



**LIFELONG LEARNING PROGRAMME**

**ELEVET**

Final Report

Public Part

Project information

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transparency  
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# Executive Summary

The ELEVET project has been carried out under “Lifelong Learning Programme” upon an application submitted in 2011 to the Education, Audiovisual and Culture Executive Agency, having its seat in Brussels, by the project coordinator, i.e. the Association of Polish Electrical Engineers (SEP).

The project was carried out for 33 months (i.e. from 1.10.2011 to 30.06.2014) by a consortium of social organisations. The following entities were invited to participate:

1. SEP – Association of Polish Electrical Engineers, Poland (P1),
2. PIGE – Polish Economic Chamber of Electrotechnics, Poland (P2),
3. SIER – Society of Power Engineers In Romania, Romania (P3),
4. CONSEL CONSORZIO - ELIS - Consortium for Secondary Professional Training – Italy (P4),
5. DEHN Polska - Poland (P5),
6. SDE College – Syddansk Erhvervsskole Odense-Vejle, Denmark (P6),
7. CECE – Spanish Confederation of Teaching Centres, Spain (P7),
8. EFVET – European Forum of Technical and Vocational Education and Training, Belgium (P8).

The project contributed to policy priorities in accordance with EU strategies, which particularly consist in the modernisation of profession teaching methods and outcomes by expanding the set of qualifications to be acquired during training courses and traineeship with new sectors, and the improvement of predispositions of young professionals participating in preliminary vocational training before carrying out engineering works. This is due the fact that competition on the labour market in Europe necessitates the acquisition of new skills and high standards of competence, innovation, and professionalism.

All the outcomes obtained in the course of the 1<sup>st</sup> stage of the ELEVET project can be summarised as follows:

- 1) Based on the talks with several hundred companies in the countries represented by the Partners, questionnaires were prepared; they suggested new fields (soft skills) to be introduced while educating people who would take engineering positions in companies from electronic, power and related sectors. The questionnaires were distributed among approx. 2000 companies.
- 2) Based on the received responses (discussed in more detail in further sections of the Report) the uniform VET Framework and Credit Transfer was created for the application in EU countries.
- 3) Based on the VET Framework, a Handbook for Trainers was prepared.

The key topics discussed in the document are as follows:

- a) To use of ECVET to award credits for learning outcomes;
- b) To prepare uniform methodology and organisation of supplementary training courses and training for professional qualifications – the attachments to the

- Framework and the Handbook for Trainers provide a set of 70 possible courses and example descriptions of unit courses;
- c) To prepare a uniform manner of examination as well as credit awarding and transfer of credits, which will allow the recognition of qualification certificates in all European countries and will contribute to the improvement of mobility among young engineers in Europe;
  - d) To determine (based on the questionnaires submitted to the enterprises) 5 soft skills most desirable on the labour market, such as managerial, social and personal skills;
  - e) Three types of the questionnaire were created by the project members – before the training course one questionnaire) and after the course (two questionnaires, with one to assess participant's satisfaction after course completion). The questionnaires allow the introduction of changes in classes and professional traineeship.
- 4) Three types of Memoranda of Understanding were prepared for the practical application of the ELEVET project requirements.
- These memoranda include:
- a) memoranda concluded between the Partners in the ELEVET project (signed by all Partners during the Final Conference held on 19 May 2014 in Warsaw);
  - b) memoranda concluded between educational authorities in the country and organisations granting professional qualifications;
  - c) memoranda concluded between the Partners of the ELEVET project and training centres in each country separately.
- 5) For completion of the Framework provisions, the ELEVET European Certification Body and the so-called Certification Board were established, on the behalf of which acts the Working Committee. In individual countries National Certification Boards should be established for awarding professional qualifications in a manner that would be uniform within entire Europe.

The target audience of the ELEVET project under the Lifelong Learning Programme includes groups of users listed in section: 1 “Project objectives”. This section also presents objectives of the ELEVET project. The main objective of the project is to unify education and acquisition of professional qualifications by electrical engineers in EU countries. Therefore, dissemination and exploitation of results plays such a vital role for the project.

In section 2 “Project Approach”, the approach and methodology, applied to problem solved jointly by six EU countries being partners in the ELEVET project, are presented.

In section 3 “Project Outcomes & Results”, the outcomes achieved so far, which were exploited in order to prepare a unified framework for the education of electrical engineers in EU as well as a relevant handbook for trainers, are presented.

The programme was participated by representatives of Belgium, Denmark, Italy, Poland, Romania and Spain. A list of the organisations is provided in section 4 “Partnerships”.

In section 5 “Plans for Future”, a set of problems suggested in the course of the 2<sup>nd</sup> stage of the ELEVET project in the period 2014 – 2017 is listed.

The subject of the completed project contributing to EU policy is discussed in section 6 “Contribution to EU policies”.

All applied project solutions are widely disseminated, among others, by means of the project website at ([www.elevet.sep.com.pl](http://www.elevet.sep.com.pl)) as well as Facebook, LinkedIn and ADAM.

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# 1. Project Objectives

Every country, which is now a member of the European Union, has separate regulations and professional qualification frameworks, separate requirements for education and confirmation of knowledge of the subjects in the group of electrical engineers.

**The objective of the ELEKET project** under the Lifelong Learning Programme is to allow for recognition of achievements obtained during education and training in one's country and other EU countries by unifying the education and professional qualification acquisition system for electrical engineers in EU countries so as to:

- improve mobility among electrical engineers employed in various economy sectors associated mainly with power sector, industry and civil engineering; this also applies to young people who are about to start their professional work and employees of short work experience. Such mobility results from the demand for work performed by engineers, increased in the 21<sup>st</sup> century, both in one's own country and abroad, while holding certificates of professional qualifications issued by authorised entities;
- mutual recognition of learning outcomes (in all EU countries), acquired both on formal and non-formal training paths – this will result in improved trust for qualifications held by engineers from the countries, and thus willingness of easier employment of engineers from other countries;
- improved transparency of professional titles acquired under the ECVET framework – one of the possibilities is to acquire a title of “professional engineer”, which is not synonymous to the academic diploma after graduating from a higher technical university;
- improved cooperation among companies, education and social organisations in the development of educational methods, also in terms of lifelong learning – such an improved cooperation results from the use of the same educational methods during various courses, leading to more extensive experience exchange both by the training participants and the lecturers. Assigning training courses to the levels within the European Qualifications Framework also contributed to the effect.
- improved links with VET to be more responsive to the labour market needs – this improved link results, among others, from the fact that besides technical and business skills also soft skills will be taught in courses, such as managerial, social and personal skills to the extent most required in a given trade.

**Specific objectives** of the project are as follows:

- improved recognition and transparency of professional titles within the European credit system for Vocational Education and Training (ECVET),
- improved mobility of electrical professionals,
- mutual recognition of learning outcomes obtained in vocational schools and courses,
- modernisation of educational paths by taking into account soft skills and the command of foreign languages.

**The target user group** of the ELEVET project will include:

- electrical engineers who currently go through education as well as schooled electrical engineers at various levels (fitters, technicians, engineers), wishing to obtain relevant professional qualifications recognisable in EU countries,
- employees in the sector associated with widely defined electrical engineering, who do not hold official certificates confirming the electrical engineer profession, but who gained knowledge and skills while working and completed specialised training courses, etc. and who require a professional title recognisable in Europe;
- teachers and trainers of electrical engineers, both in formal and non-formal training,
- VET centres, for which vocational training programmes are proposed;
- companies which provide non-formal courses for their own employees;
- ministries competent for vocational training in project partners' countries (e.g. in Poland they are the Ministry of National Education, Ministry of Science and Higher Education, Ministry of Labour and Social Policy and Ministry of Economy).

The users will be engaged in the ELEVET project as a result of project dissemination by means of:

- 1) ELEVET website and social media, such as Facebook and LinkedIn;
- 2) information on the ELEVET project provided in various media, in particular technical magazines associated with the training electrical engineers;
- 3) detailed guidelines on training electrical engineers (Handbook for Trainers), prepared in the first half-year of 2013 in the course of the ELEVET project;
- 4) information on the ELEVET project during various conferences, seminars and other meetings with manufacturers, training and social organisations – so far extensive information on the ELEVET project has been provided in Poland during various events (described in section 2, i.e. information provided by the ELEVET Project Manager);
- 5) reports in various activities, including conclusions to be used by ministries and subordinate units;
- 6) conclusions from completed activities during meetings associated with the implementation of the National Qualifications Framework.

### **Qualifications Framework in Europe**

The European Qualification Framework is common for the entire Europe and combines qualifications systems of individual countries, and therefore qualifications are more transparent and easier to be understood in various countries and systems in Europe. The framework has two main functions, such as promoting mobility of people and making lifelong learning easier.

The project participants in the partner countries take active part in activities relating to the implementation of the concept within higher education in Europe.

The following section presents some remarks on this matter as applies to Poland.

### **Qualifications Framework in Poland**

The National Qualifications Framework provides a description of mutual relations between qualifications and integrates various national qualification subsystems. It serves mainly for improved transparency, availability and quality of qualifications. The framework was created by the Educational Research Institute (BE) for the needs of the labour market and society. It must be noted the National Qualifications Framework includes a description of hierarchical qualification levels (eight levels); every qualification is assigned to one of such levels.

Generally speaking, the National Qualifications Framework for higher education describes a detailed educational method offered to students by Polish universities. This method has two distinctive advantages. Firstly, the descriptions is provided in the form of learning outcomes, i.e. it presents requirements to be faced by the student in a given teaching cycle. Secondly, the description, by means of a common European system, is intended to provide a comparison of professional certificates obtained at various universities in the entire Europe; different people participating in the same process may obtain completely different outcomes. Consultation meetings held in Poland with regard to the National Qualifications Framework were attended by employees of the Association of Polish Electrical Engineers: Anna Wójcikowska – head of the Scientific and Technical Dept, Anna Dzięcioł – SEP foreign relations, and Lech Dziewierz, head of the Training Dept in the SEP Training and Publishing Centre.

## 2. Brief information on the ELEVET project

### (Project Approach)

Implementation of the ELEVET project is based on the cooperation among the partners taking part in the project. The cooperation is ensured by the following means:

- a) e-mail (this is the primary manner of daily communications) between the office of the ELEVET project coordinator in SEP and experts employed by other partners,
- b) reports on national and international meetings attended by the ELEVET Partners,
- c) ELEVET website: [www.elevet.sep.com.pl](http://www.elevet.sep.com.pl), ADAM
- d) social media, e.g. Facebook, Dropbox, LinkedIn,
- e) skype conferences.

The methodology of creating a unified vocational education framework and a unified system for conferring professional qualifications under the ELEVET project consisted in completion of subsequent stages, such as:

- 1) describing systems of education and acquisition of professional qualifications in individual countries,
- 2) meeting with business representative and heads of HR departments in large companies, collecting information on the expectation relating to people taking engineering positions, required qualifications (both professional and managerial skills, cooperation, ability to transfer information, etc.)
- 3) preparing the questionnaire aimed the study which business and soft competences are most required by employers as regards their existing and newly hired employees,
- 4) distributing the questionnaire among enterprises and collecting responses, followed by an analysis of the questionnaire and averaging the responses and sorting the competences from most important to less important,
- 5) publishing the questionnaire on generally accessible websites,
- 6) conducting direct studies during meetings held for various groups of employers
- 7) analysing the questionnaires,
- 8) analysing results of direct interviews,
- 9) In the course of the averaged questionnaire and interviews in the countries of the ELEVET Partners, the following results were obtained as regards the significance of the soft competence market:
  - a) Soft managerial skills:
    - task assignment

- strategic thinking
- planning
- leadership
- information management

b) social skills:

- in-team cooperation
- knowledge and experience sharing
- interpersonal relations building
- communicativeness
- customer orientation – professional internal and external customer service

c) personal skills:

- conscientiousness
- aspiration for results
- readiness for learning
- problem solving
- creativity and assertiveness

- 10) organising national and local focus groups in order to discuss the issue of unification of the education and professional qualification acquisition system,
- 11) organisation of the international focus group in order to discuss common criteria for the VET framework on 17 – 18 January 2013 in Warsaw,
- 12) testing the agreed education and professional qualification acquisition framework with the example of selected training courses,
- 13) signing a memorandum of understanding between social, training organisations and state authorities for practical application of the agreed education and professional qualification acquisition methodology,
- 14) organising the final conference on 19 May 2014 to summarise the results and discuss the implementation of the ELEVET project the planned implementation of the 2<sup>nd</sup> stage of the project – during the conference, all Partners signed a Memorandum of Understanding for further cooperation in practical application of ELEVET results.

Implementation of the project was controlled on a current basis by means of quarterly Quality Assurance Reports submitted to the Monitoring and Steering Committees. The reports were necessary for the discussion during periodic meetings of the committees.

The method of dissemination of project results is described in section 1. The following section present a list of events during which the ELEVET was presented.

- a) Speech before the Deputies of the Parliament of the Republic of Poland and other invited representatives of various organisations on 21 February 2012 on “Experience and good practices in SEP concerning the certification of professional competence” – delivered by Project Manager Andrzej Boroń,

- b) Lecture during the seminar at 15 March 2012 held by the Polish Federation of Engineering Associations (NOT) – for the Qualification Committee – speech on “Ordinance of the Ministry of Economy on safe organisation of work at electric power equipment” – delivered by Project Manager Andrzej Boroń, who presented the most important assumptions of the ELEVET project as well,
- c) Lecture during the seminar held by NOT in May 2012 – on the implementation of Leonardo da Vinci in Poland by presenting a paper titled “ELEVET – the most significant tasks taken by SEP as to the education of electrical engineers” – delivered by Project Manager Andrzej Boroń,
- d) Lecture during the seminar at the Warsaw Fairs of Renewable Energy Sources in September 2012, “ELEVET – the most significant task taken by SEP as to the education of electrical engineers, delivered by Project Manager Andrzej Boroń,
- e) Lecture during the Energy Fairs in Lublin between 13 and 15 November 2012, paper titled “ELEVET and NOBE – the most significant task taken by SEP as to the education of electrical engineers and prevention of accidents due to defective electrical systems in buildings”, delivered by Project Manager Andrzej Boroń,
- f) Lecture during Polish Energy Fairs ENERGETAB at 18 – 19 September 2013 in Bielsko-Biała (Poland), ELEVET – the most significant tasks taken by SEP as to the education of electrical engineers” – delivered by Project Manager Andrzej Boroń,
- g) During the final international ELEVET conference held in Warsaw on 19 May 2014. A series of lectures held by Project Partners,
- h) Lecture during the international conference held in Athens, Greece – European Forum of Technical and Vocational Education and Training taking place 22-26 October 2013, lecture delivered and discussion on ELEVET chaired by prof. Jerzy Barglik (President of SEP).

Similarly, various conferences, seminars and meetings, during which the ELEVET project was presented, were held in the ELEVET partner countries.

The following events were held:

- a) During the National Power Conference and Exhibition – CNEE 2013, at 23 – 25 October 2013 in Sinaia (Romania), where 2 lectures were delivered:
  - 1) First draft of VET Framework and Credit Transfer,
  - 2) Preparation of Partnership Agreement: (“Memorandum of Understanding”).

The above mentioned topics were presented by the authors from SIER: Vatra Fanica, Poida Ana and Postolache Petru.
- b) During the International Conference in, Belgium, on 16 January 2014,
- c) During the final Ent-teach Conference „VET reinvented: „Vocational & Entrepreneurship Teaching” on 7 March 2014
- d) During the EUCIS-LLL Training Session devoted to ERASMUS+, on 5 March 2014
- e) During the training session devoted to keeping young people employed – common challenges – shared solutions, 10-11 March 2014

Presentation of the ELEVET project during the listed conferences as in item (b)-(e), performed by EFVET representatives (Belgium).

### 3. Project Outcomes & Results

The main results of the activities under the ELEVET project between 1.10.2011 to 30.06.2014 are as follows:

**I. SDE College and SEP prepared brochures informing about the ELEVET project,**

**II. Individual Partners of the ELEVET project described national education and professional qualification acquisition systems, which became the basis for SEP to prepare the following documents:**

a) **“Compendium of best practices”** including a description of existing education and professional qualification acquisition systems in individual countries.

The document presents the following information:

- description of the education and professional qualification acquisition system in Denmark with three types of training, i.e. formal, non-formal and informal,
- description of the education and professional qualification acquisition system in Italy, from primary education, through secondary education to higher education,
- description of the education and professional qualification acquisition system in Poland, where the concept of granting professional qualifications is focused on three types:
  - “E” type qualification for operation activities,
  - “D” type qualification for supervision and operation activities,
  - construction license for designing and managing construction works in the field of electric power networks, systems and equipment
- description of the education and professional qualification acquisition system in Romania, divided into the following categories:
  - 1) III A – design of electrical installations operated at a voltage of less than 20 kV,
  - 2) III B – work at electrical installations operated at a voltage of less than 20 kV,
  - 3) IV A – as in III A but for any voltage level,
  - 4) IV B – as in III B but for any voltage level,
  - 5) II A – as in III A but at a voltage of less than 1 kV,
  - 6) II B – as in III B but at a voltage of less than 1 kV.

The document concerning Romania also discussed various topics of training courses provided by various training centres,

- description of the education and professional qualification acquisition system, based on the three-degree education system: beginner, intermediate and higher.

- b) **“Report on existing qualifications and professional titles”**, provided as a supplement to the above-mentioned document (item a); the report discussed in detail the existing qualifications and professional titles in individual partner countries.
- c) **“Mapping of national legislation in Poland” concerning VET**, in which a set of current legal acts and a list of professions for electrical engineers in vocational education, were presented – along with a set of civil engineering qualifications for electrical engineers. The document included a set of legal acts applicable in Poland, being in force from 1994 to 2012. It was also reported that, pursuant to the Act of 11 August 2011 on vocational education, a new classification of professions for electrical engineers was established for vocational schools:

- electrical mechanic,
- motor vehicle electrical mechanic,
- electrician,
- automation technician for railway traffic control,
- power electrical technician for rail transport,
- electrical technician,
- power technician,
- renewable power equipment and system technician.

In addition, a set of technical function to be taken after the acquisition of construction qualifications, pursuant to the Polish Construction Law of 7 July 1994.

- d) **“Short report on the accreditation system in Poland”**, in which objectives, scope and procedures of the Polish Centre for Accreditation (PCA), which accredits other organisations authorised to grant professional qualifications, were presented. Attention must be paid the general information referring to the accreditation process, always including:

- documentation review,
- in situ assessment carried out at the seat and all locations of the entity, where one or more key activities are performed by that entity willing to be accredited,
- observation of services provided under real conditions.

The document provided a detail list of accreditation process activities.

- e) **“Work package WP2 Report”** with emphasis put on business requirements to be improved, in which the most necessary business skills with reference to various factors associated with work performance, e.g. professional activity, personal and equipment safety, health as well as work organisation, were presented. The document discussed, in particular:

- 1) list of the most important knowledge elements relating to OH&S,
- 2) list of the most important skills relating to safety,

- 3) list of the most important knowledge elements relating to competence to be shown by the hired employees (associated with business activity),
  - 4) list of the most important skills relating to business activity,
  - 5) list of the most important subjects of courses devoted to safety of persons and equipment, energy security as well as work management and organisation,
  - 6) list of the most important subjects of courses devoted to energy security,
  - 7) list of the most important subjects of courses devoted to work management and organisation.
- f) **“Report summarising the implementation of WP2 in the view of national-level conclusions”**, in which– among others– a suggestion as to the unified minimum requirements for training leading to the acquisition of professional qualifications was presented. The requirements were presented in greater detail in the document listed in item (h).
- g) Development of three documents:
- 1) **“Report on consultation”**
  - 2) **“Report of the questionnaire study in international enterprises”**
  - 3) **“Global report on completed Work Package WP3”**

The documents presented the results of the questionnaire study submitted by individual partners in their countries, excluding Spain.

**Report 1** presented an average ranking of 15 soft skills (managerial, social and personal) based on the questionnaire for enterprises.

The group of the 15 skills for each of the three types (managerial, social and personal) included 5 soft skills that are most important (importance descending).

**For managerial skills:**

1. Task assignment
2. Strategic thinking
3. Planning
4. Leadership
5. Information management

**For social skills:**

1. In-team cooperation
2. Knowledge and experience sharing
3. Interpersonal relations building
4. Communicativeness
5. Customer orientation – professional internal and external customer service

**For personal skills:**

1. Conscientiousness

2. Aspiration for results
3. Readiness for learning
4. Problem solving
5. Creativity and assertiveness

**Report 2** presented average results of the questionnaires distributed among 43 international companies running in Poland (responses from 16 companies). Obviously, the questionnaire results collected from these companies influenced general results from enterprises in the ELEVET partner countries. In addition, there were several dozen direct and telephone conversation with board representatives of such companies as well as representatives of HR department. It was found that the companies regard the following skills as the most important:

- a) managerial skills: establishing efficient organisation,
- b) social skills: communicativeness, customer orientation – professional internal and external customer service,
- c) personal skills: aspiration for results, decision making, problem solving, self-reliance and time management.

**Report 3** included three parts with the following data:

*Part I* – general information on the questionnaire,

*Part II* – summary of the responses relating to business skills,

*Part III* – summary of responses relating to soft skills: managerial, social, and personal

The most important information included in these three parts are as follows:

#### **Part I**

This part listed the number of enterprises participating in the questionnaire:

- 1) In SEP (P1) – the questionnaire was distributed among 137 enterprises from power sector, 37 responses were received – in addition, information from direct and telephone interviews was obtained from about 60 companies,
- 2) In PIGE (P2) – the questionnaire was distributed among 200 manufacturing enterprises, 40 responses were received,
- 3) In SIER (P3) – the questionnaire was distributed among about 1400 enterprises via e-mail and over 300 by post, a total of 101 responses were received,
- 4) In ELIS Consortium (P4) – the questionnaire was distributed among 25 enterprises, 10 responses were received,
- 5) In SDE (P6) – the questionnaire was distributed among 161 enterprises (for 60 enterprises via e-mail), 21 responses were received,

The total number of distributed questionnaire was 1923 and the total number of responses 219, which is approx. 11 % of the total number of

distributed questionnaires (excluding direct interviews, for which the result is approx. 20 %).

## **Part II**

This part presented the results of the questionnaire responses relating to business skills. The respondents answered to the following four subjects:

- 1) Expected competences to be shown by the employees in relation to health and safety,
- 2) Expected knowledge and competences to be shown by the employees in relation to business activity,
- 3) Methods of acquiring new experts,
- 4) Expected subjects of courses relating to personal and equipment safety, power security as well as work management and organisation.

The document in detail presented the problems which turn out to be the most important.

## **Part III**

This part presented a list of the most important soft skills based on the questionnaires, as already provided in Report 1 "Report on consultations".

- h) Preparation of a support document including a concept of unified vocational education and professional qualification acquisition system in EU countries – "Preliminary suggestion as to the unification of education systems and acquisition of professional qualifications by electrical engineers in EU countries under the ELEVET project".

This document presented the following issues:

- 1) List of suggested regulated professions for which professional qualifications (competences) are required,
- 2) List of skills to be acquired in individual professional groups (7 such groups were listed),
- 3) Minimum requirements relating to education and professional experience for various regulated professions to obtain professional qualifications,
- 4) Minimum duration of courses during formal training to obtain professional qualifications,
- 5) List of types of training centres which should be authorised to provide training,
- 6) Examination manner in the procedure of professional qualification acquisition,
- 7) Class room conditions to be met during the courses for professional qualification acquisition,
- 8) List of organisations authorised to grant professional qualifications,
- 9) Recommended validity of issued professional qualifications,
- 10) Subject summary for various courses provided within formal and non-formal training

### **III. The Polish partners carried out the following tasks:**

- a) create a template of the questionnaire enterprises (at first, DEHN was supposed to prepare the questionnaire, but the partner withdrew from the ELEVET project – this task was continued by PIGE and SEP) – the questionnaire is attached to this report,
  - b) distribute the questionnaire among enterprises in Poland (other partners distributed it in their countries), collect and analyse the answers in terms of the most significant needs as regards business and soft skills (responsible: SEP and PIGE);
  - c) develop the document “Identification of best practises in Poland as to VET for electrical engineers according to the current academic year 2012/2013), in which, pursuant to the Higher Education Law and the Ordinance of the Ministry of National Education on core curriculum, a list of qualifications and professions was discussed with regard to the electrical and electronics sector;
  - d) create “Brief report on existing modules and courses” in which, similarly to the above document in item (c), a list of qualifications and professional titles for the electrical and electronics sector was provided – in addition, a division of the professions into 7 professional groups was presented.
- IV.** Organisation of national focus groups with experts and preparation of relevant reports on such meetings, which took place within the period between October and December 2012.
- V.** Organisation of an international meeting of experts from the countries participating in the ELEVET project – 17 January 2013 in Warsaw. The main subject of the meeting was to reach final agreement on the final version of VET Framework and Credit Transfer, the Handbook for Trainers and the presentation of current activities, in particular the desired managerial, social and personal soft skills were presented based on the questionnaire.
- VI.** Organisation of the ELEVET Final International Conference on 19 May 2014 in Warsaw, attended by all countries – ELEVET Partners and representatives of training centres in Poland.

During the conference, CECE (Spain) and SIER (Romania) presented basic information on the agreed Framework and Handbook. In addition, Project Manager Andrzej Boroń (SEP) presented:

- Information on the ELEVET project,
- Outcomes and practical meaning of project results for the educational system for electrical engineers in Europe,
- Perspectives and vision for the implementation of the ELEVET Framework in EU countries,
- Information on the 2<sup>nd</sup> stage of the ELEVET project in accordance with the application submitted to EACEA on 2 April 2014.

The concept of the 2<sup>nd</sup> stage is aimed at:

- Organisation of training for the acquisition of the title “professional engineer” (not to be confused with “engineer degree” after graduation from a technical university),

- Establishment of National Certification Boards,
  - Establishment of training centres and Certification Boards in partner countries, authorised to issue certificates, i.e. professional qualifications and sum up credits for ELEJET outcomes.
- VII.** Development of three types of Memoranda of Understanding (MoU),
- MoU between the Partners under the ELEJET project, signed by all Partners on 19 May 2014 in Warsaw – the Memorandum was intended to confirm that the ELEJET project outcomes would be applied in partner countries. The partners, by means of the Memorandum, would like to:
    - continue activities on the development of the VET Framework for electrical engineer and credit transfer internationally, which would create a path for reciprocal recognition of VET outcomes acquired during professional training and traineeship,
    - reduce mobility barriers for electrical engineers in Europe,
    - disseminate a uniform method of electrical engineer training in their countries by using the ELEJET system for collecting credits with the use of ECVET credits.
  - MoU between educational authorities in each country being a partner in the ELEJET project and organisations granting professional qualifications; The memorandum governs the rule of cooperation between the Partners of the ELEJET project in each country and central authority, accepting the developed training rules and provision of training qualifications for electrical engineers.
  - MoU between the Partners of the ELEJET project and training centres in each country separately – the Memorandum was that all training centres would accept use the ELEJET requirements in practice while providing training courses for the acquisition of professional qualifications. All training centres are obliged to use the rules under the ELEJET and ECVET systems in the course of education and credit collection for electrical engineers.
- VIII.** SEP prepared Guidelines on intellectual property right after completion of the ELEJET project. The document was intended to provide the rules of retaining the intellectual property right after completion of the ELEJET project. The primary rule is that all Partners taking part in the ELEJET project retain their intellectual property right to the extent they contributed to the implementation of the ELEJET project. In addition, the Partner may use this portion of the activities for their own purposes, in which they participated, excluding the right to provide the activities to third person, company or organisation, except activities approved by the ELEJET committee as publically available and necessary to implement ELEJET project results in individual EU countries, which would commence such implementation.
- IX.** SEP produced 1500 copies of the CD.

The results of the questionnaire studies as well as reports after meetings of the focus groups were used by CECE (Spain) to prepare the first draft of VET framework.

Therefore, there is a connection of current results obtained under the ELEVET project with its objectives.

## 4. Partnerships

As has been mentioned, now in every country of the European Union there are separate regulations and requirements for employees whose work is associated with electric power and electrical systems. Also in the country, due to the specificity of electrical engineering, including various specialisations and specialities (power – generation, power – industry, power – distribution, electricity in industrial plants in civil engineering, electricity in production of electro-technical products, etc.), there are various requirements for expected qualifications to be possessed by employees.

When selecting partners, criteria such as high quality, various specialities, and organisation specialisation and specialty were applied. Such an approach allowed complementing one another as well as exchanging experience and views. Due to the participation of experts having the highest qualifications, it is possible to use experience and best practices.

Under the ELEVET project, the Project Coordinator, i.e. the Association of Polish Electrical Engineers (SEP), the biggest scientific and technical organisation in Poland, has cooperated with the following partners:

- Polish Economic Chamber of Electrotechnics (PIGE, Poland), a self-government organisation representing sectors of Polish industry and trade within the scope of the production of cables, electrical equipment, and electrical apparatuses – Partner P2,
- Societatea Inginerilor Energeticieni din Romania – national organisation representing electrical engineers in Romania – SIER (Romania) – Partner P3,
- CONSEL Consorzio ELIS – consortium representing secondary vocational schools CONSEL ELIS (Italy) – Partner P4,
- SDE College (Denmark) is one of the largest technical colleges in Denmark; the collage is composed of a vocational school, a secondary school and a university – Partner P6 (until the middle of 2013),
- Confederación Española de Centros de Enseñanza (CECE) – non-profit professional organization of employers and experts – Partner P7 from Spain.
- European Forum of Technical and Vocational Education and Training – EfVET (Belgium) is an European association which acts for promoting VET in Europe – Partner P8.

In addition, there was some cooperation with DEHN (P5) during the first months of the ELEVET project. However, the company withdraw from further cooperation under the project in April 2012.

Every Partner provided the project with an added value due to their separate and rich experience in terms of training electrical engineers so that they can acquire professional qualifications.

Such experience was used within the cooperation in the following manner:

- 1) **PIGE (P2)** during consulting and organising the focus group with manufacturers of various electrical equipment and apparatuses; the cooperation paid off in that the final version of the ELEVET questionnaire was prepared and agreed with SEP,
- 2) **SIER (P3)** for detailed presentation of VET for electrical engineers in Romania, as well as consultation during the final approval of the questionnaire and templates for project quality evaluation (Quality Assurance Plan/Report); additionally it organised one pilot course according to the requirements of the project ELEVET and coordination of the operational testing by other countries (Poland, Italy). SIER also developed all versions of the VET Framework and Credit Transfer (in collaboration with CECE and in agreement with other ELEVET Partners). Similarly, SIER together with CECE, developed all versions of the Handbook for Trainers. During the final stage of the ELEVET project, SIER collaborated with SEP in preparation of the Memorandum of Understanding between ELEVET Partners for implementation of the requirements of the ELEVET project by the education and awarding of the professional competences.
- 3) **CONSEL-Consorzio ELIS (P4)** for contacts among VET organisations and the business environment with regard to the labour market, and additionally, during the organisation of one of committee meetings, i.e. Steering Committee and Monitoring Committee, between 18 and 20 April 2012 as well as 2 and 3 September 2013 in Rome. Additionally, it arranged two pilot courses.
- 4) **SDE College (P6)** for preparing collective materials (based on the reports submitted by other partners) for the Steering Committee and the Monitoring Committee. Moreover, during an additional meeting of representatives from SEP and SDE College (24 September 2012 in Warsaw), a modernised version of the Quality Assurance Plan Form was agreed (within 3-month intervals). It must be noted that SDE College developed the first version of this form.
- 5) **CECE (P7)** for preparing the first draft of the vocational training framework and guidelines on creating focus groups in individual countries; collaboration with SIER in preparation of VET Framework and Credit Transfer and the Handbook for Trainers.
- 6) **EFVET (P8)** for disseminating results of the ELEVET project by means of websites to ensure access for a wide audience in Europe.

The manner of cooperation between the partners was as follows:

- 1) The partner provided the ELEVET project coordinator (i.e. SEP) – via e-mail– quarterly information for the collective quarterly statement on the quality of ELEVET project implementation.
- 2) Several skype conferences were held, during which the most important matters at that time were discussed.
- 3) All Partners used the dedicated ELEVET website at [www.sep@com.pl](http://www.sep@com.pl) as well as social websites, such as Facebook, Dropbox, LinkedIn and ADAM.
- 4) Exchanges of opinions, discussions and presentations during direct meetings attended by experts, i.e.:
  - during meetings of national and international focus groups,

- during direct meetings attended by delegations from cooperating countries (one of such meetings was held in Warsaw on 24 September 2014, attended by experts from SDE (Denmark) and SEP),
  - during meetings of the Monitoring Committee and the Steering Committee.
- 5) Telephone conversation: mostly between experts from individual countries and the office of the ELEVET coordinator.

In the course of the project two difficult situations were encountered:

- 1) DEHN (Poland) withdrew from the ELEVET project; the partner was supposed to develop the first version of the questionnaire. As a consequence, the task devoted to the questionnaire had to be carried out and completed by PIGE (Poland) and SEP.
- 2) In addition, SDE (Denmark) withdrew from the ELEVET project at an advanced stage, i.e. in the middle of 2013; the partner together with others prepared information for the meetings of the Monitoring Committee and the Steering Committee. As a consequence, SEP had to take over the entire task.

Apart from that, the cooperation was harmonious and the Partners assisted one another in the completion of other tasks.

A typical example of good cooperation here is the cooperation on the Handbook for Trainers. This task was within the scope of CECE (Spain), but SIER (Romania) provided significant assistance as well.

## 5. Plans for the Future

All tasks planned to be completed under the ELEVET project ELEVET were finished by 30 June 2014, but the 2<sup>nd</sup> stage of this project has been envisaged, which would include the following tasks:

1. Dissemination of the ELEVET project in other EU countries, which till now have not taken part in the project. For this purpose a pan-European conference should be arranged to present, among others, all problems concerning the organisation of the vocational courses, awarding credits and granting professional qualifications.
2. Submission of template Memorandum of Understanding to other EU countries, which till now have not participated in the ELEVET project, in order to have them signed as done in the countries included in the ELEVET project.
3. Continuation of the training improvement, both lectures and the training during courses aimed at the acquisition of the professional qualifications. In Poland, SEP commenced to train lecturers providing courses in accordance with the ELEVET project. The first course of this kind was completed in January 2015 in Warsaw, and subsequent editions will be provided in Q1 2015 in Cracow and Lodz. It has been envisaged to provide these courses in all major cities in Poland.
4. Modernisation of the unit course curriculums, which are materials to be provided for course participants, and modification (if any) of the system of validation and credit awarding for acquired professional qualifications (after gaining the first experience in practical implementation of the ELEVET project).
5. Determination of the regulated professions for electrical engineers, for which the acquisition of the professional qualifications is necessary.
6. What is absolutely the most important subject is the introduction of EU regulations for the implementation of the programme suggested under the ELEVET project.

## 6. Contribution to EU policies

The presence of barriers in connection with an explicit procedure of mutual recognition of learning outcomes as well as the acquisition of professional qualifications in a widely defined electrical engineering makes it difficult for employees from this sector to work abroad. This situation applies not only to young mobile employees, but also to highly qualified experts. Taking into account the competition in other parts of Europe and outside its borders, the EU needs high standards of professional skills, innovation and professionalism.

The ELEVET project is part of such an EU strategy. The strategy “Europe 2020”, and in particular “**Education and Training 2020**” (cfr. COM(2010) 296), highlights priorities to which the project corresponds:

- 1) The creation of the new transfer framework (WP4) intended to create a joint university-VET learning path (convergence between ECVET points and ECTS serves here as the basis).
- 2) Improved consultation with stakeholders in the design of the transfer system with the approach “bottom-up”, involving the stakeholders, i.e. companies and professionals in the electrical sector while specifying learning outcomes (package 3).
- 3) Validation of non-formal education.

In addition, the ELEVET project relates to **the Youth on the Move** (COM (2010) 477) where the main target group includes young experts from the electrical sector, with work experience not longer than 10 years. The ELEVET project addresses the main objectives of the initiative through the creation of VET credit transfer, in which the competence and experience are acquired in formal and non-formal environments – validated and mutually recognised by the Member States.

Another programme related to by the ELEVET project is “**A new impetus for European cooperation in Vocational Education and Training to support the Europe 2020 strategy**” – Com (2010) 296. It applies to the following objectives of the said programme:

- IVET as an attractive learning option with high relevance to labour market needs,
- Cross-border mobility as an integral part of VET practices,
- Innovation, creativity and entrepreneurship; credits will be recognised under the new framework for VET courses, together with business and soft skills,

– Europe without borders will come back within the scope of higher education, reaching to the best traditions originating from the time of Copernicus; the value of gaining knowledge in several academic centres has been valued again. Benefits from the mobility among students and Ph.D. students have been recognised and analysed in Europe. It has led to the creation of **the European Qualifications Framework (EQF)** in which jointly prepared principles of higher education system organisation, accepted with respect to variability of programmes, institutions and education traditions in individual countries, will apply. The European Qualifications Framework **was introduced by the Recommendation of the European Parliament and of the Council of 23 April 2008**, in which it is recommended that the Member States should apply the European Qualifications Framework, with a temporary time frame

for 2012 is established, according to which all diplomas and certificates should relate to the National Qualifications Framework being compatible with the European framework.

As travelling becomes easier and easier, it practically enables mobile studies for a vast number of students. However, there is a problem encounter by the university while accepting a student in assessing the stage of student's knowledge acquisition. Just a description of the education process is not sufficient for such an assessment. The ELEVET project partners joined the discussion during national meetings devoted to the National Qualifications Frameworks, reporting conclusions from the questionnaires and documents prepared with the intention to establish the Qualifications Framework.

It is expected that the Qualifications Framework concerning EQF will allow:

- comparing learning outcomes at a national as well as international level, and therefore comparing diplomas,
- comprehensive knowledge of competences acquired by the graduates which is available to the public,
- easier access to continuation of education under the Lifelong Learning Programme,
- defined education standards by comparing graduate competences,
- “opening the system” – enabling the acquisition of informal competences, i.e. acquired outside the university, e.g. as a result of work experience.