



bringing neighbours closer

Module System implementation in the Engineering Skills Training

'Enhance of the Lifelong Learning Cross Border Capacity' Project

Evaluation Report

**Completed by: Caroline Michalak
May 2011
Dublin, Ireland**

EXECUTIVE SUMMARY

The aim of the ‘*Enhance of the Lifelong Learning Cross Border Capacity*’ (‘5L’) Project was the development of human capital through the contribution to the promotion of effective Lifelong Learning system in Kurzeme and North-West Lithuania cross border territory by the collaborative platform to promote the entrepreneurship and develop engineering skills among society in the outlined regions.

One of the main objectives of the project was the development of three engineering skill centres to meet the increasing industry demand for the re-training and training needs in particular fields. The implementation phase of the project has been strongly based on the Irish FAS Training Agency model, in particular on Specific Skills Training System, part of the Industry and Service Operational Programme in Ireland.

The aim of this Report is to evaluate the Programme’s implementation process undertaken by the three Universities from Klaipeda, Ventspils and Riga and assess the close correlation with the FAS model in Ireland as well as investigate the fulfilment of needs by the regions. The following aspects of the Programme will be examined:

- (a) course development;
- (b) training programme characteristic;
- (c) skill needs identification;
- (d) relevance to the needs of the region;
- (e) correlation with the Irish FAS model.

Implementation of the Engineering Skills Training Programme in Kurzeme and North-West Lithuania cross border territory was found to have been successful in meeting specified goals of the cross border regions, largely because of the concrete needs analysis conducted prior to the Programme implementation and resulting in the training courses autonomy at the local level. It was also concluded that the following actions could add significant value to the Programme implementation: standardisation and harmonisation of the courses, planning and forecasting structure in place, marketing and PR activities as well as overall quality assurance.

TABLE OF CONTENTS:

1. INTRODUCTION.....	4
2. OVERVIEW OF THE PROJECT.....	6
3. FAS MODEL IN IRELAND.....	8
4. ORGANISATION'S PROFILE	14
Klaipeda University.....	14
Ventspils University College	15
Riga Technical University Liepaja Branch	17
5. PROGRAMME EVALUATION	19
6. RECOMMENDATIONS	33
7. CONCLUSIONS	38

1. INTRODUCTION

The Programme courses for Klaipeda University, Ventspils University and Riga Technical University Liepaja Branch developed and implemented under the Latvia and Lithuania Cross Border Cooperation Programme are the subject of this evaluation Report.

Rationale

Contemporary economic research shows that modern, competitive economy is driven less by natural resources, physical capital and low-skilled labour, and more by the access to and quality of knowledge within the specific economic regions. This is generally supported by the priorities of national governments and articulated in regional development, business competitiveness and skills strategies. Links must be encouraged between higher and further education and the business sector. In Ireland the Irish Skills Strategy states: *‘One of the important facets of the industrial landscape in 2020 will be the prevalence of new technologies currently emerging which will dominate markets and in open economy such as Ireland these changes will be greater than others’*.

‘5L’ Project Partners have concluded that it is vitally important that the skill base of tomorrow is identified to ensure that those in both the workplace and society as a whole will have the skills to take advantage of the changes which new technological advances will bring. The European Commission findings further support the findings of the Project Partners that in addition to forecasting skills, especially high value skills, there is a further challenge. Specifically, *‘To support a Europe where people can develop the right skill mix to perform in and shape jobs, we need stronger bridges between the worlds of work and education and training. And we need an improved capacity to anticipate change’*, as the expert group report New Skills for New Jobs: Action Now (European Commission 2010) and Europe’s strategy for 2020 emphasise.

One of the goals of the *‘Enhance of the Lifelong Learning Cross Border Capacity’* Project was to establish skill centres at three universities - Klaipeda University, Ventspils University and Riga Technical University Liepaja Branch. Three engineering skill centres have been developed simultaneously with the focus on strongly divided specialisations in order to avoid overlapping of competences and to promote further partnership and transfer of knowledge within the region. Each centre has a specialisation in specific field which depends on the

location. This strategy helps meet the demand of the industry more efficiently as well as widen the diversity and range of services on the regional level. Project Partners have agreed on the following specialisations for the courses:

- Klaipeda University – The Institute of Mechatronics Sciences (IMS) – informatics engineering and programming in mechatronics and electrotechnics.
- Ventspils University – computer programming in electronics, mechanical engineering and robotization, marine industry.
- Riga Technical University Liepaja Branch – mechanical engineering, CNC and cutting technologies and automation usage.

The best practice examples across Europe have been studied to transfer knowledge and create the module system (FAS model concept) in Engineering Skill Training. Three modules (integrated part of a particular training course) on engineering courses have been developed and tested in English to be commonly used by all Project Partners. Following target groups took part in validation and testing processes: Lifelong Learning students and entrepreneurs.

‘5L’ Project have greatly contributed to improved quality of the Lifelong Learning services in the region as well as better accessibility to education, ensuring equal opportunities and preventing any forms of discriminations. The project has assisted many people with helping them to find the best way to embrace their skills and knowledge in the pursuit of employment.

Rapidly changing environment requires individuals to be flexible and adapt easily in order to be competitive on the job market. Lifelong Learning is one of the key factors in ensuring sustainable development of the human capital through gaining new knowledge and competences. Increasing demand for the Lifelong Learning services especially within the electronic and engineering sector is currently facing some limitations due to difficult legislation, insufficient coordination and shortage of infrastructure capacity. This result in low quality and range of services provided to the public and difficulties in meeting industry sector demands.

2. OVERVIEW OF THE PROJECT

Experience of the Project partners gained over the years have led the Consortium to have common understanding of the necessity to develop Lifelong Learning system of training courses in the cross border regions. Following aspects identified within the job market have influenced the decision to develop ‘5L’ project proposal:

- Brain drain from border regions to the business centres as well as abroad in pursuit of a better living standards (in years 2002-2007 number of inhabitants in Kurzeme region decreased for around 2.6% annually);
- Differences in educational services provided locally that limits the population to receive qualitative adult education services for the skills improvement demanded by the industry sector;
- Training courses provided do not meet the real demand of the business sector in the regions;
- Lack of the establishment of new enterprises in the regions which results in low economic activity of the society and high rates of unemployment;
- Lack of certification system in regions to certify existing skills of many inhabitants.

This 18 month Project was implemented under the Latvia and Lithuania Cross Border cooperation Programme. The Project goal was the development of human capital through the contribution to the promotion of effective Lifelong Learning system in Kurzeme and North-West Lithuania cross border territory, to promote the entrepreneurship and develop engineering skills among society in the above regions. In order to realise the aim, Project Partners have adopted specific objectives as follows:

- (a) Analysis of the current situation, identification of needs and foreseen difficulties, recommendations for the policy improvements;
- (b) Testing of the selected innovative Lifelong Learning service products and preparation of the methodology as the base for the future products development;
- (c) Evaluation of functions, activities and expected contribution of regional universities in the establishment of the regional Lifelong Learning system;
- (d) Effective cross border collaboration in the Lifelong Learning policy development and implementation;

- (e) Development of effective e-learning and communication platform for the project target groups;
- (f) Increase of the motivation for public-private partnership in Lifelong Learning;
- (g) Further promotion of the Poly-Centric regional development.

Project Consortium consists of organisations highly knowledgeable in the Lifelong Learning field: Ventspils University College (VUC), Kaunas Technical University of Technology (KTU), Riga Technical University Liepaja Branch (LRTU), Klaipeda University (KU) and Kaunas Regional Innovation Centre (KRIC), lead by Kurzeme Planning Region Administration (KPRA) as a driving organisation for the sustainable and balanced regional development.

‘5L’ Project contributes to sustainable regional development by impacting Lifelong Learning system as a part of wider regional innovation system to increase knowledge and skills level growth among society. The inhabitants of both regional centres and rural areas get access to advanced training and education services therefore increasing their competitiveness within labour market. The introduction of new knowledge flows to society gives strong encouragement towards development of non-agriculture and highly technology intensive sectors in a region.

The results of the project will significantly support project partners in establishing effective infrastructure, particularly in the engineering sector allowing for further partnerships with different companies and jointly creating training services that will meet specific needs of the society as well as the industry sector.

3. FAS MODEL IN IRELAND

Foras Aiseanna Saothair (FAS) is a National Training and Employment Authority in Ireland, established in January 1988 under the Labour Services Act. The aim of FAS activities is to enhance the skills and competencies of individuals and enterprises in order to further develop Ireland as a competitive, inclusive and knowledge – based economy.

For the purpose of this evaluation Report and as a means of reviewing best practices across Europe in the field of training courses aimed at specific sectors, Ireland's Programme of Specific Skills Training (SST) will be examined. This Programme represents the core features of the FAS model and is a base line for the implementation and evaluation of Engineering Training Courses developed within '5L' Project in the Kurzeme and North-West Lithuania cross border region.

Specific Skills Training Programme (SST)

The SST Programme is part of the training element under the Sub-Programme for Human Resources intended to take advantage of the potential employment creation effect of the Industry and Services Operational Programme as a whole. SST courses include also retraining of redundant workers. SST courses are aimed to deliver a good basic grounding in a specific skill typically at operative or semi-skilled level. The most popular SST training courses provided by FAS are in the field of: engineering, mechanical, electrical, construction, business skills, secretarial skills and computer skills.

The SST courses are mainly delivered at FAS training centres across Ireland. What is crucial within those courses is the local focus of course delivery. Depending upon training centre location, course participants and specifics area of a town/region, the overall course mix delivered at particular centres can be different. For example some training centres are providing specific courses which targets service sector as the most likely provider of employment in the area.

Skill Needs Analysis

The identification of skill needs and relevance assessment are central to the process of course development. First of all, course development is locally orientated. The reason behind FAS regionalisation is that the organisation will become more responsive to employer needs at a

local level and will create courses tailor made for the industry sector needs. New courses are developed and existing courses are amended very often as a result of the cooperation between trainers, training centre managers, industry representatives and employers. Additionally very often employers themselves make specific requests for the training courses to be developed in a specific area.

Some training centres undertake research within their own local area, both from the point of view of identifying skill needs not included in the training programme and to assess relevance of the courses already provided. One of the useful tools can be extensive survey of all relevant employers in the area in order to identify the skills they are looking for in their future employees. Each FAS training area produces an annual plan which attempts to put together information about the training needs of its region over the coming year.

Design of the Training Course

A major consideration in the decision to amend a course is the placement rate that the course achieves. In general a placement rate of 70% is considered necessary for the continuation of the course. If a course falls below this level it is assessed with a view to either being discontinued or amended as appropriate, however it is more often that the course is being updated or amended.

Some other activities within the courses design include forecasting and identification of changing skill needs at national level. This is the responsibility of the Research and Planning Section of FAS and includes research on skill shortages and research into the manpower and training needs of specific sectors of the economy. What is also very important is the fact that the work of the Programme Development section is also informed by contacts with other agencies. The Irish Industrial Development Authority (IDA) has a role in ensuring that FAS meets the skill needs of different foreign companies establishing businesses in Ireland.

As outlined below some training courses have their origins in requests issued by the industry sector, through the Programme Development Section. Example of company lead initiative that has come through the Programme Development Section is the Aircraft Maintenance course linked to Shannon Aerospace in Ireland.

Industrial Committees

Industrial Training Committees take part in the programme development as they have the responsibility for gathering information about the manpower and training needs of their

particular sector. A FAS industrial specialist closely cooperates with each committee. Each Industrial Training Committee produces annual sectoral plan to the FAS Board, outlining training and skills needs shortages in the particular sector. FAS has set-up Industrial Committees for the following sectors:

- Engineering, Food and Drink and Tobacco;
- Construction;
- Printing and Paper;
- Chemicals and Allied Trades;
- Textiles;
- Clothing and Footwear.

Each sectoral Industrial Committee may initiate the development of the Specific Skills Training courses to meet the specific needs of its own sector.

It has been noticed that the placement rates cannot directly inform FAS about gaps that exists within society skill sets. It could be argued that this approach is more reactive rather than proactive. Those findings resulted in joint manpower forecasting project focusing on developments of training courses on a more global basis but above all also including forecasts of demand on occupations classified by the industrial sector.

Training of Trainers

FAS trainers are part of the training programme run under the Vocational Training Infrastructure and Training of Trainers Operational Programme. Within those programmes FAS is cooperating with higher Universities and Colleges in Dublin to develop courses that are designed to maintain and update skills of the trainers. Each FAS training centre produces an annual staff development plan outlining the educational programmes that staff will undertake in the coming year.

Certification

The success and effectiveness of the SST Programme is based on the quality standards and certification procedures. It is necessary that employers are aware of the standards of the courses so the certification process will be accepted. The acceptance of the industry sector is vital if the SST Programme is to meet its objectives within the context of the Operational Programme for Industry and Services and remain recognised within the training market. From

the trainee point of view the acceptance and recognition of the standards and certification processes can greatly enhance the value of training offered and increase the possibilities for future relevant employment. The development of certification and standards within the SST Programme has been enhanced by the developments in the field of comparability of qualifications in the international context. All FAS trainees, who complete training, leave with a certificate proving the skills attainment. Later in time it was decided to develop an approach to certification and assessment that could cover for a wide range of courses. FAS has chosen not to design the assessment for each particular course but to develop a certification framework that will be flexible enough to cope with the range of different training courses. This resulted in focusing on training standards that could be applied across the range of SST courses. These assessments use a level of competence based on current industrial requirements and the level of competence are defined in terms of specific criteria. In most cases these criteria are established in consultation with recognised experts from the industry. Within each module, key objectives are presented, which must be achieved if skills attainment is to be fully certified.

Placements

Placement rates are crucial factors in terms of the measuring the performance and effectiveness of SST courses. FAS emphasise significantly placement rates and fall in these numbers is very often a starting point for the course detailed review. At first placement is the responsibility of individual instructors, who monitor trainee placement for a period of up to six months after the course completion. Placement is recorded as employment obtained whether it is relevant to the subject of the course completed or not.

Entrepreneurship

In the context of the high levels of unemployment in Ireland many research have looked to the contribution self employment can make to enhance country's economy. However the identification of enterprise as a source of new jobs is not a new concept Since the 1970s a number of programmes have been developed by different agencies aiming to provide support for people willing to start up their own enterprise. These programmes have evolved in time and are now provided by the industrial development agencies as well as training agencies. Therefore if a person in Ireland wished to establish an enterprise, could obtain a support from

a wide range of sources. These include the four programmes provided by FAS and initiated at the beginning of its existence:

- Enterprise Training;
- Local Training Initiatives;
- Enterprise;
- Community Enterprise Programme.

The aim of the Enterprise training is to provide unemployed and redundant people with the skills and knowledge required to start their own businesses or provide an additional component to an existing enterprise.

Local Training Initiative runs courses to respond to the expressed needs of particular communities. The Courses are intended to provide support in the form of training to communities who are seeking to create employment and aim to meet the training requirement of locally initiated employment creation programmes.

The Enterprise Scheme assists unemployed people, who are establishing themselves in a business, through the payment of an allowance in the first year of the initiative.

The Community Enterprise Programme (CEP) supports local job creation through enterprise. The programme aims to assist community groups in a number of ways including the provision of training, management support, enterprise workers and premises. Within the CEP the design of the educational modules aims to cover the specific stages of a business idea development. The format of this type of training can be as follows (example):

- Exploration – this initial module is intended for groups who wish to explore the idea of community enterprise but have not made any definitive decision about the direction they wish to take.
- Organisation Development – this module is designed to assist groups to develop an organisational base, to link into the community and look at their business idea in this context.
- Idea Generation – this module encourages the development of business ideas and attempts to examine their feasibility.
- Trading – this module is designed to assist established groups during their first year of operation and is linked to the commercial aid grant.
- Consolidation – consultancy provision to meet specific needs that arise during the second year of initiative are covered within this module.

Many different initiatives have been developed by FAS in the following years. FÁS provides a wide range of development programmes targeted at local communities. The strong links between FÁS and communities at local level have been developed and fostered over many years.

4. ORGANISATION'S PROFILE

Klaipeda University

Klaipeda University started its academic activity in 1991, having three faculties (Humanities and Natural Sciences, marine Engineering and Pedagogy) and about 3,000 students. The University was building upon the basis of faculties and subdivisions of higher institutions functioning in Klaipeda by that time. Currently Klaipeda University is already in the second decade of existence. It is the only state classical university in exceptional (from economical, cultural and geopolitical point of view) coastal area of Lithuania, in the sole port of the country. It is a very rapidly developing University and has around 10,000 students and 600 staff working in 7 faculties as follows: Natural Sciences, Humanities, Marine Engineering, Fine Arts, Pedagogy, Social Sciences and Health Sciences. It also has 2 study institutes (Maritime and Continuing Studies), 5 scientific research institutes (Baltic Coastal Research and Planning, Baltic Regional History and Archaeology, Marine Landscape, Mechatronics, Regional Policy and Planning) scientific research and study centres, library, the Botanical gardens, publishing office and the Career centre.

The University implements the mission of human education and development of intellectual society, enshrining cultural and historic heritage of Western Lithuania and upholding its old traditions. Unity of science and studies, their qualitative integration into national and European scientific space remain the basic principle of its activity. Mission of the University is both universal and exceptional, satisfying demands of Lithuania as a marine state for qualified specialists, fundamental and applied researches. Klaipeda University owns „Brabander“, the largest Lithuanian exploratory – training sailor, designed for students’ practice and marine expeditions.

Continuous Studies Institute (CSI)

CSI was established more than 10 years ago as an autonomous department of the Klaipeda University. Referring to the world modern educational tendencies and implementing the Lifelong Learning policy, CSI organises and develops flexible systems of initial and continuing vocational training. Andragogy Department in CSI was launched in September 2001 with aims of meeting the needs of reality to investigate and summarise theory and practice of adult education. In close collaboration of all departments number of European

funded projects has been implemented. The projects have significantly influenced the improvement of University infrastructure: IT supply (hardware, software, net), renovation of classrooms and other premises when designing the strategy and meeting the needs in the field of adult education.

Mechatronics Science Institute (MSI)

MSI operates in two work-rooms and has mobile scientific equipment as follows: mechatronics systems oscillations scientific research and analysis module, mechanical oscillations signals analysers A4300-VA3, DMA04 and software DDS2000, MMS6850. Vice level analyser, laser distance measurement, bearings temperature measurement device etc. Analogs and discrete signals input/output cards, rolling bearings research rig, multiprocessor-server.

Klaipeda University offers a developed three level study system: 67 bachelor, 4 specialized vocational, 48 master, and 3 doctoral study programs. Klaipeda University offers 16 degree programmes and 12 non-degree programmes and courses for international students. Trends of scientific research, artistic and academic activity, which are not developed in other Lithuanian universities, remain dominant in Klaipeda University. They are as follows: marine environment research and engineering of marine transport; hydrology and oceanography; port technologies and engineering; history and languages of Lesser Lithuania and Baltic region; ecological engineering; landscape architecture; underwater archaeology; recreation and tourism; care; social geography; jazz music; sporting dances and choreography; childhood pedagogy.

Ventspils University College (VUC)

VUC is an accredited state Higher School founded in 1997 thanks to the support and initiative of the local authorities in Ventspils. There is about 800 students studying in VUC and more than 60 members of teaching staff and half of them hold the doctoral (PhD) degree. VUC actively participates in Lifelong Learning Erasmus Programme of the European Commission. VUC is developing and improving different fields of studies in order to promote social and administrative processes in the whole country and the region:

- Business administration and economic,
- Training for professionals translators and interpreters,
- IT training.

VUC implemented teaching and training methods based on the ICT technologies to improve the knowledge delivery. Additionally by cooperating with Ventspils City Council and entrepreneurial companies in the IT sector, VUC has set out an objective to become a support centre for introducing e-administration in the region.

Research work

Together with partners from across Europe VUC has been participating in several important state and international projects of science and applied research. The core areas of research and collaboration are as follows: Information Technologies and E-administration, the analysis of business environment, applied in linguistics. It is important for VUC to improve research and to increase the role of science in the work of the University College. In collaboration with the Ventspils City Council, Riga Technical University and entrepreneur companies in the field of IT, VUC is actively working on introducing and setting up the Science and Technologies Park of Ventspils. Together with the Latvian Academic of Science, Ventspils City Council and Ventspils Museum, VUC and its partners have begun the work to establish the Academy of Kurzeme, which will promote the studies and research about Kurzeme region.

VUC Lifelong Learning Department

VUC Lifelong Learning Department established in 2002, offers further education provision to local society and individuals from the whole region. The department is active in Lifelong Learning policy making process and active partner in state and regional Lifelong Learning projects. One of the examples is ESF: ‘Strengthening of Kurzeme region, capacity and support system for implementation of Lifelong Learning strategy’. This project has formed the basis for the establishment and development of Lifelong Learning system in Kurzeme region.

Engineering Research Centre

ERC, established by VUC in 2005, is an outcome of EU PHARE Project. VUC ERC prime objective is to provide Ventspils High Technology Park, Ventspils Business Incubator and companies operating in Kurzeme region with top level applied research services, and promote growth of scientific potential in electronics and electric engineering throughout the region.

Services provided

VUC has three faculties that provide formal higher education:

- The faculty of information technologies (ITF) has following programmes: first level professional higher education study programme “Information Technologies”, bachelor’s study programme in Computer Science, bachelor’s study programme in Electronics, Master’s study programme of Science in Computer Sciences (Mathematic Fundamentals of Computer Science and Satellite Information Data Processing Systems).
- The faculty of economics and business administration (FMBA) provide following programmes: bachelor’s study programme in Social Sciences “Business Administration”, professional Master’s degree programme “Business Administration”, Doctoral programme in Management Studies, with the major in business administration.
- The faculty of translation studies (FTS) offer programmes: professional bachelor’s programme „Translation into/from English – Latvian – Russian/German”, professional bachelor’s programme „Translation into/from German – Latvian – Russian/ English”, Professional Master’s degree programme „Translation and Terminology”, Professional Master’s degree programme „Translation of Legal Texts”.

Riga Technical University Liepaja Branch (LRTU)

Liepaja Branch of RTU is a multilevel vocational professional educational institution which was established in 1989 on basis of RTU Liepaja General Technical faculty, Liepaja Polytechnic School and Vocational Secondary school. By its structure and range of offered educational programmes it is the only educational establishment of this type in Kurzeme region. Cooperation with educational institutions of EU countries and opportunities to practice abroad provides graduates with high educational and professional qualification which allows them to compete successfully on the local and international job market.

Technical provision

LRTU has a Scientific Library with specialised literature and internet access to several databases for full text scientific magazines and articles like EBSCO, RUBRICON and

ScienceDirect and others. Although technical provision has been quite decent, there is necessity to renew facilities acquiring modern technologies to provide much higher education quality for formal and non formal learning for the students in the region.

Services provided

LRTU provides high variety of education – from secondary level vocational education up to academic bachelor studies. Courses and programmes provided are mostly in technical and economic sciences like: IT, Mechatronics, Civil engineering, Power industry (energetic) and electronics, Business management, Human resource management and others.

Life-long learning in LRTU is provided by module system. This system allows person to study one or more separate modules or completing all modules of one programme and passing final exams to obtain professional education level.

Lifelong Learning system is provided by the following programmes – each ensured by several models: Small business management, Project management, Computer skill improvement programme, Warehouse curator (manager), Bookkeeping, Secretary, Insurance, Marketing communication, Electrician, Entrepreneurship basics, Expeditor, Locksmith (Machinist), Lathe operator, Milling-machine operator, Language courses etc.

Liepaja city has become a seat of a dynamic machinery and metalwork industrial cluster, therefore the most demanded courses over last decade of the years are bookkeeping, computer skills, metal working and project management. There is also an increased demand for courses on mechatronics, programming of CNC machines, computerized designing (projecting), robotic and its programming, practical usage of CNC machines, Programmable logic controller (PLC) courses.

The tendency is clearly reasonable, since machinery manufacturer and metal works are important part of Kurzeme region manufacturing industry, while in Liepaja it forms even 70% of all manufacturing industry. Demand has been formed, while lack of resources and facilities limit project partners and other Lifelong Learning service providers to ensure such services.

5. PROGRAMME EVALUATION

For the purpose of the evaluation process this section of the Report will contain overview of the Programme courses implemented by the three universities. The following aspects of the Programme will be reviewed and evaluated:

- (f) course development;
- (g) training programme characteristic;
- (h) skill needs identification;
- (i) relevance to the needs of the region,
- (j) correlation with the Irish FAS model.

It is important to outline the essential goal of the ‘5L’ Project, which has been identified as a continuous support for teachers, trainers and lectures who are working within different labour market training centres and as a mean of improving and modifying training programmes to better meet the needs of participants as well as the industry sector within specific regions. The activities described as improvements and modifications to the training courses are strongly based on wide adoption of innovative ICT technologies in training delivery, acquisition of new, innovative training methods which are based on the best practice examples from across Europe as well as significant attention to the labour market needs. That is why the ‘5L’ Project has focused on investments in the Lifelong Learning courses to improve mobility, flexibility and life and work skills of the workforce in specific regions of Lithuania and Latvia. Those investments will in longer term change the way of thinking among society and make it more capable of reacting to the demands of the job market and changing circumstances within required work skills. The Programme Courses that have been developed as pilot trainings in three different regions are a strong response to those regions needs and by delivering the Engineering based skills training courses, the project has established very important, close cooperation within the regional enterprises.

Training Courses developed at Klaipeda University

Engineering industry sector plays a vital role in Lithuanian's economy as it is the strongest sector in a manufacturing industry, based on generated value added produced by this particular sector (for example in 2006 4% of Lithuania's GDP came from the Engineering field) Such high performing results can significantly influence country economy's productivity rates. What is also very important is the fact that engineering industry manufactures and supplies other sectors of the economy highly determining their technological progress and competitiveness on European economy market. Additionally engineering industry in Lithuania is currently in a big demand for specialists training within the engineering field. It was clear to the '5L' Project Partners that in order to the engineering industry in Lithuania to become competitive, a qualified human resources structure has to be in place and has to possess mechatronical skills as well as adopting easily to innovations and upcoming changes on the market.

First major step undertaken within the '5L' Project by Klaipeda University was the research on different mechatronical skills of people being employed in the field of engineering as well as investigating and identifying lack of such skills resulting in the future training possibilities. In order to collect essential feedback from the regional enterprises Klaipeda University have conducted survey among following companies: AB „Klaipėdos kartonas“, UAB „Mars Lietuva“, AB „Klaipėdos vanduo“, UAB Klaipėdos jūrų krovinių kompanija „BEGA“, AB „Klaipėdos baldai“, AB „Klaipėdos mediena“, UAB „Orion Global Pet“, UAB „Švyturys-Utenos alus“, UAB „Philip Morris Lietuva“, AB „Klaipėdos energija“, AB „Vakarų laivų gamykla“ (a group of 22 companies), AB „Baltijos“ laivų statykla, AB „Klaipėdos laivų remontas“, UAB „Garant“. The above companies have been selected on the basis of their close correlation to engineering industry however not all of them are strictly representing that field. What was more important for the Project leaders was the fact that those companies require qualified engineering specialists among the staff. Business of these companies is various: construction, engineering, repair, building, technical maintenance, production, loading operations, assessment of ships technical condition, metal processing, food production etc. Project leaders from the Klaipeda University have also conducted interviews with managers representing selected companies in order to learn about their perspective and opinions regarding skills of their staff. The overall opinion expressed by the companies' representatives outlined that the majority of the employees have graduated from school long

time ago and never refreshed their training which is now resulting in a huge need to raise their skills qualification. Moreover, what has been noticed during the companies' visits is the fact that many innovative approaches, methodologies and actual technologies have been implemented over the years. However there was no training provided to the staff which resulted in employees' lack of knowledge in terms of new technologies in the companies.

After identification of the skills shortage among employees and also their needs in terms of new qualifications, Project leaders conducted intensive consultations with Professor Rimantas Didžiokas, a pro-rector for development issues at Klaipeda University. As a result of this a methodological teaching material for the Programme of mechatronical skills development was chosen. The Programme consists of three parts: mechanical part, electronics and electrical engineering and informatical part. Each part will have a training course of 16 academic hours. Mechanical part of the Programme covers mechanical systems modelling, Electronics and electrical engineering covers a course regarding electrical drives and Informatical part covers a course on diagnostics.

Mechanical Systems Modelling

The purpose of this engineering based subject is to provide knowledge of mechanical objects by using Solid Works software designing package, to teach how to use already gained information during the designing process. During the course of training information regarding computer-aided design, accrued to introduce the design of parametric parts and units and drawings generation from designed models will be presented. Experience with three dimensional objects design will be gained, as well as skills, related to three dimensional models, their assembly units design and arrangement, visualization and formatting of designed documentation will be acquired. Computer-aided design skills will be developed throughout the training. Content of the mechanical systems modelling lectures include:

- Sketch drawing, entry of dimensions, relations, formulas;
- Model design by extrusion, selection of materials, calculation of physical parameters;
- Model design by revolving, fillet, chamfer, pattern;
- Designing of a part by connecting sketches drawn in different planes;
- Filet, chamfer, patter, shells, holes;
- Assembly units, their mates;

- Models transformation into drawings;
- Static analysis.

Electrical drives course

This course provides information about electrical drives mechanic, mechanical features of electrical engines, engines operation parameters. Information related to electrical drives mechanics, electromechanical features and mechanical characteristics of various type electrical gears, typical electrical drives calculations, also launching and stopping modes will be presented. Knowledge regarding fundamentals of electrical drives dynamics, transient processes, and drives energetics will be gained. This course is aiming that people studying this subject would gain sufficient knowledge and skills to comprehend fundamentals of electrical drives theory. Skills, necessary for a constant professional development will be also acquired. Lecture content includes:

- Mechanisms, their division;
- Electrical gears, their structures;
- Selection of engines;
- Selection of drives;
- Selection of sensors;
- Selection of a control device;
- Use of the interface;
- Visualization.

Diagnostics course

This course aims to provide information regarding dynamics, operation, work specifics, proper and appropriate exploitation of rotor machines, operated at an industry companies, assessment of their technical condition and diagnostic of defects, based on up-to-date vibrations measurements and analysis methods. The following skills will be developed throughout the course: applying gained knowledge for solution of various engineering problems; understanding of new research technologies of rotor machines vibration, designing for evaluation of machines technical condition and identification of defects; applying gained

theoretical and practical knowledge in design and exploitation of mechanical systems. During the course of training dynamics of rotor machines following subjects will be presented: fundamentals of mechanical vibrations, basic vibrations parameters and data formats used in rotor machines vibration research, forms of machine vibrations. During the training course people will be introduced to information of rotor machines' technical condition evaluation and defects identification based on mechanical vibrations. Following mechanical vibrations people will be taught to diagnose defected electrical engines, poorly cantered shafts, identify mechanical looseness in machines, defective roller and journal bearings, belt and gear drives and couplings, identify resonance, rotor misbalance, bearing lubrication problems and other defects. During the lectures people will be taught to properly exploit rotor machines thus extending operation time of such machines. Lecture content of Diagnostics Course includes:

- Significance of diagnostics;
- Evaluation technologies of technical condition;
- Fundamentals of mechanical vibrations;
- Vibration parameters used in vibrations research;
- Vibration data formats;
- Vibration forms;
- Vibration measurement appliances;
- Defects identification.

Project leaders from the Klaipeda University have delegated the task of preparation of methodological teaching materials for the Programme of mechatronical skills development to specialists who are closely collaborating with University professors and scientists. The methodological teaching materials will be used as a source for refresher courses.

Training Course developed at Ventspils University

At Ventspils University first activity that led to the course development was the needs analysis conducted among different enterprises in the region. Project leaders aimed to gather information on specifics of the employment in the selected companies as well as lack of

specific skills that could be addressed within the future course development. Ventspils University have examined following enterprises:

- ALFA RPAR AS (Design and manufacturing of microelectronic components and applied electronic devices; Subcontracting in PCB assembly);
- ALFA PRO (Contract manufacturing of printed circuit board units for different electronic systems and products);
- ALTON (Contract manufacturing of electronic units, equipment and different cable articles);
- Arcus Elektronika SIA (System designing and production of electronics equipments and software for industrial applications);
- Bruker Baltic SIA (Production and development of semiconductor detectors for nuclear radiation and equipment for radiation measurement);
- Elektronikas un datorzinatnes instituts (R&D in fields of electronics, signal processing and computerized systems. Design and production of hardware/software systems and virtual instruments);
- ELLAT SIA (Designing and manufacturing of automation control systems);
- Hanzas Elektronika SIA (Contract manufacturing, flexible combination of advanced automated assembly technology complemented with manual assembly techniques);
- Latvijas Elektrorūpniecības Biznesa Inovāciju Centrs / Society “Business Innovation Center of Latvian Electronic Industry” (Support centre for development of small-scale business activities in electronic industry);
- LĀSMA SIA (Projecting and manufacturing of control equipment and automation);
- Micro dators SIA (Production of personal computers);
- Ogre Vocational School (Vocational education programmes);
- OPTILAS SIA (Laboratory equipment. Electronics.);
- Real Sound Lab SIA (Real Sound Lab is an independent, R&D focused company, developing technology solutions for sound engineering in professional and consumer markets);
- SAF Tehnika AS (Designer, producer and distributor of telecommunications and data transmission equipments);
- SensoTech SIA (Manufacturing of electronic equipment B-phone. B-phone is a children monitoring device that reacts to sounds or movements in space. It operates in GSM mobile operator's network using a SIM card);

- Telnet SIA (Projecting and manufacturing of electronic equipments - communication, computer and signal network devices);
- Ventspils Elektronikas fabrika SIA (Company produces components of electronic equipment or full equipment according to individual orders);
- Volburg SIA (Manufacturing of electronic equipments);
- Vidzemes Profesionālās Izglītības Centrs (Training institution providing further vocational training courses).

Based on the overview and analysis of the selected companies in the region, Ventspils University has decided to develop training course in the field of technical norms based on the basics of electronics and radio engineering.

Standards and technical norms course

The aim of the course is to provide knowledge in the use of standards and technical norms in the electronics and electrical engineering. The course is also aiming to build skills to use IPC and other standards at work. In the end of the course following competencies will be gained by participants: understanding of the process of developing standards, ability to find the required standards and technical regulations and use them in the own work, acquired knowledge about design rules of electrical circuits and technical documentation. Standards and technical norms course is intended for engineers and consists of eight theoretical lectures:

- Basics of standardisation, World/Europe/Latvia standardisation organisations, Standards development process;
- IPC (Association Connecting Electronics Industries) standards;
- Safety standards, Electrostatic Discharge (ESD) control, Moisture sensitive devices (MSD);
- Electronics and electronics components assembly, General safety in electronic assembly, Handling in electronics assembly;
- Soldering in the electronics industry;
- Utilization and repair standards;
- Component identification, Printed Circuit Boards (PCB, PWB, PCA), their manufacturing;

- Rules of design of electrical circuits and technical documentation.

Report from the Riga Technical University Liepaja Branch

Within the '5L' Project Riga University Liepaja Branch (RTU) was responsible for the development of Engineering skill centre with equipment for mechatronics, CNC, electronics and electrotechnics. The development of the Engineering Skill Centre was envisaged to foster the culture of Lifelong Learning in the region and meet the learning needs of students in RTU Liepaja Branch. After various consultations it was decided to develop a Programme for teaching on CNC which will cover 2 learning sessions for 10 students, as planned in the initial project application.

However prior to the Programme development RTU Liepaja Branch have conducted needs analysis among different enterprises in the region, which were visited and administration staff have been interviewed in order to gather information about their skills needs and particular specialisations in demand. The needs analysis conclusion outlined the necessity to develop training for CNC as they are representing workforce shortage within the selected enterprises.

During the needs analysis stage of the project following companies were evaluated:

Meta Plast

Meta-Plast Ltd. is a professional and modern parts manufacturer, which is owned by Röchling Meta-Plast A / S in Denmark. Both companies are owned by Röchling Engineering Plastic in Germany. It employs 5,600 workers all over the world. Röchling Engineering Plastic is one of the leading plastics suppliers and manufacturers in the world.

Silkeborg Spaantaging Baltic

This enterprise is one of Denmark's largest and leading businesses in: rotation, milling and drilling. Related services are offered in: coatings (electroplating, metallization, painting, plating, etc.), welding, ornaments, mounting, packing kits (mixed units per pallet), Stock Pick, Supplier Controlled Warehouse. The enterprise works in steel, stainless steel, copper, brass, aluminium, and plastic moulding.

Ltd Medzes Components

The company SIA Medzes Components established 2002 in Liepaja, Latvia, has roots in Scandinavia for more than 13 years. The business started in Denmark in 1996 and moved to Liepaja, Latvia in 2003. It produced metal components for furniture and kitchen industry.

Today the company has expanded the production to a large range of other metal parts for: shop and storage industry, heat and electricity industry, construction industry. Production consists of many kinds of metal components. The product range goes from small items and up to large scale products, either galvanized, painted or in raw finish. The production is equipped with many types of machines for pipe bending, plate bending, plasma cutting, robot welding, revolver punching, cutting, powder painting, etc. Most of the machines are with CNC steering. The company is using the latest technologies and is training the employees to give the customers the best quality and to make deliveries at the right time. CNC programmed machines are the guarantee of the high quality, no matter if it's small or high volumes.

Ltd "Metalmeistars"

Metalmeistars is a modern high tech company, working as a professional partner in the metalworking industry, by fulfilling orders of different level of complexity. Company was established in 1998 and more than 20 people work there. During the years company has specialized in such segments as: sheet metal processing, machining and manufacturing of steel structures. The most powerful laser cutting machine in Baltic's with 4400W resonator, first 3-point CNC Press Brake in Baltic's, first 9-axes CNC multifunctional turning machine in Baltic's, first CNC lathe with Y-axes in Baltic's - these are only some of the company's technological ambitions. Part of the production range is manufacture of stainless steel equipment for food industry (plates for fish freezing, shelves and tables), locks for electricity boxes, various metal articles and fittings for furniture industry. Various components and final products for construction industry, for example: Gates, fences, stairs, railings, steel structures etc, Different laser cut, bended, Welded, Turned, Milled, Roll bended, Sawed components for the final product assembly.

Hidrolats

Hidrolats specializes in production of one and double sided action hydraulic cylinders. The great experience, special technique equipment allows producing the hydraulic cylinders of the high quality and different type sizes. Wall surface of the pipes is made according to quality H8/H9 and precision of surface processing is 0,2 Ra. Wall surface of rods is made to quality H9/F8 and has hard chromed coverage with thickness from 24 to 48 mkm. Roughness of rod's surface is up to 0.16 Ra. In hydraulic cylinders we use the complete sets of seals of famous enterprises. Cylinders are produced with working pressure up to 32 mPa. Today there are 262 types of cylinders, but it is possible to produce up to 4000 pcs of cylinders per month. Plant "Hidrolats" is certified according to International Certificate of Standard Quality ISO 9001:2000 and Russian Certificate of Accordance.

J. J. Metal

From single-unit production to series production J.J. Group is a high-end sub-supplier of components and whole installations in carbon steel, stainless steel and aluminium. The company provides solutions for the following areas: single conveyors or complete systems for food processing industry, Vats, vessels and tanks, Blenders, mixers and dosage units, Platforms, walkways and stairs, Cabinets, panels and coverings for enclosure of electrical and mechanical equipment, Stands, supports, brackets, Pipe work and plants, Constructions and components in sheet metal, Nozzles for the ice-cream and backing industry, Insulated claddings and doors, Rails, handles, tables, trays, shelves for the furniture industry.

Ltd "Baltic RIM"

Baltic Rim parent company is the Swedish company AB Bröderna Bourghardt, which has nearly 100 years of experience in heavy - duty plastic components manufacturing. For many years the company cooperates with a Volvo with a first plastic component has already delivered the 1927th year. The company operates in the industrial park of Liepaja Business Center Kapsēdes Street 2. Using modern technology producing Volvo tractors and other machinery plastic parts. The company to the Swedish capital "Baltic Rim "opened its factory in the industrial park of Liepaja Business Center. Using modern technology, "Baltic Rim" produces Volvo tractor plastic parts. Currently working on a pilot production mode. The total investment by year-end to reach one million euros. It is now installed in the plastic parts for grinding and painting equipment operating in test mode. The main reason for setting up

production facilities in Liepaja city has favourable geographical position, transport infrastructure, including fairways, along which are easy to supply raw materials, as well as the robust tradition of industrial production and lower production costs. By the end of the production it is planned to complete the second round of construction, which will allow components of heavy duty plastic extruder right here on the spot.

J. J. Stainless Ltd – Liepaja

J.J. Stainless is a high class stainless steel plant with a 140 employees, specialists in sheet metal design and surface treatment. Materials: aluminium (alloys), stainless steel, nickel (alloys), special steel. The company is only working with stainless steel material. Products include conveying systems for the food processing industry: Mixers and dosage units, Tanks/containers, Landings and footbridges, Concealment of engines/electricity cabinets, Supports / racks / stands, Piping system, Sheeting constructions of every type (up to 25m), Nozzles / jets for ice cream and baking purposes, Furniture fittings and shop furniture, We also cover all other relating tasks. Services: construction, development and redesign of customer projects and components.

SIA Lesjofors Springs

The company was founded in 2003. Production: extruded sheet products in our power presses up to 120t springs with wire diameters up to 3.5 mm

AE Partner

Some of the branches of industry: dairies, breweries, the food industry, the pharmaceutical industry, packing machines, the graphic industry, transport and stock management systems, shipyards. The company can provide breaker panels of all sizes and in large and small quantities, depending on the customer requirements.

Liepaja's Metalurgs

A/S Liepaja's Metalurgs is the only metallurgical company in the Baltic States, founded in 1882. A/S Liepaja's Metalurgs provides jobs to over 2,800 employees. A/S Liepaja's Metalurgs produces various types of metallurgical production of low carbon and mild steel, including cold rolled wire, nails and castings. A/S Liepaja's Metalurgs Latvian is the largest recycling company and the eighth largest by turnover. A/S Liepaja's Metalurgs has received a

certificate stating that the company's quality management system meets the international standard ISO 9001:2000. Uniqueness of the company determines its geographic position- in Liepaja is a sea port, the company owned by stevedore companies, working in them "Liepaja port LM" share.

As already mentioned above after various consultations within the '5L' Project it was decided by the RTU Liepaja Branch to develop a Programme for teaching on CNC. The title for the course is: "Refresher courses on CNC equipment for metalworking". Topics of the courses include:

- Structure of materials;
- General metrology – tolerances and fits;
- Cutting technology;
- Modern CNC machine tools, cutting tools and measuring instruments;
- CNC machine set-up basics;
- MASTER CAM computer graphics;
- CAD / CAM systems.

The Programme is developed for metal-working companies to train specialists for 16 hours (lectures) in Latvian and English languages and the training course finishes with the certification for the participants. The main outcome of the course is envisaged to give better chances for participants to find employment in the metalwork industry across the world.

The above descriptions of the courses implemented within the '5L' Project by Klaipėda University, Ventspils University and Riga Technical University Liepaja Branch are the base line for the Programme evaluation within this Report. What should be highlighted is the fact that the training courses were developed as a result of planned and detailed needs analysis. Each University conducted a research on enterprises in particular regions, their workforce needs as well as skills shortages among employees. This has formed a strong starting point for the course development and ensured that the training courses were tailor made and as a means of direct answer to the needs of the industry sector. Different methods were used within the needs analysis phase of the project, including meetings, consultations, interviews and surveys among employers. All of the methods proved to be effective in creating profile needs, essential to deliver pilot courses. Also the enterprises selected by the three universities have

been chosen carefully and with the full consideration to be the right target end users of the training courses within the engineering field and above all to be relevant to the needs of the particular region. Needs analysis activities conducted within three universities have formed a strong base for the training course development and have been in line with the FAS model, which is recommending researching the needs of the industry sector prior to the programme development and implementation.

Second stage of the training course development is characterised by wide consultations with the experts in specific skills in order to develop the most effective course programme. Each of the universities described above have conducted consultations with specialists in the field and jointly agreed on the courses content. The specific content of each course modules were developed in line with the needs of the industry sector identified prior to the development stage of the project. For example Klaipeda University focused on mechatronics and engineering fields as they are specific to that particular region and as a result created courses on mechatronical skills development which is a direct response to the skills shortage among employees within enterprises in the region. Also the Ventspils University, as a result of the industry sector needs analysis in the region, has created 'Standards and technical norms course' as the standardisation of the processes with the electronics industries has been identified as the direct need of the workforce in the region. Similarly the RTU Liepaja branch has based their development activities on 'Refresher courses for CNC equipment for metalworking' as this has been identified as the most emerging need in terms of skills training in particular enterprises of the region.

Specific training courses that have been developed by three universities under the '5L' Project can be characterised as flexible which is also an advantage. Flexibility within those courses means that there has been a local focus in the design and development of each course content, as they are directly responding to the needs of the local enterprises. As a result of this decentralisation the training modules are responsive to the needs of the direct clients and industry sector in the specific regions. What is also very important in terms of the courses' flexibility is that their local character ensures that they are targeting directly the sectors that are most likely providers of employment in the area.

Within the training courses developed, Project Partners have recognised the top industry trends in specific regions as well as created a competitive advantage for the companies by delivering training modules aiming to up skill their workforce. The courses have been also

active in combating the long term unemployment as giving support to employees at risk of redundancy.

6. RECOMMENDATIONS

Following recommendations aim to improve the quality of training courses provision developed within the '5L' Project by Klaipeda University, Ventspils University and Riga Technical University Liepaja Branch. Additionally the recommendations are also close correlate to the FAS model in Ireland, which had been a base line for this project implementation. They have been structured within the model of operations and process management which helps to outline four core sections of the future life of the Programme:

- Directing the overall strategy;
- Designing the operation's products, services and processes;
- Delivering of planned and control process;
- Developing process performance.

There is a great added value within the courses developed and the project overall and the following recommendations are envisaged to improve future impact of the training programmes.

1. Directing

Standardisation and Adaptation

All training courses developed in different regions should be harmonised, standardised, so can be re-used in different regions. For example focus should be placed on courses relevant to certain sectors of industry (e.g. electronics courses) and being examined by the same standards across all regions. It is important to ensure uniformity of the courses, its content and duration. However success of the programmes could be also attributed by the adaptation to the specific environment, where adjusted programmes will provide benefits.

Planning

It is useful for the institutions delivering training courses to produce annual regional plans to foreseen the information about the training needs in the region over the coming year. This will provide clear benefits to all involved parties, so decisions on training courses, which bring most value in the period, can be made. On top of that institutions delivering project can proactively agree on objectives and goals, which will trigger work on training content and

resources required to deliver it. Planning will also drive consistency with programme overall goals and provide necessary methods to measure its success.

Forecasting

The essential part of specific skills courses development is identifying changing skill needs at regional and national level. It is very useful to set up a Research and Planning Team that will regularly review skill shortages and research into manpower and training needs of specific sectors of the economy. Also establishing close cooperation with the government agencies will support the forecasting process by receiving information on foreign companies moving their businesses to the country. Right forecast can increase opportunities for providing specialised training. Having the right innovative offer prepared in advance will drive popularity, enhance brand name, increase possibility for extra projects and drive clients satisfaction.

2. Designing

Curriculum Officer

Each institution providing training courses should have a Curriculum Officer in place responsible for the relationships with the industry sector and development of the courses content. The role of the Curriculum officer is mainly focus on meeting the needs of the industry and ensuring that the courses developed will be tailored made to the companies needs and identified skills shortages.

Regional Advisory Committees

Regional Advisory Committees can be set-up with the aim to support planning of the industry needs, drafting annual plans and joining together in a work relevant local agencies, stakeholders and social partners.

Comprehensive Procedures

It is very useful to develop set of systematic procedures for skill need identification, relevance checking as well as comprehensive procedures for the course development process across all the regions of the joint cooperation. Both Regional Advisory Committees and Curriculum Officers should be involved in agreeing and producing these standardised procedures.

Certification

It is a great added value for the training courses to be formally certified and the good practice in this field is to enter into a joint certification agreement with the relevant national certification body. Achieving that goal is a long term process, so recommendation is to start it immediately.

3. Delivering

Train the Trainers

Ongoing training for trainers is essential as their skills development will directly influence training delivery and satisfaction of the end users. For example each FAS training centre has to produce an annual report on staff development plan outlining specific trainings that will be undertaken by the trainers in the coming year. Also in terms of emerging technologies and new skills demand, consideration should be given to train the trainers with the second skill to benefit their flexibility. For example a trainer that is delivering a specific engineering course can be also up skill to deliver new technologies courses, for example wind turbine maintenance course. Training the trainer create positive reactions, enhance self-confidence and build trust and credibility. On the organisation level in create a positive work culture, drive engagement and culture of constant improvements.

Public Relations

What is very important within the training course development is the marketing side of the process and spreading the good word about the courses to establish close links with different companies in the sector and make sure that they are aware of all benefits coming from the joint cooperation. Close links to the enterprises may result in many training courses directly initiated by the companies who will contact the relevant institution in order to create a course on specific skills. An example of a good PR from Ireland is publishing placement rates to present the successful rates of particular courses and added value that they bring to local communities, regions and industry sector. Successful PR can create a competitive advantage over the competitors and increase credibility.

4. Developing

Quality Assurance

It is good practice to have in place quality assurance system that may include quality procedures or quality manual to be followed by different institutions in the regions when developing new training courses. The quality assurance system will cover activities like course review, course design, course assessment etc. The transparency of the programmes will also strengthen staff involvement and ownership.

Placement Records

Tracking placement records are essential part of the course evaluation. By the placement records organisation will know which course have proved to be successful and which need to be reviewed and improved. This evaluation method is particularly effective when delivering courses for long term unemployed or redundant people. Placement records shows how effective provided courses are, as people can test themselves in the commercial environment with the benefit for the company.

Course Participants Survey

It is very useful to conduct regularly surveys and follow ups with participants that completed particular courses in order to collect their feedback and implement improvements into the course design or delivery. Such surveys can assess opinions of courses participants about benefits of the courses they attended and also how it had affected their level of knowledge, particular skills, confidence, and ability to find a job or be promoted.

Employers Survey

Employers' survey is very important in terms of gathering essential information about the needs of the specific enterprise or industry sector as well as skill shortages among the workforce. Such surveys can also examine the satisfaction of the courses provided and employers' perception of the course development and delivery process. Based on the feedback from employers the courses can be improved as well as closer links between training providers and enterprises can be established.

Network

A consideration should be given to creating a wide network between education and training providers and industry sector representatives as well as employers. Such a network will play a role of interactive space and community of practice where different stakeholders could exchange information about the training courses needs, emerging technologies in the region and demand for specific skills within the local workforce. It is important that employers themselves will clearly communicate the skills that they are looking for in a future employees as this would significantly speed up the process of the courses development. A network, that could be created as an online Platform can also play a significant role in marketing activities by spreading the word about the current and upcoming training programmes in particular regions. Additionally establishment of a network between the key stakeholders will also strengthen the links between trainers and the companies and Ireland's examples shows that it may often results in companies directly recruiting from the particular training courses.

7. CONCLUSIONS

Nowadays up skilling is a crucial part of each actively working person. It is important to continue to up skill to be able to stay competitive on the job market. Within the field of engineering very often the skills development process and acquiring of new competences is fully in the hands of engineers as there is no training system in place to support the development of their skills. As a result of that many engineers that are made redundant become long term unemployed.

This evaluation Report has found that the Engineering Training Courses developed within the ‘Enhance of the Lifelong Learning Cross Border Capacity’ Project have a potential to play a significant role in meeting the skill needs of the industry in the particular regions, creating new job opportunities for the local workforce as well as, in the long term, enhancing the culture of the Lifelong Learning in the regions and creating more competitive national economies. Much has already been done within the ‘5L’ Project and the training courses developed by the three universities are a significant starting point for the wider Programme development. Flexibility of the courses provided, proved that the needs of the particular regions have been met. The implementation process of the Engineering skills training has also showed the potential of the Programme and impact on the local communities that can be only increased in the upcoming future.