



Leonardo da Vinci

Course: Quality Assurance
Module 1

Table of Contents

MODULE 1.....	3
Activity Based Training.....	3
Normative references.....	7

MODULE 1

Objective:

Have an overview of the course structure and the course methodology for the education and training.

Scope:

- *Role and responsibilities of the welding personnel*
- *Know the most relevant standards for Quality Assurance*
- *Understand the fundamental ideas behind Activity Based Training (ABT)*

Expected results:

- *Perform the Quality Assurance tasks related to the job*
- *Understand the relevance of Quality Assurance and Quality Control*

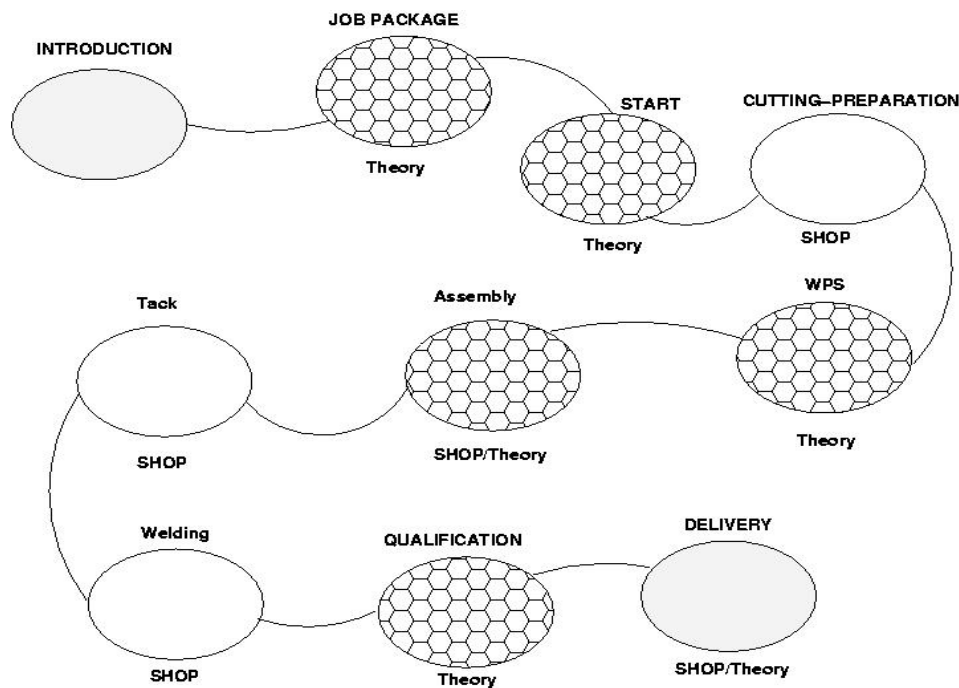
Activity Based Training

Instead of utilizing the traditional methodology whereby the student moves through a traditional education with theoretical content from A to Z, followed by hands on training, this course will use an Activity Based Training (ATB). With ATB it is understood that the training follow the production activities according the production path of a predefined structure or product. The course will also exploit a blended approach whereby different delivery technologies for the content itself will be used.

The course has been divided into 9 different modules and three of these are modules where the major part of the hours will be utilized for practical work. This means that the students have to participate together in a workshop or laboratory.

This is an important aspect of the methodology itself. When working in an industrial environment the student has to work together with other personnel in order to meet the requirements in quality, time schedules and so forth. The team building effort, its importance for the final product and its importance for the total quality of the production environment must be stressed during the educational process.

In a welding environment today the students will work together with other persons from different cultures, with different educational backgrounds and with different practical experience, which will require a profound focus on flexibility and open minded attitude towards other people. Few if any other educational routes will demand such flexibility to the student itself and to the students behaviour on a short and long term basis.



The course will consist of several job-elements. The figure shows how one work-package is built up of different elements, some are pure theory elements and other is a mixture of theory and hands-on training. The training will be carried out in the workshop, shop, or in a laboratory. Video streaming and/or videoconferencing will be used in Shop/Theory packages.

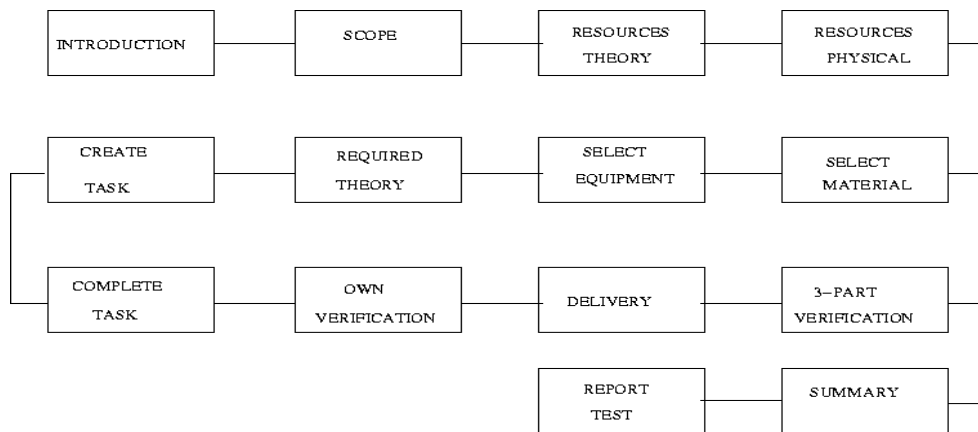
Work Package.

A work package might contain several job elements. A work package is a complete documentation package of specific activities that must be mastered in the welding industry in order to handle the whole production process. It contains at least the following information:

- i. Drawing of the structure to be fabricated
- ii. Work description with which methods shall be used in the production
- iii. Work description with process description of the work process for reaching the target and the knowledge required
- iv. Quality assurance requirements for the ingoing elements
- v. Quality assurance description of the outgoing elements
- vi. Work package description for the work to be done
- vii. Reference to available resources for the work
- viii. Reference to environmental resources or requirements or restrictions
- ix. Requirements for knowledge, prerequisite or knowledge that has to be obtained
- x. Cooperation strategy with other in a defined group or to related groups

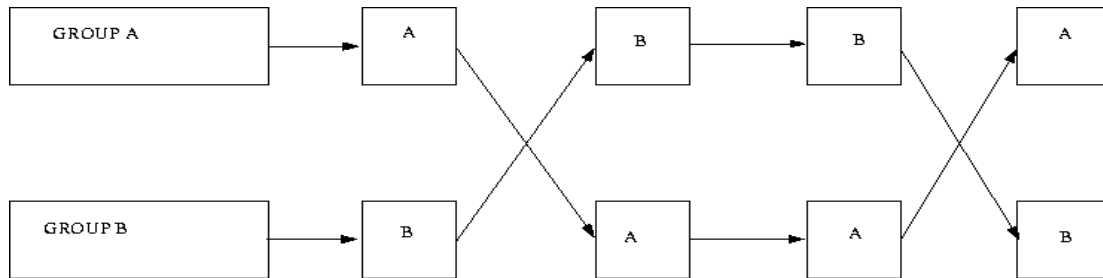
However, some basic prerequisite knowledge must be mastered by the production staff in order to follow the knowledge requirements. The knowledge and competence requirements include:

- Ability to work in a multicultural environment with the colleagues due to exchange of mobile personnel across borders and among mechanical industry companies
- Ability to understand and communicate the content in the job packages to the colleagues in a multilingual working environment
- Ability to understand his/her responsibility in the production chain and to communicate the need for knowledge.
- Ability to search for relevant learning and training material when needed.
- To understand how a process plan might be visualized by utilizing a project plan.



A general design of a learning element. This element consists of both theoretical content as well as practical work. We can also see that the practical task, when completed shall be verified by the student as well as by a 3-part. This will both ensure that the student feel responsible for the part itself, but also be aware of the quality assurance aspect which is very important withing the welding activities. This is a simplified design where no loops are included in the process flow.

A central philosophy within fabrication is that the person who produce a product shall not be the one carrying out the quality control of the same product. To establish the same methodology in education one aims at introducing an alternative production flow whereby the product alternate between students or student groups.



A product is alternating between students during the fabrication process. When produced by student A at a certain stage then student B will carry out the quality control of the part. Student B will then use the part from A in his own production and then transfer it back to A for the following quality control.

This means that the students shall be familiar with and use the definitions and actions that are common in the industry. It will consequently be mandatory to switch the objects for this purpose in order to avoid that a person verifies himself. If defects or non-conformance is found then the necessary corrective actions have to be carried out by the student.

The use of objects should reflect the typical industry environment that is domination in the area where the course is held in order to create a more relevant training domain. But when this is done, then the other examples and references in the material should be selected from a similar industrial background in order to make it relevant for the student.

Delivery.

The structure described here is a structure that can be used in different environments. The structure has not been designed for a special delivery method. However, when that has been said, it is possible to use a highly structured and rigid structure whereby you may control and verify all steps of the student,

If that is the correct way of carrying out the course is of course another question.

The structure that follows is an idea of which elements that a course should contain, if it is running as a web course or if it is running as a face-to-face course without having access to the web itself.

<i>Page</i>	<i>Title</i>	<i>Comment</i>

Table with reference literature to be read in addition to the course documentation for the individual modules.
This table to be compiled according to the national availability of reference literature.