

# EQUAL-CLASS CONFERENCE

HTL St. Pölten, AT  
2 June 2014

equal  
class



Lifelong  
Learning  
Programme

**Willkommen!**

**Welkom!**

**Welcome!**

**Laukiamas!**

**Velkommen!**

**Bem-vindos!**



3s

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## PROGRAMME

09.45	<b>Registration</b>
10.00	<b>Welcome address</b> Johann Wiedlack, HTL St. Pölten Stefan Humpl, 3s
10.15	<b>'Role of level 5 qualifications in countries having an NQF – an overview of recent developments in Europe'</b> Simon Broek (NL), Ockham IPS Institute for Policy Support  <b>'Allocation of qualifications to NQF levels from a European/social partner perspective'</b> Anja Trier Wang (DK), DI – Confederation of Danish Industry  <b>'Higher non-university vocational education and the EQF – from the perspective of the economy and schools'</b> Urs Keller (CH), EURO-PROF Association  <b>Discussion</b>
11.30	<b>Coffee Break</b>
11.45	<b>EQUAL-CLASS project presentation</b> 'Engineers Qualified in Higher Non-University VET Institutions – Providing Arguments and Evidence for NQF/EQF Classification' Monika Auzinger/Viktor Fleischer, 3s
12.25	<b>Presentation of the workshops</b>
12.30	<b>Lunch Break</b>
13.30	<b>Workshops: 2 parallel workshops</b> Mariya Dzhengozova (AT), 3s Odd Bjørn Ure (NO), CONSULTUR
14.45	<b>Coffee Break</b>
15.00	<b>'VET in Action'</b> On-site visit of RemoteLabs & the HTL St. Pölten VET college Johann Wiedlack, Josef Eder, HTL St. Pölten
15.40	<b>Outlook – conclusions &amp; recommendations</b> Manfred Polzin (NL), EUproVET
16.15	<b>Closing of the day</b>
19.00	<b>Optional: Group dinner</b>

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## WELCOME ADDRESS

\_\_Johann WIEDLACK  
headmaster of HTL St. Pölten VET college

\_\_Stefan HUMPL  
managing director of 3s Unternehmensberatung GmbH

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## PLENARY SESSION

- **‘Role of level 5 qualifications in countries having an NQF – an overview of recent developments in Europe’**

Simon Broek (NL), Ockham IPS Institute for Policy Support

- **‘Allocation of qualifications to NQF levels from a European/social partner perspective’**

Anja Trier Wang (DK), DI – Confederation of Danish Industry

- **‘Higher non-university vocational education and the EQF – from the perspective of the economy and schools’**

Urs Keller (CH), EURO-PROF Association

- **Discussion**

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COFFEE BREAK



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[www.equal-class-eqf.eu](http://www.equal-class-eqf.eu)

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## ABOUT THE PROJECT

- ‘Engineers Qualified in Higher Non-University VET institutions – providing arguments and evidence for NQF/EQF classification’
- Project within Lifelong Learning Programme – Leonardo da Vinci Transfer of Innovation
- October 2012 – September 2014



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## AIMS OF THE PROJECT

- \_\_ Comparing qualifications in the field of **mechatronics and electrical engineering/electronics**
- \_\_ Which can be obtained in higher non-university VET institutions or comparable institutions in **AT, CH, DE, LT & PT**
- \_\_ From three different perspectives

**Learning  
outcomes**

**Learners**

**Graduates**

- \_\_ With particular focus on their **NQF/EQF classification**

- \_\_ 4th perspective:

**How can learning outcomes acquired in the  
workplace be taken into account?**

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## AIMS OF THE PROJECT #2

Providing and testing a set of methodological tools

\_\_for transnational comparison

\_\_for the creation of transparency and

\_\_for raising the understanding of a qualification

Making VET systems more comparable, without changing their traditional structure



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## BACKGROUND TO THE PROJECT

Role of qualifications frameworks in  
**increasing transparency and  
strengthening comparability** of  
qualifications in Europe

### **European Area of Skills and Qualifications**

Various European transparency policies and tools in ET2020 and the Bologna processes aim to support the lifelong learning and mobility of learners and workers through better transparency and easier recognition of what they know, understand and are able to do.

### **EQF Referencing Criterion No. 4:**

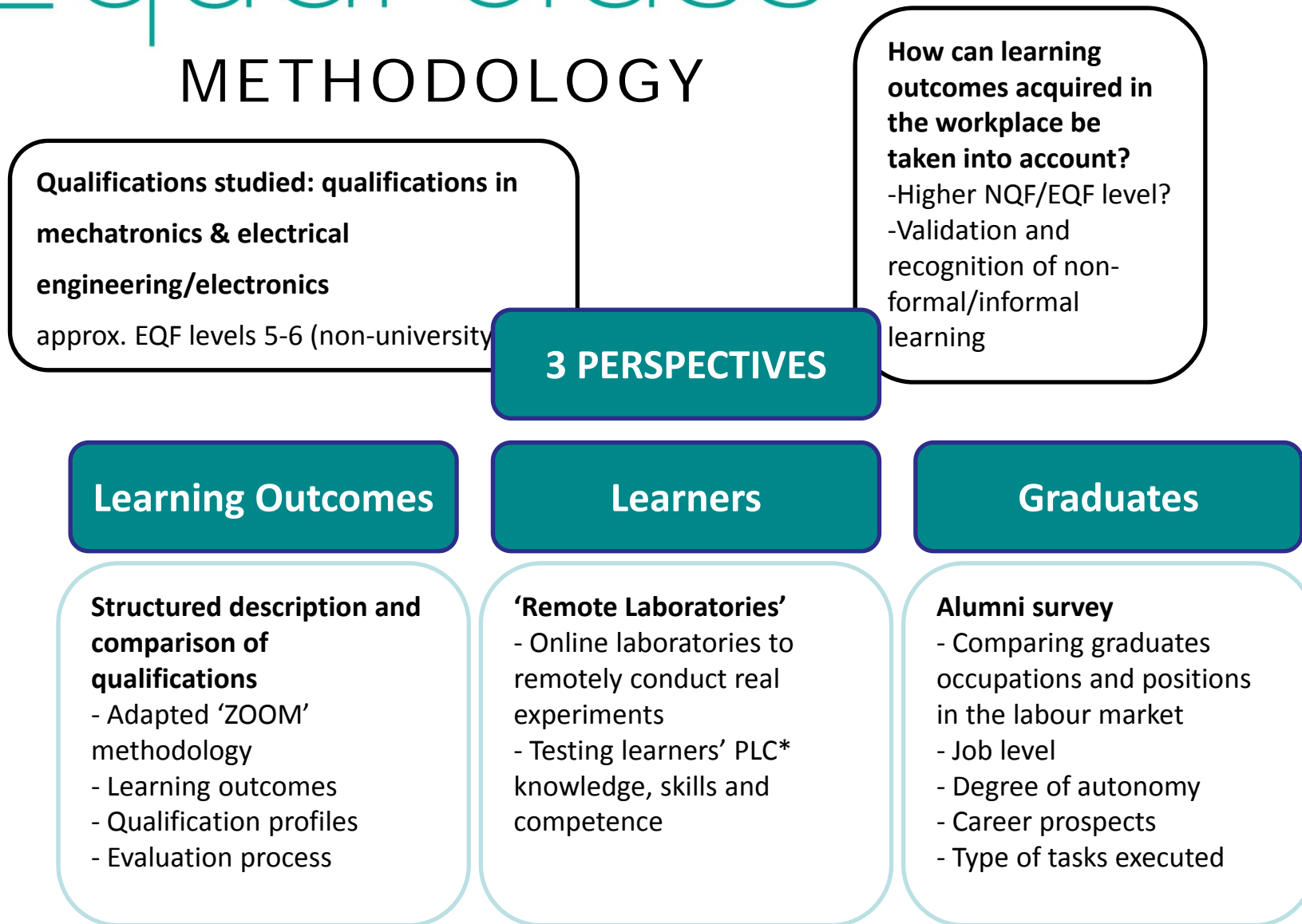
‘The procedures for inclusion of qualifications in the national qualifications framework or for describing the place of qualifications in the national qualification system are transparent.’

### **Council Recommendation on the Validation of Non-formal and Informal Learning**

Member States’ agreement to put in place arrangements for the validation of non-formal and informal learning (VNFIL) experiences by 2018

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## METHODOLOGY




\*PLC = Programmable Logic Controller

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## PERSPECTIVE 1: LEARNING OUTCOMES

- \_\_ In-depth analysis and comparison of selected engineering qualifications from five countries: **AT, CH, DE, LT & PT**
- \_\_ Structured description of qualifications in **mechatronics and electrical engineering/electronics**
- \_\_ Qualifications were described based on a (revised) template originally developed in the **ZOOM project** ([www.zoom-eqf.eu](http://www.zoom-eqf.eu))  
 **,transfer of innovation‘**
- \_\_ Descriptions based on **learning outcomes** & included information on: qualifications, qualification profiles, evaluation process & statistical indicators

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## PERSPECTIVE 1: LEARNING OUTCOMES – RESULTS

- \_\_ Differences in input criteria: e.g. age of learners, length of training
- \_\_ Similarities in input criteria: e.g. including elements of both classroom and workplace learning
- \_\_ Learning outcomes descriptions: different approaches used – e.g. work process orientation vs. learning fields approach
- \_\_ Adapted ZOOM methodology as a useful tool to describe qualifications in an objective and unambiguous manner, highlighting similarities and differences
- \_\_ However: limited evidence on objective and unambiguous NQF classification

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## PERSPECTIVE 2: LEARNERS

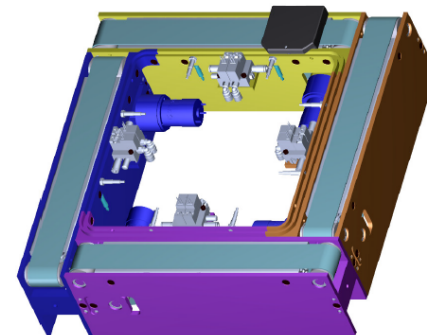
- \_\_Implementation of ,Remote Laboratories‘ as a ,reality check‘ for NQF classification
- \_\_**RemoteLabs**: online laboratories to remotely conduct real experiments, in order to learn more about learners‘ knowledge, skills and competence
- \_\_Can the results provide additional evidence for the classification of qualifications?

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## REMOTE LABS EXPERIMENT

- \_\_\_ Remote Laboratories were used to assess learners' skills in PLC (Programmable Logic Control) programming; carried out within their regular programming classes at school.
- \_\_\_ Learners in all participating countries had to solve the same programming exercises online. The exercises had been prepared by the EQUAL-CLASS project team in cooperation with associated partners.
- \_\_\_ As of March 2014: 120 learners from AT, CH, DE & LT have taken the test; 88 passed, 32 failed.

Conveyor-Belt System – Smart Logistic



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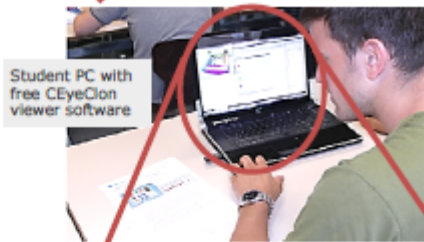
## HOW DO REMOTE LABS WORK?

This example shows an educational setting with remote workstations on PLC (programmable logic controller) control technology.



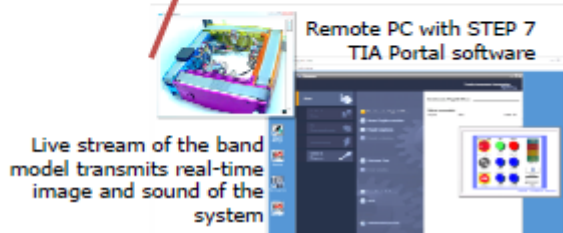
### **Classroom learning:**

Learners in control engineering classes enhance their knowledge through operating in a real laboratory environment.



### **Learners work in the classroom:**

Learners operate a remote laboratory workstation in real-time using a PC: The student's PC functions as screen and keyboard of the remote PC. A camera image of the remote system is transferred to the screen of the student featuring synchronous sound. This function only requires the free CEyeClon viewer software and any Windows-compatible operating system.



### **Remote PC with STEP 7 TIA Portal software**

### **Easy access via Internet:**

The viewer software provides access to the workstation and shows it in a media and working window.

Too theoretical, too complex?



You'll learn more about how **RemoteLabs** **ACTUALLY** work in the afternoon, during the on-site visit of HTL St. Pölten.

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## CERTIFICATES



European project for engineers qualified in higher non-university VET institutions – providing equivalence and evidence for NQF/EQF classification

European Association of higher educated Professionals  
Europäischer Verband für höher qualifizierte Berufe  
Association Européenne des Professions Supérieures

European Project EQUAL-CLASS  
using PLC (Programmable Logic Control)  
and Remote Laboratories

**Certificate**

We have the honour to inform you that the student

**Dominique Muster**

Date of birth: 3-Feb-1988

has successfully participated in the PLC (Programmable Logic Control) exercises using the appropriated skills in practical applications with remote laboratories.

The exercises were specified and performed by the European project team EQUAL-CLASS in cooperation with the board of EUROPROF, the institution of the European Association of higher educated professionals.


Wien, March 2014

EQUAL-CLASS Project

EUROPROF

 Lifelong Learning Programme

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EQUAL-CLASS Certificate Supplement

**About this certificate:**

This certificate, issued in the context of the EQUAL-CLASS project, has been created to reward students for their successful participation in the 'Remote Lab' experiment. It certifies that the learner has successfully completed all assignments to the required standard and has provided sufficient evidence of their PLC (Programmable Logic Control) skills.

**About the Remote Laboratory exercises:**

Remote Laboratories are online laboratories to remotely conduct real experiments. The underlying technology allows collaboration and also joint programming in online laboratories across regional distances and national borders.

EQUAL-CLASS used these Remote Laboratories to assess students' skills in PLC (Programmable Logic Control) programming. This was carried out within their regular programming classes at school. For this purpose, students in all participating countries had to solve the same programming exercises online. The exercises had been prepared by the EQUAL-CLASS project team in cooperation with associated partners.


**About the EQUAL-CLASS project:**


The EQUAL-CLASS project studies qualifications in the field of mechatronics, electrical engineering/electronics that can be obtained in higher non-university VET institutions or comparable institutions in Austria, Switzerland, Germany, Lithuania, and Portugal. These qualifications are examined from three different perspectives: curricula, students and graduates.

EQUAL-CLASS wants to contribute to more transparency and better comparability of engineering qualifications across Europe. Transparency and comparability of qualifications are important prerequisites for the geographical and labour market mobility of European citizens.

The EQUAL-CLASS project has been funded by the European Commission under the Lifelong Learning Programme (Leonardo da Vinci) and runs between 2012 and 2014.

For more information about EQUAL-CLASS, visit our project website:  
<http://www.equal-class-eqf.eu/>



 Lifelong Learning Programme

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## REMOTE LABS - RESULTS

- \_\_Schools' experience with implementing the RemoteLabs has been very positive.
- \_\_Contribute to making qualifications more transparent and better understandable across countries.
- \_\_However: the comparison of qualifications using RemoteLabs has its limitations.

### **Some interesting observations:**

- \_\_Results follow a Gaussian normal distribution curve.
- \_\_Some schools provided only 20 PLC-specific lessons, others up to 140 > effect shows in the test scores and in the amount of support required by the students.
- \_\_ALL schools have a certain fraction of 'top performers', i.e. learners with a score of > 90% of achievable points.

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## PERSPECTIVE 3: GRADUATES

- \_\_\_ **Alumni survey** among graduates in mechatronics & electrical engineering/electronics in AT, CH, DE, LT, PT (EQF levels 5-6)
- \_\_\_ Web-based questionnaire in four different languages
- \_\_\_ Analysis based on 102 responses
- \_\_\_ Comparing graduates' occupations and positions in the labour market
  - \_\_\_ *What is their current job status?*
  - \_\_\_ *What is their job level & level of responsibility?*
  - \_\_\_ *How well did the qualification equip them with the skills and competences required to succeed in the labour market?*



## Reality Check II: Alumni survey

Thank you for participating in this survey.

The survey is carried out as part of the EQUAL-CLASS project, a European Commission-funded project which aims to analyse and compare qualifications in the field of mechatronics, electronics/electrical engineering across different European countries.

The questions refer to the engineering qualification you have obtained and to your professional pathway since graduation. Your responses are of great value to our project.

The survey is mostly based on multiple choice questions and should not take more than 5-10 minutes to complete. All responses will remain strictly confidential.

If you have any questions with regard to this survey, please do not hesitate to contact [mettechristensen@spil.pt](mailto:mettechristensen@spil.pt).

Additional information about the project can be found at <http://www.equal-class-eqf.eu>

\* Mandatory question

### 1. Education and training

Please select the qualification/programme you completed from the drop-down list below..\*

#### 1.2. How many years ago did you graduate? \*

- ☐ 2 years
- ☐ 3 years
- ☐ 4 years
- ☐ 5 years

#### 1.3 Did you already work in a job prior to starting this programme/school?

- ☐ Yes
- ☐ No (please proceed to question 2.1)

##### 1.3.1 How many years had you worked in this job at the time of starting this programme/school?

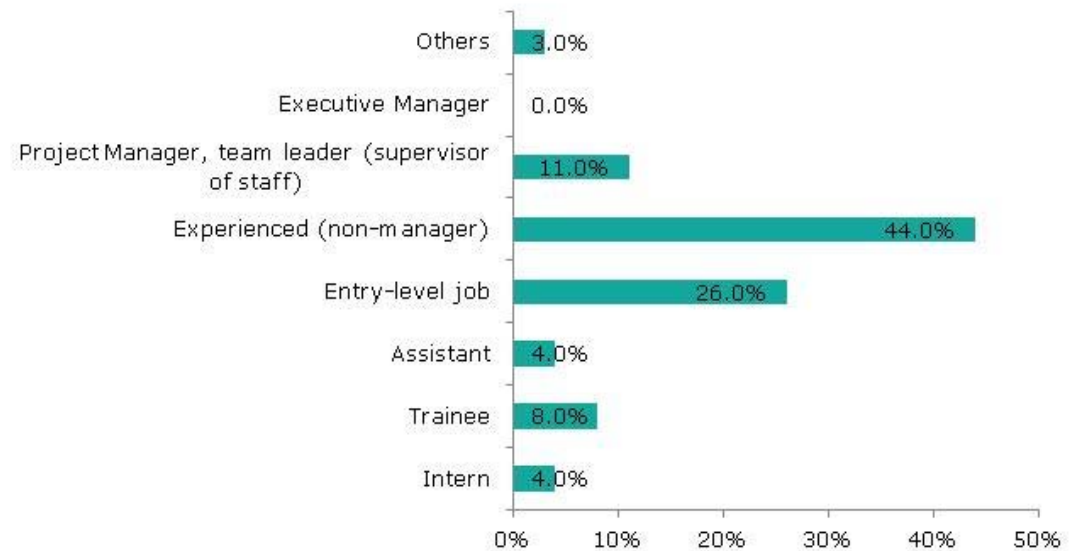
- ☐ up to 1 year
- ☐ 1 to 2 years

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## ALUMNI SURVEY – RESULTS

\_\_Challenge: Low response rate (data protection issues) and different response rates across countries

### Job level of first job after graduation

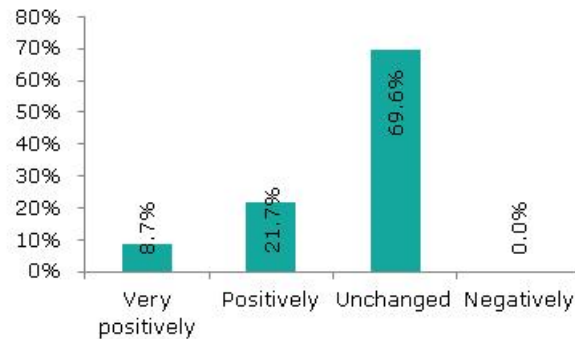


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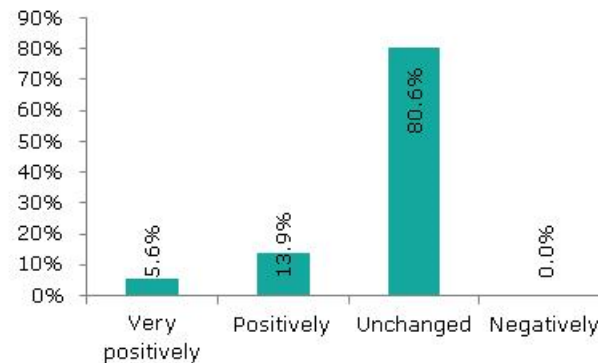
## ALUMNI SURVEY – RESULTS

**Between graduation and today (2-5 yrs ago), how has your job changed in terms of...**

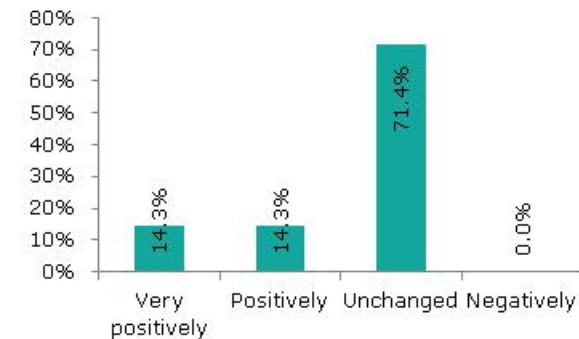
**...pay**



**...job level**



**...autonomy**



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## PRELIMINARY RESULTS

Analysing engineering qualifications from three different perspectives

**Theoretical-descriptive**  
**„ZOOM“**

**Practical (performance testing)**  
**„RemoteLabs“**

**Graduates (labour market)**  
**Alumni Survey**

— When considered individually, all methods have their limitations when used for transnational comparison, but in combination they give a good picture of a given qualification.



**What keeps us occupied: more work  
required on establishing links between  
these perspectives**



**Final Report**  
**published in October**  
**2014**

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## PROJECT PARTNERS

Country	Operative Partners	Supported by
Austria	3s Unternehmensberatung GmbH HTBLuVA St. Pölten	Federal Ministry for Education, the Arts and Culture Kammer für Arbeiter und Angestellte für Wien
Germany	Grundig Akademie	Festo Didactic GmbH & Co. KG Bundesarbeitskreis Fachschulen für Technik Assoziation Bund Deutscher Techniker
Switzerland	ABB Technikerschule	CEyeClon AG Konferenz Höhere Fachschulen EURO-PROF European Association of Higher Educated Professionals
The Netherlands	EUproVET	Stichting Landelijk Expertise – en Informatiecentrum Duaal Onderwijs
Lithuania	Vytautas Magnus University	Lietuvos inžinerines pramonės asociacija LINPRA
Portugal	SPI Sociedade Portuguesa de Inovação	Instituto Superior de Engenharia do Porto Ordem dos Engenheiros Técnicos
Norway	CONSULTUR. Utredning & Analyse. Odd Bjørn Ure	CZ: Association of Tertiary Professional Schools

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## WHAT'S AHEAD?

**EQUAL-CLASS Final Report**

October 2014

**Austrian Conference on Vocational  
Education and Training Research**

Poster Session

3-4 July, 2014 in Steyr (AT)

**EQUAL-CLASS Newsletter**

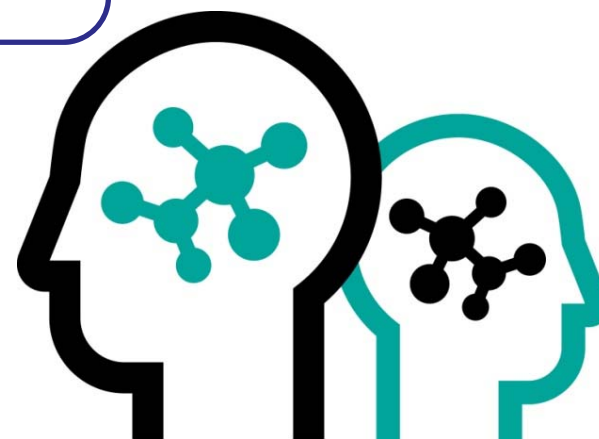
Late summer 2014

**Keeping you up-to-date:**

[www.equal-class-eqf.eu](http://www.equal-class-eqf.eu)

**ECER 2014 Conference 'The Past,  
the Present and Future of  
Educational Research in Europe'**

2-5 September, 2014 in Porto (PT)



[www.equal-class-eqf.eu](http://www.equal-class-eqf.eu)



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## PRESENTATION OF WORKSHOPS

\_\_2 parallel workshops

\_\_Workshop 1: Odd Bjørn Ure (NO), CONSULTUR

\_\_Workshop 2: Mariya Dzhengozova (AT), 3s  
,Beyond EQUAL-CLASS – input from the Be-TWIN 2 and Quality  
by Units projects’



**Workshops start at 1.30 p.m.**

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LUNCH BREAK



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## WORKSHOP SESSION

\_\_2 parallel workshops

\_\_Odd Bjørn Ure (NO), CONSULTUR

\_\_Mariya Dzhengozova (AT), 3s  
,Beyond EQUAL-CLASS – input from the Be-TWIN 2 and Quality by Units projects’

 **Workshops start at 1.30 p.m.**

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COFFEE BREAK



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## VET IN ACTION

\_\_On-site visit of RemoteLabs and the HTL St. Pölten VET college

\_\_Johann Wiedlack & Josef Eder, HTL St. Pölten



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## OUTLOOK – CONCLUSIONS & RECOMMENDATIONS

—Manfred Polzin (NL), EUproVET

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BEFORE LEAVING...

— Thank you for taking the time to complete the conference evaluation form.



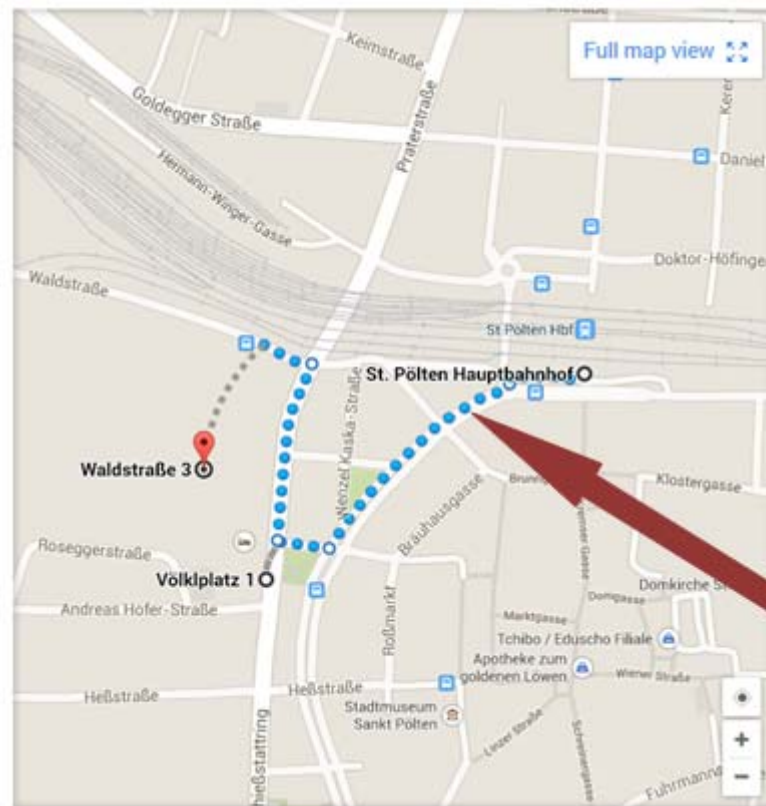
Any ideas for  
improvement???

— If you plan to stay in St. Pölten: Why not join the EQUAL-CLASS team for dinner today at 7 p.m.?

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## BEFORE LEAVING...

Group dinner at ‚Hotel-Restaurant Graf‘, 7 p.m.



Hotel-Restaurant Graf  
Bahnhofplatz 7

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GOOD BYE!

Thank you for participating in  
the EQUAL-CLASS project conference!

For more information about  
the project:

— [www.equal-class-eqf.eu](http://www.equal-class-eqf.eu)

— Monika Auzinger: [auzinger@3s.co.at](mailto:auzinger@3s.co.at)

— Viktor Fleischer: [fleischer@3s.co.at](mailto:fleischer@3s.co.at)



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