

# iQVet

## D4.2



## TEACHERS PROFESSIONAL CAPACITY BUILDING PROGRAM

**Weld on Sweden**  
MAKES INDUSTRY GROW



# Weld on Sweden, Växjö

## Ali Bahrami, CEO

Ali Bahrami has a MSc from Faculty of Engineering at Lunds University and IWE from Royal University of Technology in Stockholm. He has experience as a research engineer at the technology centre at Kronoberg in Sweden, before starting as CEO at Weld on Sweden in 2006.

He has been developing the company Weld on Sweden (WoS) to be one of the leading technical education institutions in Scandinavia, providing a full-scale welding design and fabrication education for industry.

Ali has extensive experience from industrial development projects and is currently involved in several projects for coordination, inspection, qualification of personnel and procedures, as well as competence development of employees for the welding industry.

WoS develops and organizes demand-driven welding training for companies and universities in collaboration with industry and leading knowledge providers. They offer a wide range of courses in welding construction and welding production. The courses are mainly based on European and internationally harmonized programs from EWF and IIW.

## iQVet Results



## THE VET PROVIDER WoS

WoS was established in 2006. The Company develops and organizes needs-driven training courses in the field of welding for companies and universities in close collaboration with industry and leading knowledge providers.

The WoS VET school is a leading technical education institution in Scandinavia, providing a wide range of educations in welding design, engineering and production. The specialities are training courses in design, production, inspection and quality management of welded structures at EQF 3-6 levels.

They are a certified training body approved by the International Institute of Welding, IIW, for the training program International Welded Structures Designer, IWSD, in Sweden since 2009.

WoS cooperates continuously with other companies and universities in Sweden and Norway to develop and deliver the State-of-the-Art courses to the Nordic market. They also work closely with branch organizations such as The Swedish Welding Commission, The Swedish Institute of Steel Construction and The Norwegian Welding Association.

The VET school has ongoing contact with more than 1000 companies in Scandinavia and have trained employees from more than 300 companies with an annual participation rate of over 100 engineers, designers, inspection personnel and welders.



Weld Structures Designer  
VET Course



### Work-based training in the design course

# OUR CHALLENGES

WoS has used the iQVet project to adapt the course "*Design of Welded Structures with Welding for Designers, SK2-WfD*" into blended learning solutions applying work-based training practices aimed at small groups of 6 up to 20 active mechanical designers from the construction and manufacturing industry.

Demands on the modern welded structures designers are increasing and the field of knowledge they must cover are many. They must decide what conditions a product must be able to meet, what material to use and how the welding process affects structures.

This course gives participants basic and state-of-the-art knowledge to estimate the strength of welded joints, the behaviour of welded structures during different conditions and loads, and basic of welding technology.

The challenges for adapting of a traditional SK2-WfD to the new work-based training were:

- To develop a new guideline for work-based short-term training that is interesting for industry to send their employees to it, and to adopt a standard course to Competence Units,
- To convince the VET teachers to use new pedagogical method, and monitor changes in attitudes for VET teachers and students,
- To use new tools to develop learning materials, and update the teaching materials including recorded videos explaining the various topics in the course in an easy-to-understanding way.

## iQVet Results



# OUR EDUCATION QUALITY

The education quality is monitored by systematically evaluating each completed course. The students replies on surveys that contain a mix of closed- and open-ended questions.

The results shows that the students emphasize importance of applying state of the art work-based learning methods. In particular they point out the

- good inclusion of welding methods with the subsequent descriptions and examples,
- combination and mixture of theory with practices,
- encouragement to ask questions related to the practical examples and design tips,
- good review they got of various types of welding methods,
- specifications for how to write weld designations on the drawings,
- combination of the handbook with symbols and designations, together with good teachers,
- quality of the course materials and presentations, including the physical tests and the explanatory materials,
- interesting stories from real life production and manufacturing environments containing teachers silent knowledge

### Work-based training





# OUR SOLUTIONS



Weld on Sweden implemented some SK2-WfD courses consisting of Competence Units as work-based training. Sharing of course material was done through the distribution of authorization to a simple website platform.

The iQVet project contributed to solve the identified challenges by taking the following actions.

## SK2-WfD training

- Making up Competence Units of WoS standard course contents in design of welded structures.
- Development and use of a new framework for implementation of work-based training.
- Development of guideline for teachers and institutions for implementation of short-term training in design of welded structures for employees in industry.
- Updating the teaching material and complete it with several welding related short videos for students to take part and be prepared before the training.
- Adapting the questionnaires for monitoring changes in attitudes, knowledge and skills.
- Producing a video about implementation of a VET for design of welded structures using iQVet experiences and making it publicly available for potential new participants.

## iQVet Results



## THE ROAD AHEAD

WoS uses the results and experiences from the iQVet project for further implementation of new tools and methods into their existing courses, and further development of work-based training for manufacturing industry in Nordic countries.

The main future goals are:

- To make new course structure based on CUs for all training courses including International Welded Structures Designer (IWSD),
- Use Competence Units to offer need-adapted courses for industry,
- Use videos and presentation material that were developed during the iQVet project in the future courses,
- Marketing of work-based training using experiences from the iQVet project.

## Welded materials



Group work





# APPLICATION OF EUROPEAN STANDARDS

## Theoretical VET

WoS supports the European standards in vocational education and training (VET) that aim to harmonize and enhance the quality of education across the European Union, ensuring that learners acquire relevant skills and qualifications that meet labour market needs.

These standards foster mobility, improve employability and promote lifelong learning.

The European Qualifications Framework with eight levels, are applied. Our continuing engineering education courses target the advanced levels, allowing qualifications from different countries to be aligned. This help promoting transparency and mobility for our VET learners.

Our courses applies Learning Outcomes Descriptions, thus facilitating the recognition and transfer of those across countries and institutions within the EU. They follow the common principles, guidelines and indicators for quality assurance as described in the European Quality Assurance for VET framework. This includes support for continuous improvement in the design and delivery of our VET programs.

## iQVet Results



## OUR MAJOR BENEFITS

To join a group of VET schools from different parts of Europe with different VET programs, and learn how they apply blended learning and get inspiring ideas for our VET programs.

WoS have developed a framework for the development of new work-based VET with CUs.

Through the development and application of CU-based work-based learning courses, an increased numbers of participants in future courses are expected. Good for WoS and good for industrial production in Sweden and Norway.

By participation in our courses aimed at industrial design, the employees provides new skills that open up new career opportunities, ensuring their continued employability as well as creating industrial growth in their companies.

### Study visit



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