

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

Candidate of Technical Sciences,

Associate Professor A.E. Verisokin

ASSESSMENT TOOLS

for Industrial Practice

**Practice in obtaining professional skills and professional
experience**

Field of study	13.04.02 Electric Power Engineering and Electrical Engineering
Specialization (Profile)	Training Program of Electrical Engineering
Year of commencement of studies	2026
Mode of study	full-time
Implemented in semester(s)	4

Foreword

1. Purpose: The assessment tools for the industrial practice in Acquiring Professional Skills and Professional Work Experience 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: Filippov S.A., Head of the Leninsky Section of the Stavropol Interdistrict Branch of PAO "Stavropolenergosbyt"

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 Assessment Scales

Competency(ies), indicator(s)	Levels of Competency Formation			
	Minimum level not achieved (Unsatisfactory) – 2 points	Minimum level (Satisfactory) – 3 points	Medium level (Good) – 4 points	High level (Excellent) – 5 points
<i>UC-6 Capable of identifying and realising the priorities of one's own activities and ways of improving them based on self-assessment</i>				
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.	Does not know how to set action priorities; is unable to build a strategy for personal and professional growth; has an inadequate self-assessment in the field of professional development	Does not know how to set action priorities; is unable to build a strategy for personal and professional growth; has an adequate self-assessment in the field of professional development	Knows how to set action priorities; builds a strategy for personal and professional growth; has an inadequate self-assessment in the field of professional development	Adequately assesses one's knowledge and professional skills to develop the most effective plan for completing the work practice; assesses the prospects of one's career growth, determines the choice of a narrow specialization for one's future professional activity
<i>PC-3 Capable of managing the power system operating mode of an electrical power supply system using digital technologies</i>				
ID-1 Performs calculations of the performance indicators of electrotechnical equipment and its systems; ID-2. Ensures the required operating modes and specified parameters of the technological process for elements of power supply systems; ID-3. Applies knowledge of digital technologies in the processes of generation, transmission, and distribution of electrical energy; ID-4. Applies knowledge of the specific features of installation, start-up and commissioning, adjustment, testing, and acceptance into service of various types of electrical power and electrotechnical equipment. оборудовани я.	Does not know how to calculate the operating mode of electrical equipment; does not master diagnostic methods for electrical equipment; does not understand wiring diagrams and electrical schematic diagrams of electrical equipment; does not know safety rules	Has skills in preparing data for calculating the operating mode of electrical equipment, but is unable to calculate the mode and analyze the results; knows the main provisions of regulatory documentation on diagnostics of electrical equipment, but is unable to apply the knowledge in practice; does not understand wiring diagrams and electrical schematic diagrams; knows some safety rules, but is not prepared to analyze the consequences of their violation.	Calculates the operating mode of electrical equipment; does not have skills in analyzing the results of mode calculations; knows the main defects of electrical equipment, but is not prepared to name the methods by which they can be identified. Reads but does not understand wiring diagrams and electrical schematic diagrams of electrical equipment. Knows several basic safety rules, but is not prepared to name the documents regulating these rules.	Uses software packages for calculating operating modes of electrical equipment; analyzes the results of mode calculations; masters diagnostic methods for electrical equipment; reads and understands wiring diagrams and electrical schematic diagrams of electrical equipment. Knows safety rules.

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

Competencies, indicators		Task Formulation
Competency Code	Formulation	
ID-1UC-6	Assesses one's resources and their limits (personal, situational, temporal), and uses them optimally for the successful completion of the assigned task.	<ul style="list-style-type: none"> – Provide a description of the enterprise where the practice takes place (the enterprise's place in the structure of the electric power industry of Stavropol Krai and the Russian Federation; description of the department (service) where the practice takes place) – Perform an analysis of a technological problem within the scope of the enterprise's activities and determine ways to solve it – Study the information and measurement complexes used at the enterprise. Provide their description. – Study the Standard of the Organization (STO) 34.01-23.1-001-2017. Scope and standards for testing electrical equipment
ID-2UC-6	Determines priorities for personal growth and ways to improve one's own activities based on self-assessment.	

ID-1PC-3	Performs calculations of operating parameters of electric power facilities	<ul style="list-style-type: none"> – Study SO 153-34.20.501-03 "Rules for the Technical Operation of Power Plants and Grids of the Russian Federation." – Study STO 70238424.29.160.20.007-2009 "Turbogenerators and Synchronous Compensators. Organization of Operation and Maintenance." – Study SO 153-34.20.508 / RD 34.20.508 "Instruction for the Operation of Power Cable Lines. Part 1. Cable Lines with Voltage up to 35 kV." – Study STO 70238424.29.240.10.004-2011 "Substations with Voltage of 35 kV and Above: Organization of Operation and Maintenance. Norms and Requirements." – Study STO 56947007-29.240.35.184-2014 "Gas-Insulated Switchgear in Metal Enclosures (GIS) 110 kV and Above." – Study RD 153-34.0-20.363-99 "Methodology for Infrared Inspection of Electrical Equipment and Overhead Lines." – Study SO 34.46.302-00 "Methodological Guidelines for Diagnostics of Developing Defects in Transformer Equipment Based on Chromatographic Analysis of Gases Dissolved in Oil." – Study STO 70238424.27.140.001-2011 "Hydroelectric Power Plants: Methods for Assessing the Technical Condition of Main Equipment." – Study STO 34.01-24-003-2017 "Production Asset Management System. Procedure for Recording and Classifying Defects. Procedure for Maintaining an Electronic Defect Log." Briefly present in the practice report an answer to one of the following questions: 1. Procedure for recording and classifying defects; 2. Procedure for maintaining an electronic defect log. – Study STO 56947007-29.240.55.111-2011 "Methodological Guidelines for Assessing the Technical Condition of Overhead Lines and the Residual Life of Overhead Line Components." – Study STO 34.01-24-002-2018 "Organization of Maintenance and Repair of Electric Power Facilities." – Study STO 70238424.29.180.003-2009 "General Purpose Oil-Filled Power Transformers. General Specifications for Major Overhaul. Norms and Requirements." – Study STO 70238424.29.240.01.008-2009 "Electrical Networks: Repair and Maintenance of Equipment, Buildings, and Structures. Organization of Production Processes. Norms and Requirements." – Study STO 70238424.27.100.017-2009 "Thermal Power Plants. Repair and Maintenance of Equipment, Buildings, and Structures. Organization of Production Processes. Norms and Requirements."
ID-2PC-3	Uses information from modern information and measurement complexes.	
ID-3PC-3	Applies knowledge of the specifics of installation, commissioning, adjustment, testing, and putting into operation of various types of electric power and electrical equipment.	

		<ul style="list-style-type: none"> – Study 4.20.508 "Instruction for the Operation of Power Cable Lines. Part 1. Cable Lines with Voltage up to 35 kV" – Study STO 02.03.82-2013 "Methodological Recommendations for Maintaining Technical Documentation During Repairs" – Study STO 70238424.29.240.01.008-2009 "Electrical Networks. Repair and Maintenance of Equipment, Buildings, and Structures. Organization of Production Processes. Norms and Requirements" – Study STO RusHydro 02.01.62-2012 "Repair and Maintenance of Equipment, Buildings, and Structures. Organization of Production Processes. Norms and Requirements" – Study STO 34.01-23.1-001-2017 "Scope and Standards for Testing Electrical Equipment." Study in detail one of the following issues: Scope and testing methods for power transformers Scope and testing methods for synchronous generators Scope and testing methods for gas-insulated circuit breakers Scope and testing methods for vacuum circuit breakers Scope and testing methods for overhead power lines Scope and testing methods for power cable lines – Study SO 153-34.20.501-03 "Rules for the Technical Operation of Power Plants and Grids of the Russian Federation." Briefly present in the practice report an answer to one of the following questions: Maintenance, repair, and modernization of equipment – Study STO 70238424.29.160.20.007-2009 "Turbogenerators and Synchronous Compensators. Organization of Operation and Maintenance." Briefly present in the practice report an answer to one of the following questions: Testing of turbogenerators and synchronous compensators – Study SO 153-34.20.508 / RD 34.20.508 "Instruction for the Operation of Power Cable Lines. Part 1. Cable Lines with Voltage up to 35 kV." Briefly present in the practice report an answer to one of the following questions: Testing of cable lines with increased rectified voltage – Study STO 70238424.29.240.10.004-2011 "Substations with Voltage of 35 kV and Above: Organization of Operation and Maintenance. Norms and Requirements." Briefly present in the practice report an answer to one of the following questions: Requirements for the organization of operation of main electrical equipment Organization of maintenance of substations
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		<p>– Study STO 56947007-29.240.55.111-2011 "Methodological Guidelines for Assessing the Technical Condition of Overhead Lines and the Residual Life of Overhead Line Components." Briefly present in the practice report an answer to one of the following questions:</p> <p>Assessment of the technical condition of metal towers</p> <p>Assessment of the technical condition of reinforced concrete towers</p> <p>Assessment of the technical condition of conductors and overhead ground wires</p> <p>Assessment of the technical condition of insulators</p> <p>Assessment of the technical condition of line hardware</p> <p>– Study STO 34.01-24-002-2018 "Organization of Maintenance and Repair of Electric Power Facilities." Briefly present in the practice report an answer to one of the following questions:</p> <p>Maintenance and repair of substations 35 kV and above. Maintenance and repair of overhead lines 35 kV and above. Maintenance and repair of cable lines 35 kV and above</p> <p>– Study STO 70238424.29.180.003-2009 "General Purpose Oil-Filled Power Transformers. General Specifications for Major Overhaul. Norms and Requirements." Briefly present in the practice report an answer to one of the following questions:</p> <p>Tests and quality indicators of repaired transformers</p> <p>– Study STO 70238424.29.240.01.008-2009 "Electrical Networks. Repair and Maintenance of Equipment, Buildings, and Structures. Organization of Production Processes. Norms and Requirements." Briefly present in the practice report an answer to one of the following questions:</p> <p>Organization of production processes for maintenance and repair of electrical network equipment</p> <p>Analysis of the effectiveness of repair activities of production and maintenance departments (PPSO)</p> <p>– Study STO 70238424.27.100.017-2009 "Thermal Power Plants. Repair and Maintenance of Equipment, Buildings, and Structures. Organization of Production Processes. Norms and Requirements." Briefly present in the practice report an answer to one of the following questions:</p> <p>Norms and requirements for the organization of production processes for maintenance and repair of thermal power plant equipment. Preparation for equipment repair. Taking equipment out of service for repair and performing repairs. Acceptance of equipment from repair and quality assessment</p> <p>– Study 4.20.508 "Instruction for the Operation of Power Cable Lines. Part 1. Cable Lines with Voltage up to 35 kV." Briefly present in the practice report an answer to one of the following questions: Major overhaul of cable lines</p> <p>– Study STO 02.03.82-2013 "Methodological Recommendations for Maintaining Technical Documentation During Repairs." Briefly present in the practice report an answer to one of the following questions:</p>
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		<ol style="list-style-type: none"> 1. Requirements for technical documents to be used during the repair of transformers as a whole 2. Requirements for technical documents to be used during the repair of windings 3. Requirements for technical documents to be used during the repair of the core 4. Requirements for technical documents to be used during the repair of the active part 5. Requirements for technical documents to be used during the repair of tap changers 6. Requirements for technical documents to be used during the repair of the tank and fittings 7. Requirements for technical documents to be used during the repair of cooling systems <p>– Study STO 70238424.29.240.01.008-2009 "Electrical Networks. Repair and Maintenance of Equipment, Buildings, and Structures. Organization of Production Processes. Norms and Requirements." Briefly present in the practice report an answer to one of the following questions:</p> <ol style="list-style-type: none"> 1. Organization of production processes for maintenance and repair of electrical network equipment 2. Norms and requirements for the organization of production processes for maintenance and repair of buildings and structures of electrical networks 3. Analysis of the effectiveness of repair activities of production and maintenance departments (PPSO) <p>– Study STO RusHydro 02.01.62-2012 "Repair and Maintenance of Equipment, Buildings, and Structures. Organization of Production Processes. Norms and Requirements." Briefly present in the practice report an answer to one of the following questions:</p> <ol style="list-style-type: none"> 1. Documentation for maintenance and repair (M&R) 2. Planning of equipment repairs
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Tasks Allowing for the Assessment of Skills and Abilities Acquired During the Practice

Competencies, indicators		Task Formulation
Competency Code	Formulation	
ID-1UC-6	Assesses one's resources and their limits (personal, situational, temporal), and uses them optimally for the successful completion of the assigned task.	<p>– Perform calculation and analysis of the operating mode of the electrical equipment at the enterprise where the practice takes place.</p> <p>– Perform work in accordance with one of the methods chosen by the practice supervisor from the enterprise under STO 34.01-23.1-001-2017 "Scope and Standards for Testing Electrical Equipment."</p> <p>– Perform work in accordance with one of the methods chosen by the practice supervisor from the enterprise under SO 153-34.20.501-03 "Rules for the Technical Operation of Power Plants and Grids of the Russian Federation»</p>
ID-2UC-6	Determines priorities for personal growth and ways to improve one's own activities based on self-assessment.	

ID-1PC-3	Выполняет расчеты режимных параметров объектов электроэнергетики	<ul style="list-style-type: none"> – Perform work in accordance with one of the methods chosen by the practice supervisor from the enterprise under STO 70238424.29.160.20.007-2009 "Turbogenerators and Synchronous Compensators. Organization of Operation and Maintenance." – Perform work in accordance with one of the methods chosen by the practice supervisor from the enterprise under SO 153-34.20.508 / RD 34.20.508 "Instruction for the Operation of Power Cable Lines. Part 1. Cable Lines with Voltage up to 35 kV." – Perform work in accordance with one of the methods chosen by the practice supervisor from the enterprise under STO 70238424.29.240.10.004-2011 "Substations with Voltage of 35 kV and Above: Organization of Operation and Maintenance. Norms and Requirements." – Perform work in accordance with one of the methods chosen by the practice supervisor from the enterprise under STO 56947007-29.240.35.184-2014 "Gas-Insulated Switchgear in Metal Enclosures (GIS) 110 kV and Above." – Perform work in accordance with one of the methods chosen by the practice supervisor from the enterprise under RD 153-34.0-20.363-99 "Methodology for Infrared Inspection of Electrical Equipment and Overhead Lines." – Perform work in accordance with one of the methods chosen by the practice supervisor from the enterprise under SO 34.46.302-00 "Methodological Guidelines for Diagnostics of Developing Defects in Transformer Equipment Based on Chromatographic Analysis of Gases Dissolved in Oil." – Perform work in accordance with one of the methods chosen by the practice supervisor from the enterprise under STO 70238424.27.140.001-2011 "Hydroelectric Power Plants: Methods for Assessing the Technical Condition of Main Equipment." – Perform work in accordance with one of the methods chosen by the practice supervisor from the enterprise under STO 34.01-24-003-2017 "Production Asset Management System. Procedure for Recording and Classifying Defects. Procedure for Maintaining an Electronic Defect Log." – Perform work in accordance with one of the methods chosen by the practice supervisor from the enterprise under STO 56947007-29.240.55.111-2011 "Methodological Guidelines for Assessing the Technical Condition of Overhead Lines and the Residual Life of Overhead Line Components." – Perform work in accordance with one of the methods chosen by the practice supervisor from the enterprise under STO 34.01-24-002-2018 "Organization of Maintenance and Repair of Electric Power Facilities." – Perform work in accordance with one of the methods chosen by the practice supervisor from the enterprise under STO 70238424.29.180.003-2009.
ID-2PC-3	Использует информацию от современных информационно-измерительных комплексов	
ID-3PC-3	Применяет знания об особенностях монтажа, наладки, регулировки, испытаний и сдачи в эксплуатацию различных видов электроэнергетического и электротехнического оборудования	

		<ul style="list-style-type: none"> – "General Purpose Oil-Filled Power Transformers. General Specifications for Major Overhaul. Norms and Requirements." – Perform work in accordance with one of the methods chosen by the practice supervisor from the enterprise under STO 70238424.29.240.01.008-2009 "Electrical Networks. Repair and Maintenance of Equipment, Buildings, and Structures. Organization of Production Processes. Norms and Requirements." – Perform work in accordance with one of the methods chosen by the practice supervisor from the enterprise under STO 70238424.27.100.017-2009 "Thermal Power Plants. Repair and Maintenance of Equipment, Buildings, and Structures. Organization of Production Processes. Norms and Requirements." – Perform work in accordance with one of the methods chosen by the practice supervisor from the enterprise under 4.20.508 "Instruction for the Operation of Power Cable Lines. Part 1. Cable Lines with Voltage up to 35 kV." – Perform work in accordance with one of the methods chosen by the practice supervisor from the enterprise under STO 02.03.82-2013 "Methodological Recommendations for Maintaining Technical Documentation During Repairs." – Perform work in accordance with one of the methods chosen by the practice supervisor from the enterprise under STO 70238424.29.240.01.008-2009 "Electrical Networks. Repair and Maintenance of Equipment, Buildings, and Structures. Organization of Production Processes. Norms and Requirements." – Perform work in accordance with one of the methods chosen by the practice supervisor from the enterprise under STO RusHydro 02.01.62-2012 "Repair and Maintenance of Equipment, Buildings, and Structures. Organization of Production Processes. Norms and Requirements." – Provide a review on the research topic – Present the research methodology and techniques, as well as the summarized results on the research topic – Prepare an article based on the results of the conducted research – Reflect in the report the relevance of the research, the extent to which the problem has been studied, the goal and objectives of the research, the subject and object of the research, and the scientific novelty of the research results. – Perform work in accordance with one of the methods under STO 34.01-23.1-001-2017 "Scope and Standards for Testing Electrical Equipment." Briefly present in the report one of the following issues: Scope and testing methods for power transformers Scope and testing methods for synchronous generators Scope and testing methods for gas-insulated circuit breakers
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		<p>3. Scope and testing methods for vacuum circuit breakers</p> <p>4. Scope and testing methods for overhead power lines</p> <p>5. Scope and testing methods for power cable lines – Perform work in accordance with one of the methods under SO 153-34.20.501-03 "Rules for the Technical Operation of Power Plants and Grids of the Russian Federation." Briefly present in the pre-graduation practice report an answer to one of the following questions:</p> <p>1. Maintenance, repair, and modernization of equipment – Perform work in accordance with one of the methods under STO 70238424.29.160.20.007-2009 "Turbogenerators and Synchronous Compensators. Organization of Operation and Maintenance." Briefly present in the pre-graduation practice report an answer to one of the following questions:</p> <p>1. Testing of turbogenerators and synchronous compensators – Perform work in accordance with one of the methods under SO 153-34.20.508 / RD 34.20.508 "Instruction for the Operation of Power Cable Lines. Part 1. Cable Lines with Voltage up to 35 kV." Briefly present in the pre-graduation practice report an answer to one of the following questions:</p> <p>1. Testing of cable lines with increased rectified voltage – Perform work in accordance with one of the methods under STO 70238424.29.240.10.004-2011 "Substations with Voltage of 35 kV and Above: Organization of Operation and Maintenance. Norms and Requirements." Briefly present in the pre-graduation practice report an answer to one of the following questions:</p> <p>1. Requirements for the organization of operation of main electrical equipment</p> <p>2. Organization of maintenance of substations – Perform work in accordance with one of the methods under STO 56947007-29.240.35.184-2014 "Gas-Insulated Switchgear in Metal Enclosures (GIS) 110 kV and Above." Briefly present in the pre-graduation practice report an answer to one of the following questions:</p> <p>1. Qualification tests</p> <p>2. Acceptance tests</p> <p>3. Type tests</p> <p>4. Periodic tests</p> <p>5. On-site installation tests</p> <p>6. Diagnostics and monitoring systems – Perform work in accordance with one of the methods under RD 153-34.0-20.363-99 "Methodology for Infrared Inspection of Electrical Equipment and Overhead Lines." Briefly present in the pre-graduation practice report an answer to one of the following questions:</p>
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		<p>1. Methods of IR diagnostics for specific types of electrical equipment</p> <p>2. Selection of infrared equipment</p> <p>– Perform work in accordance with one of the methods under SO 34.46.302-00 "Methodological Guidelines for Diagnostics of Developing Defects in Transformer Equipment Based on Chromatographic Analysis of Gases Dissolved in Oil." Briefly present in the pre-graduation practice report an answer to one of the following questions:</p> <ol style="list-style-type: none"> 1. Diagnostics of the operational condition of a transformer based on DGA results 2. Determination of the type and nature of a developing defect based on the criterion of gas pair concentration ratios <p>– Perform work in accordance with one of the methods under STO 70238424.27.140.001-2011 "Hydroelectric Power Plants: Methods for Assessing the Technical Condition of Main Equipment." Briefly present in the pre-graduation practice report an answer to one of the following questions:</p> <ol style="list-style-type: none"> 1. Organization of monitoring and assessment of the technical condition of equipment at hydroelectric power plants 2. Requirements for monitoring the technical condition of equipment at hydroelectric power plants 3. Assessment of the technical condition of hydraulic turbines 4. Assessment of the technical condition of hydrogenerators 5. Assessment of the technical condition of thrust bearings, guide bearings, and hydraulic unit shafts 6. Assessment of the technical condition of hydraulic unit technical systems <p>– Perform work in accordance with one of the methods under STO 34.01-24-003-2017 "Production Asset Management System. Procedure for Recording and Classifying Defects. Procedure for Maintaining an Electronic Defect Log." Briefly present in the pre-graduation practice report an answer to one of the following questions:</p> <ol style="list-style-type: none"> 1. Procedure for recording and classifying defects 2. Procedure for maintaining an electronic defect log <p>– Perform work in accordance with one of the methods under STO 56947007-29.240.55.111-2011 "Methodological Guidelines for Assessing the Technical Condition of Overhead Lines and the Residual Life of Overhead Line Components." Briefly present in the pre-graduation practice report an answer to one of the following questions:</p> <ol style="list-style-type: none"> 1. Assessment of the technical condition of metal towers 2. Assessment of the technical condition of reinforced concrete towers 3. Assessment of the technical condition of conductors and overhead ground wires 4. Assessment of the technical condition of insulators 5. Assessment of the technical condition of line hardware
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		<p>– Perform work in accordance with one of the methods under STO 34.01-24-002-2018 "Organization of Maintenance and Repair of Electric Power Facilities." Briefly present in the pre-graduation practice report an answer to one of the following questions:</p> <ol style="list-style-type: none"> 1. Maintenance and repair of substations 35 kV and above 2. Maintenance and repair of overhead lines 35 kV and above 3. Maintenance and repair of cable lines 35 kV and above <p>– Perform work in accordance with one of the methods under STO 70238424.29.180.003-2009 "General Purpose Oil-Filled Power Transformers. General Specifications for Major Overhaul. Norms and Requirements." Briefly present in the pre-graduation practice report an answer to one of the following questions:</p> <ol style="list-style-type: none"> 1. Tests and quality indicators of repaired transformers <p>– Perform work in accordance with one of the methods under STO 70238424.29.240.01.008-2009 "Electrical Networks. Repair and Maintenance of Equipment, Buildings, and Structures. Organization of Production Processes. Norms and Requirements." Briefly present in the pre-graduation practice report an answer to one of the following questions:</p> <ol style="list-style-type: none"> 1. Organization of production processes for maintenance and repair of electrical network equipment 2. Analysis of the effectiveness of repair activities of production and maintenance departments (PPSO) <p>– Perform work in accordance with one of the methods under STO 70238424.27.100.017-2009 "Thermal Power Plants. Repair and Maintenance of Equipment, Buildings, and Structures. Organization of Production Processes. Norms and Requirements." Briefly present in the pre-graduation practice report an answer to one of the following questions:</p> <ol style="list-style-type: none"> 1. Norms and requirements for the organization of production processes for maintenance and repair of thermal power plant equipment 2. Preparation for equipment repair 3. Taking equipment out of service for repair and performing repairs 4. Acceptance of equipment from repair and quality assessment <p>– Perform work in accordance with one of the methods under 4.20.508 "Instruction for the Operation of Power Cable Lines. Part 1. Cable Lines with Voltage up to 35 kV." Briefly present in the pre-graduation practice report an answer to one of the following questions:</p> <ol style="list-style-type: none"> 1. Major overhaul of cable lines <p>– Perform work in accordance with one of the methods under STO 02.03.82-2013 "Methodological Recommendations for Maintaining Technical Documentation During Repairs." Briefly present in the pre-graduation practice report an answer to one of the following questions:</p> <ol style="list-style-type: none"> 1. Requirements for technical documents to be used during the repair of transformers as a whole
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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-6, PC-3**

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.