

Good practices



**Model Student Internship Program
for the profession
ELECTRICAL TECHNICIAN**

Innovative vocational education and training in Wielkopolska
Wschodnia in the context of energy transformatione

Iceland 
Liechtenstein
Norway grants

Model Student Internship Program for the profession

ELECTRICAL TECHNICIAN

311303

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Contents

1. General assumptions of a student internship carried out in a work environment	3
2. Organizational assumptions of the student internship	10
2.1. Number of hours planned for the implementation of the student internship program	12
2.2. Qualification requirements for internship supervisors in the company	13
2.3. Examples of workplace equipment to which the intern will have access	15
2.4. Requirements for students completing the internship program	19
3. Objectives of the internship in the form of professional tasks	21
4. Internship program	25
5. learning outcomes and verification criteria	27
6. Plan for implementing an internship in the company	49
7. Evaluation of the internship program	61
7.1. Organization of internships - formal and organizational requirements	62
7.2. Implementation of internships - assessment of the quality of support provided/substantive requirements	65
7.3. Research on the quality of student internships	67
8. Literature	69

1. General assumptions of a student internship carried out in a work environment

Vocational training is a very important area of education, it serves to provide qualified and very modern staff for the Polish economy. Education in any profession is difficult and complicated due to limited possibilities of imitating real working conditions in school settings, but professions related to the electrical energy industry and the preparation of future personnel working in the profession of electrical technician are particularly demanding in the teaching process. One of the answers to the above difficulties related to the education of personnel in the electricity industry is the introduction of an additional educational opportunity in the form of a student internship with employers. Traditional vocational education at school and several weeks of internships during the education process are often insufficient to prepare a graduate ready to work and pursue a profession related to the electrical energy industry in a company. In order to ensure that graduates have a better start in their professional lives after completing their education, practical vocational training should be linked to the labor market, and in particular to employers from the electricity industry operating on the local labor market. Vocational internships, which are carried out by employers, are aimed at achieving the effects of the core curriculum of practical education in the profession of an electrical technician, while the internship enables the implementation of professional issues, teaching content and acquisition of skills resulting from the vocational curriculum, but also practical issues that go beyond the applicable program – this is a very important novelty that distinguishes student internships from professional internships. A very important advantage of a professional internship is that, compared to professional practice, it can take place over a much longer period of time, even throughout the entire period of study at a technical school (not longer). This will allow students to be better prepared for their profession, increase their own development opportunities, take initiatives and become more involved in their education, and in the future, better perform professional tasks.

For students, completing an internship gives them the opportunity to gain additional skills and experience, and learn a profession in real working conditions, in contact with modern technology. Therefore, all these factors increase the chances of

later employment in the learned profession and more effective work. For the employer, a student internship allows for the preparation and possible subsequent recruitment of qualified staff who will correspond to the model operating in the company.

For the school, a student internship will result in students gaining additional skills, which will be reflected in the results of exams confirming professional qualifications and, at the same time, will contribute to better preparation of graduates to enter the labor market. The above factors will have an impact on a better perception of the school in the local community, which will directly increase the school's reputation.

The main goal of the internship is to provide students with the opportunity to gain experience in professional work and acquire practical skills necessary to perform work in real conditions, such as those found in entities accepting students for internships, and, consequently, to prepare a better qualified school graduate.

The implementation of student internships is a modern solution that facilitates the implementation of the vocational education process at school. This student internship program has very important, attractive solutions and advantages in its implementation, which are as follows:

- the entire program was written based on the applicable core curriculum for vocational education,
- the program was divided into modules based on professional tasks and technologies used,
- the program is written in the language of learning outcomes, understandable to students and employers,
- the program contains model documents for use, consistent with educational law,
- the program has a clear and clear path for practical vocational training in the field of student internship,
- the program defines the principles of ensuring the quality of practical education and tools for their verification, allowing for monitoring the organization and course of the internship,
- the program enables the implementation of an internship throughout the entire education cycle, at any time,
- the program allows for the implementation of any set of educational outcomes during the student's internship,

- the program takes into account the specificity of the industry, size and type of enterprises.

Basic guidelines for organizing a student internship¹:

- a student internship with an employer is intended for students of a technical school;
- during the student internship, the student may complete all or selected content of the vocational teaching program in the field of practical learning implemented at the school he or she attends, or teaching content related to the taught profession not covered by the vocational curriculum,
 - entities accepting student internships may be: a natural person running a business, a legal person, a public institution or a commercial company;
 - the entity accepting a student internship concludes a contract with an adult student or with the parents of an underage student, in writing, a student internship agreement. In the case of an internship as part of projects financed e.g. from the ESF, the project beneficiary is also a party to the contract;
- the school principal may exempt a student who completed a student internship and obtained a certificate confirming the professional tasks performed and acquired skills during the internship from the obligation to complete professional internship in whole or in part ,
- the entity accepting a student internship and the school principal (the coordinator for professional internships may act on its behalf), in consultation with the student or the parent of an underage student, determine the scope of teaching content referred to in Art. 121a. paragraph 2² and the daily and weekly duration of the student internship,
- a student undergoing a student internship receives a monthly cash benefit, unless the parties to the student internship contract decide that the internship is performed free of charge,
- the amount of the monthly cash benefit may not exceed the amount of the minimum wage determined pursuant to the Act of October 10, 2002. minimum

¹ Art. 121a. Act of December 14, 2016, Education Law (Journal of Laws of 2020, items 910, 1378, of 2021, items 4, 619) .

² Act of December 14, 2016, Education Law (Journal of Laws of 2020, items 910, 1378, of 2021, items 4, 619).

remuneration for work (Journal of Laws of 2018, item 2177 and of 2019, item 1564) (and the Regulation of September 14, 2021 on the amount of the minimum remuneration for work and the amount of the minimum hourly rate in 2022 .,

- student internship may take place during periods free from educational activities and during summer and winter breaks,
- Labor law provisions do not apply to student internships, with the exception of the provisions of Art. 183a–183e, art. 131§ 1, art. 132 § 1, art. 133 § 1, art. 134, art. 1517, art. 204 and Article 232 of the Act of June 26, 1974. – Labor Code, subject to the provisions of section 12-14 (Journal of Laws 1974, No. 24, item 141. Act of June 26, 1974, Labor Code),
- the daily number of hours of student internship for students under 16 years of age cannot exceed 6 hours, and for students over 16 years of age - 8 hours. In justified cases resulting from the specific functioning of a disabled student over 16 years of age, it is possible to reduce the daily hours of student internship to 7 hours,
- the total daily number of educational activities carried out by the student at school and at student internship cannot exceed 8 hours, and the weekly total number of educational activities carried out by the student at school and at student internship - 40 hours,
- in particularly justified cases, it is possible to extend the daily hours of student internship for students over 18 years of age, but no longer than up to 12 hours. Extending the daily working time is only possible in entities accepting student internships where the extended daily working time results from the type of work or its organization,
- The student internship may be organized in shifts, however, in the case of students under 18 years of age, it cannot take place at night. In the case of a disabled student undergoing a student internship, the regulations apply only with the consent of the doctor supervising the student.

STUDENT – benefits for a student completing a student internship:

- verification of your professional skills in real working conditions,

- establishing contact with a potential employer and the possibility of subsequent employment,
- potential/possible monetary remuneration,
- getting acquainted with the company's organizational structure, functioning of the company and business relations with contractors,
- the opportunity to gain additional experience and better adapt to the local labor market,
- easier start of the professional development path after finishing school,
- the period of student internship is included in the period of employment, on which employee rights depend.

EMPLOYER – benefits for employers accepting student internships:

- acquiring an intern that meets the employer's requirements,
- educating/preparing potentially new staff in a manner consistent with the company's profile,
- the possibility of deducting internship costs and the possibility of refunding the salary supplement in connection with serving as a trainee's supervisor,
- assistance for other employees of the company to perform typical professional activities at the workplace,
- incurring lower costs related to the recruitment and training of new employees,
- building a good image of the company as a partner of vocational education,
- initiating cooperation with schools in the development and implementation of changes in vocational education, content and scope of professional tasks.

SCHOOL – benefits for the school resulting from the implementation of student internships by its students:

- expanding the vocational education offer adequate to the needs of the local labor market,
- increasing the chances of school graduates being employed by employers,
- deepening cooperation with employers previously involved in practical education or establishing cooperation with new entities,
- support in fulfilling the school's tasks resulting from the provisions of education law.

The study was based on currently applicable legal acts.

I. Recommendations of the Council of the European Union:

- 1st Recommendation of the Council of the European Union of 22 May 2018 on key competences for lifelong learning (OJ EU 2018/C 189/01);
- 2nd Recommendation of the Council of the European Union of 15 March 2018 on a European framework for the quality and effectiveness of apprenticeships (OJ EU 2018/C 153/01);
- 3rd Recommendation of the Council of the European Union of 10 March 2014 on a quality framework for traineeships (OJ EU 2014/C 88/01).

II. Acts:

- 1st Act of December 14, 2016 - Education Law (i.e. Journal of Laws of 2020, items 910, 1378, of 2021, items 4, 619, 762);
- 2nd Act of December 22, 2015 on the Integrated Qualifications System (i.e. Journal of Laws of 2020, item 226);
- 3rd Act of 7 September 1991 on the education system (i.e. Journal of Laws of 2020, item 1327, of 2021, item 4);
- 4th Act of January 26, 1982, Teacher's Card (consolidated text: Journal of Laws of 2019, item 2215).
- 5th Act of June 26, 1974, Labor Code (Journal of Laws of 2020, item 1320).

III. Regulations:

- 1st Regulation of the Minister of National Education of August 12, 2019 on the template of a certificate of completion of a student internship (Journal of Laws, item 1583);
- 2nd Regulation of the Minister of National Education of May 16, 2019 on the core curriculum for vocational education professions and additional professional skills in selected vocational education professions (Journal of Laws, item 991);
- 3rd Regulation of the Minister of National Education of April 3, 2019 on framework teaching plans for public schools (Journal of Laws, item 639);
- 4th Regulation of the Minister of National Education of February 28, 2019 on the detailed organization of public schools and public kindergartens (Journal of Laws, item 502).

- 5th Regulation of the Minister of National Education of March 19, 2019 on continuing education in non-school forms (Journal of Laws, item 652);
- 6th Regulation of the Minister of National Education of February 22, 2019 on practical vocational training (Journal of Laws, item 391);
- 7th Regulation of the Minister of National Education of February 22, 2019 on the assessment, classification and promotion of students and listeners in public schools (Journal of Laws, item 373);
- 8th Regulation of the Minister of National Education of February 15, 2019 on the general objectives and tasks of education in vocational education professions and the classification of vocational education professions (Journal of Laws, item 316);
- 9th Regulation of the Minister of National Education of August 3, 2018 on the list of classes conducted directly with students or pupils or on their behalf by teachers of psychological and pedagogical counseling centers and teachers: pedagogues, psychologists, speech therapists, pedagogical therapists and career counselors (Journal of Laws . of 2020, item 1552).
- 10th Regulation of the Minister of National Education of August 11, 2017 on the requirements to be met by a person holding the position of director and other managerial positions in a public kindergarten, public primary school, public secondary school and public institution (Journal of Laws, item 1597).
- 11th Regulation of the Ministry of National Education of August 9, 2017 on the conditions for organizing education, upbringing and care for disabled children and youth, socially maladjusted and at risk of social maladjustment (Journal of Laws of 2020, item 1309);
- 12th Regulation of the Ministry of National Education of August 9, 2017 on the principles of organizing and providing psychological and pedagogical assistance in public kindergartens, schools and institutions (Journal of Laws of 2020, item 1280).
- 13th Regulation of the Minister of National Education of August 1, 2017 on detailed qualifications required from teachers (Journal of Laws of 2020, item 1289);
- 14th Regulation of the Minister of National Education and Sport of December 31, 2002 on safety and hygiene in public and non-public schools and institutions (i.e. Journal of Laws of 2020, item 1604).

2. Organizational assumptions of the student internship

The entity accepting the student internship provides the student with a workplace equipped with the necessary devices, equipment, tools, materials and technical documentation, taking into account occupational health and safety requirements, as well as safe and hygienic conditions for the student internship on the principles applicable to employees specified in separate regulations, including depending on the type of risks associated with this internship - appropriate personal protective equipment. (sample equipment for the positions is described in the model internship program, point 2.3).

In addition, the employer is obliged to provide the intern with a room for storing work clothes and footwear, and provided in accordance with Art. 121a section 23³ personal protective equipment and access to hygienic and sanitary facilities and social and living rooms.

The entity accepting students for an internship, in consultation with the school principal, in consultation with the student or the parent of an underage student, determines the scope of teaching content and the daily and weekly duration of the student internship (Article 121a, section 5). These arrangements should constitute an annex to the student internship contract. During the student internship, the student completes all or selected content of the internship program developed for the profession of an electrical technician, resulting from the scope of the practical vocational training program implemented at the school the intern attends, or teaching content related to the taught profession not covered by this program.

The tasks of the technical school (educational institution) when it comes to student internships:

- indication of educational outcomes that are particularly desirable from the point of view of implementing the core curriculum in the field of practical education in the form of a student internship,
- familiarizing the parties participating in the internship with the principles of its implementation,

³ Act of December 14, 2016, Education Law (Journal of Laws of 2020, items 910, 1378, of 2021, items 4, 619).

- necessary assistance (if necessary) for the employer in terms of formal requirements, implementation of internships and their effects and their documentation,
- ongoing mutual exchange of information with the employer about the progress of the internship,
- analysis of the student's documentation from the internship and passing on the basis of a certificate issued by the employer all or part of the issues covered during practical vocational training,
- surveys of students' opinions on the course of completed internships,
- surveys of employers' opinions on the course of completed internships,
- taking the initiative to develop cooperation between school and employer,

The school principal may perform these tasks personally or authorize other persons who are school employees, i.e. in the first place: the manager of practical vocational training, teachers and vocational instructors.

2.1. The implementation of the student internship program - number of hours

The core curriculum for vocational education in the profession of an electrical technician includes two qualifications:

- ELE.02. Installation, commissioning and maintenance of electrical installations, machines and devices.
- ELE.05. Operation of machines, devices and electrical installations.

A graduate of a school offering training in the profession of an electrical technician should be prepared to perform professional tasks:

- 1) in terms of ELE.02 qualifications. Installation, commissioning and maintenance of electrical installations, machines and devices:
 - a) execution and commissioning of electrical installations based on technical documentation,
 - b) assembling and commissioning machines and electrical devices based on technical documentation,
 - c) performing maintenance of electrical installations, machines and devices;
- 2) in terms of ELE.05 qualifications. Operation of machines, devices and electrical installations :
 - a) operation of electrical installations ,
 - b) operation of electrical machines and devices.

The duration of the internship is agreed jointly by the employer and the school. In the case of the proposed model apprenticeship program for the profession of an electrical technician developed as part of the project, it assumes the student's participation in the apprenticeship for 60 hours of work.

During the pilot period, the student-trainee should complete - in consultation with the employer - only selected modular units within one of two modules (M1. Installation, commissioning and maintenance of electrical installations, machines and devices; M2. Operation of electrical machines, devices and installations).

2.2. Qualification requirements for internship supervisors in the company

During the student internship, the student is supervised by the internship supervisor appointed by the entity. The guardian may be a person who meets the condition specified in Art. 120 section 3a on good conduct (Act of December 14, 2016, Education Law, Journal of Laws of 2019, item 1148, as amended). Fulfillment of this condition is confirmed by a statement from the student's internship supervisor.

The internship supervisor may also be (provided that Article 120(3a) on no criminal record is met)⁴:

- employer
- or
- a person running a workplace on behalf of the employer,
- or
- a person employed by an employer who has the qualifications specified in the provisions on practical vocational training in the Regulation of the Minister of National Education of August 24, 2017 on practical vocational training (Journal of Laws 2017, item 1644). Pursuant to these regulations, practical vocational training instructors may serve as supervisors for student internships carried out by employers.

The duties of the intern supervisor include in particular:

- getting acquainted with the student internship program;
- defining the goals of student internships, if necessary after consultation with the school/educational institution,
- introducing the intern to the scope of duties as well as the rules and procedures applicable in the company,
- preparing production or service tasks for interns,
- organizing work stations for interns,

⁴ Act of December 14, 2016, Education Law (Journal of Laws of 2020, items 910, 1378, of 2021, items 4, 619).

- monitoring the implementation of the scope of responsibilities and educational goals assigned in the program,
- supervising the correct implementation and schedule of the student internship, providing trainees with ongoing feedback during and after the student internship,
- supervising the proper operation of machines and devices, checking their technical condition and planning repairs,
- care for health and supervision of compliance with occupational health and safety and fire protection rules. and environmental protection while performing all works,
- documenting working time and professional tasks performed (appropriate entries in the internship log),
- providing feedback to the coordinators and the host of the internship about the skills acquired by the intern in order to issue a certificate of completion of the student internship.

2.3. Examples of workplace equipment to which the intern will have access

The intern performs professional tasks in the company at workstations designated for this purpose. Building structures containing work rooms should meet the requirements regarding occupational health and safety, safety against electric shock, safety of use, fire safety and environmental protection.

The company should have documents containing job descriptions, which should contain important information from both the employer's and the employee's point of view. The student-intern should be familiar with the job description before starting to perform professional tasks.

The job description should include information such as:

- **job title** ,
- **purpose of the position** - indication of the purpose of the workplace,
- **place in the organizational structure** - indication of the intern's supervisor and his/her supervisor,
- **working conditions** - location of the workplace in the company, working time, devices on which the intern will perform professional tasks,
- **scope of responsibility** – defining what the intern is responsible for before the internship supervisor and the employer (supervisor),
- **basic tasks and activities** – tasks and responsibilities of the intern that he performs at the workplace,
- **employee's rights** - indication of the activities that the intern is authorized to perform,
- **threats** – determining the dangers associated with working in the position.

A necessary condition for a student internship is to be able to perform professional tasks at work positions consistent with the intern's field of education.

It should be taken into account that in different workplaces, positions where the same professional tasks can be performed may have different names. Therefore, the main determinant of a job position will not be its name, but its description and basic equipment.

Description and basic equipment of the workstations to which the intern will have access:

1. Station for assembling electronic and electrical parts

Manual processing station equipped with:

- occupational health and safety instructions and personal protective equipment,
- anti-shock and overvoltage protection measures,
- assembly tools, torque wrenches,
- measuring instruments,
- emergency stops,
- tools and devices for connecting elements by riveting, welding, soldering, gluing,
- set of electrical and optoelectronic elements,
- connecting wires and cables, trainers, single-phase transformers, connectors and indicators,
- operating manuals for machines and devices, professional guides, technical documentation for machines and devices.

2. Station for installation, commissioning and maintenance of electrical installations

Machine processing station equipped with:

- occupational health and safety instructions and personal protective equipment,
- tools for manual processing of metals and plastics,
- hand tools with electric and pneumatic drives,
- instruments for measuring geometric quantities,
- station emergency switches and central emergency switch,
- measuring instruments,
- electrical installation diagrams,
- operating manuals for machines and devices, professional guides, technical documentation for machines and devices.

3. A station for the assembly of elements, subassemblies and mechanical assemblies

The station for assembling elements, subassemblies and mechanical assemblies should be equipped with:

- elements, subassemblies and mechanical assemblies,
- parts of machines and mechanical devices,
- tools and devices for assembly and disassembly of mechanical components and assemblies,
- measuring instruments,
- technical documentation of the installed elements, subassemblies and mechanical assemblies.

4. Station for assembling electrical and electronic elements and subassemblies

The station for assembling electrical and electronic elements and subassemblies should be equipped with:

- elements mounted on the stand, electrical and electronic components and assemblies (including electronic components, sensors, buttons, contactors, relays, time relays, bistable relays , motor switches, single-phase motors with capacitors, DC motors, stepper motors, three-phase motors with the possibility of delta/star switching, frequency converters, PLC controllers),
- tools and devices for assembly and disassembly of electrical and electronic components and assemblies,
- necessary measuring instruments,
- technical documentation of the installed electrical and electronic elements, subassemblies and assemblies.

5. Station for commissioning electrical devices and installations

The stand for starting electrical devices and installations should be equipped with:

- power supply systems for electrical devices and installations adapted to electrical devices and systems and station equipment,
- electrical devices and installations,
- tools and measuring instruments,
- computer with access to the Internet and communication network of electrical systems,

- software for programming programmable systems, visualization and simulation of electrical processes,
- technical documentation of electrical devices and installations.

6. A station for performing maintenance work on machines, devices and electrical systems

The station for performing maintenance work on electrical devices and installations should be equipped with:

- electrical devices and installations,
- tools and measuring instruments,
- maintenance consumables,
- technical documentation of electrical devices and installations.

7. A station for operating electrical devices and installations

A station for operating electrical devices and installations should be equipped with:

- electrical devices and installations,
- tools and measuring instruments,
- a computer with access to the Internet and the communication network of electrical installations, with installed software for programming, visualization and simulation of processes, technical documentation of electrical devices and installations.

8. A station for creating technical documentation of electrical devices and installations

The station for creating technical documentation should be equipped with:

- computer station with CAD software (Computer Aided Design) for computer-aided design or another with similar capabilities and a package of office programs,
- standards regarding the principles of making technical drawings,
- construction documentation of electrical machines and devices,
- electrical equipment catalogues,
- manuals for electrical devices.

2.4. Requirements for students completing the internship program

Entrance requirements for an intern

People wishing to start an apprenticeship in a company should attend a technical school and train as an electrical technician (profession code 311303).

In order to take part in an internship, a student must have appropriate medical examinations proving that there are no contraindications to work in the profession in which he or she is training. Health contraindications to undertaking an internship with the employer are consistent with the guidelines for admission to the above-mentioned types of schools, including eye-hand coordination disorders, vision or hearing dysfunctions, dizziness, fainting, balance disorders, diseases of the nervous, circulatory and respiratory systems, diseases of the musculoskeletal system and mental retardation.

Intern responsibilities

The intern is obliged to:

- concluding an agreement with the entity accepting the student for an internship - before the start of the student internship,
- compliance with the work regulations of the entity accepting the student internship,
- compliance with the student internship regulations,
- compliance with the occupational health and safety rules and fire protection regulations applicable in the workplace. and environmental protection,
- undertake an internship on the indicated date and place,
- conscientious and careful performance of activities and tasks covered by the internship program, following the supervisor's instructions,
- compliance with the agreed duration of the student internship,
- having and keeping an ongoing diary of the student internship (if required),
- justifying absences from the internship,
- reporting any accident at work to the supervisor/trainee supervisor,
- keeping the school informed about any irregularities during the internship ,

- submitting a certificate of completion of the student internship to the school immediately after the end of the internship.

Trainee rights

The intern has the right to:

- implementing all or selected content of the curriculum for a given profession,
- implementing teaching content related to the taught profession that is not covered by this program,
- familiarize yourself with the applicable internship and work regulations,
- performing tasks resulting from the internship program,
- use of social facilities in the form of rooms for changing clothes, washing, storing clothes and shoes and eating meals,
- use of machines and equipment necessary to implement the internship program,
- informing about irregularities and changes regarding the scope of duties, safety conditions, duration of the internship, etc.,
- obtaining entry and collection of the diary within the agreed deadline,
- proper treatment and respect for personal dignity,
- to resign from participation in a professional internship without incurring financial responsibility only if the resignation results from reasons that make it impossible to complete the internship program, in particular due to inability to work due to illness or other accidental reasons or inconsistent with the signed contract.

3. Objectives of the internship in the form of professional tasks

A student who has completed an internship in the company will be prepared to perform the following professional tasks:

- 1) Organize the workplace in accordance with occupational health and safety regulations.
- 2) Use personal protective equipment at the workplace.
- 3) Perform basic measurements of electrical quantities in electrical circuits and electronic systems.
- 4) Carry out manual processing of materials for electrical installations.
- 5) Carry out work in the field of machining.
- 6) Select the type of electrical installation for a specific application.
- 7) Select power wires, cables and electrical equipment for specific installations.
- 8) Check the execution of the electrical installation in accordance with the technical documentation.
- 9) Perform technical inspections of electrical installations.
- 10) Repair and maintain electrical installations.
- 11) Prepare elements of machines and electrical devices for assembly.
- 12) Assess the technical condition of electrical and electronic elements and subassemblies prepared for installation.
- 13) Check the correctness of assembly of elements, subassemblies and electrical assemblies of machines and devices.
- 14) Perform assembly and disassembly of electrical elements and subassemblies.
- 15) Check the correctness of assembly of electrical elements and subassemblies.
- 16) Start up electrical devices and machines in accordance with the instructions.
- 17) Regulate the operating parameters of devices, machines and electrical installations.
- 18) Monitor the operation of machinery and installations.
- 19) Perform technical inspections of machines and electrical devices.
- 20) Perform measurements of physical quantities in devices, machines and electrical installations.

- 21) Perform maintenance work on machines and electrical devices.
- 22) Operate devices, machines and electrical installations.
- 23) Set and regulate process parameters in devices, machines and electrical installations.
- 24) Assess the technical condition of machines, devices and electrical installations.
- 25) Repair devices, machines and installations.
- 26) Draw diagrams of electrical and electronic systems, machines, devices and electrical installations.
- 27) Prepare technical documentation of devices, machines and electrical installations using computer programs supporting CAD design and production.
- 28) Prepare documentation for the assembly, disassembly and operation of machines, devices and electrical installations.

A school graduate who completed an internship in a company, graduated from school and passed a professional examination can work as a specialist in virtually any industry, such as: energy, agriculture and forestry, medicine, prosthetics, shipping, aviation and navigation and in many other practical areas based on mechanical, electrical, electronic, pneumatic and hydraulic components. It can work, among others: as:

- technicians in electrical equipment repair and service plants,
- production and repair technologist,
- technologist and designer in the preparation of technical documentation,
- operator of electrical systems and devices,
- operator of production lines in many industries,
- household appliance technician,
- technical supervision technician.

General purposes

Completing an internship in a company will allow the student to achieve general goals:

- 1) Execution and commissioning of electrical installations based on technical documentation;

Assembling and commissioning machines and electrical devices based on technical documentation ,

Performing maintenance of electrical installations, machines and devices;

Operating electrical installations;

Operating electrical machines and devices.

Operational goals

Completing an internship in a company will allow the student to achieve selected operational goals. Achieving operational goals depends on the completed modular units.

The student is able to:

- 1) Organize the workplace in accordance with occupational health and safety regulations.
- 2) Use personal protective equipment at the workplace.
- 3) Perform basic measurements of electrical quantities in electrical circuits and electronic systems.
- 4) Carry out manual processing of materials for electrical installations.
- 5) Carry out work in the field of machining.
- 6) Select the type of electrical installation for a specific application.
- 7) Select power wires, cables and electrical equipment for specific installations.
- 8) Check the execution of the electrical installation in accordance with the technical documentation.
- 9) Perform technical inspections of electrical installations.
- 10) Repair and maintain electrical installations.
- 11) Prepare elements of machines and electrical devices for assembly.
- 12) Assess the technical condition of electrical and electronic elements and subassemblies prepared for installation.
- 13) Check the correctness of assembly of elements, subassemblies and electrical assemblies of machines and devices.
- 14) Perform assembly and disassembly of electrical elements and subassemblies.
- 15) Check the correctness of assembly of electrical elements and subassemblies.
- 16) Perform measurements of physical quantities in devices, machines and electrical installations .

- 17) Start up electrical devices and machines in accordance with the instructions.
- 18) Regulate the operating parameters of devices, machines and electrical installations.
- 19) Monitor the operation of machinery and installations.
- 20) Perform technical inspections of machines and electrical devices.
- 21) Perform maintenance work on machines and electrical devices.
- 22) Operate devices, machines and electrical installations.
- 23) Set and regulate process parameters in devices, machines and electrical installations.
- 24) Assess the technical condition of machines, devices and electrical installations.
- 25) Repair devices, machines and installations.
- 26) Draw diagrams of electrical and electronic systems, machines, devices and electrical installations.
- 27) Prepare technical documentation of devices, machines and electrical installations using computer programs supporting CAD design and production.
- 28) Prepare documentation for the assembly, disassembly and operation of machines, devices and electrical installations.
- 29) Perform operational work on electrical installations.
- 30) Interpret and evaluate the results of measurements of electrical installations.
- 31) Locate faults in electrical installations.
- 32) Modernize and repair electrical installations.

4. Internship program

The modular internship program includes two modules:

1. Installation, commissioning and maintenance of electrical installations, machines and devices,
2. Operation of machines, devices and electrical installations.

Modular units and an approximate number of hours to complete this unit have been assigned to each module. Table 1 presents the internship plan, including the division of the program into modules and modular units.

The list of learning outcomes and the criteria for their verification are described in point 5.

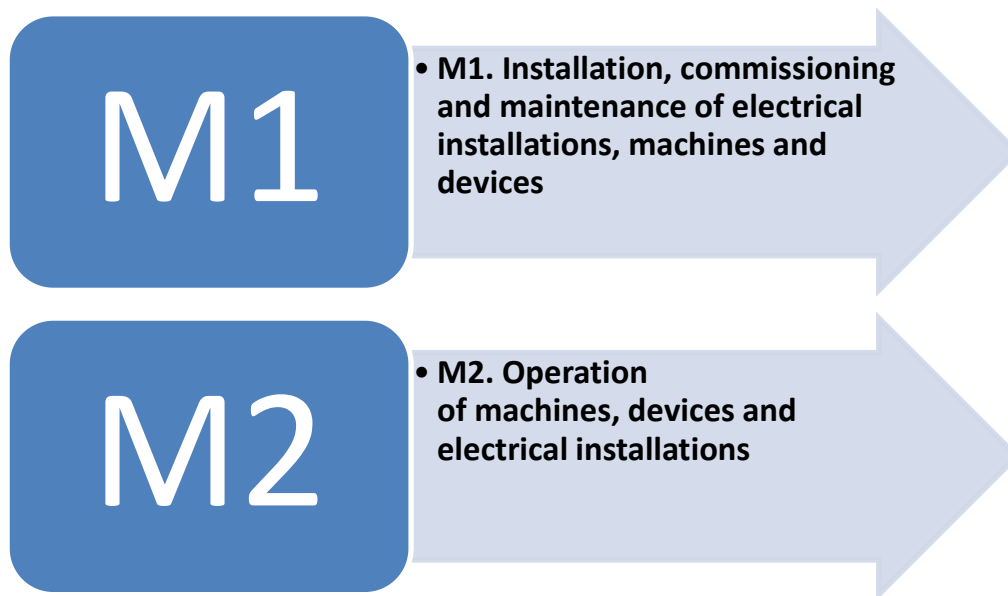
Table 1. Internship Plan

Module Symbol Name	Topics of methodological units (modular units) Symbol Name	Approximate number of hours
M1. Installation, commissioning and maintenance of electrical installations	JM.1.1. Conducting training in the field of occupational health and safety	6
	JM.1.2. Installation of electrical installations	6
	JM.1.3. Commissioning and maintenance of electrical installations	6
	JM.1.4. Installation and commissioning of electrical machines and devices	6
	JM.1.5. Performing maintenance work on electrical machines and devices	6
M2. Operation of machines, devices and electrical installations	JM.2.1. Conducting training in the field of occupational health and safety	6
	JM.2.2. Operating electrical installations	12
	JM.2.3. Operation of electrical machines and devices	12

An employer accepting an internship should create conditions for students to acquire personal and social competences.

Based on the program's didactic map, the employer selects methodological units within the module or modules that the student will complete in the workplace, and it is possible for the student to complete a multiple selected methodological unit in the workplace.

Didactic map of program implementation



5. Learning outcomes and verification criteria

The internship program was created based on applicable legal regulations and is consistent with the core curriculum for the profession of an electrical technician (profession code 311303), takes into account the expected learning outcomes and the criteria for their verification.

Table 2. Educational outcomes and criteria for their verification from the core curriculum of vocational education

Module name M1. INSTALLATION, COMMISSIONING AND MAINTENANCE OF ELECTRICAL INSTALLATIONS, MACHINES AND DEVICES
Operational goals of the module: The intern is able to: <ol style="list-style-type: none">1) Organize the workplace in accordance with occupational health and safety regulations.2) Use personal protective equipment at the workplace.3) Perform basic measurements of electrical quantities in electrical circuits and electronic systems.4) Carry out manual processing of materials for electrical installations.5) Carry out work in the field of machining.6) Select the type of electrical installation for a specific application.7) Select power wires, cables and electrical equipment for specific installations.8) Check the execution of the electrical installation in accordance with the technical documentation.9) Perform technical inspections of electrical installations.10) Repair and maintain electrical installations.11) Prepare elements of machines and electrical devices for assembly.12) Assess the technical condition of electrical and electronic elements and subassemblies prepared for installation.13) Check the correctness of assembly of elements, subassemblies and electrical assemblies of machines and devices.

- 14) Perform assembly and disassembly of electrical elements and subassemblies.
 15) Check the correctness of assembly of electrical elements and subassemblies.

Name of the modular unit

JM.1.1. Conducting training in the field of occupational health and safety

Acquired skills and competences The intern is able to:	Learning outcomes from the core curriculum of vocational education Trainee:	Verification criteria from the core curriculum of vocational education Trainee:
– apply the principles of occupational health and safety, fire protection, antistatic protection and environmental protection	1) applies the principles of occupational health and safety, fire protection, antistatic protection and environmental protection	1) recognizes environmental hazards related to work in the profession 2) follows the rules of conduct in the event of a fire hazard
– use individual and collective protective equipment when performing professional tasks	1) uses individual and collective protective equipment when performing professional tasks	1) selects individual and collective protective equipment for the type of work performed 2) uses individual and collective protective equipment at the workplace
– provide first aid in the event of a health emergency	1) provides first aid in cases of sudden health threats	1) describes the basic symptoms indicating sudden health threats 2) assesses the situation of the injured person based on the analysis of the symptoms observed in the injured person 3) protects himself, the injured party and the accident site

		<p>4) puts the injured person in a safe position</p> <p>5) notifies the appropriate services</p>
<p>Name of the modular unit</p> <p>JM.1.2. Installation of electrical installations</p>		
<p>Acquired skills and competences</p> <p>The intern is able to:</p>	<p>Learning outcomes from the core curriculum of vocational education</p> <p>Trainee:</p>	<p>Verification criteria from the core curriculum of vocational education</p> <p>Trainee:</p>
<p>– characterize the elements of electrical installations</p>	<p>1) distinguishes types of electrical installations</p>	<p>1) classifies electrical installations</p> <p>2) indicates the application areas of electrical installations</p> <p>3) distinguishes technical parameters of electrical installations</p> <p>4) selects accessories intended for use in concealed installations</p> <p>5) selects accessories intended for use in surface-mounted installations</p> <p>6) distinguishes apparatus and devices used in electrical installations</p>
<p>– select power wires and cables for specific tasks</p>	<p>1) selects power wires and cables for specific tasks</p>	<p>1) distinguishes power wires and cables</p> <p>2) recognizes the markings of power wires and cables</p> <p>3)) defines materials for the construction of power wires and cables</p> <p>4) indicates the areas of application of power wires and cables</p>

<p>– recognize light sources and lighting fixtures</p>	<p>1) recognizes light sources and lighting fixtures</p>	<p>1) distinguishes different light sources 2) distinguishes types of indoor and outdoor lighting fixtures 3) indicates the areas of application of various light sources 4) indicates the areas of application of lighting fixtures</p>
<p>– prepare diagrams of electrical installations</p>	<p>1) prepares diagrams of electrical installations</p>	<p>1) recognizes symbols used in schematic, block and assembly diagrams of electrical installations 2) applies the principles of preparing conceptual and assembly diagrams of electrical installations 3) prepares assembly diagrams of electrical installations</p>
<p>– perform electrical installations in accordance with the documentation</p>	<p>1) performs electrical installations in accordance with the documentation</p>	<p>1) selects tools for assembly and disassembly of electrical installations 2) routes cables and arrangement of installation equipment based on documentation 3) makes connections between electrical components based on documentation 4) checks the correct operation of the electrical installation and anti-shock protection measures after installation</p>
<p>– recognize electrical and mechanical damage occurring in electrical</p>	<p>1) recognizes electrical and mechanical damage occurring in electrical</p>	<p>1)) selects tools for maintaining electrical installations 2) inspects electrical installations 3) locates faults occurring in electrical installations</p>

installations based on symptoms	installations based on symptoms	4) selects spare parts for electrical installation elements 5) replaces damaged elements of electrical installations 6) performs measurements of electrical installation parameters 7) checks the correct operation of electrical installations and anti-shock protection measures after carrying out maintenance work 8) performs acceptance measurements of electrical installations
Name of the modular unit JM.1.3. Commissioning and maintenance of electrical installations		
Acquired skills and competences The intern is able to:	Learning outcomes from the core curriculum of vocational education Trainee:	Verification criteria from the core curriculum of vocational education Trainee:
– characterize the structure of electrical machines and their components	1) characterizes electric machines	1) classifies electrical machines 2) distinguishes construction materials used in electrical machines 3) recognizes elements and components of electrical machines 4) identifies the functions of elements and components used in electrical machines 5) recognizes the technical parameters of electrical machines

		6) distinguishes technical parameters of elements and subassemblies of electrical machines
– select electrical devices for installation	1) characterizes electrical devices	1) classifies electrical devices 2) distinguishes construction materials used in electrical devices 3) recognizes elements and components of electrical devices 4) defines the functions of elements and components used in electrical devices 5) recognizes technical parameters of electrical devices 6) distinguishes technical parameters of elements and subassemblies of electrical devices
Name of the modular unit		
JM.1.4. Installation and commissioning of electrical machines and devices		
Acquired skills and competences The intern is able to:	Learning outcomes from the core curriculum of vocational education Trainee:	Verification criteria from the core curriculum of vocational education Trainee:
– assemble electrical machines	1) assembles electrical machines	1) selects tools for assembling electrical machines 2) performs assembly of electrical machine components
– install electrical devices	1) installs electrical devices	1) selects tools for assembling electrical devices

		2) performs assembly of electrical equipment components
– check the correctness of installation of machines and electrical devices	1) installs electrical devices	1) checks the correctness of installation of electrical machines 2) checks the correctness of installation of electrical devices
– install power supply and protection systems, control and regulation of electrical machines and devices	1) installs power supply, protection, control and regulation systems for electrical machines and devices	1) selects tools for the installation of power supply and protection systems for machines and electrical devices 2) installs power supply and protection systems for machines and electrical devices 3) selects tools for the assembly of control and regulation systems for machines and electrical devices 4) installs control and regulation systems for machines and electrical devices 5) checks the compliance of the performed assembly works with the technical documentation
– check the compliance of the assembly of elements, machines and electrical devices with the technical documentation	1) checks the compliance of the assembly of elements, machines and devices with the technical documentation	1) uses technical documentation of electrical machines 2) uses technical documentation of electrical devices

Name of the modular unit

JM.1.5. Performing maintenance work on electrical machines and devices

Acquired skills and competences The intern is able to:	Learning outcomes from the core curriculum of vocational education Trainee:	Verification criteria from the core curriculum of vocational education Trainee:
– install power supply systems, control protection and regulation of electrical machines and devices	1) installs power supply, protection, control and regulation systems for electrical machines and devices	1) installs power supply and protection systems for machines and electrical devices 2) installs control and regulation systems for machines and electrical devices
– characterize tools for assembly and disassembly of power supply systems, protection, control and regulation of electrical machines and devices	1) installs power supply, protection, control and regulation systems for electrical machines and devices	2) selects tools for the installation of power supply and protection systems for machines and electrical devices
– check the correctness of the assembly work performed	1) installs power supply, protection, control and regulation systems for electrical machines and devices	1) checks the compliance of the performed assembly works with the technical documentation

<p>– start machines and electrical devices</p>	<p>1) starts machines and electrical devices</p>	<p>1) starts electrical machines based on technical documentation 2) checks the operation of electrical machines after starting 3) activates electrical devices based on technical documentation</p>
<p>– perform assembly and disassembly of electrical elements and subassemblies</p>	<p>1) performs assembly and disassembly of electrical elements and subassemblies</p>	<p>1) performs assembly of electrical elements and subassemblies 2) dismantles electrical elements and subassemblies 3) performs mechanical assembly of electrical elements and subassemblies</p>
<p>– regulate electrical devices and systems</p>	<p>1) starts machines and electrical devices</p>	<p>1) checks the operation of electrical devices after starting</p>
<p>– perform maintenance work on machines and electrical devices in accordance with the documentation</p>	<p>1) performs maintenance work on machines and electrical devices in accordance with the documentation</p>	<p>1) classifies the types of damage occurring in electrical machines and devices 2) conducts visual inspections of electrical machines and devices 3) locates faults occurring in machines and electrical devices 4) selects spare parts for machinery and electrical equipment 5) selects tools for the maintenance of machines and electrical devices 6) replaces damaged elements of machines and electrical devices 7) checks the correctness of performed maintenance work</p>

		8) performs measurements of parameters of machines and electrical devices
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SOCIAL AND PERSONAL COMPETENCES

Social and personal competences and criteria for their verification

During the implementation of modular units, the intern develops/improves social and personal competences:

1) observes the principles of personal culture and professional ethics;

verification criteria:

- applies the principles of personal culture and generally accepted norms of behavior in the work environment ,
- accepts responsibility for entrusted professional information,
- respects the rules regarding confidentiality related to the profession taught and the workplace,

2) plans the task;

verification criteria:

- carries out activities within the prescribed time,
- monitors the implementation of planned activities,
- performs self-assessment of the work performed,

3) is responsible for the actions taken,

verification criteria:

- demonstrates awareness of responsibility for the work performed, evaluates the actions taken,
- provides for the consequences of improper performance of professional activities at the workplace, including the use of hazardous substances and improper use of machines and devices at the workplace,

4) demonstrates creativity and openness to changes,

verification criteria:

- proposes ways to solve problems related to performing professional tasks in unpredictable conditions,
- indicates examples of introducing a change and assesses the effects of its introduction,

5) uses stress coping techniques;

verification criteria:

- recognizes sources of stress while performing professional tasks,
- indicates the most common causes of stressful situations at work,
- chooses stress coping techniques appropriate to the situation,

6) improves professional skills;

verification criteria:

- defines the scope of skills and competences necessary to perform the profession ,
- analyzes own competences,
- sets own professional development goals,
- obtains professional information about the industry from various sources,

7) applies the principles of interpersonal communication;

verification criteria:

- identifies verbal and non-verbal signals,
- uses active listening methods,
- leads the discussion,
- provides feedback,

8) applies problem-solving methods and techniques;

verification criteria:

- describes how to counteract problems in the team carrying out tasks,
- describes problem-solving techniques,

9) cooperates in a team;

verification criteria:

- works in a team, taking responsibility for jointly performed tasks,
- respects the division of roles, tasks and responsibilities in the team,
- engages in the implementation of joint team activities,
- modifies behavior, taking into account the position developed together with other team members.

Module name

M2. OPERATION OF MACHINES, DEVICES AND ELECTRICAL INSTALLATIONS

Operational goals of the module:

The intern is able to:

- 1) Organize the workplace in accordance with occupational health and safety regulations,
- 2) Perform measurements of physical quantities in devices, machines and electrical installations.
- 3) Start up electrical devices and machines in accordance with the instructions.
- 4) Regulate the operating parameters of devices, machines and electrical installations.
- 5) Monitor the operation of machinery and installations.
- 6) Perform technical inspections of machines and electrical devices.
- 7) Perform maintenance work on machines and electrical devices.
- 8) Operate devices, machines and electrical installations.
- 9) Set and regulate process parameters in devices, machines and electrical installations.
- 10) Assess the technical condition of machines, devices and electrical installations.
- 11) Repair devices, machines and installations.
- 12) Draw diagrams of electrical and electronic systems, machines, devices and electrical installations.
- 13) Prepare technical documentation of devices, machines and electrical installations using computer programs supporting CAD design and production.
- 23) Prepare documentation for the assembly, disassembly and operation of machines, devices and electrical installations.
- 14) Perform operational work on electrical installations.

- 15) Interpret and evaluate the results of measurements of electrical installations.
- 16) Locate faults in electrical installations.
- 17) Modernize and repair electrical installations.

Name of the modular unit

JM.2.1. Conducting training in the field of occupational health and safety

Acquired skills and competences The intern is able to:	Learning outcomes from the core curriculum of vocational education Trainee:	Verification criteria from the core curriculum of vocational education Trainee:
– apply the principles of occupational health and safety, fire protection, antistatic protection and environmental protection	1) applies the principles of occupational health and safety, fire protection, antistatic protection and environmental protection	1) recognizes environmental hazards related to work in the profession 2) follows the rules of conduct in the event of a fire hazard
– organize the workplace in accordance with ergonomic requirements, occupational health and safety, fire protection and environmental protection regulations	1) organizes the workplace in accordance with ergonomic requirements, occupational health and safety, fire protection and environmental protection regulations	1) selects workplace equipment in terms of ergonomic requirements, occupational health and safety regulations, fire protection and environmental protection

<p>– use individual and collective protective equipment when performing professional tasks</p>	<p>1) uses individual and collective protective equipment when performing professional tasks</p>	<p>1) selects individual and collective protective equipment for the type of work performed</p> <p>2) uses individual and collective protective equipment at the workplace</p>
<p>– provide first aid in the event of a health emergency</p>	<p>1) provides first aid in cases of sudden health threats</p>	<p>1) describes the basic symptoms indicating sudden health threats</p> <p>2) assesses the situation of the injured person based on the analysis of the symptoms observed in the injured person</p> <p>3) protects himself, the injured party and the accident site</p> <p>4) puts the injured person in a safe position</p> <p>5) notifies the appropriate services</p> <p>6) presents first aid in traumatic, health emergency situations, e.g. hemorrhage, crushing, amputation, fracture, burn</p> <p>7) presents first aid in non-traumatic health emergencies, e.g. fainting, heart attack, stroke</p> <p>8) performs cardiopulmonary resuscitation on a phantom in accordance with the guidelines of the Polish Resuscitation Council and the European Resuscitation Council</p>

Name of the modular unit		
JM.2.2. Operating electrical installations		
Acquired skills and competences The intern is able to:	Learning outcomes from the core curriculum of vocational education Trainee:	Verification criteria from the core curriculum of vocational education Trainee:
– select components of electrical installations	1) selects components of electrical installations	1) selects measuring instruments to perform measurements of electrical installations 2) carries out measurements of electrical installations 3) prepares documentation of the measurements performed
– interpret the results of measurements of electrical installations	1) evaluates the results of measurements of electrical installations	1) presents the results of measurements and calculations in the form of tables and charts 2) compares the results of measurements of electrical installations with technical documentation 3) assesses the technical condition of electrical installations based on measurement results
– perform protection of electrical installations	1) selects protection for electrical installations	1) distinguishes types of protection used in electrical installations 2) selects security measures based on the calculations performed 3) indicates places for installing protections in electrical installations

		<ul style="list-style-type: none"> 4) performs protection of electrical installations 5) checks the correct operation of installed security measures
– selects anti-shock protection measures	1) characterizes anti-shock protection measures	<ul style="list-style-type: none"> 1) distinguishes anti-shock protection measures 2) selects anti-shock protection measures 3) performs measurements to check the operation of anti-shock protection in electrical installations 4) assesses the effectiveness of anti-shock protection in electrical installations
– modernize electrical installations	1) modernizes existing electrical installations	<ul style="list-style-type: none"> 1) makes changes to electrical installation diagrams 2) uses modern control solutions in electrical installations. 3) replaces electrical devices and apparatus used in electrical installations with newer generation devices and apparatus

Name of the modular unit

JM.2.3. Operation of electrical machines and devices

<p>Acquired skills and competences</p> <p>The intern is able to:</p>	<p>Learning outcomes from the core curriculum of vocational education</p> <p>Trainee:</p>	<p>Verification criteria from the core curriculum of vocational education</p> <p>Trainee:</p>
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<p>– select elements of machines and electrical devices according to their parameters</p>	<p>1) characterizes elements of electrical machines and devices</p>	<p>1) distinguishes elements of machines and electrical devices</p> <p>2) recognizes the parameters of electrical machines and devices</p> <p>3) identifies phenomena occurring during the operation of electrical machines and devices</p> <p>4) determines the influence of power and load parameters on the operation of electrical machines and devices</p>
<p>– select electronic components for control systems of machines and electrical devices</p>	<p>1) describes electronic elements used in control and regulation systems of electrical machines and devices</p>	<p>1) classifies electronic elements and systems used in control and regulation systems of electrical machines and devices, draws schematic diagrams,</p> <p>2) distinguishes the parameters of electronic components and systems used in control and regulation systems of electrical machines and devices</p> <p>3) recognizes elements of electronic systems used in control and regulation systems of machines and electrical devices</p> <p>4) defines the functions of electronic systems shown in the diagrams</p>
<p>– draw diagrams of control systems for machines and electrical devices</p>	<p>1) characterizes control and regulation systems and methods</p>	<p>1) recognizes control and regulation systems of electrical machines and devices</p> <p>2) prepares diagrams of control systems for machines and electrical devices</p>

		<ul style="list-style-type: none"> 3) determines the impact of feedback on the operation of electrical machines and devices 4) classifies signals occurring in automation
<ul style="list-style-type: none"> – perform work in the field of operation of electrical machines and devices 	<ul style="list-style-type: none"> 1) characterizes the operational requirements of electrical machines and devices 	<ul style="list-style-type: none"> 1)) lists the operational requirements for electrical machines and devices 2) lists the legal provisions regarding the operation of electrical machines and devices 3) distinguishes activities related to the operation of machines and electrical devices 4) performs work in the field of operation of electrical machines and devices 5) prepares documentation of the work performed
<ul style="list-style-type: none"> – measure the parameters of electrical machines and devices 	<ul style="list-style-type: none"> 1) characterizes methods of measuring parameters of electrical machines and devices 	<ul style="list-style-type: none"> 1)) distinguishes methods of measuring the parameters of electrical machines and devices 2) selects measuring instruments to measure the parameters of electrical machines and devices 3) draws diagrams of measurement systems for determining the parameters of electrical machines and devices 4) performs measurements of parameters of machines and electrical devices

		<ul style="list-style-type: none"> 5) prepares documentation of the measurements performed 6) applies the principles of safe work with electrical devices
<ul style="list-style-type: none"> – interpret the results of parameters of electrical machines and devices 	<ul style="list-style-type: none"> 1) evaluates the results of measurement of parameters of electrical machines and devices 	<ul style="list-style-type: none"> 1) presents the results of measurements and calculations in the form of tables and charts 2) compares the results of measurement of parameters of machines and electrical devices with technical documentation 3) analyzes the results of measurement parameters of electrical machines and devices 4) assesses the technical condition of electrical machines and devices based on visual inspection and measurements
<ul style="list-style-type: none"> – locate damage to machines and devices 	<ul style="list-style-type: none"> 1) characterizes methods of locating faults in electrical machines and devices 	<ul style="list-style-type: none"> 1) recognizes types of damage in machines and electrical devices 2) identifies the causes of damage to machines and electrical devices 3) distinguishes methods of locating faults in machines and electrical devices 4) locates damage in machines and electrical devices 5) repairs damage to machines and electrical devices
<ul style="list-style-type: none"> – choose anti-shock protection measures 	<ul style="list-style-type: none"> 1) characterizes the protection of electrical machines and devices 	<ul style="list-style-type: none"> 1) distinguishes types of protection for machines and electrical devices 2) selects protection based on the calculations performed

		<p>3) indicates places for installing protection for machines and electrical devices</p> <p>4) selects anti-shock protection measures</p> <p>5) installs anti-shock protection</p> <p>6) checks the correct operation of installed security measures</p> <p>7) assesses the effectiveness of anti-shock protection in the power supply systems of electrical machines and devices</p>
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SOCIAL AND PERSONAL COMPETENCES

Social and personal competences and criteria for their verification

During the implementation of modular units, the intern improves social and personal competences:

1) observes the principles of personal culture and professional ethics;

verification criteria:

- applies the principles of personal culture and generally accepted norms of behavior in the work environment,
- accepts responsibility for entrusted professional information,
- respects the rules regarding confidentiality related to the profession taught and the workplace,

2) plans the task;

verification criteria:

- carries out activities within the prescribed time,
- monitors the implementation of planned activities,
- performs self-assessment of the work performed,

3) is responsible for the actions taken,

verification criteria:

- demonstrates awareness of responsibility for the work performed, evaluates the actions taken,
- provides for the consequences of improper performance of professional activities at the workplace, including the use of hazardous substances and improper use of machines and devices at the workplace,

4) demonstrates creativity and openness to changes ,

verification criteria:

- proposes ways to solve problems related to performing professional tasks in unpredictable conditions,
- indicates examples of introducing a change and assesses the effects of its introduction,

5) uses stress coping techniques;

verification criteria:

- recognizes sources of stress while performing professional tasks,
- indicates the most common causes of stressful situations at work,
- chooses stress coping techniques appropriate to the situation,

6) improves professional skills;

verification criteria:

- defines the scope of skills and competences necessary to perform the profession,
- analyzes own competences,
- sets own professional development goals,
- obtains professional information about the industry from various sources

7) applies the principles of interpersonal communication;

verification criteria:

- identifies verbal and non-verbal signals,
- uses active listening methods,
- leads the discussion,
- provides feedback,

8) applies problem-solving methods and techniques;

verification criteria:

- describes how to counteract problems in the team carrying out tasks,
- describes problem-solving techniques,

9) cooperates in a team;

verification criteria:

- works in a team, taking responsibility for jointly performed tasks,
- respects the division of roles, tasks and responsibilities in the team,
- engages in the implementation of joint team activities,
- modifies behavior, taking into account the position developed together with other team members.

Checking the learning outcomes - the educational achievements of the student /trainee is based on:

- constant monitoring of effects, e.g. assessment according to established criteria or the use of immediate feedback,
- descriptive assessment of the supervisor at the end of the internship, based on observations made and the completed student internship journal.

6. Plan for implementing an internship in the company

An entrepreneur accepting a student for an internship assigns him or her an internship supervisor and designates one or more job positions. Each job position enables the intern to perform professional tasks and acquire skills and competences as part of the qualification separate in the profession of electrical technician 311303. The above data is summarized in Table 3 and presented as a plan for implementing the internship in the company.

Table 3. Plan for implementing an internship in the company

Position work	Type implemented tasks	Acquired skills and competences as part of a qualification separate in the profession ELECTRICAL TECHNICIAN 311303 The student (trainee) is able to:
Assembly station for electronic and electrical parts	1) Performing work related to manual processing of materials	– apply the principles of occupational health and safety, fire protection, antistatic protection and environmental protection – use individual and collective protective equipment when performing professional tasks – organize the workplace in accordance with ergonomic requirements, occupational health and safety, fire protection and environmental protection regulations – provide first aid in the event of a health emergency

Position work	Type implemented tasks	Acquired skills and competences as part of a qualification separate in the profession ELECTRICAL TECHNICIAN 311303 The student (trainee) is able to:
		<ul style="list-style-type: none"> – characterize the equipment intended for use in various types of installations – plan and perform works related to the installation of equipment in electrical installations
Station for installation, commissioning and maintenance of electrical installations	1) performing works in the field of installation and maintenance of electrical installations	<ul style="list-style-type: none"> – apply the principles of occupational health and safety, fire protection, antistatic protection and environmental protection – use individual and collective protective equipment when performing professional tasks – organize the workplace in accordance with ergonomic requirements, occupational health and safety, fire protection and environmental protection regulations – provide first aid in the event of a health emergency – characterize the tools used during the installation of electrical installations

Position work	Type implemented tasks	Acquired skills and competences as part of a qualification separate in the profession ELECTRICAL TECHNICIAN 311303 The student (trainee) is able to:
		<ul style="list-style-type: none"> – plan and perform works related to the installation of electrical installations, – recognize electrical and mechanical damage occurring in electrical installations based on symptoms
A station for the assembly of elements, subassemblies and mechanical assemblies	<ol style="list-style-type: none"> 1) Performing measurements of geometric dimensions of machine elements 2) Assessing the technical condition of elements, subassemblies and mechanical assemblies for assembly 3) Assembly and disassembly of mechanical components and assemblies 	<ul style="list-style-type: none"> – apply the principles of occupational health and safety, fire protection, antistatic protection and environmental protection – use individual and collective protective equipment when performing professional tasks – organize the workplace in accordance with ergonomic requirements, occupational health and safety, fire protection and environmental protection regulations – provide first aid in the event of a health emergency – characterize elements, subassemblies and mechanical assemblies

Position work	Type implemented tasks	Acquired skills and competences as part of a qualification separate in the profession ELECTRICAL TECHNICIAN 311303 The student (trainee) is able to:
		<ul style="list-style-type: none"> – characterize parts of machines and devices – measure the size of geometric elements of machines – assess the technical condition of elements, subassemblies and assemblies to be assembled – select methods of joining metals and their alloys – select tools and devices for assembly and disassembly of components and assemblies – perform assembly and disassembly of components and assemblies
A station for the assembly of electrical and electronic elements, subassemblies and assemblies	<ol style="list-style-type: none"> 1) Performing measurements of quantities in electrical and electronic systems 2) Assessing the technical condition of electrical and electronic elements, subassemblies and assemblies 	<ul style="list-style-type: none"> – apply the principles of occupational health and safety, fire protection, antistatic protection and environmental protection – use individual and collective protective equipment when performing professional tasks – organize the workplace in accordance with ergonomic requirements, occupational

Position work	Type implemented tasks	Acquired skills and competences as part of a qualification separate in the profession ELECTRICAL TECHNICIAN 311303 The student (trainee) is able to:
	3) Assembly and disassembly of electrical and electronic components and assemblies 4) Checking the correctness of installation of electrical and electronic elements, subassemblies and assemblies 5) Checking the compliance of the assembly of electrical and electronic elements, subassemblies and assemblies with the technical documentation	health and safety, fire protection and environmental protection regulations – provide first aid in the event of a health emergency – characterize the structure of electrical and electronic elements, subassemblies and assemblies – select instruments for measuring quantities in electrical and electronic systems – characterize tools for assembling and disassembling electrical and electronic elements, subassemblies and assemblies – assess the technical condition of electrical and electronic elements, subassemblies and assemblies prepared for installation – perform assembly and disassembly of electrical and

Position work	Type implemented tasks	Acquired skills and competences as part of a qualification separate in the profession ELECTRICAL TECHNICIAN 311303 The student (trainee) is able to:
		electronic elements, subassemblies and assemblies – check the correctness of installation of electrical and electronic elements, subassemblies and assemblies – check the compliance of the assembly of electrical and electronic elements, subassemblies and assemblies with the technical documentation
Station for commissioning electrical devices and installations	1) Performing measurements of quantities in electrical installation systems 2) Assessing the technical condition of machines, devices and electrical installations 3) Assembly and disassembly of components and	– apply the principles of occupational health and safety, fire protection, antistatic protection and environmental protection – use individual and collective protective equipment when performing professional tasks – organize the workplace in accordance with ergonomic requirements, occupational health and safety, fire protection and environmental protection regulations

Position work	Type implemented tasks	Acquired skills and competences as part of a qualification separate in the profession ELECTRICAL TECHNICIAN 311303 The student (trainee) is able to:
	assemblies of electrical machines 4) Checking the correctness of assembly of elements, subassemblies of machines and devices 5) Checking the compliance of the assembly of elements, subassemblies and machine assemblies with the technical documentation	<ul style="list-style-type: none"> – provide first aid in the event of a health emergency – characterize the structure of hydraulic elements, subassemblies and assemblies – select instruments for measuring quantities in hydraulic systems – characterize tools for assembly and disassembly of hydraulic elements, subassemblies and assemblies – assess the technical condition of elements, subassemblies and hydraulic assemblies prepared for installation – perform assembly and disassembly of hydraulic elements, subassemblies and assemblies – check the correct assembly of elements, subassemblies and hydraulic assemblies – check the compliance of the assembly of elements, subassemblies and hydraulic

Position work	Type implemented tasks	Acquired skills and competences as part of a qualification separate in the profession ELECTRICAL TECHNICIAN 311303 The student (trainee) is able to:
		assembles with the technical documentation
Station for maintenance of electrical devices and systems	<ol style="list-style-type: none"> 1) Performing measurements of electrical quantities in machines and devices 2) Assessing the technical condition of electrical elements and subassemblies prepared for installation 3) Assembly and disassembly of electrical elements and subassemblies 4) Checking the correctness of installation of electrical elements and subassemblies 5) Checking the compliance of the assembly of electrical elements and subassemblies 	<ul style="list-style-type: none"> – apply the principles of occupational health and safety, fire protection, antistatic protection and environmental protection – use individual and collective protective equipment when performing professional tasks – organize the workplace in accordance with ergonomic requirements, occupational health and safety, fire protection and environmental protection regulations – provide first aid in the event of a health emergency – select electrical elements and subassemblies for installation in machines and devices – characterize tools for assembling and disassembling electrical components – use measuring instruments used during the assembly of

Position work	Type implemented tasks	Acquired skills and competences as part of a qualification separate in the profession ELECTRICAL TECHNICIAN 311303 The student (trainee) is able to:
	with the technical documentation	electrical elements and subassemblies <ul style="list-style-type: none"> – assess the technical condition of electrical elements and subassemblies prepared for installation – perform assembly and disassembly of electrical elements and subassemblies – use methods to control the assembly of electrical elements and subassemblies – check the compliance of the installation of electrical elements and subassemblies with the technical documentation
A station for operating electrical devices and installations	1) Assessing the technical condition of elements and electronic components prepared for assembly 2) Assembly and disassembly of	<ul style="list-style-type: none"> – apply the principles of occupational health and safety, fire protection, antistatic protection and environmental protection – use individual and collective protective equipment when performing professional tasks

Position work	Type implemented tasks	Acquired skills and competences as part of a qualification separate in the profession ELECTRICAL TECHNICIAN 311303 The student (trainee) is able to:
	<p>electronic elements and subassemblies</p> <p>3) Checking the correctness of assembly of electronic elements and subassemblies</p> <p>4) Checking the compliance of the assembly of electronic elements and subassemblies with the technical documentation</p>	<ul style="list-style-type: none"> – organize the workplace in accordance with ergonomic requirements, occupational health and safety, fire protection and environmental protection regulations – provide first aid in the event of a health emergency – select electronic elements and components for installation in machines and devices – characterize tools for assembling and disassembling electronic elements and subassemblies – use measuring instruments used during the assembly of electronic elements and subassemblies – assess the technical condition of electronic elements and subassemblies prepared for installation – perform assembly and disassembly of electronic elements and subassemblies

Position work	Type implemented tasks	Acquired skills and competences as part of a qualification separate in the profession ELECTRICAL TECHNICIAN 311303 The student (trainee) is able to:
		<ul style="list-style-type: none"> – use methods to control the assembly of electronic elements and subassemblies – check the compliance of the assembly of electronic elements and subassemblies with the technical documentation
A station for creating technical documentation of machines, devices and electrical systems	<ol style="list-style-type: none"> 1) Drawing diagrams of electrical systems of machines, devices and electrical installations 2) Drawing diagrams of electrical and electronic systems of machines and devices 3) Drawing diagrams of electrical installations 4) Preparing technical documentation of machines, devices and electrical installations using computer programs supporting CAD 	<ul style="list-style-type: none"> – apply the principles of occupational health and safety, fire protection, antistatic protection and environmental protection – use individual and collective protective equipment when performing professional tasks – organize the workplace in accordance with ergonomic requirements, occupational health and safety, fire protection and environmental protection regulations – provide first aid in the event of a health emergency – draw diagrams of electrical machines and devices

Position work	Type implemented tasks	Acquired skills and competences as part of a qualification separate in the profession ELECTRICAL TECHNICIAN 311303 The student (trainee) is able to:
	design and production	<ul style="list-style-type: none"> – draw diagrams of electrical and electronic systems of machines and devices – draw diagrams of electrical installations – prepare technical documentation of machines, devices and electrical installations using computer programs supporting CAD design and production – prepare documentation for the assembly, disassembly and operation of electrical machines and devices

7. Evaluation of the internship program

Vocational training is an area of education that has a huge impact on providing modern staff for the Polish economy. One of the activities aimed at preparing future staff is practical vocational training in the workplace. Properly prepared and conducted professional internships allow you to acquire professional and soft skills useful in the enterprise and allow you to consciously enter the labor market.

Below are the minimum requirements that should be taken into account when implementing student internships, in particular how to ensure their quality and document it.

Student internships⁵ should be carried out in accordance with the Polish Quality Framework for Internships and Apprenticeships⁶, and the European framework for professional internships⁷.

Monitoring the quality of student internships should cover the following thematic areas:

- organization of internships - formal and organizational requirements and their verification,
- implementation of internships - assessment of the quality of support provided / requirements substantive.

⁵ Act of December 14, 2016, Education Law (Journal of Laws of 2016, item 1148, as amended), Art. 121a.

⁶ Polish Quality Framework for Internships and Traineeships Guide, Prepared by: Polish Human Resources Management Association, accessed: November 23, 2020, https://www.parp.gov.pl/storage/publications/pdf/1.%20polskie_ramy_jakosci_praktyk_i_stazy_informator.pdf

⁷ Recommendation of the Council of the European Union of 10 March 2014 on a quality framework for traineeships (OJ EU C 88 of 27/03/2014), accessed: 23/11/2020, [https://eur-lex.europa.eu/legal-content/PL/TXT/PDF/?uri=CELEX:32014_H0327\(01\)&from=DA](https://eur-lex.europa.eu/legal-content/PL/TXT/PDF/?uri=CELEX:32014_H0327(01)&from=DA)

7.1. Organization of internships - formal and organizational requirements

The following criteria are the basis for verifying the implementation of formal and organizational requirements related to the organization of internships with employers.

1. Student internship program

The high educational value of a given internship program is achieved by defining educational goals that are adequate to the business goals of the organization, the specific nature of the job and the profession. From the company's point of view, this is an essential element to further determine progress and assess the competency of the trainee.

The development, review and validation of an internship program for the profession of an electrical technician, adapted to the educational needs of the student (including people with disabilities) and the specificity of work in a given company, is developed by a team of experts with professional experience related to the electrical energy industry, also characterized by knowledge of the needs labor market in terms of professions included in the industry.

The internship program takes into account its goals, content and responsibilities of the intern and takes into account the educational needs of students.

Validation and approval for the implementation of internship programs are carried out by experts from the Intermediate Body. The program operates in the form of a written document and is presented to interns before the internship begins.

2. Student internship contract

The prepared contract together with annexes constituting an integral part of the contract should be consulted (and possibly verified) by a legal advisor and the project/task/internship manager.

The annexes to the contract are:

- Internship regulations.
- Individual internship schedule.

- Consent of the parent/legal guardian for the minor child's participation in a professional internship.
- Student internship journal – template.
- Internship completion certificate – template.
- Evaluation survey for assessing the intern's professional competences and at entry/exit - example.
- Diagnostic questionnaire – trainee “Assessment of the quality of student internships” – example.
- Diagnostic questionnaire - employer "Assessment of the quality of student internships" - example.
- Diagnostic questionnaire – school “Assessment of the quality of student internships” – example.

The contract is prepared and signed by all parties involved in the student internship. It contains data of the parties to the contract, the subject of the contract, the duration of the internship, the obligations of the parties to the contract, internship supervisors in enterprises, internship coordinators on behalf of the school, and ensuring compliance with the quality of internship implementation.

The document prepared in this form precisely defines the basis for implementing the program and obliges the parties involved to respect the written arrangements.

3. Individual internship schedule

The individual internship schedule and work plan should be prepared in accordance with the needs/skill level of students (verification tool - *Evaluation questionnaire for assessing the professional competences of the student-intern at entry/exit*), including students with disabilities. Schedule and internship plan must be compatible with the school curriculum. The internship has a precisely defined program, and the level of its implementation is carefully monitored. Internship diaries should include daily reports on their progress and the signature of the internship supervisor each day, confirming the intern's presence at work and the professional tasks performed on a given day. At the end of the internship, the intern receives a certificate confirming the internship completed with a given employer.

Internship diary and certificate of internship completion (documents completed and signed by appropriate persons in the company are the documents required to pay the scholarship to the intern).

4. Care and mentoring

Internship supervisors in enterprises are appointed at the stage of preparation for the implementation of internships. A person acting as an intern's supervisor should have predispositions to take on the role of a supervisor or mentor and have sufficient substantive knowledge about a separate organizational unit of the company to provide reliable support to the internship participant.

Depending on the company's internal arrangements, the intern may be delegated to work with one or several people who will individually perform the tasks of a supervisor or mentor to a limited extent. Depending on the specific nature of the company, the supervisor receives remuneration or a training allowance after completing the internship, in accordance with the internship schedule.

5. Preparation of a workplace in the company

The employer is obliged to provide the conditions necessary for the student (and student with disabilities) to complete the internship program, in particular:

- a) a training station equipped with the necessary devices, equipment, tools, materials and technical documentation taking into account safety and hygiene requirements,
- b) rooms for storing clothes and shoes,
- c) access to hygienic and sanitary facilities and social and living rooms.

7.2. Implementation of internships - assessment of the quality of support provided/substantive requirements

The employer is obliged (under the student internship contract) to *organize* the workplace and carry out the internship in accordance with the adopted program and schedule of the professional internship and in accordance with the best practices for ensuring the quality of practical education, ensuring occupational health and safety.

The intern takes part in free on-the-job training and training in the field of occupational health and safety and fire safety regulations. Is acquainted with the organization of work, work regulations, in particular with regard to compliance with work order and discipline, and other regulations in force at the place of professional internship.

The obligation to appoint a tutor for an apprenticeship or professional internship rests with the employer and results from a written agreement concluded between the employer, the project implementer and the student.

The internship supervisor participates in the following tasks:

- accepting an intern into the organization; carrying out all or part of the adaptation process;
- presenting the scope of responsibilities, explaining how to perform them;
- introducing the intern to the procedures and rules applicable in the organization;
- regularly monitors the intern's progress;
- provides feedback on the results achieved and the degree of task implementation, and provides ongoing substantive support in the scope of the internship program. The supervisor will monitor the progress and acquisition of new skills as well as the degree of implementation of educational content and goals.

The internship supervisor confirms the intern's presence and completed tasks every day with his signature in the internship diary.

The employer assesses the intern's competences and issues a certificate of the completed internship, presenting information on the tasks performed and competences obtained as part of the internship, as well as on the practical skills acquired during the

internship , as well as the degree to which the objectives and program of the internship have been achieved.

During the internship, the intern is obliged to timely and actively participate in the professional internship, diligently and conscientiously perform the activities and tasks covered by the internship program, comply with the agreed duration of the internship and work regulations, occupational health and safety rules, fire protection regulations, and protection regulations. and business secrets, personal data protection, as well as the principles of social coexistence.

Before starting the internship, the student presents a current medical certificate confirming the lack of health contraindications to work in the profession.

In accidental situations that result in interruption or termination of the internship, it is permissible to pay the intern a stipend in proportion to the number of internship hours worked.

7.3. Research on the quality of student internships

The above-mentioned thematic scope of ensuring the quality of student internships, which provides for a multi-faceted assessment of the quality of internships in terms of formal, organizational and substantive aspects, requires defining groups of survey respondents, which include: students training in the professions of electrical technicians and electrical power technicians; school representatives and employer representatives.

Research on the quality of preparation and implementation of student internships should be conducted using diagnostic questionnaires.

Sample thematic scope of research

- an internship program developed with the participation of representatives of employers and the school, taking into account the needs of students (including those with disabilities), goals, educational content, required equipment at the workplace - presented to the parties involved in the implementation of the internship,
- signed internship contract with annexes - providing interested parties with the content of these documents, rights and obligations,
- familiarizing students with the individual internship schedule, occupational health and safety regulations, fire safety regulations and workplace regulations,
- showing trainees their workplace,
- provided access to the intern to the necessary equipment, tools, materials and facilities to perform work,
- assessment/self-assessment of students' preparation for work in accordance with the internship program,
- designated internship supervisor and the scope of his/her activities in assessing the student's progress,
- assessment of the quality of the internship by the student, representative of the employer and school,
- assessment of compliance of tasks performed during internships with students' skills,
- verification of receipt of a certificate of completed internship,

- verification of the scholarship payment to the intern,
- involvement of the project management staff and their supervision over the implementation of internships,
- involvement of school coordinators in the course of internships.

8. Literature

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