tools
The threshold level is not achieved -	the student is unable to answer questions on the topic of the project or convey its content, is unable to perform calculations and design of parts, units and devices of radio engineering

"Unsatisfactory"/ "failed"	systems in accordance with the technical specifications, including the use of tools, does not have basic concepts about the subject of discussion on the topic of the oral survey

7.3.1.3 Topics of general group creative tasks for assessing mastery professional parts of competencies

(formation of competence PC-2, indicators IPC-2.1, IPC-2.2, IPC-2.3)

1. Collect information on the object and present it in the form of a presentation.
2. Find and analyze product analogues and draw conclusions about their differences from each other, their advantages and disadvantages, and assume what niche a particular product occupies.
3. Conduct a survey/questionnaire of interested or potential consumers/ stakeholders under development products, systematize the answers, draw conclusions.
4. Make a list of criteria and quality characteristics that the object being developed must meet.
5. Check the compliance of the initially collected requests/requirements and the final result.
6. Develop a list of alternative concepts for a specific task.
7. Formulate in general the proposed concept of the object being developed.
8. Make a list of possible changes/improvements to existing objects, taking into account the full life cycle of the product.
9. Make a list of materials or a list of the necessary characteristics of these materials to implement the project.
10. Create a schedule for work on the project.
11. Prepare the necessary information for the team members working on the project, conduct a joint discussion of the project and its adjustment.
12. Based on the proposed solution, draw conclusions about the appropriateness of the decisions taken in connection with the proposed target audience and market niche.
13. Prepare and deliver a presentation on any stage of the project being developed.
14. Description of the work of the project group, the customer, the differences identified and ways to resolve them, as well as planning the structure of project groups and individual tasks and justified methods for stimulating work efficiency.
15. Preparation and delivery of a presentation for the customer’s representatives.

Scale and criteria for assessing answers to questions and the level of mastery of disciplinary parts of competencies acquired through participation in an oral survey/interview

Rating scale	Evaluation criteria
High level - "Excellent"/"passed"	the student freely answers questions on the topic of general group creative assignments, is able to collect information, is able to perform mathematical modeling of objects and processes using standard methods, including using standard application software packages, conduct surveys, work in a project group, make decisions when developing individual tasks, prepare and deliver a presentation and justify their point of view during an oral survey
Advanced level - "Good"/"passed"	the student confidently answers questions on the topic of general group creative assignments, is able to collect information, is able to collect information, is able to perform mathematical modeling of objects and processes using standard methods, including using standard application software packages, conduct surveys, work in a project group, make decisions when developing individual tasks, prepare and deliver a presentation and justify his point of view during an oral survey, is able to independently correct a few mistakes
Threshold level - "Satisfactorily"/ "passed"	the student is able to answer general questions on the topic of general group creative tasks, is able to collect information, is partially able to collect information, is partially able to perform mathematical modeling of objects and processes using standard methods, including using standard application software packages, can build logical, well-founded conclusions during an oral survey, but has difficulties when working in a project group, when making decisions on developing individual tasks, is not ready to give a presentation
The threshold level is not achieved - "Unsatisfactory"/ "failed"	the student is unable to answer questions on the topic of general group creative assignments or convey its content, is unable to perform mathematical modeling of objects and processes using standard methods, including using standard software packages, has no understanding of the subject of discussion on the topic of the oral survey

7.3.2. Interim assessment

The midterm assessment includes:**three stages**. **First**midterm assessment: discussion of practical implementation of the acquired knowledge within the formed project subgroups. Presentation of the completed work in the form of a presentation (report) by each subgroup. The assessment of the certification consists of a point assessment by the project curator (within 20 points) and the subject coordinator (within 10 points).

Secondmidterm assessment: supplement to the presentation of the first

midterm assessment and presentation of the completed work in the form of a presentation by each subgroup. The assessment score consists of a point score from the project curator (within 30 points) and the subject coordinator (within 10 points).

The thirdmidterm assessment: presentation of the report presentation (video clip) at the final conference (the assessment is given by the expert committee within 30 points).

Based on the results**three stages**It is determined whether the student received a "pass", "fail" or, if absent from the credit procedure, "failed to appear". The minimum overall grade for receiving a "pass" is 60 points. The maximum possible overall grade is 100 points.