

Exam System – How to Guide for Exam Participants in Case of Multiple Choice Based Exams

Richard Messnarz¹, Damjan Ekert¹, Tobias Zehetner¹, Laura Aschbacher¹

¹ISCN GesmbH, Austria, rmess@iscn.com

Abstract. The exam system from ISCN supports different roles of users and different exam types. This How-to-Guide describes how to act as an examinee in case of a multiple-choice-based exam.

Copyright Statement: The exam system software has been developed and is owned by I.S.C.N. Ges.m.b.H since 2001 and is used by various certification and industry associations. The skills browsing and exam portals are ISCN supported and the property of ISCN.

1 Main page

In case of ECQA you find the main page at:

https://www.iscn.com/projects/exam_portal/index_ecqa.php

In case of DRIVES / ASA (Automotive Skills Alliance) you find the main page at:

https://www.iscn.com/projects/exam_portal/index.php

From the main page you have different options:





Learning: In cooperation with the EuroSPI Academy (<https://academy.eurospi.net>) A course system has been set up where you can attend courses and exercises for a selected set of job roles online. For those courses exams can be taken using the exam system. There are additional job roles (e.g. integrated by a cooperating certifier) with no training in the EuroSPI academy for which exams are being supported.






Exams: When selecting this icon you come directly to the exam login, or you can register for an exam for a specific job role.



Skills Browsing: When selecting this icon a skills tree browsing web site opens and you can select a job role and search all underlying units (areas of skills), elements (specific knowledge required) and performance criteria (abilities of the learner achieved in the training).

 **Skill & Exam Portal**



Since 2001 the examination service has been used in more than 24 countries, more than 10000 participants have used this portal to perform exams and 7800 certificates have been issued.

[Login](#) [Register](#)

Figure 1: Main Page

2 Skills Browsing

Skills browsing allows you to see the hierarchy of skills required grouped into units (areas of skills), elements (specific knowledge required) and performance criteria (abilities of the learner achieved in the training).

Test questions have been designed per performance criteria and the test is generated with a random generator per element.

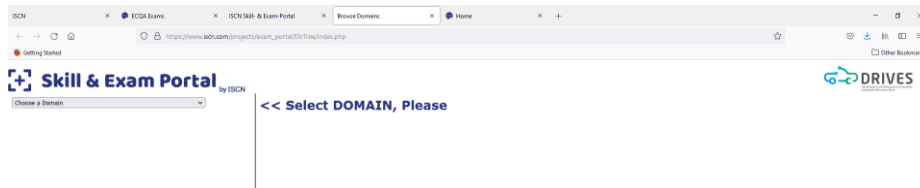


Figure 1: Skills Tree Main Page

First select a job role, then the units are displayed. Then select a unit and the elements are displayed. And finally, you select an element and the performance criteria are displayed.

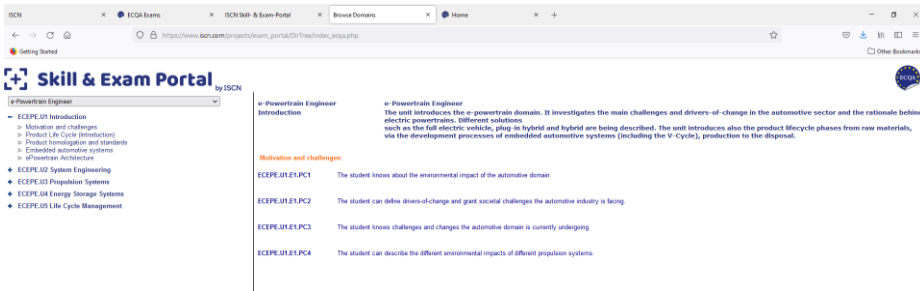


Figure 2: Skills tree after selection of a job role and selecting an element

3 Exam Registration or Login

Login: If you have already registered for this or another job role exam before in the ISCN exam system and you want to participate in an exam you know already your credentials and you can login. **In this case do not register again since the system will make you a separate user account again.**

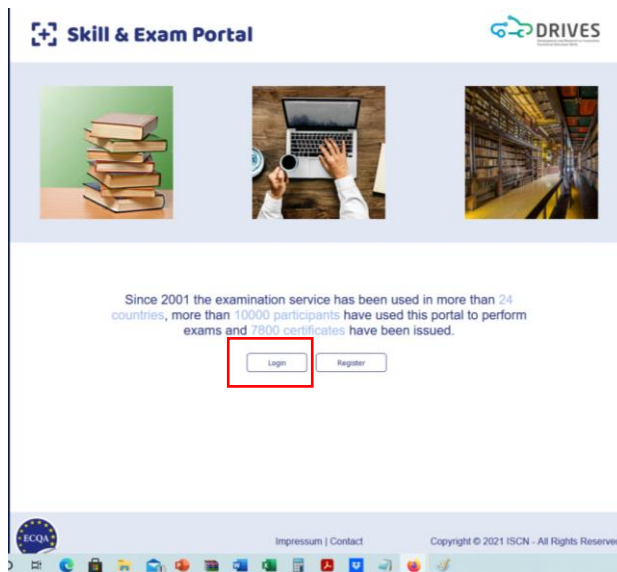


Figure 3: Login

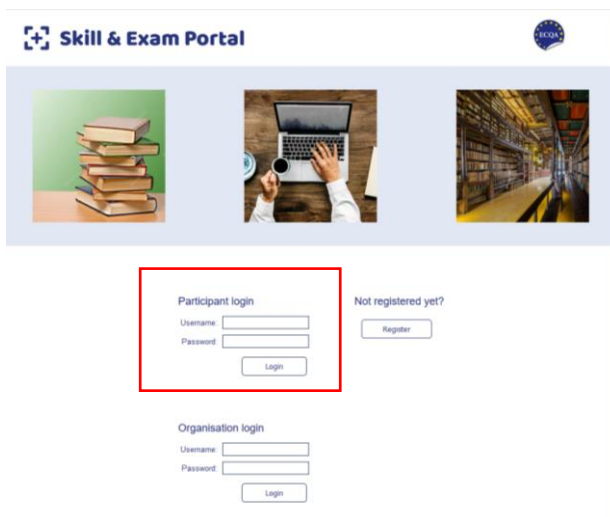


Figure 4: Participant Login

Register: If you want to register for a new job role and exam (even if you have an account already for another job role) you select REGISTER. Register will guide you through a number of dialogues to select the job role, and to select the exam organisation, and to enter more details required to issue an exam result and certificate at the end.

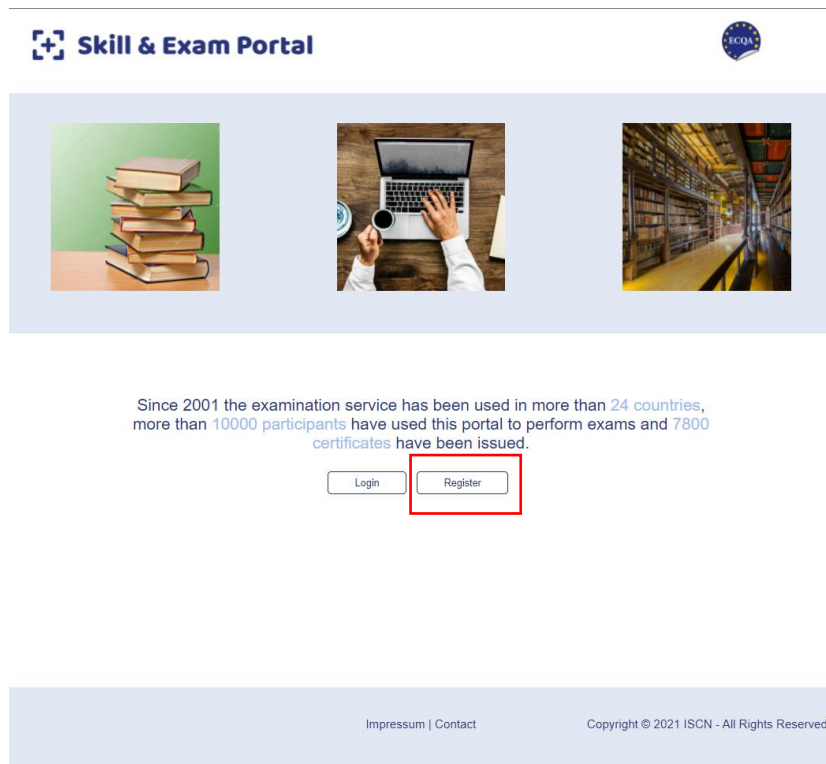


Figure 5: Register

Steps to register

1. Call REGISTER (Figure 5)
2. Step 1: Choose Job Role / Domain (Figure 6)
3. Step 2 - Choose Exam Organisation (Figure 7)
4. Step 3 – Registration (Figure 8)

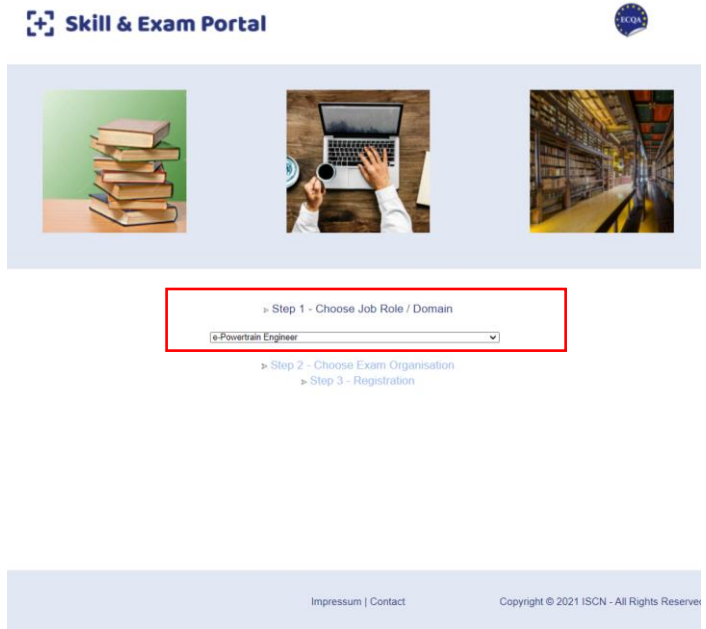


Figure 6: Step 1: Choose Job Role / Domain

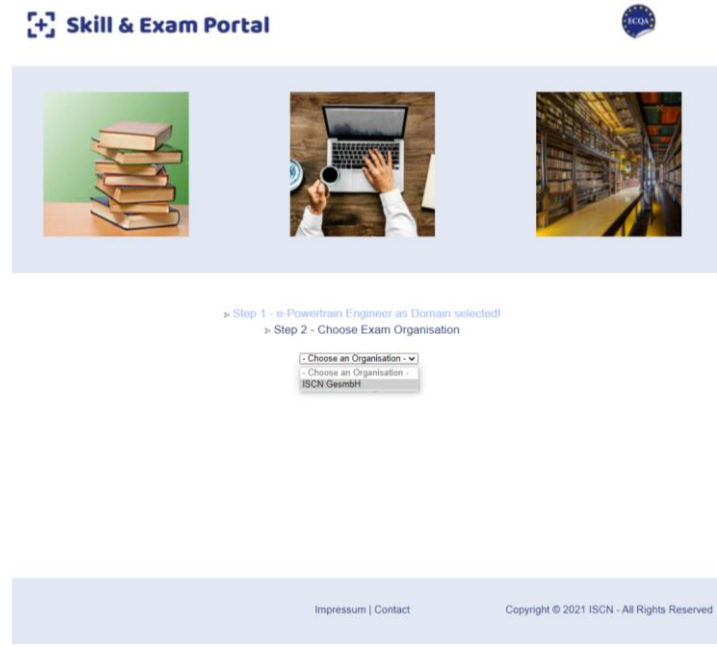


Figure 7: Step 2 - Choose Exam Organisation

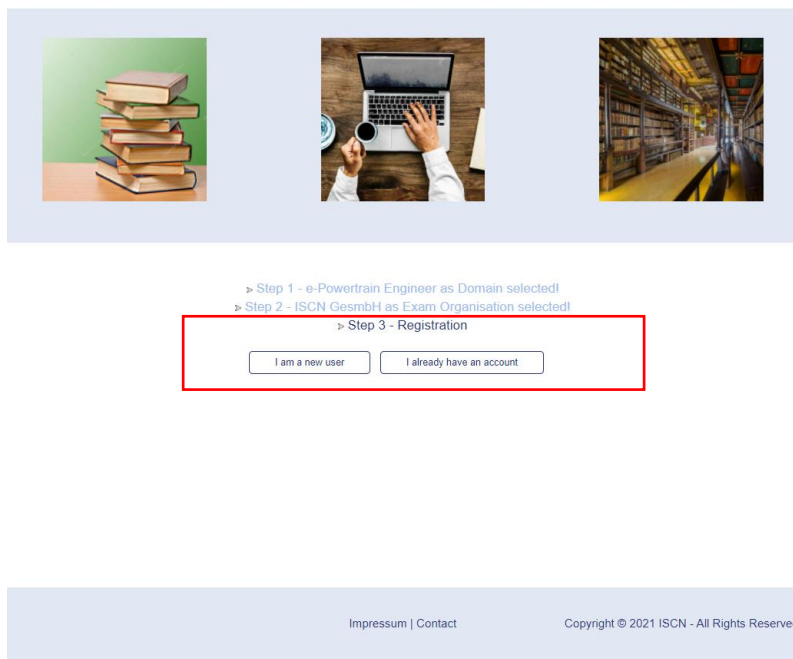



Figure 8: Step 3 – Registration

I am a new user. If it is the first time you create an account for a job role in the exam system you must enter your personal details. To issue a certificate (following the guidelines outlined by standards for personal certification (e.g. ISO 17024) certificates can only be issued to identifiable persons (see Figure 9).

I already have an account. If you already have an account from a previous exam or by registering for another job role at an earlier stage you can use the login details of your account. This way the new job role and exam is also linked to the already existing account (see Figure 10).



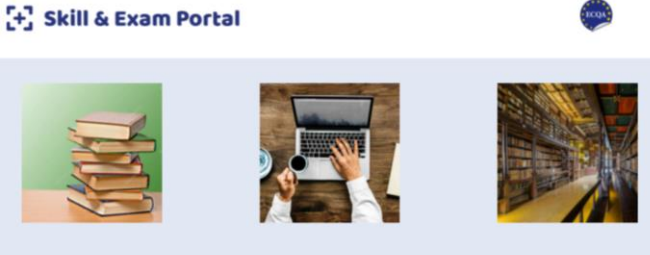
> Step 1 - e-Powertrain Engineer as Domain selected!
 > Step 2 - ISCN GesmbH as Exam Organisation selected!
 > Step 3 - Registration

Firstname:	<input type="text" value="Exam"/>	Username:	<input type="text" value="examdemo21"/>
Lastname:	<input type="text" value="Demo"/>	Password:	<input type="password" value="*****"/>
Company:	<input type="text" value=""/>	Re-type Password:	<input type="password" value="*****"/>
Address:	<input type="text" value=""/>	Email:	<input type="text" value="examdemo21@iscn.com"/>
Phone:	<input type="text" value=""/>		

The ISO 17024 standard for certification of persons requires that data from persons and test evidence are stored because certificates can be issued only to identifiable persons and test results must be logged. If you do not agree, we regret that we cannot provide the test or a certificate as a service to you.
Read our full [GDPR information here!](#)
 I understand and want to continue.

[Impressum](#) | [Contact](#)
Copyright © 2021 ISCN - All Rights Reserved

Figure 9: Entering data in case of “I am a new user” and REGISTER



> Step 1 - e-Powertrain Engineer as Domain selected!
 > Step 2 - ISCN GesmbH as Exam Organisation selected!
 > Step 3 - Registration

Username:	<input type="text" value="examdemo21"/>
Password:	<input type="password" value="*****"/>

[Impressum](#) | [Contact](#)
Copyright © 2021 ISCN - All Rights Reserved

Figure 10: Entering data in case of “I already have an account” and REGISTER

When you select REGISTER your personal skills account with a skills browsing function opens.

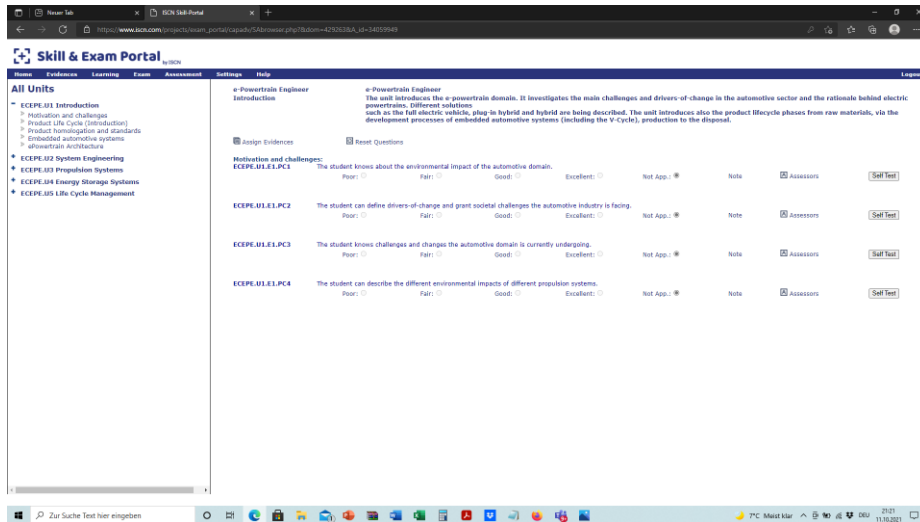


Figure 11: Your private skills account in the exam portal

Attention: If you logout and later come back to d the exam or further skills browsing, you only need to login (Figure 3).

4 Performing the Exam

Opening the exam. Exams are opened by the exam body. Only after the exam has been opened the student can see the exam. To open the exam you use the main menu EXAM and select PERFORM.

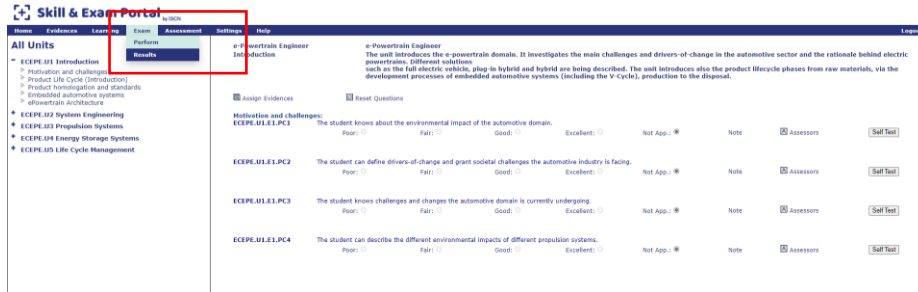


Figure 12: Opening the exam

Exam Performance. Exams are generated randomly, i.e. every participant gets a different set of exam questions generated from a pool of exam questions. The student can answer the multiple-choice questions. Every answer click is stored. You can correct your selections as long as the exam is open.

If you have a bad connection and lose the connection during the exam and you reconnect and login again the exam is still available and all answers were stored. The software checks that you are connected and displays a warning if scores were not stored due to connection to server issues.

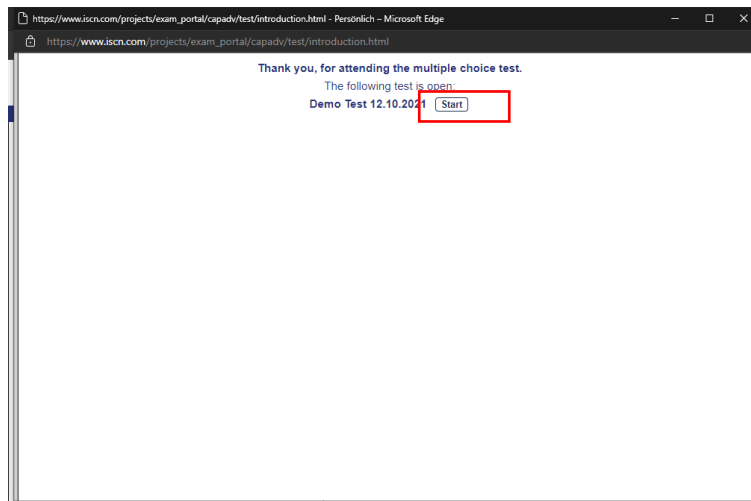


Figure 13: Starting the Exam

Once you started you see your test and you have a defined number of minutes (usually 90 minutes) to answer the questions.

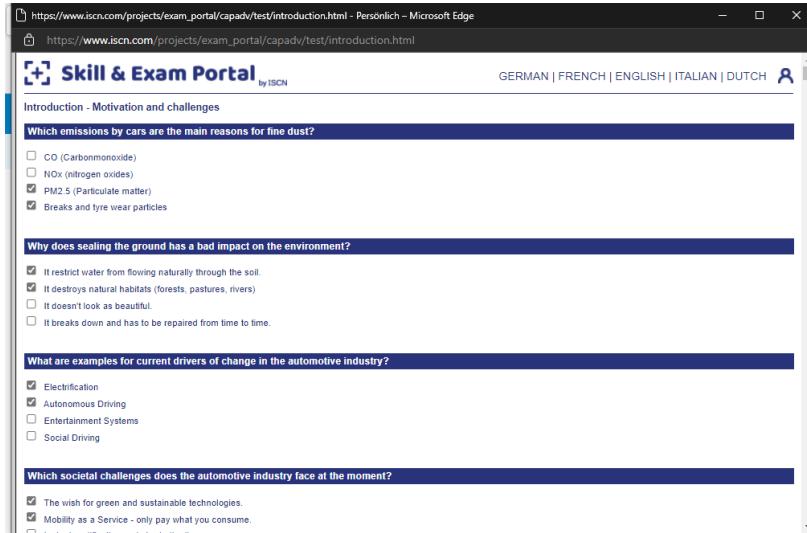


Figure 14: Answering the questions

Multiple Choice Questions. Each multiple choice question can have one or many correct answers. If a multiple choice question has n answers from which $m < n$ answers are correct then each correct answer is $1/m$ worth. If you find all correct answers you get $m * 1/m = 1$ point. If you tick a wrong answer then you lose all points of that question and get 0 points.

The multiple choice questions are assigned to elements and for each element 67% of the pints need to be achieved.

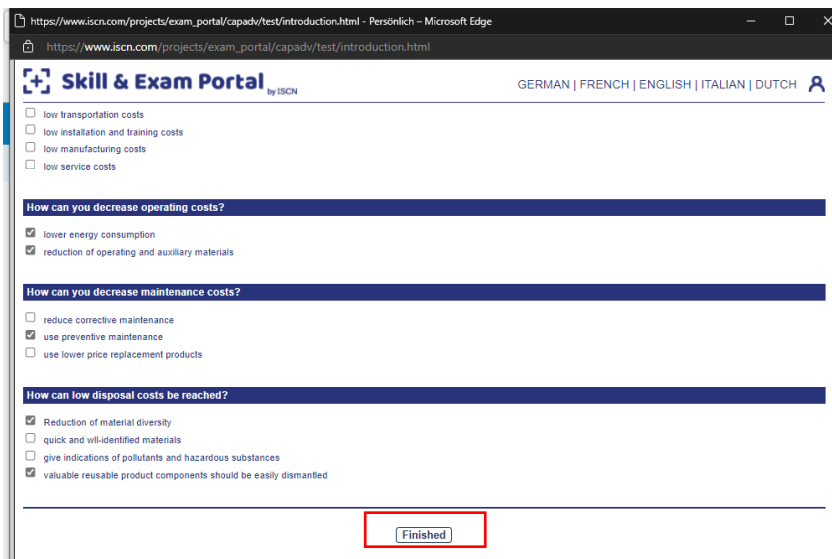


Figure 15: Finishing the Exam

Closing the exam. Only after the exam organisation closes the exam your scores will not be saved any more. As long as the exam organisation did not close the exam you still can login and continue with the exam yourself.

After the exam organisation closed the exam you can see your results.



Figure 16: Exam Results

5 References

[1] Richard Messnarz, Damjan Ekert, Michael Reiner, Miguel Angel Sicilia, Europe wide industry certification using standard procedures based on ISO 17024, 2012 Technologies Applied to Electronics Teaching (TAEE), pp. 342-347, IEEE, 2012

[2] Messnarz R. et al. (2020) Automotive Cybersecurity Engineering Job Roles and Best Practices – Developed for the EU Blueprint Project DRIVES. In: Yilmaz M., Niemann J., Clarke P., Messnarz R. (eds) Systems, Software and Services Process Improvement. EuroSPI 2020. Communications in Computer and Information Science, vol 1251. Springer, Cham. https://doi.org/10.1007/978-3-030-56441-4_37

[3] Kreiner C. et al. (2013) Automotive Knowledge Alliance AQUA – Integrating Automotive SPICE, Six Sigma, and Functional Safety. In: McCaffery F., O’Connor R.V., Messnarz R. (eds) Systems, Software and Services Process Improvement. EuroSPI 2013. Communications in Computer and Information Science, vol 364. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-39179-8_30

[4] Richard Messnarz, Damjan Ekert, Michael Reiner, Gearoid O’Suilleabhain, Human resources based improvement strategies - the learning factor (p 355-362), Volume 13 Issue 4 , Pages 297 - 382 (July/August 2008), Wiley SPIP Journal, 2008

[5] The European Skills/Competences, qualifications and Occupations (ESCO), <https://ec.europa.eu/esco/portal/home>

[6] The European Qualifications Framework (EQF), <https://www.cedefop.europa.eu/en/events-and-projects/projects/european-qualifications-framework-eqf>

[7] European Credit Transfer and Accumulation System (ECTS),
https://ec.europa.eu/education/resources-and-tools/european-credit-transfer-and-accumulation-system-ects_en

[8] The European Credit system for Vocational Education and Training (ECVET),
https://ec.europa.eu/education/resources-and-tools/the-european-credit-system-for-vocational-education-and-training-ecvet_en