

MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION  
Federal State Autonomous Educational Institution for Higher Education  
«North-Caucasus Federal University»

APPROVED BY  
Dean of FPE of NCFU  
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**ASSESSMENT TOOLS  
for the Educational Practice  
Research Work**

(Obtainig basic research work)

|                                 |                                                                   |
|---------------------------------|-------------------------------------------------------------------|
| Field of study                  | 13.04.02 Electric Power Engineering and<br>Electrical Engineering |
| Specialization (Profile)        | Training Program of Electrical Engineering                        |
| Year of commencement of studies | 2026                                                              |
| Mode of study                   | full-time                                                         |
| Implemented in semester(s)      | 3                                                                 |

## Foreword

1. Purpose: The assessment tools for the educational practice " Introductory Internship " are intended to assess students' knowledge during ongoing progress control and intermediate assessment. The assessment tools include a set of control assignments for the practice.

2. The assessment tools are an appendix to the program of the educational practice "Introductory Internship ".

3. Developer: Associate Professor of the Department of Automated Electric Power Systems and Power Supply Stepanova A.A.

4. The assessment tools have undergone expert review.

Members of the expert group:

Chairperson: Kononov Yu.G., Head of the Department of Automated Electric Power Systems and Power Supply.

Committee members:

Demin M.S., Associate Professor of the Department of Automated Electric Power Systems and Power Supply.

Petrov A. V., Associate Professor of the Department of Automated Electric Power Systems and Power Supply.

Representative of the employer organization: I.S. Solovyev, Deputy Chief Engineer of the Western Electric Networks, branch of PAO "Rosseti North Caucasus" – "Stavropolenergo".

Expert opinion: The assessment tools correspond to the educational program of higher education in the field of study and are recommended for assessing the level of competency formation during ongoing progress control and intermediate assessment of students in the practice Research Work (Acquisition of Primary Skills in Research Work)

5. The validity period of the assessment tools is determined by the period of implementation of the educational program.

**1. Description of indicators and assessment criteria at various stages of their formation, description of grading scales**

| Competency(ies), indicator(s)                                                                                                                                                                                                                                                                                                      | Levels of competency formation                                                                                                                 |                                                                                                                                          |                                                                                                                            |                                                                                                                                                                          |
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|                                                                                                                                                                                                                                                                                                                                    | Minimum level not achieved (Unsatisfactory) – 2 points                                                                                         | Minimum level (Satisfactory) – 3 points                                                                                                  | Medium level (Good) – 4 points                                                                                             | High level (Excellent) – 5 points                                                                                                                                        |
| <b>UC-1 Capable of conducting critical analysis of problem situations based on a systems approach and developing an action strategy</b>                                                                                                                                                                                            |                                                                                                                                                |                                                                                                                                          |                                                                                                                            |                                                                                                                                                                          |
| <p>Performs a search for information according to a given query using specialized information resources; systematizes and summarizes information, draws conclusions.</p> <p>ID-1UC-1. Searches for the required information, performs its critical analysis, and consolidates the analysis results to solve the assigned task;</p> | <p>Does not use specialized resources for searching, does not formulate a search query, cannot summarize the material or draw conclusions.</p> | <p>Does not use specialized resources for searching, cannot properly summarize the material or draw conclusions.</p>                     | <p>Uses specialized resources for searching, formulates a search query, performs some summarization of the material.</p>   | <p>Performs a search for information according to a given query using specialized information resources; systematizes and summarizes information, draws conclusions.</p> |
| <p>Formulates the task, determines the composition of subtasks.</p> <p>ID-2UC-1. Analyses a problem situation and performs its decomposition into individual tasks;</p>                                                                                                                                                            | <p>Does not formulate the task, does not determine the composition of subtasks</p>                                                             | <p>Formulates the task, does not determine the composition of subtasks, performs task decomposition incorrectly</p>                      | <p>Formulates the task, partially determines the composition of subtasks</p>                                               | <p>Formulates the task, determines the composition of subtasks</p>                                                                                                       |
| <p>Determines the stages of solving the task, assesses the timelines and resources for completing each stage.</p> <p>ID-3UC-1<br/>1.Вырабатывает стратегию решения поставленной задачи</p>                                                                                                                                         | <p>Does not determine the stages of solving the task, incorrectly assesses the timelines and resources for completing each stage</p>           | <p>Incorrectly determines the stages of solving the task, incorrectly assesses the timelines and resources for completing each stage</p> | <p>Determines the stages of solving the task, partially assesses the timelines and resources for completing each stage</p> | <p>Determines the stages of solving the task, assesses the timelines and resources for completing each stag</p>                                                          |
| <b>UC-6 Capable of identifying and realising the priorities of one's own activities and ways of improving them based on self-assessment</b>                                                                                                                                                                                        |                                                                                                                                                |                                                                                                                                          |                                                                                                                            |                                                                                                                                                                          |
| <p>Рационально распределяет временные, материальные ресурсы</p> <p>ID-1UC-6. Assesses one's own resources and their limits</p>                                                                                                                                                                                                     | <p>Does not assess or distribute time and material resources.</p>                                                                              | <p>Incorrectly assesses and irrationally distributes time and material resources.</p>                                                    | <p>Correctly assesses but insufficiently rationally distributes time and material resources.</p>                           | <p>Correctly assesses and rationally distributes time and material resources.</p>                                                                                        |

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| personal, situational, temporal), and uses them optimally to successfully complete an assigned task;                                                                                                               |                                                                                                                                           |                                                                                                                                                       |                                                                                                                                                                       |                                                                                                                                      |
| <p>Determines the trajectory of personal growth and professional development.</p> <p>ID-2UC-6. Identifies the priorities of personal growth and ways to improve one's own activities based on self-assessment.</p> | Does not determine priorities and the trajectory of personal growth.                                                                      | Incorrectly determines the trajectory of personal and professional development.                                                                       | Determines the trajectory of personal growth                                                                                                                          | Determines the trajectory of personal and professional development.                                                                  |
| GPC-1 Capable of formulating research objectives and tasks, identifying task-solving priorities, and selecting evaluation criteria                                                                                 |                                                                                                                                           |                                                                                                                                                       |                                                                                                                                                                       |                                                                                                                                      |
| <p>Determines the final goal, defines the object and subject of the research, determines the set of tasks necessary to achieve the goal.</p> <p>ID-1GPC-1<br/>Formulates research objectives and tasks;</p>        | Does not formulate the goal of the research, does not define the object and subject of the research, does not determine the set of tasks. | Incorrectly formulates the goal of the research, incorrectly defines the object and subject of the research, incorrectly determines the set of tasks. | Insufficiently clearly formulates the final goal, defines the object and subject of the research, partially determines the set of tasks necessary to achieve the goal | Determines the final goal, defines the object and subject of the research, determines the set of tasks necessary to achieve the goal |
| <p>Determines the stages of solving the task, assesses the timelines and resources for completing each stage.</p> <p>ID-2GPC-1<br/>Determines the sequence for solving tasks</p>                                   | Does not formulate the stages of solving the task, does not assess the timelines and resources for completing each stage.                 | Incorrectly determines the stages of solving the task, incorrectly assesses the timelines and resources for completing each stage.                    | Determines the stages of solving the task, partially assesses the timelines and resources for completing each stage.                                                  | Determines the stages of solving the task, assesses the timelines and resources for completing each stage.                           |
| <p>Determines the criteria for achieving the goal, formulates decision-making criteria based on the research results.</p> <p>ID-3GPC-1<br/>Formulates decision-making criteria.</p>                                | Does not formulate decision-making criteria based on the research results.                                                                | Incorrectly determines the criteria for achieving the goal, does not formulate decision-making criteria based on the research results.                | Insufficiently clearly determines the criteria for achieving the goal, partially formulates decision-making criteria based on the research results.                   | Determines the criteria for achieving the goal, formulates decision-making criteria based on the research results.                   |
| GPC-2 Capable of applying modern research methods, evaluating and presenting the results of completed work                                                                                                         |                                                                                                                                           |                                                                                                                                                       |                                                                                                                                                                       |                                                                                                                                      |

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| Performs a comparative analysis of research methods, determines the rational research method based on the stated goals.<br><br>ID-1GPC-2 Selects the appropriate research method to solve the assigned task; | Does not know the research methods for solving the stated goal. | Selects a research method not based on analysis.                 | Performs an analysis of research methods, determines a suitable research method based on the stated goals.               | Performs a comparative analysis of research methods, determines the rational research method based on the stated goals. |
| Performs various types of analysis (visual, statistical, classification, etc.).<br><br>ID-2GPC-2. Conducts analysis of the obtained results;                                                                 | Does not perform an analysis of the obtained results.           | Performs only certain types of analysis.                         | Performs various types of analysis insufficiently correctly.                                                             | Performs various types of analysis (visual, statistical, classification, etc.).                                         |
| Presents the results of the work in various formats convenient for further evaluation and use.<br><br>ID-3GPC-2 Presents the results of the completed work.                                                  | Does not provide research results.                              | Presents research results in an inconvenient and incorrect form. | Presents the results of the work in various formats that are not sufficiently convenient for further evaluation and use. | Presents the results of the work in various formats convenient for further evaluation and use.                          |

### Assessment criteria for competencies

**Grade «Excellent»** is awarded to the student if the student fully understands the principles of project management, describes the stages of the project lifecycle in detail, and is able to apply risk control tools in real-world situations; demonstrates a deep understanding of team roles and leadership styles, and can analyze their impact on team performance; effectively distributes tasks, taking into account the competencies of the performers, and ensures the achievement of set goals; works fluently with foreign sources, is able to analyze and use information without a dictionary; translates text accurately and competently, using a dictionary only for rare terms; interacts effectively while respecting cultural and religious differences, demonstrating a high level of tolerance; effectively forms a team, considering individual characteristics and assigning roles to achieve project goals; independently defines clear, achievable goals and objectives, taking into account all available resources and requirements; accurately and logically determines the sequence of task execution, taking into account all stages; accurately formulates risks, creates a detailed risk matrix, and proposes methods for their mitigation; independently selects the optimal research method and justifies his/her choice; conducts comprehensive analysis, uses modern tools, and draws accurate and well-founded conclusions; effectively presents the results, uses modern tools, and the structure and content are impeccable.

**Grade "Good"** is awarded to the student if the student understands the stages of the project lifecycle, can describe them and provide examples, but is not always able to apply risk control tools; knows team roles and leadership styles and can explain their significance, but experiences difficulties in applying this knowledge in practice; is able to distribute tasks taking into account the competencies of the performers, but sometimes makes mistakes in planning; is able to find and understand information from foreign sources, but sometimes requires the use of a dictionary; translates text with minor errors and uses a dictionary for complex terms; is able to conduct business communication and takes into account cultural differences, but sometimes makes

mistakes; forms a team taking into account individual characteristics, but experiences difficulties in role distribution; clearly formulates the goal and objectives, but sometimes does not take into account available resources; correctly determines the sequence, but sometimes requires adjustments; formulates risks and creates a matrix, but the assessment is not always accurate; selects an appropriate method, but sometimes requires assistance in its application; conducts analysis and uses software tools, but the conclusions are not always accurate; logically presents the results and uses software tools, but sometimes lacks depth.

**Grade "Satisfactory"** is awarded to the student if the student knows the main stages of the project lifecycle but cannot describe them in detail; can name the main team roles and leadership styles but does not understand their impact on team performance; can distribute simple tasks but does not always take into account the competencies of the performers; can find simple information using a dictionary but experiences significant difficulties; translates text with a large number of errors and requires constant use of a dictionary; is able to communicate but does not always take into account cultural differences; forms a team but does not always take into account individual characteristics; formulates the goal and objectives, but they are not always clear or achievable; determines the sequence, but with errors or omissions; identifies some risks but is unable to classify or assess them; selects a method but not always with justification; conducts a simple analysis, but with errors or incomplete results; presents the results, but the structure and formatting require improvement.

**Grade "Unsatisfactory"** is awarded to the student if the student lacks an understanding of project management principles and cannot name the stages of the project lifecycle; does not know team roles and does not understand the differences between leadership styles; is unable to distribute tasks and does not take into account the competencies of the performers; is unable to search for information in foreign sources and does not understand key terms; cannot translate even simple sentences and does not understand the structure of the text; is unable to conduct business communication and does not take into account cultural differences; cannot form a team and does not understand the individual characteristics of the participants; cannot formulate the goal and objectives of the research; cannot determine the sequence of actions; cannot identify risks or create a risk matrix; cannot select a research method; cannot conduct an analysis or interpret the results; cannot present the results or does so in an illogical manner.

## 2. Assessment Tools for Educational Practice “Research Work (Acquisition of Primary Skills in Research Work)”

### 2.1. Tasks Allowing for the Assessment of Knowledge Acquired During the Practice

| Формируемые компетенции, индикаторы                                                                                                     |                                                                                                                                                               | Формулировка задания                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| Код компетенции                                                                                                                         | Формулировка                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| UC-1<br>Capable of conducting critical analysis of problem situations based on a systems approach and developing an action strategy     | ID-1UC-1. Searches for the required information, performs its critical analysis, and consolidates the analysis results to solve the assigned task;            | <ul style="list-style-type: none"> <li>- Define the goal and objectives of the research</li> <li>- Define the object and subject of the research, explain the difference</li> <li>- Describe the process of decomposing tasks into subtasks</li> <li>- List the methods of scientific research</li> <li>- Describe the labor and material resources, explain the principles of resource allocation</li> <li>- List the main sources of scientific information</li> <li>- Explain the procedure for searching for scientific information</li> <li>- Explain the principles of generalization and aggregation</li> <li>- List the main sources of factual information</li> <li>- Describe the procedure for searching for</li> </ul> |
|                                                                                                                                         | ID-2UC-1 Analyses a problem situation and performs its decomposition into individual tasks;                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| UC-6<br>Capable of identifying and realising the priorities of one's own activities and ways of improving them based on self-assessment | ID-3UC-1. Develops a strategy for solving the assigned task.                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                         | ID-1UC-6. Assesses one's own resources and their limits (personal, situational, temporal), and uses them optimally to successfully complete an assigned task; |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

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|                                                                                                                                       | ID-2UC-6. Identifies the priorities of personal growth and ways to improve one's own activities based on self-assessment. | patent information<br>- Describe the procedure for searching for statistical information<br>- Explain the principles of generalization and aggregation |
| GPC-1<br>Capable of formulating research objectives and tasks, identifying task-solving priorities, and selecting evaluation criteria | ID-1 <sub>GPC-1</sub> Formulates research objectives and tasks;                                                           | - List the main methods of information analysis                                                                                                        |
|                                                                                                                                       | ID-2 <sub>GPC-1</sub> Determines the sequence for solving tasks                                                           | - Explain the essence of statistical analysis<br>- Explain the essence of comparative analysis                                                         |
|                                                                                                                                       | ID-3 <sub>GPC-1</sub> Formulates decision-making criteria.                                                                | - Explain the essence of classification analysis                                                                                                       |
| GPC-2<br>Capable of applying modern research methods, evaluating and presenting the results of completed work                         | ID-1 <sub>GPC-2</sub> Selects the appropriate research method to solve the assigned task;                                 | - List the methods of presenting research results                                                                                                      |
|                                                                                                                                       | ID-2 <sub>GPC-2</sub> Conducts analysis of the obtained results                                                           | - Describe the methods of information visualization                                                                                                    |
|                                                                                                                                       | ID-3 <sub>GPC-2</sub> Presents the results of the completed work.                                                         | - List the GOST requirements for the formatting of scientific works                                                                                    |

## 2. Tasks to assess the knowledge acquired during the practice

| Formed competencies, indicators |                                                                                                                                                    | Task formulation                                                                                |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Competency code                 | Formulation                                                                                                                                        |                                                                                                 |
| UC-1                            | ID-1UC-1. Searches for the required information, performs its critical analysis, and consolidates the analysis results to solve the assigned task; | - Formulate the goal of the research.<br><br>- Identify the object and subject of the research. |

|       |                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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|       |                                                                                                                                                               | <ul style="list-style-type: none"> <li>- Define the research objectives.</li> <li>- Define the criteria for achieving the research goal.</li> <li>- Develop a research plan: analyze and select a research method; determine the sequence of solving the tasks; identify resources (time, materials) for solving each task.</li> <li>- Select literature on the research topic. The literature must include Russian and foreign articles from scientific journals, educational and scientific publications, and manufacturer publications.</li> <li>- Format the reference list in accordance with GOST requirements.</li> <li>- Select factual information on the research topic from the following sources: the FIPS database, the Rosstat database, and manufacturer publications.</li> </ul> |
|       | ID-2UC-1 Analyses a problem situation and performs its decomposition into individual tasks;                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| UC-6  | ID-3UC-1. Develops a strategy for solving the assigned task.                                                                                                  | <ul style="list-style-type: none"> <li>- Format the source list in accordance with GOST requirements.</li> <li>- Analyze and systematize the selected material in accordance with the research method.</li> <li>- Structure the obtained information in accordance with the goal and the criteria for achieving the goal.</li> <li>- Draw conclusions.</li> <li>- Prepare a report on the work. Present the obtained results in the form of tables and graphs reflecting the data structure and process dynamics.</li> </ul>                                                                                                                                                                                                                                                                     |
|       | ID-1UC-6. Assesses one's own resources and their limits (personal, situational, temporal), and uses them optimally to successfully complete an assigned task; |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|       | ID-2UC-6. Identifies the priorities of personal growth and ways to improve one's own activities based on self-assessment.                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| GPC-1 | ID-1GPC-1 Formulates research objectives and ID-1GPC-1 D                                                                                                      | <ul style="list-style-type: none"> <li>- Format the source list in accordance with GOST requirements.</li> <li>- Analyze and systematize the selected material in accordance with the research method.</li> <li>- Structure the obtained information in accordance with the goal and the criteria for achieving the goal.</li> <li>- Draw conclusions.</li> <li>- Prepare a report on the work. Present the obtained results in the form of tables and graphs reflecting the data structure and process dynamics.</li> </ul>                                                                                                                                                                                                                                                                     |
|       | ID-2GPC-1 Determines the sequence for solving tasks                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|       | ID-3GPC-1 Formulates decision-making criteria.                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| GPC-2 | ID-1GPC-2 Selects the appropriate research method to solve the assigned task;                                                                                 | <ul style="list-style-type: none"> <li>- Format the source list in accordance with GOST requirements.</li> <li>- Analyze and systematize the selected material in accordance with the research method.</li> <li>- Structure the obtained information in accordance with the goal and the criteria for achieving the goal.</li> <li>- Draw conclusions.</li> <li>- Prepare a report on the work. Present the obtained results in the form of tables and graphs reflecting the data structure and process dynamics.</li> </ul>                                                                                                                                                                                                                                                                     |
|       | ID-2GPC-2 Conducts analysis of the obtained results                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|       | ID-3GPC-2 Presents the results of the completed work.                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

### **3. Methodological materials defining the procedures for assessing knowledge, skills, abilities and (or) experience of activities characterizing the stages of competency formation**

The procedure for completing the work placement ("introductory practice") includes the following stages:

- introductory lecture;
- health and safety briefing;
- formulation of the goals and objectives of the placement;
- development of a work plan for the assignment;
- completion of the individual task;
- processing of empirical data;
- systematization of empirical and literary sources;
- presentation of the results.

At each stage of the practice, ongoing control of the competency formation process is carried out.

The tasks offered to the student allow testing of competencies: UC-1, UC-6, GPC-1, GPC-2.

During the placement, the student is required to produce a report containing the following sections:

- an **introduction** reflecting the relevance of the issues under consideration;
- a **main body** containing the results of the individual task, supported by explanations, figures, tables, calculations, and photographs;
- a **conclusion** reflecting the key findings and results of the work performed;
- a **list of references**.

Formatting of the report in accordance with state standards.

When assessing the assignment, evaluators consider the sequence and rationality of the presentation, the quality of the literary sources used, including the use of foreign language materials.

The final grade is awarded based on the results of a final conference held in the format of a presentation and discussion, during which the student defends the outcomes of their work. The conference takes place within two weeks following the end of the placement and any subsequent holidays (if applicable).

During the defense of the report, the following are assessed:

- the ability to present the results of the work clearly, competently, and concisely, including through the use of modern multimedia computer technologies;
- the ability to understand follow-up questions and provide appropriate responses promptly.