



*The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein*

## **Learning Resources for the course:**

### **Steel Structure Inspector Course for EN 1090**

**This document covers only RPL questions developed in the course, delivery  
D4.1:**

**Competence unit no. CU-1 through to CU -9**

## **Table of Contents**

Introduction.....	3
Objective.....	3
Mapping of students background, entry level knowledge for the CUs.....	4
Competence Unit CU-1 Question Bank.....	4
C.1 Determine status of prior knowledge.....	4
C.2 Testing prior knowledge-in depth questions.....	5
Competence Unit CU-2 Question Bank.....	5
C.1 Determine status of prior knowledge.....	5
C.2 Testing prior knowledge-in depth questions.....	6
Competence Unit CU-3 Question Bank.....	7
C.1 Determine status of prior knowledge.....	7
C.2 Testing prior knowledge-in depth questions.....	8
Competence Unit CU-4 Question Bank.....	8
C.1 Determine status of prior knowledge.....	8
C.2 Testing prior knowledge-in depth questions.....	9
Competence Unit CU-5 Question Bank.....	10
C.1 Determine status of prior knowledge.....	10
C.2 Testing prior knowledge-in depth questions.....	11
Competence Unit CU-6 Question Bank.....	12
C.1 Determine status of prior knowledge.....	12
C.2 Testing prior knowledge-in depth questions.....	12

Competence Unit CU-7 Question Bank.....	13
C.1 Determine status of prior knowledge.....	13
C.2 Testing prior knowledge-in depth questions.....	14
Competence Unit CU-8 Question Bank.....	15
C.1 Determine status of prior knowledge.....	15
C.2 Testing prior knowledge-in depth questions.....	16
Competence Unit CU-9 Question Bank.....	17
C.1 Determine status of prior knowledge.....	17
C.2 Testing prior knowledge-in depth questions.....	17

**Note. It is assumed that the teacher has in depth knowledge of the industry requirements for the topics discussed in this CU.**

**Reference document covering the course structure, see document D2.2**

The RPL questions that have been developed in the course is for mapping the students knowledge and competence for this course.

**The answers shall be submitted to the teachers as background information before starting each CU.**

**Based on these answers the teacher can adjust the extent of the teaching for each CU.**

The RPL questions will be shared with the students before starting the CU. When using the LMS system in the pilot courses, the questions will appear as the first step in the learning sequence.

The purpose of these questions are strictly for the mapping the students knowledge and competence for this course. It will not be used in later stages in the CU.

The RPL questions have been divided in two classes.

C1. Contains general questions about the knowledge and competence of the students. There are generally only 3 or 4 question for each CU in this category.

C2. Contains more in depth questions that require that the students in reality know the topics that he/she has answered for the questions under C1. The intention of these questions are to find out if the student really have some more knowledge related to the topics asked about in C1.

**Please also note that the questions added in chapter C, is harvested from 3 different pilot courses in Hungary and Slovenia.**

### **Objective.**

The objective was to identify the students background for enrolling in the course and to evaluate their background before starting at each CU. The findings are aimed at at defining a status for the knowledge and experience of the students from a teacher perspective. The purpose of these questions are strictly for the mapping the students knowledge and competence for this course. Based on these answer the teacher can adjust the course presentations.

The information obtained through the questionnaires is to allow the teacher to get an overview of the students experience and their own view of the knowledge and competence.

The answers shall not be distributed back to the students and the overall results will not be shared with the students. All the information submitted from the students will be anonymous when utilizing the LMS system in the pilot courses.

## Mapping of students background, entry level knowledge for the CUs

### Competence Unit CU-1 Question Bank

#### C.1 Determine status of prior knowledge

##### 1. Quality obligations are an important part of the fabrication process. How do you evaluate your experience and competence in this field?

- I have very good competence in this field
- I have good competence in this field
- I have little competence in this field
- I do not know this field

##### 2. Product liability is a common phrase that is used both for industrial products and for consumer products. Do you know this phrase ?

- I have heard this phrase in an industrial context
- I am not familiar with the phrase and the meaning of it
- I have only heard the phrase for consumer products
- I have heard the phrase in an industrial context. It is only valid for the fabricator, but not for any sub-suppliers
- I do not know

##### 3. We are going to use a Learning Management System, LMS for this course. Do you know such systems?

- Yes I know but do not have experience
- Yes I know and have experience from such systems
- No I do not know such systems

##### 4. We are going to use ZOOM video communication platform in the course. Have you experience from using such systems?

- Yes I know but do not have experience
- Yes I know and have experience from such systems
- No I do not know such systems

#### C.2 Testing prior knowledge-in depth questions

**1. What do you mean by product liability?**

- The obligation of the user to use/to apply in accordance with the instructions
- The manufacturers and distributors quality obligations
- There is no obligation after the warranty period
- There is no obligation after the expiration period
- I do not know

**2. Do you know the standard EN ISO 3834 ?**

- Yes I am using that standard in my work
- No I do not use that standard in my work
- I do not know that standard

**3. Have you been uploading files into a LMS system**

- Yes I have uploaded text files
- Yes, I have uploaded text and video/picture files
- No I have never uploaded files
- I do not know

**4. Have you been using the share folder option in the video communication system?**

- I did not know that that option exists
- Yes I have shared files during a communication session
- No I have never used this option
- I do not know

**Competence Unit CU-2 Question Bank****C.1 Determine status of prior knowledge****1. Have you carried out work descriptions/developed procedures for an inspection plan before?**

- Yes, I have have
- No, I have not had such tasks before

**2. Have you evaluated the need for training and education in your organization?**

Yes I have created a training schedule

No, I have not done that before

**3. Do you know the CPR regulation?**

Yes I know this regulation

No I do not know this regulation

I do not know

**4. Have you been involved in the evaluation of an inquiry before?**

Yes, I am always participating in evaluation meetings

No, I have never participated in such meetings

We do not have such meetings in our company

I do not know

**C.2 Testing prior knowledge-in depth questions**

**1. Have you developed procedures for corrective actions ?**

I do not know what corrective actions means

Yes I have developed such procedures

No I have never developed such procedures

I do not know

**2. Training for welding and NDT personnel is carried out by?**

In-house training

By certified bodies

I do not know

**3. What does CPR means?**

CPR lays down a harmonized rules for marketing of construction products in EU

It provides a common technical language to access the performance of construction products

It creates a declaration of performance

I do not know

**4. Have is the content in a design review report ?**

An evaluation of the design

A description of the inspectors tasks for the design

A verification that the design can be fabricated in the company

I do not know

**Competence Unit CU-3 Question Bank****C.1 Determine status of prior knowledge****1. Have you been working with quality control activities?**

Yes, I have been developing procedures, routines and QA plans

I have only been working as a Visual Inspector

I have been preparing inspection activities in the company

No, this topic is new for me

**2. For how long have you been working with quality control activities?**

More than 10 years

Between 5-10 years

Less than 5 years

I have not worked with quality control activities

**3. Have you carried out design reviews before?**

Yes

No

I do not know

**4. Have you been developing /writing procedures for design verification?**

Yes I have done that

No I have not done that before

I do knot know

## C.2 Testing prior knowledge-in depth questions

### 1. What should a Weld Summary list contain ?

Weld numbers, welders Id and Visual inspection

Weld numbers, material ID, weld date, welders Id and Visual inspection

Weld numbers, material ID, weld date, welders Id, welders signature, Visual inspection

Weld numbers, material ID, weld date, WPS reference, welders Id, Visual inspection and MT/PT, RT

### 2. What standard reference ids used for defect categories ?

EN ISO 3834

EN 1090

ISO 6520

ISO 9606

### 3. What is the content in a design review report ?

An evaluation of the design

A description of the inspectors tasks for the design

A verification that the design can be fabricated in the company

I do not know

### 4. What are the important topics in a design review?

To verify that all documents for production are available

To verify that the company have the capability to produce the design

To verify that the company have the ability and resources to produce the design

I do not know

## Competence Unit CU-4 Question Bank

### C.1 Determine status of prior knowledge

#### 1. Control and inspection plans are applied within fabrication processes. How do you evaluate your competence in this field?

I have very good competence in this field



I have good competence in this field  
I have little competence in this field  
I do not know this field

**2. Have you developed/written procedures for inspection before?**

Yes  
No  
I do not know

**3. Have you developed/written procedures for inspection before?**

Yes, for more than 10 years  
Yes, for more than 3 years  
Yes, but less than 3 years  
No, I have never done that

**4. Have you created a traceability plan before?**

Yes  
No  
I do not know

**C.2 Testing prior knowledge-in depth questions**

**1. Do you use documents for traceability yourself?**

Yes on a daily basis  
Yes on a regular basis  
No, I have never used traceability documents before  
I do not know

**2. Have you been developing an ITP plan before ?**

Yes, I am working with Inspection and test plan regularly  
Yes I am working with Inspection and technical documentation  
Yes I am working with NDT and Visual inspection regularly  
I do not know

**3. What is deciding the extent of inspection ?**

It is decided by the contract and contract documents.  
 It is decided by regulations and standards.  
 It is decided by the company (fabricator).  
 I do not know

#### 4. What are the content and source of the information for the control and inspection?

Technical design documentation, customer requirements, legislation.  
 Instructions from the employer.  
 Legal requirements only.  
 Requirements of the contractor only  
 I do not know

### Competence Unit CU-5 Question Bank

#### C.1 Determine status of prior knowledge

##### 1. Welding procedures are used in fabrication for joining purposes.

Does the welding procedure have to be tested by DT or NDT?  
 A welding procedure does not need to be tested by DT or NDT because it is qualified through a reference welding procedure qualification record which is approved by appropriate DT and NDT tests  
 The requirement of DT and NDT is dependent on the material properties and the quality requirements  
 It is up to the company to decide if tests shall be carried out  
 The requirement of DT and NDT is dependent on the material properties and the quality  
 I do not know

##### 2. What is the purpose of testing welding procedures in case DT tests are performed

For trade, as a certificate.  
 Feedback for lifetime.  
 Mechanical properties cannot be used, only NDT methods are used.  
 Verification of welding technology.  
 I do not know

##### 3. What is a repair rate ?

The relation between the number of welds and the number of repair  
 The relation between the weld length and the repair length  
 The relation between number of inspected welds and number of repair welds  
 I do not know

**4. What is a repair cost?**

The cost for welding the defect zone

The cost for welding the defect zone and visual inspection

The cost for preparing the repair, welding, inspection according to procedure

I do not know

**C.2 Testing prior knowledge-in depth questions****1. Welding procedures in fabrication has to be documented through.....**

A referenced WPQR

A referenced WPT

A standard procedure

I do not know

**2. What are the inspections/tests required for a WPQR**

Visual inspection only

Visual inspection and MT/PT

Visual inspection and MT/PT and DT

I do not know

**3. How will the inspection influence the repair rate?**

An extended inspection will probably increase the repair rate

An extended inspection will probably increase the repair rate, but reduce the life cycle costs

An extended inspection will probably increase the repair rate, but reduce the total repair costs

I do not know

**4. Have you carried out a cutting inspection?**

No, I have never done that

No, I have not a procedure for cutting inspection

Yes, I have carried out a dimensional control after cutting

I do not know

## Competence Unit CU-6 Question Bank

### C.1 Determine status of prior knowledge

#### 1. When should visual inspection be carried out ?

When the product is finished, before delivery

After welding have been finished

Before, during and after welding

I do not know

#### 2. Do you know the standard ISO 6520?

Yes I am referring to this standard in my reporting activities

Yes, but I am not using the standard

No, this standard is new for me

I do not know

#### 3. Have you created a non-conformance notice?

Yes I do that frequently

No that is not my responsibility

I do that only when required

I do not know

#### 4. Visual Inspection, NDT and DT are important components within inspection processes. Do you have experience and competence in this field?

I have very good competence in this field

I have good competence in this field

I have little competence in this field

I do not know

### C.2 Testing prior knowledge-in depth questions

#### 1. Will other documents be the result of a non-conformance notice?

A repair request

A deviation report

No further documentation is required

I do not know

**2. What type of imperfections do ISO 6520 cover?**

- Metallurgical imperfections
- Surface imperfections
- Weld imperfections
- I do not know

**3. Which Destructive test methods do you know ?**

- Radiographic tests
- Bend and tensile test
- Charpy test
- I do not know

**4. What type of tools do you use for visual inspection?**

- Flash light
- Weld gauge
- Mirror
- I do not know

**Competence Unit CU-7 Question Bank**

**C.1 Determine status of prior knowledge**

**1. What type of mechanical fastening are you using?**

- Riveting
- Bolting
- Welding
- I do not know

**2. What type of tools are you using for erection of the structure?**

Micrometer

Laser tools

Meter measurements tools

I do not know

**3. What is a calibration plan ?**

A plan for ensuring that the equipment is working

A plan for ensuring that the equipment is working within their tolerances

A plan for ensuring accuracy, repeatability and standardization

I do not know

**4. Have you procedures for structural bolting ?**

We are not using bolting in our company

We are using bolting but do not have any procedures

We have procedures for structural bolting

I do not know

**C.2 Testing prior knowledge-in depth questions**

**1. What are some of the common deficiencies in bolting?**

Washer too big

Damaged threads

Misalignment

I do not know

**2. Are there any requirements for welding reinforced steel bars?**

No, you can weld without any special requirements

You have to use a special welding procedure for reinforced steel bars

The welders have to be tested every 3 months for their work

I do not know

**3. What should a calibration procedure contain?**

A set of calibration points according the range of the instrument

A notification that the equipment works OK

A report structure giving the time interval between the calibration dates

I do not know

**4. Shall a WPS be documented?**

A WPS should be documented with reference to a WPQR

A WPS do not need a reference document

A WPS need a reference document if there are quality requirements for the weld

I do not know

**Competence Unit CU-8 Question Bank****C.1 Determine status of prior knowledge****1. Are you using any kind of surface protection?**

Yes we are using zinc based surface protection

Yes we are using paint

Yes we are using organic based protection

No we are not using surface protection

I do not know

**2. Which materials can be surface coated?**

Steel

Steel and aluminum

Aluminum

I do not know

**3. Can zinc coated plates be welded?**

Yes if the welded sone is cleaned

Yes without any problem

No

I do not know

**4. What are typical area for Cathodic protection?**

- Ships and offshore installations
- Facilities in wet environment
- For all type of steel structures
- I do not know

**C.2 Testing prior knowledge-in depth questions**

**1. Do you prepare the materials before surface protection?**

- Yes, we are sandblasting the materials
- Yes, but we only grind all corners
- No we do not prepare the surface before surface protection
- I do not know

**2. Which standard are you using for Corrosion protection ?**

- ISO 6520
- ISO 15685
- ISO 12944
- We are not using surface protection
- I do not know

**3. What is the role of a surface inspector?**

- Observe
- Assess and test what, why and how
- Report and document facts
- I do not know

**4. Which standard covers surface protection of steel structures ?**

- ISO 9001
- EN-ISO 6520
- IEN-SO 12944
- I do not know



## Competence Unit CU-9 Question Bank

### C.1 Determine status of prior knowledge

#### 1. What is a pre-delivery Inspection, PDI ?

- An inspection of the product that shall be delivered
- A walk through of the product and notify and deviation
- An examination of the Product Record Book
- I do not know

#### 2. What is a delivery documentation ?

- It is a set of documentations specified in the ITP
- It is record of dimensional control documents
- It is an acceptance record for the product
- I do not know

#### 3. What is the consequences of missing documentation in a PDI?

- The product is not documented properly
- It is not important, because most of the documents are available
- It may cause that the product is not accepted by the buyer
- I do not know

#### 4. Are there any differences between a PDR for a fabricator and the client?

- No, they are identical
- Yes, The Fabricator PDR contains, the test procedures
- Yes the fabricator PRD covers the preliminary design review only
- Yes, The Fabricator PDR contains, also test procedures and repair requests
- I do not know

### C.2 Testing prior knowledge-in depth questions

**1. What is covered by the phrase as-built documentation?**

It is a set of data including 3D models of the product

It is a complete set of 3D models including any revisions and all inspection data

It is all data recorded in the PDI document

I do not know

**2. What is a feed-back routine?**

It is a routine for sending reports to the client

It is a communication routine for submitting reports and defining any corrective action if required

It is routine for any notification towards the client

I do not know

**3. What should a PDI checklist contain?**

A process overview including process actions with responsibility and defined output

A list of control verification points

A list of QA procedures

I do not know

**4. What is a process flow chart?**

It is a graphical representation of the delivery schedule

It is a graphical representation of the fabrication process

It is a graphical representation of the fabrication process including logistics and suppliers

I do not know

