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Learning Resources for the course:

Steel Structure Inspector Course for EN 1090

This document covers only:

Competence unit no. CU-10 COURSE SUMMARY, EXAMINATION

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Structure of this document:

Introduction.

Objective.

A. Teacher Guideline.

B. Students Guideline

C. Learning resources

D. Students tasks

E. Appendix.

Introduction

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 content of this document covers deliverables for D4.1 and D4.2**

The course consists of a number of CU's. A CU is the smallest element in the education system that specifies Learning Outcomes, Skills and Competence. A CU can be delivered individually or it can be delivered in combinations with other CUs in order to cover a defined range of knowledge and competence.

The course will be work-based and follows the manufacturing process from the order is received until the welded product is ready for delivery. The inspector is responsible for producing documents that ensure traceability of the components and related manufacturing action throughout this process.

In CU-9 the content of Inspection and Testing Plan (ITP) will be summarized in Product Record Book or Product documentation book. This book shall contain all documentation relevant for the product including repair reports and any deviation reports.

The Inspector level for the course is based on WI-S (International Welding Inspector -Standard level). The examination will follow the rules in the IIW Guideline, IAB-041r5-19/SV-00.

A candidate completing the "Standard" level of training under this program shall possess an advanced knowledge of welding and inspection theory and application. This knowledge base will enable the candidate to perform the following tasks (in addition to the IWI-B):
Supervise the activities of the IWI-B;

Develop and provide instructions to IWI-B;
 Develop, comment and review Quality Control Plans and Inspection and Testing Plans based on product standards, codes, specifications, drawings and regulatory requirements;
 Witness procedure qualification tests including testing of the specimens;
 the applicable standards, codes and specifications for conventional applications (e.g. arc welding processes, steels, aluminium alloys - see Section 1 in the Guideline for detailed information);
 Verify the compliance of PWHT specifications against the applicable standards, codes and specifications;
 Verify the compliance of raw materials and consumables certificates against the applicable standards, codes and specifications;
 Take decisions on acceptance of quality documents related to welding fabrication (e.g NDT, material testing, production testing, etc.);
 Take decisions based on quality documents (e.g NDT, material testing, production testing, etc.) according to the requirements defined for the construction;
 Verify radiographic films quality adequacy (no interpretation);
 Identify and verify the relevant NDT techniques for a welded construction; and
 Report on all the above actions.

Based on delivery of the different tasks specified in the CUs, where the delivered tasks in CU 4 and CU 9 shall be evaluated and approved by the teacher, the candidate can be admitted to a full ANB (Authorized National Body) assessment.

The full ANB detailed assessment shall contain:

- a detailed paper assessment of knowledge (checklist with points)
- a professional assessment interview designed to test understanding and ability to reason in the field of welding and the syllabus of the standard course and
- a project or a technical interview to test logical application of knowledge

The sequence of this assessment shall be determined by the ANB. It is at the discretion of the ANB to terminate the assessment and send the candidate back or into the standard route

Please also note that the learning resources summarized and added in chapter C, is the deliverables harvested from 3 different pilot courses in Hungary and Slovenia.

Objective.

The objective of this CU is divided into two tasks:

- a) Acceptance of the delivery from CU 4 and CU 9 by each student.
- b) Admission to a full ANB detailed assessment.

A. Teacher Guideline.

Content of the Teacher Guideline:

The CU 10 covers course summary and examination.

In CU 9 it is expected that the students have created all documents that they have specified through the Inspection and Testing Plan (ITP) in CU 3.

They should verify that the documents are available and they should be able to understand and explain why an ITP is important and why it is required.

In addition a Document Record Book, (or Document Register) containing the as-built documentation should be created through this CU.

In CU 4 the students should define inspection plans and a traceability scheme for the product.

The student documentation from these two CUs shall be used as proof of concept for the tasks they should do

You should verify these examples and either accept them or reject them with comments to the students. Completed document sets from CU 4 and CU 9 will be used as reference for admission to the ANB assessment.

When the students work have been accepted, the student will be admitted to detailed ANB assessment.

The Inspector level is IWI-S (International Welding Inspector -Standard level). The examination will follow the rules in the IIW Guideline, IAB-041r5-19/SV-00.

B. Students Guideline

The CU 10 covers course summary and examination.

You should already have delivered a detailed set of documents in CU 4 and in CU 9 that will be used as reference for being admitted for a detailed ANB (Authorized National Body) assessment.

The full ANB detailed assessment will contain:

- a detailed paper assessment of knowledge (checklist with points)
- a professional assessment interview designed to test understanding and ability to reason in the field of welding and the syllabus of the standard course and
- a project or a technical interview to test logical application of knowledge

The ANB will define the time schedule for the assessment.

C. Learning resources

Support resources from selected from the Internet.

Title	Producer	Reference	Language	No of pages	Copy-right
International Welding Inspection Personnel	IIW	IAB-041r5-19/SV-00	English		yes

Learning resources developed in the project.

Title	Producer	Language	No of pages	Copyright
Preparation of and final documentation handover	MHE	English	10	No

Video resources created for this CU

None

Title	Producer	Time	Reference Language	Format	Copy-right
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D. Students tasks.

*Deliver Inspection documentation that have been created during manufacturing and detailed through CU 4.

* Create a document list that should be stored in the company and documents to be submitted to client.

* Deliver a complete ITP (Inspection and Testing Plan) according to CU 9.

* Deliver a complete Document Record Book according to CU 9

E. Evaluation

1. Did you find this module relevant ?

- * Yes
- * No
- * I don't know

2. Was it time enough for going through the material ?

- * Yes
- * No
- * I do not know

3. Was the resources relevant for this module ?

- * Yes
- * No
- * I do not know

F. Appendix.

Learning resources developed for this CU.



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CU9

Preparation of handover and final documentation



Delivery documentation:

A document and a set of records prepared by the company on the realized state of a given product production (professional task, project), the content of which has been agreed with the customer in advance.

Closing documentation :

In addition to the scope of the handover documentation, it includes all external and internal records related to the construction task from the publication of the task (request for quotation) to all files prepared during the preparation and implementation phases.



Contractor's declaration:

A written declaration by the construction company that it has completed the construction works in accordance with the terms of the construction contract, has complied with their technical correctness in accordance with the construction design documentation and is ready to start the commissioning procedure.



Clear identification of the handover documentation must be ensured (eg with an “As-built” or “Plan D” stamp).

Documentation:

Printed or

Electronic

Formally bound, required by the buyer



- Contents of the handover documentation:
- construction specifications,
 - documents generated during construction



Minimum content of handover documentation:

- Design documentation modified according to implementation
- Company documents (eg certificates, project organization chart)
- Quality certificates (eg base and feedstock, prefabricated structures, other built-in elements, materials).
- Certificates of qualification of persons (eg material testers', welders' certificates)
- Documents related to welding in case of welding task (eg WPQR, WPS, seam map, seam book)
- In case of heat treatment, the related documents (eg heat treatment protocol)



Minimum content of handover documentation:

- Isometric drawings
- Construction log copies
- Protocols (eg workspace handover, measurement)
- Pressure test certificates (tightness, strength)
- Permits (eg installation, work)
- Examination documents (eg RU, PT, radiographic records, films on request)
- Contractor's declarations, permits (eg declaration of conformity, CE certificate, technical description, document certifying the qualification of the responsible technical manager, declaration of the responsible technical manager, contractor's declaration)



Minimum content of handover documentation:

- Orders, offers, contracts and related correspondence
- Tender accompanying and contract control sheet
- Table of Contents of Transfer Documentation
- Construction log
- Quality and / or environmental plan
- Workspace acceptance certificate
- Test and inspection plan
- Ad hoc technologies
- Procurement documents



General content of the final documentation:

- Material, equipment orders
- Material certificates for raw materials and welding consumables
- Quality certificates for fittings
- Quality certificate
- Delivery notes
- Welding roster
- Non - compliance reports
- Other construction notes
- Inspection and test reports
- Environmental notes



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Thank you for your attention!