Consult IT

Control Systems User Assessment

Assessment Guide

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Consult IT

Control Systems User Assessment

Assessment Guide

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TABLE OF CONTENTS

Section 1 - Overview

Introduction 9
Control Systems User Assessment 9
- Why User Assessment? 9
- Project Benefits 9
- Two Different Skill Levels 10
- Who Does the Assessment? 10
- For Which Automation Products? 10
- Who Should Apply? 11
- What are the Prerequisites? 11

Assessment Tracking 11
Related Documents 12
Contact 12

Section 2 - Basic User Assessment

Introduction 13
Which Control System? 13
- System 800xA 13
- Compact 800 14
- Freelance 14

Assessment Characteristics 15
- Web-based Quiz 15
- No Strict Prerequisite 15
- Validity of Assessments 15

Modules for Basic User Assessment 16
- Description 16

Competence Matrix 18
Training and Prerequisites 21
Sources for Know How and Training 21
Learning Path 21
Test Scope and Prerequisites 23

Section 3 - How to get Assessed on Basic Level?

Introduction 35
How Do I Register? 35
How Do I Enroll? 38
Some Rules and Guidelines 43
Taking the Exam 44
Logging in 44
Finding and Starting the Exam 45
Introduction Part 47
Question Slides 49
Finishing the Exam 51
Giving Us Feedback 53
Access Your Certificate 55
What Happens if I Fail? 57

Section 4 - Expert User Assessment

Introduction 59
Competence Areas 59
System 800xA 59
Assessment Workshop 60
Participant Profile and Prerequisites 60
Exam Characteristics 60
Validity 61
Description of Competence Areas 61
System 800xA 61
Competence Matrix and User Roles 61
System 800xA 62

Sources for Know How and Training 62
Test Scope and Prerequisites 63
System 800xA 63

Section 5 - How to get Assessed on Expert Level?

Introduction 67
How Do I Enroll? 67

Section 6 - FAQs

Frequently Asked Questions 71

Section 1 Overview

Introduction

This section gives an overview on ABB's Control Systems User Assessment. It starts with explaining the benefits of User Assessment and deals with its important features.

Control Systems User Assessment

Why User Assessment?

In the business systems and IT industries assessment of service providers is an undisputed premise for making business over a long time. End customers in the process industries more often require the same qualification from plant vendors and system integrators.

Control Systems User Assessment is one step to fulfill those demands. But even if assessment is not an explicit end customer requirement, it adds a competitive argument in the negotiation, as the customer's assessment of uncertainty could be lowered.

Strengthen your competitive advantage and verify the organization's competence with Control Systems User Assessment. Control Systems User Assessment motivates ABB personnel and contributes to more efficient projects.

Project Benefits

One of the key factors when comparing automation projects that under performed and projects that excel is the product knowledge of the project members. Running efficient projects requires a good mixture of product knowledge.

With Control Systems User Assessment project organizations benefit from

- a reduced risk of cost overruns in projects by ensuring people have the right knowledge to handle the product.
- executing the project more efficiently by knowing best practices.
- meeting end customer requirements in certain regions/application. Assure how to staff the project with people that have the necessary knowledge.

Two Different Skill Levels

User Assessment is available on two different levels:

- **Basic Level** – The user can handle the automation system, knows the concepts and features. This is tested locally by a web-based questionnaire tool (*free of charge*). Prerequisite is either 3 months of project experience with the automation system, or having attended a training course.
- **Expert Level** – The user knows methods and best practices. This is tested by a 1-day practical examination in a lab, e.g., at ABB University. Assessment tests are scheduled to be run in all regions. They can also be organized locally on request. 1 year of project experience with the automation system is a required prerequisite.

User Assessment is not a single shot procedure, as technology and best practices develop with high speed. Therefore an individual assessment is typically valid for 1.5 years. Afterwards re-assessment is recommended.

Who Does the Assessment?

Control Systems User Assessment is driven and guided by Consult IT within BU Open Control Systems. The experiences collected during project consulting is an indispensable source when it comes to define assessment procedures that fit the expectations of users and organizations.

User Assessment is offered for Technical Partners as well.

For Which Automation Products?

User Assessment on basic level is in place for System 800xA, Freelance 800F and Compact 800. User Assessment on expert level is available for System 800xA only.

Who Should Apply?

Assessment covers different parts of the automation system and addresses different types of users. These are:

- application engineers
- system administrators and engineers
- maintenance and service personnel
- sales and sales support people

What are the Prerequisites?

Briefly, the prerequisites are for:

- Basic level – either 3 months of project experience using the automation system, or having attended a suitable training course.
- Expert level – 1 year of project experience using the automation system is required.

Details are described in subsequent sections.

Assessment Tracking

In future, user assessments will be tracked in ABB's PCS2 system.

Related Documents

Table 1. Related documents

Doc. Number	Title
3BDD015222	Control Systems User Assessment - Overview
3BDS011587	800xA User Assessment Basic Level - Prerequisites (presentation)
3BDS011589	800xA User Assessment Expert Level - Prerequisites (presentation)

Contact

Further information about assessment in general and about local contact persons, test modules and test scheduling can be found at ABB Technical Partner Portal or Control Systems Portal (internal use).

ABB Technical Partner Portal

Go to **www.abb.com/myabb/partners**, login to My ABB, then click on link Technical Partners to be directed to ABB Technical Partner Portal. Now click on Control Systems Technical Partners.

Control Systems Portal (internal use)

Go to **inside.abb.com/pa**, then select from menu BU portals BU Open Control Systems, and from there via menu entry Control Systems to the Control Systems Portal. From the Control Systems Portal find under “Services” a link to the intranet web site for Control Systems User Assessment.

Assessment management and support

E-mail: tp.support@in.abb.com

Consult IT

E-mail: consultit-tech@de.abb.com

Section 2 Basic User Assessment

Introduction

In this section the User Assessment on basic level is described. It deals with details such as the competence areas, what user roles the assessment applies to, what functionality is covered by the assessment, the test scope and the prerequisites.

Which Control System?

Basic User Assessment is available for:

- System 800xA
- Freelance
- Compact 800

System 800xA

There is a set of 12 competence modules defined for System 800xA. One or more of these modules can be selected for test. These are the competence modules for System 800xA:

- Sales and Sales Support (*T710e-02*)
- System 800xA core functional areas:
  - Engineering with Control Builder M (*T710e-01*)
  - Batch Management (*T710e-04*)
  - Information Management (*T710e-05*)
  - Profibus/HART with Asset Optimization (*T710e-10*)
  - Foundation Fieldbus with Asset Optimization (*T710e-11*)

  - AC 800M HI Safety Engineering (*T710e-12*)
  - Engineering with Function Designer (*T710e-13*)
- System Administration and Maintenance (*T710e-03*)
- Connectivity
  - PLC Connect (*T710e-06*)
  - 800xA for Advant Master (*T710e-07*)
  - 800xA for Harmony (*T710e-08*)
  - 800xA for Melody (*T710e-09*)

Please note that some competence modules on basic level have no corresponding competence module on expert level. For these modules, the highest level of assessment is Basic.

Compact 800

There is a set of 3 competence modules defined for Compact 800. One or more of these modules can be selected for test. These are the competence modules for Compact 800:

- Compact Control Builder AC 800M (*T715e-01*)
- Compact HMI 800 (*T715e-02*)
- Panel 800 (*T715e-03*)

Freelance

There is a set of 5 competence modules defined for Freelance. One or more of these modules can be selected for test. These are the modules for Freelance:

- Engineering using Control Builder F (*T720e-01*)
- Sales and Sales Support (*T720e-02*)
- Operations with DigiVis (*T720e-03*)
- Administration and Diagnostics (*T720e-04*)
- Profibus, HART, and FDT (*T720e-05*)

Assessment Characteristics

Web-based Quiz

Your exam is a web-based online quiz with

- 20 questions[1] selected randomly (so exams will not be identical)
- Each question having 1 to 4 possible answers; several of the answers can be correct.
- There is limited time – 30 minutes[1] max. The tool automatically tracks the time.
- A 70% rate to pass.
- An e-mail with the result will be sent to the examinee and the local supervisor.

It is possible to continue with another test module if you did apply for more than one. You can pass or fail each one of them individually.

No Strict Prerequisite

There are no strict prerequisites before taking the test. In order to pass the test

- roughly 3 months of project experience using the automation system, or
- having attended a training course (depending on test module)

is recommended.

Validity of Assessments

A assessment is typically valid for 1.5 year and then a re-assessment is needed (new major versions of the automation system (e.g., System 800xA) is launched roughly

1. 30 questions and 45 minutes time for modules Engineering with Control Builder M / Function Designer.

every 18 months). However, the certificate has no expiration date, it just has the date of issue printed on.

Modules for Basic User Assessment

Description

The following tables describe the different test modules that are available for the automation products System 800xA, Freelance, and Compact 800.

System 800xA

Table 2. Description of test modules for System 800xA

Code	Test Module	Description
T710e-01	Engineering with Control Builder M	Focus on efficient application engineering using Control Builder M.
T710e-02	Sales and Sales Support	Focus on licensing, system dimensioning, sales arguments.
T710e-03	System Administration and Maintenance	Administration, maintenance and troubleshooting of an 800xA system. Automation network considerations. Part of the test is AC 800M specific.
T710e-04	Batch Management	The Batch Management functionality in System 800xA.
T710e-05	Information Management	The Information Management functionality in System 800xA.
T710e-06	PLC Connect	Connection to third party PLCs.
T710e-07	800xA for Advant	System 800xA on top of Advant Master. The test includes System 800xA generic questions as well as 800xA for Advant Master specific questions. It is intended to be a complete test for anyone working with

Table 2. Description of test modules for System 800xA

Code	Test Module	Description
T710e-08	800xA for Harmony	System 800xA on top of Harmony. The test includes System 800xA generic questions as well as 800xA for Harmony specific questions. It is intended to be a complete test for anyone working with evolution of
T710e-09	800xA for Melody	System 800xA on top of Melody. The test includes System 800xA generic questions as well as 800xA for Melody specific questions. It is intended to be a complete test for anyone working with evolution of
T710e-10	Profibus / HART with Asset Optimization	Device Management with Profibus/HART and Asset Optimization.
T710e-11	Foundation Fieldbus with Asset Optimization	Device Management with FF and Asset Optimization.
T710e-12	AC 800M HI Safety Engineering	Safety solutions with AC 800M High Integrity controller.
T710e-13	Engineering with Function Designer	Focus on efficient application engineering using Function Designer.

Compact 800

Table 3. Description of test modules for Compact 800

Code	Test Module	Description
T720e-01	Compact Control Builder AC 800M	Focus on application engineering using Compact Control Builder and Function Designer.
T720e-02	Compact HMI 800	System operation.
T720e-03	Panel 800	Configuring and using Panel 800.

Freelance

Table 4. Description of test modules for Freelance

Code	Test Module	Description
T715e-01	Engineering using Control Builder F	This test focuses on application engineering using Control Builder F with OPC and Trend Server.
T715e-02	Sales and Sales Support	Focus on licensing, system dimensioning, sales arguments.
T715e-03	Operations with DigiVis	This test focuses on system operating and message handling with DigiVis.
T715e-04	Administration and Diagnostics	This test focuses on administration, maintenance and troubleshooting of a Freelance system.
T715e-05	Profibus, HART, and FDT	Device Management with Profibus/HART and FDT.

Competence Matrix

This competence matrix is a suggestion on which examinations and test modules the different automation users typically should take. Some tests may only apply to certain regions, industries, or applications.

Since some functions in the automation system are not used by all ABB BUs, we cannot request that all users can master all parts of the automation system. For example, Batch Management is very important for engineers within the Chemical industry, while a Pulp & Paper engineer might never have worked with Batch.

The matrix below indicates the relevance as *High* or *Medium*.

System 800xA

Table 5. Competence matrix for System 800xA

Module / Role	Sales	Sales Support	Application Engineer	System Engineer	Maintenance and Service
Sales and Sales Support	High	High	—	—	—
Engineering with Control Builder M	—	Medium	High	Medium	High
Engineering with Function Designer	—	Medium	High	Medium	High
Profibus / HART with Asset Optimization	—	Medium	High(1)	High(1)	High(1)
Foundation Fieldbus with Asset Optimization	—	Medium(1)	High(1)	High(1)	High(1)
System Administration and Maintenance	—	Medium(1)	Medium	High	High
AC 800M HI Safety Engineering	—	Medium(1)	High(1)	High(1)	High(1)
Batch Management	—	Medium(1)	High(1)	High(1)	High(1)
Information Management	—	Medium	High(1)	High(1)	High(1)
PLC Connect	—	Medium(1)	High(1)	High(1)	High(1)
800xA for Harmony	—	Medium(1)	High(1)	High(1)	High(1)
800xA for Advant	—	Medium(1)	High(1)	High(1)	High(1)
800xA for Melody	—	Medium(1)	High(1)	High(1)	High(1)

(1) If applicable in the industry/region.

Freelance

Table 6. Competence matrix for Freelance

Module / Role	Sales	Sales Support	Application Engineer	System Engineer	Maintenance and Service
Engineering using Control Builder F	—	Medium	High	High	High
Operations with DigiVis	—	High	High	High	—
Sales and Sales Support	High	High	—	—	—
Profibus, HART, and FDT	—	Medium	High	High	High
Administration and Diagnostics	—	Medium	Medium	High	High

Compact 800

Table 7. Competence matrix for Compact 800

Module / Role	Sales	Sales Support	Application Engineer	System Engineer	Maintenance and Service
Compact Control Builder AC 800M	—	Medium	High	High	High
Compact HMI 800	Medium	Medium	High	High	High
Panel 800	Medium	Medium	High	High	High

Training and Prerequisites

Sources for Know How and Training

Where to find information on the subject. Some sources to acquire knowledge:

- ABB University Training Courses
- Consult IT Expert Workshops
- System 800xA Manuals
- Web Tech Talks

Learning Path

For each control system (System 800xA, Freelance, Compact 800) there is a learning path in place. The learning path can be found at ABB University. Link:

http://www.abb.com/AbbUniversity/LearningPath.aspx

The link directs you to the overview page for the learning paths of ABB products.

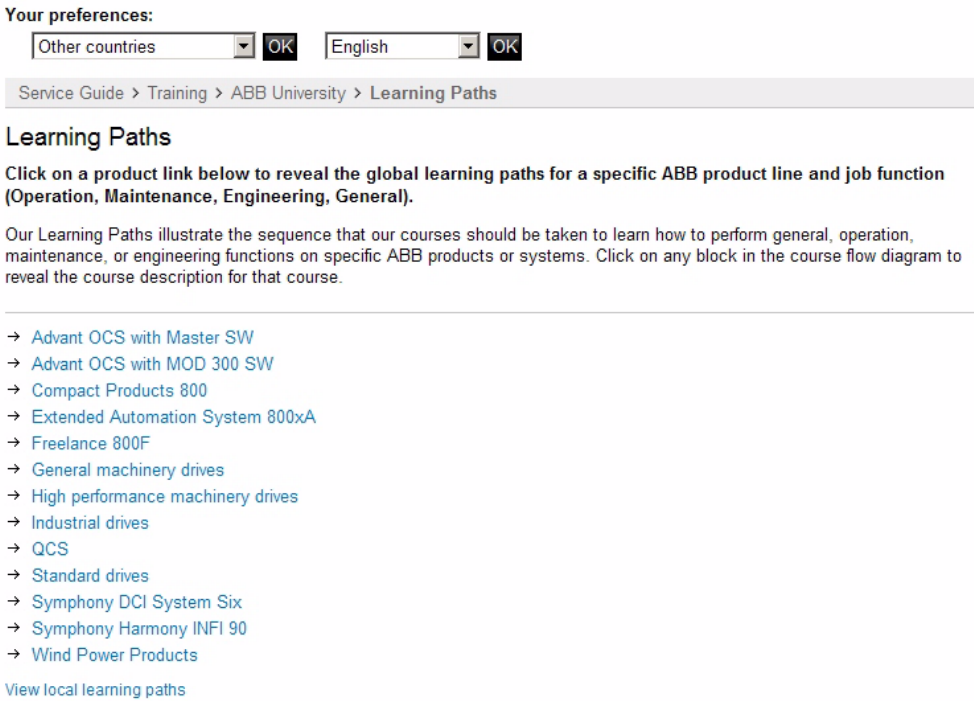

Figure 1. ABB University - Learning path overview

Click on one of the links for Compact Products 800, Freelance 800F or Extended Automation System 800xA to see the product specific learning path. For instance for System 800xA you will see a structure like this:

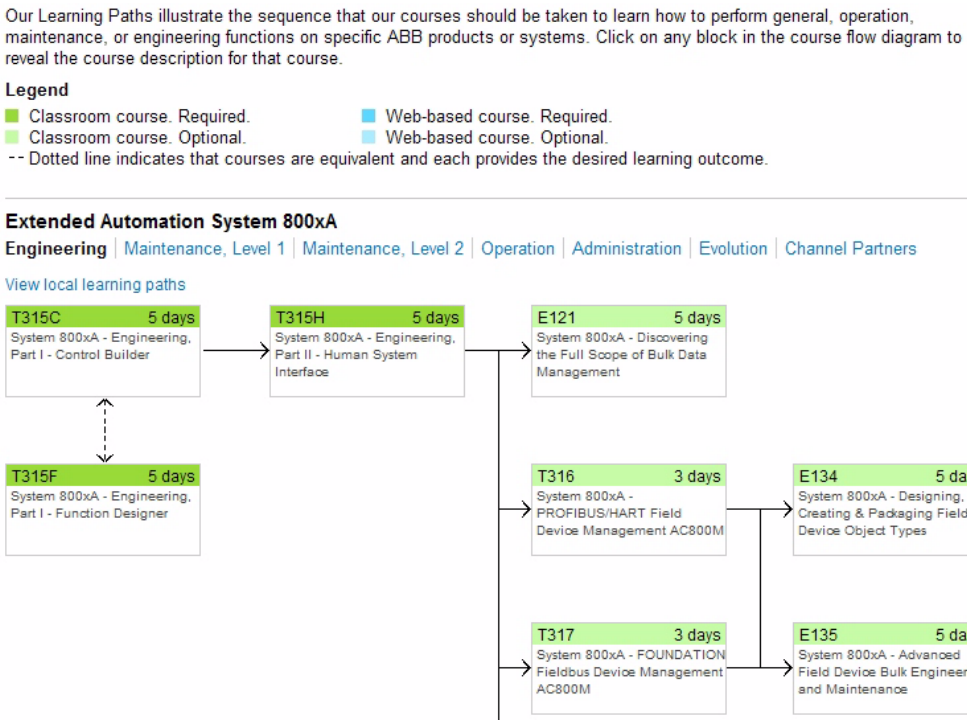

Figure 2. ABB University - Learning path System 800xA

Test Scope and Prerequisites

The following table gives a detailed view on what will be tested in each module as well as the recommended prerequisites.

System 800xA

Table 8. Test scope and prerequisites for System 800xA

Test Module	Test Scope	Prerequisites
Engineering with Control Builder	**The test focuses on application engineering using Control Builder M. You know how to** • explain the System 800xA architecture • modify and describe structure of application programs by using Function Block Diagrams, SFC's, Structured Text, Control Modules, and Function Diagrams. • do basic configuration of AC 800M hardware and I/O's. • modify graphic displays, trends/logs, alarm & event lists. • use the Import/Export and Backup/Restore functions. • configure workplaces and user accounts.	**Recommended 3 months of 800xA project experience or having taken ABB University training courses T314, T315, T360.**
Engineering with Function Designer	**The test focuses on application engineering using Function Designer. You know how to** • explain the System 800xA architecture • modify and describe structure of application programs by using Function Block Diagrams, SFC's, Structured Text, Control Modules, and Function Diagrams. • do basic configuration of AC 800M hardware and I/O's. • modify graphic displays, trends/logs, alarm & event lists. • use the Import/Export and Backup/Restore functions. • configure workplaces and user accounts.	**Recommended 3 months of 800xA project experience or having taken ABB University training courses T314, T315, T360.**

Table 8. Test scope and prerequisites for System 800xA

Test Module	Test Scope	Prerequisites
Sales and Sales Support	**The test focuses on licensing, system dimensioning, sales arguments. You know** • can do basic dimensioning and planning of an 800xA system. • the 800xA sales tools. • how to calculate costs for an 800xA system. • the licensing. • how configure a cost optimized ABB solution. • the System 800xA benefits, strong areas. • the system capabilities. • how to find and use the sales & marketing collateral.	**Recommended 3 months of 800xA sales experience.**
Profibus / HART with Asset Optimization	**The test focuses on device management with Profibus/HART and Asset. You** • understand the topology of an 800xA System with Profibus/HART components and devices. • can use devices of the ABB Device Integration Package Profibus/HART in System 800xA. • can integrate devices just based on GSD. • can configure a Profibus/HART network and Asset Management. • can use Asset Monitor, Viewer, and Reporter functions. • know about the physical layer details of Profibus: DP vs. PA, baud rate, FISCO idea, usage of field barriers, max. cable length. • now about redundancy, layout considerations, the role of timing parameters, termination, grounding, etc. • know the Profibus terminology.	**Recommended 3 months of 800xA project experience or having taken ABB University training course T313, T316.**

Table 8. Test scope and prerequisites for System 800xA

Test Module	Test Scope	Prerequisites
Foundation Fieldbus with Asset Optimization	The test focuses on device management with Foundation Fieldbus (FF) and Asset. You • understand the topology of an 800xA System with Foundation Fieldbus components and devices. • can integrate devices of the ABB Device Integration Package, or integrate 3rd party Foundation Fieldbus devices. • can configure a Foundation Fieldbus and Asset Management. • can use Asset Monitor, Viewer, and Reporter functions. • know about physical layer details of FF: baud rate, FISCO idea, usage of Power Conditioner, field barriers, max. cable length, Ethernet for HSE, layout considerations, termination, grounding, etc. • know about FF application model and terms: LAS, Function Block Application, Macro Cycle, Control in the Field, Virtual Field Devices, operation modes of FF Function Blocks, and Mode Shedding.	Recommended 3 months of 800xA project experience or having taken ABB University training course T313, T317.
System Administration and Maintenance	The test focuses on administration, maintenance and troubleshooting of an 800xA System. You • can troubleshoot AC 800M hardware, S800 I/O, AC 800M software, 800xA graphics. • know domains and workgroup concepts. • know network components. • know how to install, configure, and administrate 800xA software and hardware.	Recommended 3 months of 800xA project experience or having taken ABB University training courses T305.

Table 8. Test scope and prerequisites for System 800xA

Test Module	Test Scope	Prerequisites
AC 800M HI Safety Engineering	**The test focuses on safety solutions with AC 800M High Integrity in System 800xA and requires some functional safety knowledge as well. You** • can describe and configure the AC800M High Integrity components. • can explain the SIL levels. • can specify requirements for a SIL certified AC800M HI controller. • can create ESD and F&G applications by using the necessary libraries. • can configure Access Management. • understand Safety terminology.	**Recommended 3 months of 800xA project experience or having taken ABB University training course T309.**
Batch Management	**The test focuses on the Batch Management functionality in System 800xA. You** • can install Batch Management. • understand the Procedural model and Equipment model. • know the modes and states according ISA S88.01. • know how to schedule and monitor batches. • can troubleshoot Batch Management. • can control and operate the Batch Management system. • understand the integration of Batch Management with the AC 800M controller. • understand the integration of Batch Management and Information Management.	**Recommended 3 months of 800xA project experience or having taken ABB University training course T307.**

Table 8. Test scope and prerequisites for System 800xA

Test Module	Test Scope	Prerequisites
Information Management	**The test focuses on the Information Management (IM) functionality in System 800xA. You** • can configure historical data for collection, storage, archiving, and distribution of data and events. • can configure Calculations, Softpoints, Reports. • know local and remote access. • can troubleshoot Information Management. • know best practices using IM with Batch Management.	**Recommended 3 months of 800xA project experience or having taken ABB University training course T306.**
PLC Connect	**The test focuses on connection to 3rd party PLCs. You** • can describe the system architecture for 800xA with PLC Connect • can create a system with PLC Connect and configure the services • can configure the communication between System 800xA and 3rd party controllers/PLCs. • can configure and modify graphic displays, faceplates, graphic elements, alarms and events and historical data collection.	**Recommended 3 months of 800xA project experience or having taken ABB University training course T323.**

Table 8. Test scope and prerequisites for System 800xA

Test Module	Test Scope	Prerequisites
800xA for Harmony	**The test focuses on System 800xA on top of Harmony. The test includes System 800xA generic questions as well as 800xA for Harmony specific ones. It is a complete test for anyone working with evolution of Harmony systems. You** • know system layout with System 800xA and Harmony. • can install the 800xA for Harmony software. • can configure and maintain the communication and synchronization between System 800xA and Harmony controllers. • have general knowledge applicable to projects with 800xA as HMI (graphical displays, trends and logs, alarms and events, user administration).	**Recommended 3 months of 800xA project experience or having taken ABB University training course T321.**

Table 8. Test scope and prerequisites for System 800xA

Test Module	Test Scope	Prerequisites
800xA for Advant	**The test focuses on System 800xA on top of Advant Master. The test includes System 800xA generic questions as well as 800xA for Advant Master specific ones. It is a complete test for anyone working with evolution of Advant Master systems. You** • know the system layout with System 800xA and Advant Master. • can install the 800xA for Advant Master software. • can configure and maintain the communication and synchronization between System 800xA and Advant Master controllers. • have general knowledge applicable to projects with 800xA as HMI (graphical displays, trends and logs, alarms and events, user administration).	**Recommended 3 months of 800xA project experience or having taken ABB University training course T320.**
800xA for Melody	**The test focuses on System 800xA on top of Melody. The test includes System 800xA generic questions as well as 800xA for Melody specific ones. It is a complete test for anyone working with evolution of Melody systems. You** • know the system layout with System 800xA and Melody. • can install the 800xA for Melody software. • can configure and maintain the communication and synchronization between System 800xA and Melody controllers. • have general knowledge applicable to projects with 800xA as HMI (graphical displays, trends and logs, alarms and events, user administration).	**Recommended 3 months of 800xA project experience or having taken ABB University training course T322.**

Compact 800

Table 9. Test scope and prerequisites for Compact 800

Test Module	Test Scope	Prerequisites
Compact Control Builder AC 800M	**This test focuses on application engineering using Compact Control Builder AC 800M and Function Designer. You know how to** • modify and describe structure of application programs by using Function Block Diagrams, SFC's, Structured Text, Control Modules, and Function Diagrams. • do basic configuration of AC 800M hardware and I/O's. • modify graphic displays, trends/logs, alarm & event lists. • use the Import/Export and Backup/Restore functions. • configure workplaces and user accounts.	**Recommended 3 months of Compact 800 project experience, or having attended ABB University training course T530, or training courses T314 and T315.**
Compact HMI 800	**This test focuses on the operator workplace. You** • can configure and modify graphic displays, faceplates, graphic elements, alarms and events and historical data collection.	**Recommended 3 months of Compact 800 experience, or having attended ABB University training courses T315 or T323.**
Panel 800	**This test focuses on application engineering using Panel Builder 800. You know how to understand** • how to build projects and displays for a Panel 800. • the communication and alarm system abilities in the Panel 800. • general hardware capabilities of Panel 800 units. • benefits of using Panel 800 together with AC 800M's.	**Recommended 3 months of Compact 800 project experience. Gone through the Panel Builder Programming and installation manual or attended the Panel workshop.**

Freelance

Table 10. Test scope and prerequisites for Freelance

Test Module	Test Scope	Prerequisites
Engineering using Control Builder F	This test focuses on application engineering using Control Builder F with OPC and Trend Server. You can • explain the Freelance architecture. • describe the task processing in CBF. • describe project handling and backup strategies. • explain system time synchronization. • use system variables and optimize project settings. • handle tags and variables. • use CBF viewer for project analysis. • setup an OPC connection via OPC Gateway.	Recommended 6 months of Freelance project experience or having taken ABB University training course T560 or T568.
Sales and Sales Support	• This test focuses on licensing, system dimensioning, sales arguments. You can • do the basic dimensioning and planning of a Freelance system. • setup the correct licensing. • give information about pricing for system extensions and optimizations • tell how to configure a cost optimized ABB solution. • provide information about system requirements • describe the system capabilities. • describe how to find and use sales & marketing collateral.	Recommended 3 months of Freelance experience.

Table 10. Test scope and prerequisites for Freelance

Test Module	Test Scope	Prerequisites
PROFIBUS, HART, and FDT	This test focuses on device management with PROFIBUS, HART, and FDT usage. You • understand the topology of an Freelance system with PROFIBUS/HART components and devices. • can use devices of the ABB Device Integration Package Profibus/HART in the Freelance system. • have experience in integration of devices based on GSD. • can configure a PROFIBUS/HART network. • have knowledge about the physical layer details of Profibus: DP vs. PA, baud rate, usage of field barriers, max. cable length. • know about redundancy, layout considerations, the role of timing parameters, termination, grounding, etc. • know the PROFIBUS terminology.	Recommended 6 months of Freelance project experience or having taken ABB University training course T562 – Field device management with PROFIBUS/ HART.

Table 10. Test scope and prerequisites for Freelance

Test Module	Test Scope	Prerequisites
Operations with DigiVis	This test focuses on system operating and message handling. Examinees are able to • identify features of message line and message list. • distinguish between system messages and process alarms. • handle message configuration options. • explain the Freelance acknowledgment strategy. • operate standard faceplates and standard displays. • analyze alarm and system messages and to identify the right operation.	Recommended 3 months of Freelance project experience or having taken ABB University training course T561.
Administration and Diagnostics	This test focuses on administration, maintenance and troubleshooting of a Freelance system. Examinees • can troubleshoot AC 800F hardware and S800 I/O. • can analyze AC 800F software configuration. • know how to use system variables to determine errors. • are able to establish a diagnosis link to the AC 800F controller. • have good command of backup and restore processes. • provide good knowledge about system requirements and system settings. • know about memory management and object loading processes.	Recommended 6 months of Freelance project experience or having taken ABB University training course T561 or T568.

Section 3 How to get Assessed on Basic Level?

Introduction

This section describes how you can get assessed on basic level.

How Do I Register?

Register/Login

On-line exams on basic level are provided by ABB University (www.abb.com/abbuniversity).

On your local web page of ABB University find the **Student login** link:

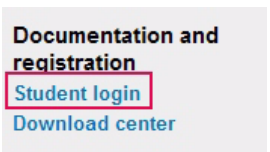

Figure 3. ABB University - Link to student login

If you click on this link, you can either login to ABB University, or if you are a first time student to ABB University you need to register first.

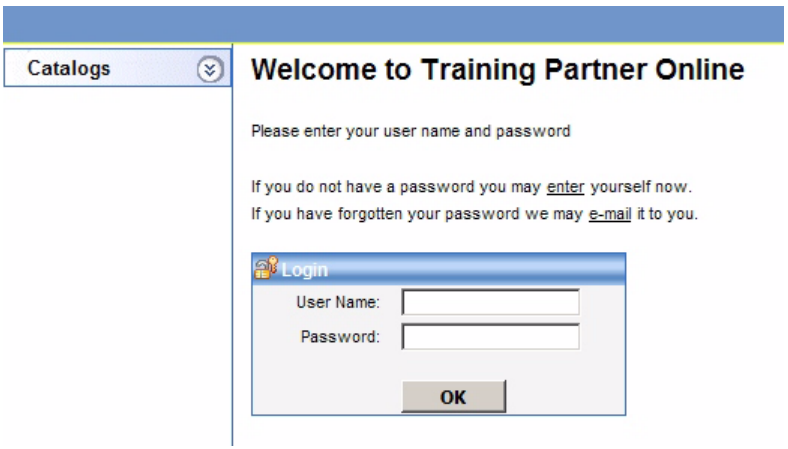

Figure 4. ABB University - Student login

If you do not have an account and a password, click on the **enter** link and fill in your personal information. Mandatory fields are marked with an asterisk (’*’).

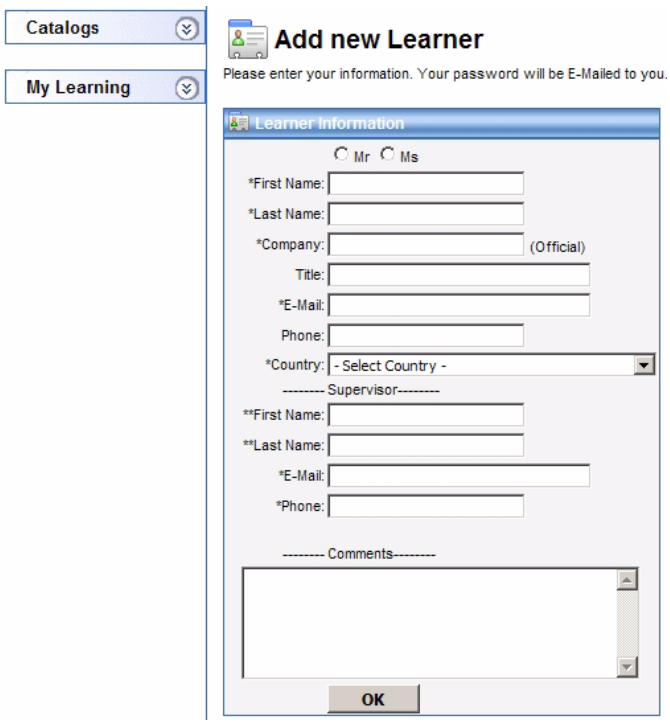

Figure 5. ABB University - Student registration

Click on **OK** when finished.

You will then receive an e-mail from Training Partner Online with a random generated password. You may then log in to TP Online using your e-mail address and this password.

.

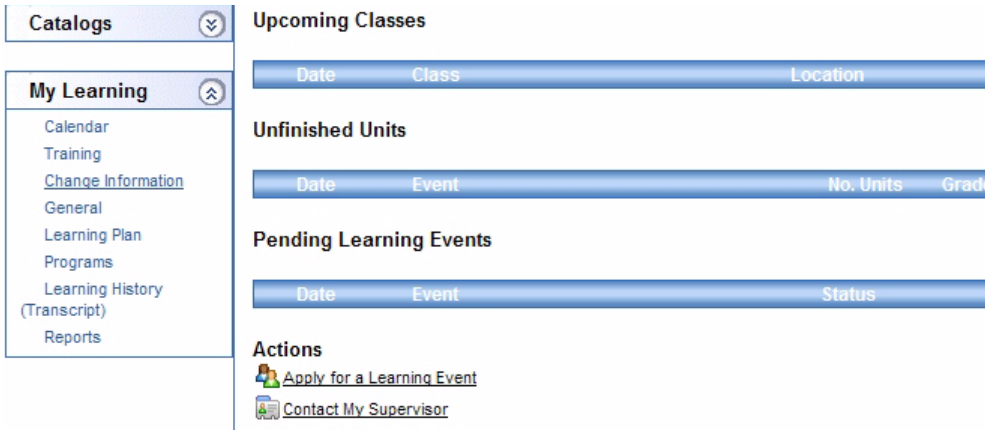

Figure 6. ABB University - Change information

Now click on the link **Change Information** and you now get access to your personal information. You may add some more personal information. We highly recommend to at least change your password:

Figure 7. ABB University - Change password

How Do I Enroll?

Go to course locator

On your local web page of ABB University find the link to the course locator. You may use this direct link:

http://www.abb.com/ABBUniversity/Courses.aspx

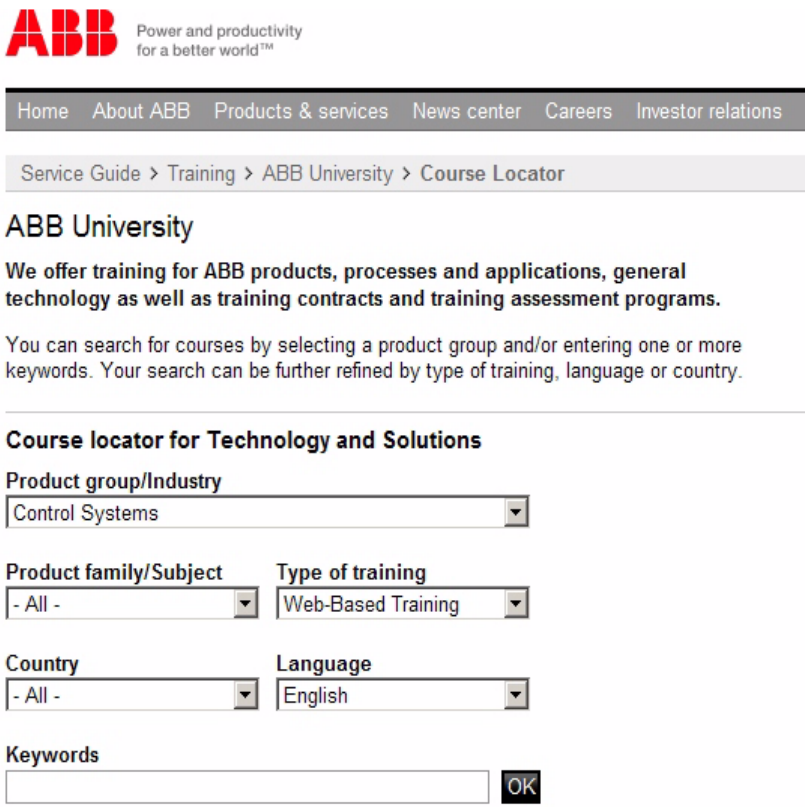

Figure 8. ABB University - Course locator

Search for an exam

If you know the code of the exam (e.g., T715e-01), you may search for it directly by entering this code in the text field **Keywords**, and then click on OK.

Otherwise, you can use the filter function to see all web-based assessments. First select as product group **Control Systems** and wait until the screen has been refreshed. Then select **Web-Based Training** as type of training.

This filter will show all web-based offerings for ABB's control systems:

Search result

Course		Country	Language	
G650e	ACS850 Industrial drive fundamentals, Internet course	Global	English	On request
T710e-01	System 800xA User Assessment - Engineering using AC 800M	Global	English	On request
T710e-02	System 800xA User Assessment - Sales and Sales Support	Global	English	On request
T710e-03	System 800xA User Assessment - System Administration and Maintenance	Global	English	On request
T710e-04	System 800xA User Assessment - Batch Management	Global	English	On request
T710e-05	System 800xA User Assessment - Information Management	Global	English	On request
T710e-06	System 800xA User Assessment - PLC Connect	Global	English	On request
T710e-07	System 800xA User Assessment - 800xA for Advant Master	Global	English	On request
T710e-08	System 800xA User Assessment - 800xA for Harmony	Global	English	On request
T710e-09	System 800xA User Assessment - 800xA for Melody	Global	English	On request
T710e-10	System 800xA User Assessment - Profibus/HART with Asset Optimization	Global	English	On request
T710e-11	System 800xA User Assessment - Foundation Fieldbus with Asset Opt.	Global	English	On request
T710e-12	System 800xA User Assessment - AC 800M HI Safety Engineering	Global	English	On request
T715e-01	Compact 800 User Assessment - Compact Control Builder AC 800M	Global	English	On request
T715e-02	Compact 800 User Assessment - Compact HMI 800	Global	English	On request
T715e-03	Compact 800 User Assessment - Panel 800	Global	English	On request
T720e-01	Freelance User Assessment - Engineering using Control Builder F	Global	English	On request
T720e-02	Freelance User Assessment - Sales and Sales Support	Global	English	On request
T720e-03	Freelance User Assessment - Operations with DigiVis	Global	English	On request
T720e-04	Freelance User Assessment - Administration and Diagnostics	Global	English	On request
T720e-05	Freelance User Assessment - Profibus, HART, and FDT	Global	English	On request

Figure 9. ABB University - Course locator search result

Direct links

Here are the direct links to the e-assessment offerings in the course locator. For System 800xA:

http://www.abb.com/AbbUniversity/Courses.aspx?key=T710

For Compact 800:

http://www.abb.com/AbbUniversity/Courses.aspx?key=T715

For Freelance:

http://www.abb.com/AbbUniversity/Courses.aspx?key=T720

Select an exam

Each assessment has a unique identifier. The prefix T710e stands for System 800xA, T715e for Compact 800, and T720e for Freelance. Click on the link of the exam you want to take. This leads you to the details:

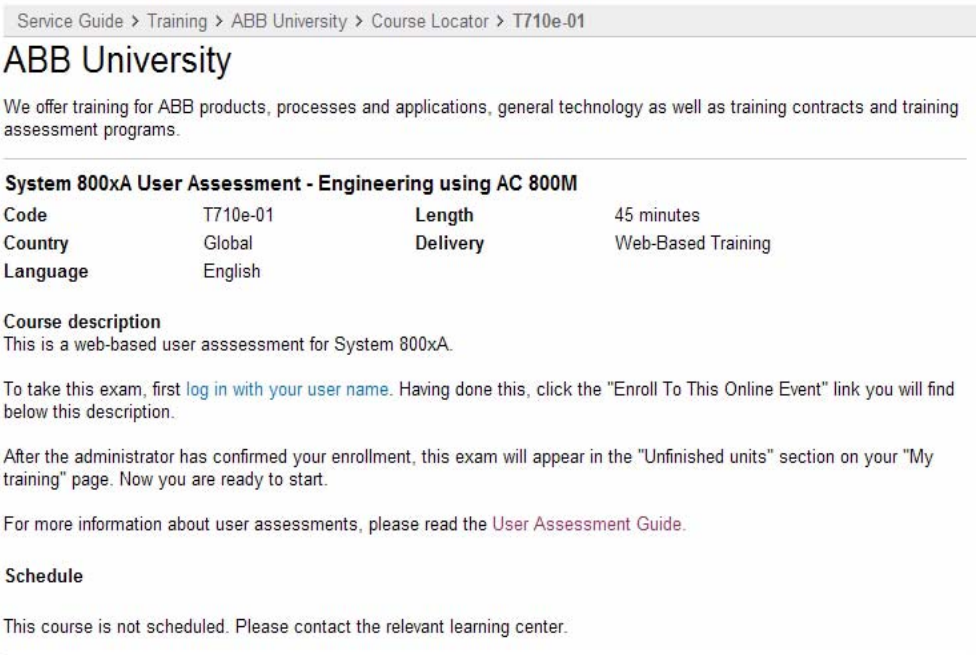

Figure 10. ABB University - Assessment details

Log in

Now click on the link **Log in with your user name**. After logging in with your credentials, you will come to the following page:

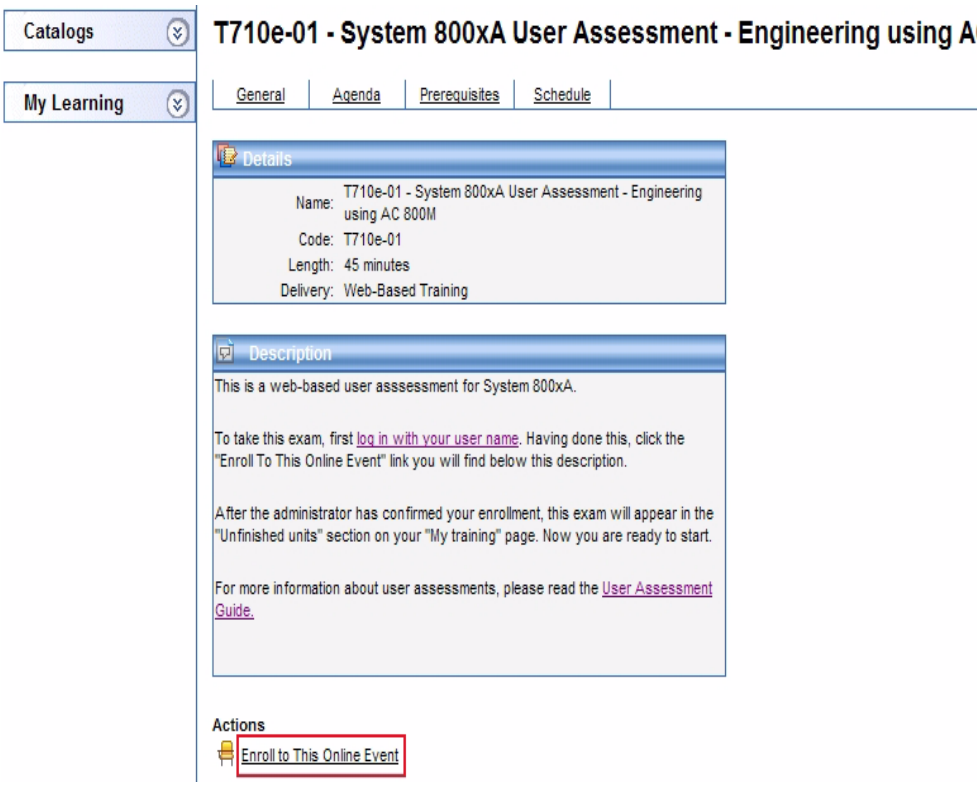

Figure 11. ABB University - Enroll to online event

Enroll to online event

The final step now is to click on the link **Enroll to This Online Event** to apply for your desired assessment. The status is shown in the next screen:

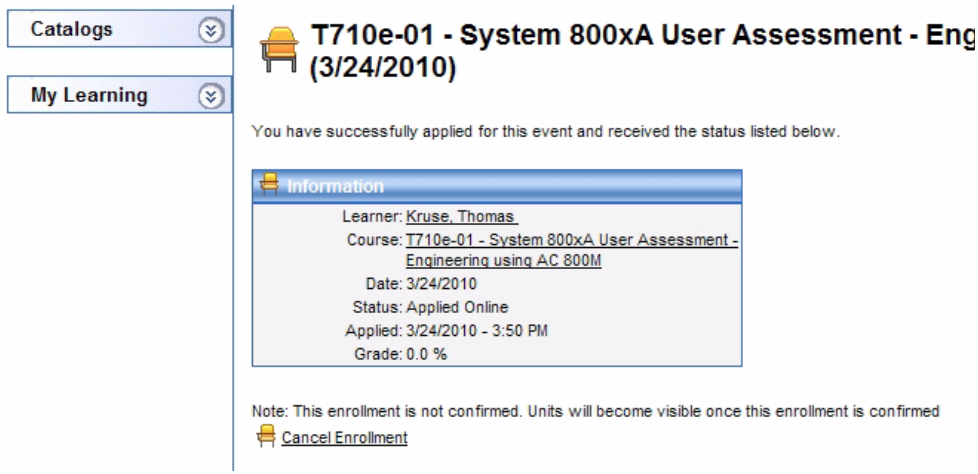

Figure 12. ABB University - Successfully enrolled

This enrollment is not confirmed yet, and you may cancel it at any time by clicking on the **Cancel Enrollment** link. It usually takes a few hours until your enrollment has been confirmed by the Training Partner (TP) support administration.

Confirm enrollment

After your enrollment has been confirmed by TP support, you will receive an e-mail from Training Partner online with a link to TP online to start your exam:

http://www100.abb.com/tpOnline/NET/Home.aspx

You are asked to complete the examination at least within three months of time.

Some Rules and Guidelines

To ensure the value of this User Assessment, you as test candidate shall follow some rules:

- Please reserve enough time for each test module.
- Avoid being disturbed by others.
- Take the test individually – do not cooperate with other test candidates.
- Do not seek help from other persons.
- Do not use manuals, documents, or access control systems.

With the supervisor (preferable your responsible line manager or a person appointed by the line manager) there is a person ideally supervising the assessment and later confirming its correctness.

Taking the Exam

Logging in

When the enrolment has been confirmed by TP support, you will receive an e-mail from Training Partner online with a link:

http://www100.abb.com/tpOnline/NET/Home.aspx

Use this link and log in with your user details. You will see a screen with your exams.

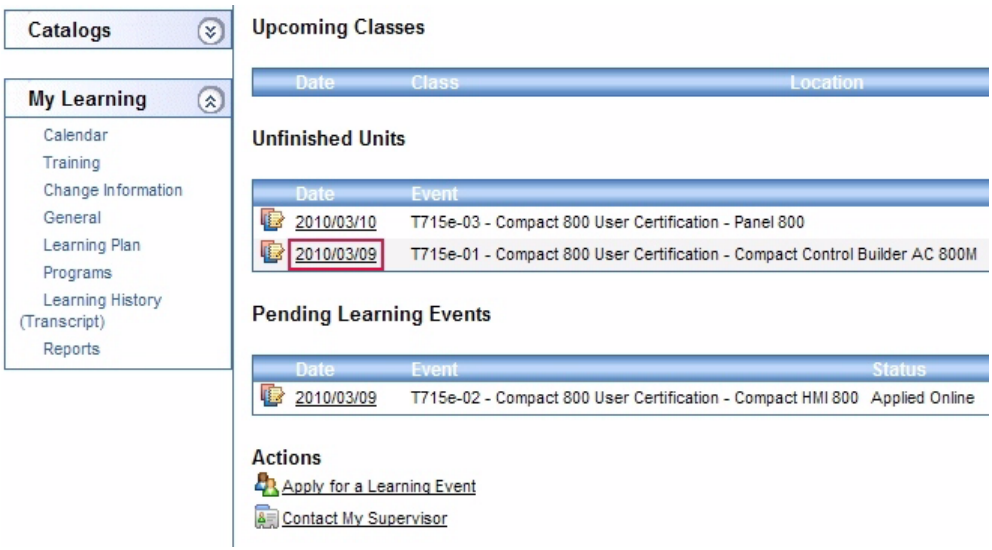

Figure 13. ABB University - Unfinished units

Finding and Starting the Exam

Below **Pending Learning Events** you'll find the exams you applied to, but have not been confirmed yet. Below **Unfinished Units** you'll find the exams that have been confirmed.

To start with your exams, click on the underlined date link next to the title of the exam.

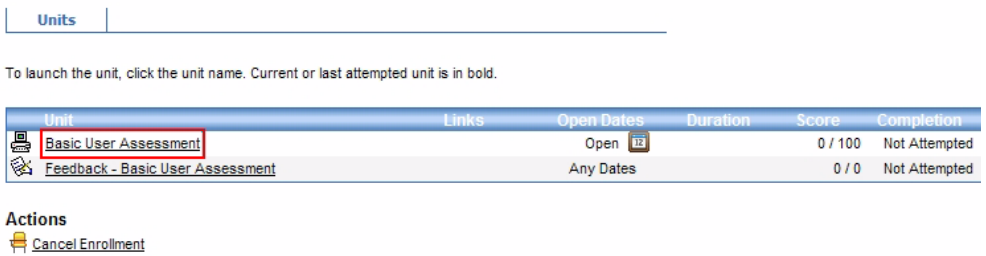

Figure 14. ABB University - Basic user assessment unit

The on-line exam starts in a new browser window. This web-based exam uses Adobe Flash technology.

Introduction Part

The exam starts with two introductory slides. The first slide is the welcome slide and shows the product name and the name of the assessment:

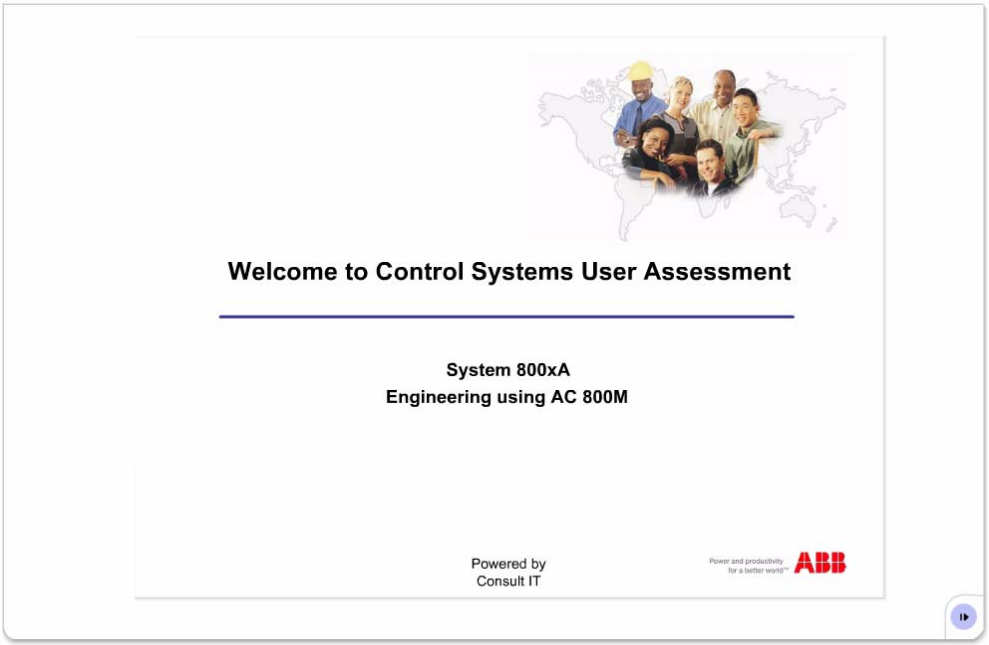

Figure 15. User assessment - Welcome slide

Click on the **next** button to continue to the second slide with the instructions.

.

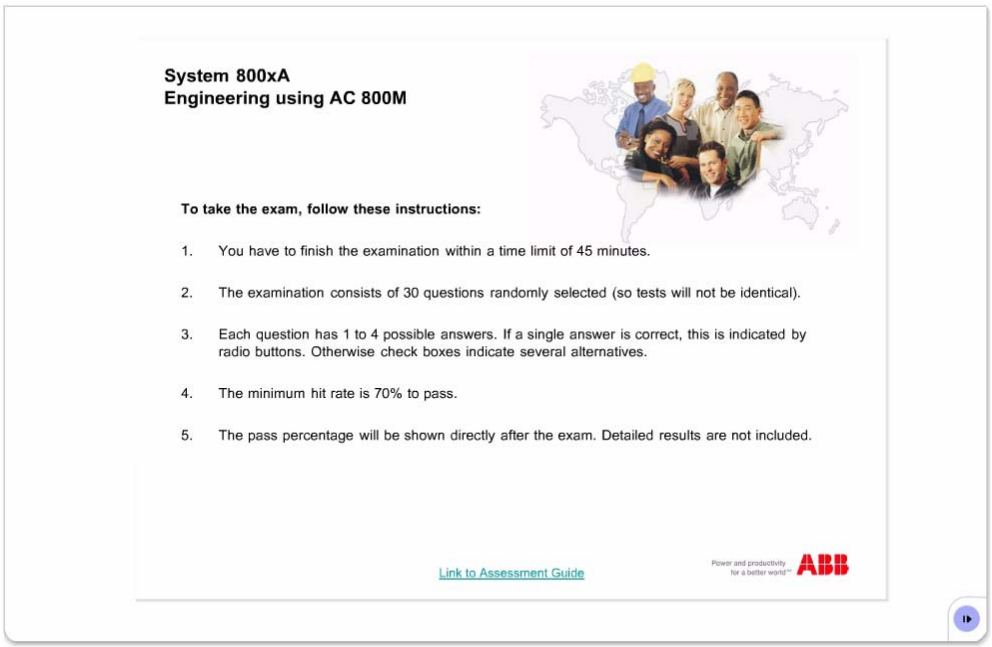

Figure 16. User assessment - Instructions slide

The instructions slide lists the main characteristics of the on-line exam:

- 20 questions[1] selected randomly out of a larger pool of questions (so tests will not be identical).
- There are two types of questions: If a single answer is correct, radio buttons are used for each alternative. If multiple answers are correct, check boxes are used instead. Answers are shuffled as well.
- There is limited time – 30 minutes[1]. The exam automatically keeps track of it.
- You must have answered at least 70% of the questions correctly in order to pass.

1. 30 questions and 45 minutes time for modules Engineering using AC 800M and Engineering using Control Builder F.

Read the instructions and click on the **next** button to start the exam.

Question Slides

Start answering questions by selecting a radio button or putting a check mark to one or more alternatives. Then click **SUBMIT**. On the top right part of the slide you see your time limit and the elapsed time.

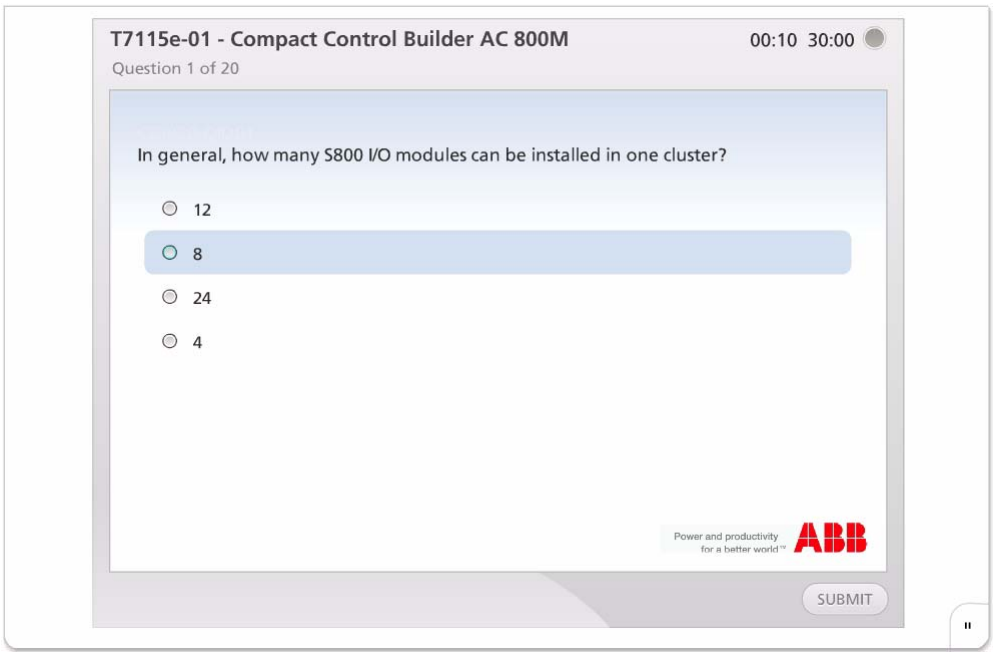

Figure 17. User assessment - Typical question's slide

Time limit exceeded

If you exceed the given time limit during the exam, the following message box will pop up:

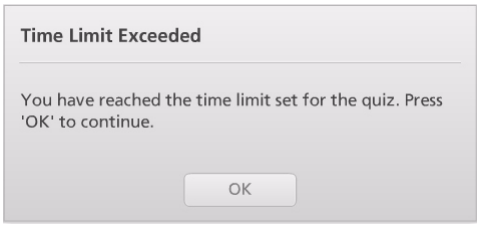

Figure 18. User assessment - Time limit exceeded

Depending on the result you have achieved so far, you will either pass the exam or fail.

Finishing the Exam

Exam Passed

If you scored enough points, you pass the exam and see this screen:.

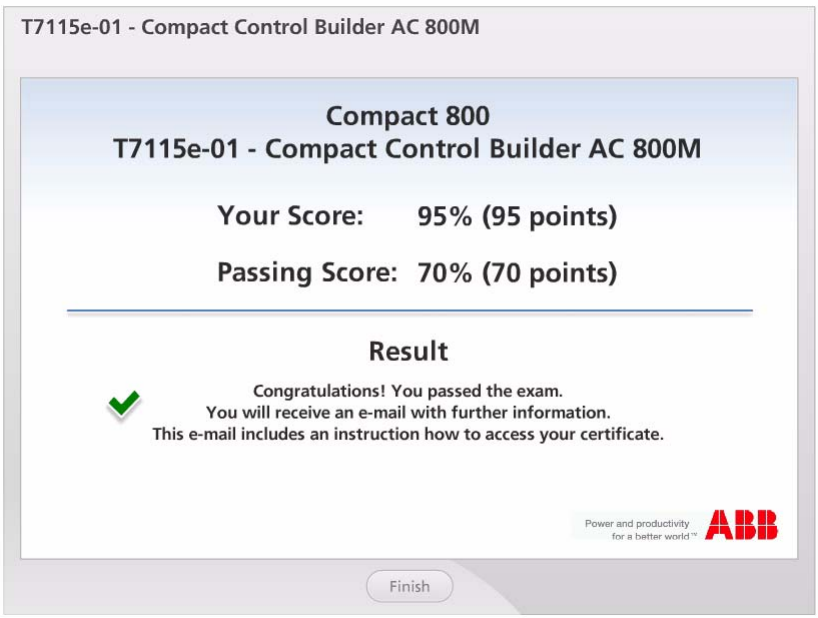

Figure 19. User assessment - Result passed

The result page shows your score and the passing score. You will automatically receive an e-mail with further information and an instruction on how to access your certificate.

If you enrolled for one exam only, then you are done. If there are more unfinished units, you either take the next exam right away, or you can sign off and continue at a later time.

Exam failed

If you did not score enough points, you failed the exam and see this screen:.

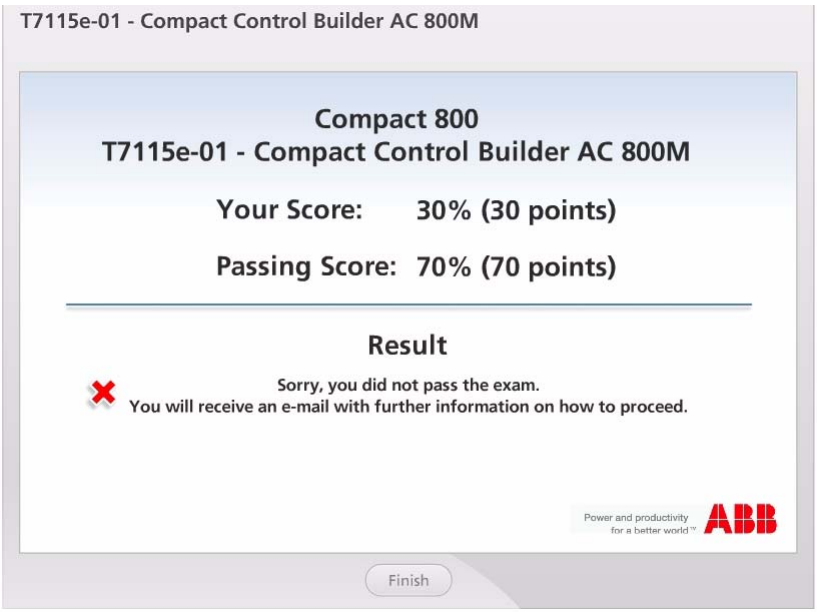

Figure 20. User assessment - Result failed

The result page shows your score and the passing score. You will automatically receive an e-mail with further information on how to proceed.

If you enrolled for one exam only, then you are done. If there are more unfinished units, you either take the next exam right away, or you can sign off and continue at a later time.

Giving Us Feedback

After you finished the assessment, please tell us who do you rate this exam by spending another minute on a feedback unit:

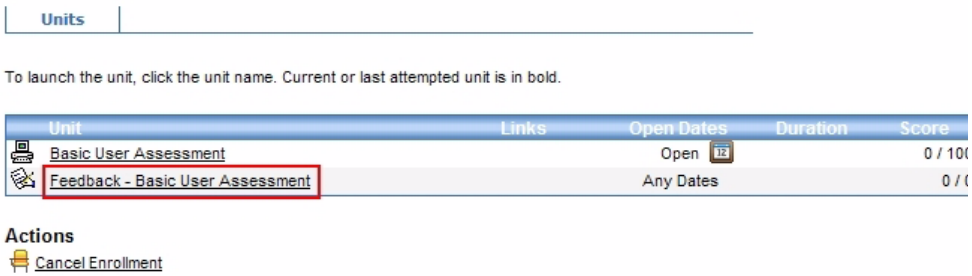

Figure 21. User assessment - Feedback unit

There are only 3 simple questions. Your answer helps us to improve the overall quality of the exam.

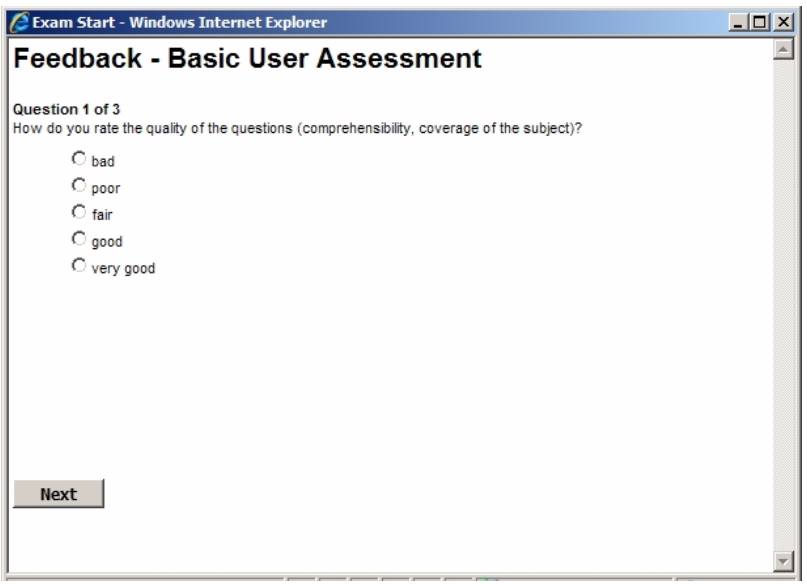

Figure 22. User assessment - Feedback question

By clicking **Next** on the third question, you come to the **Exam Completed** page and you are advised to click on the **Submit Exam** link:

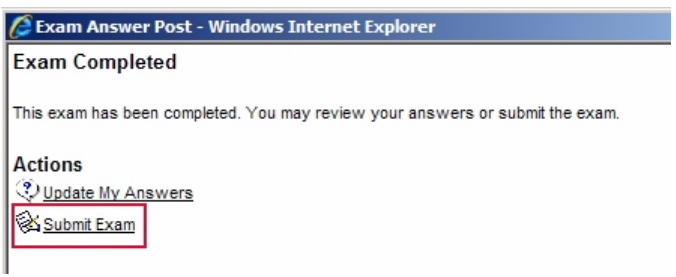

Figure 23. User assessment - Feedback completed

Access Your Certificate

If you passed the exam, you will receive an e-mail with instructions on how to access your certificate in PDF format.

Use this link to get to your training events:

http://www100.abb.com/tpOnline/NET/Home.aspx

Once you are logged in, please carry out the following steps:

1. Select **My learning** in the left hand column, then select **Reports**:

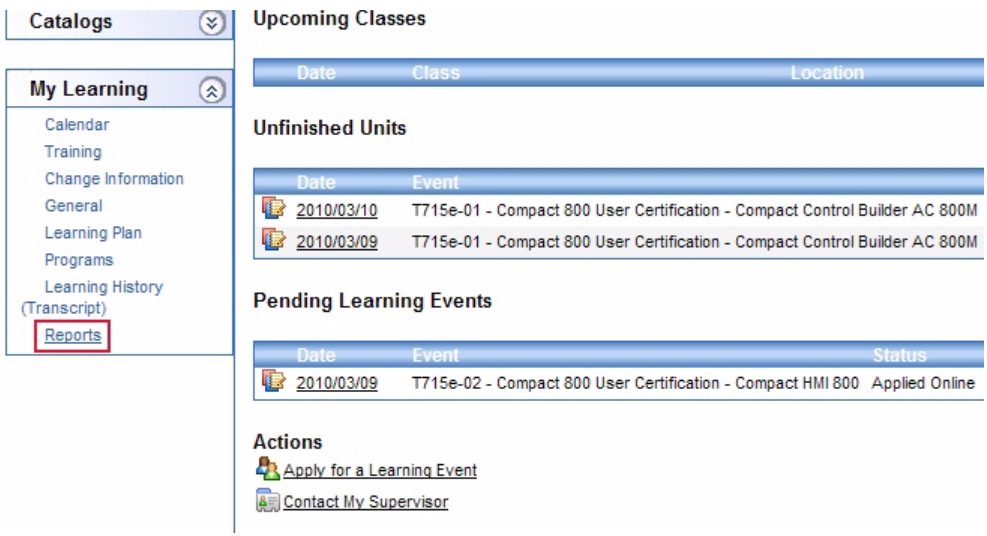

Figure 24. My Learning - Reports

2. Browse to folder **Control Systems** -> **Control Systems User Assessment**, then select the report **BU Control System Certificate**:

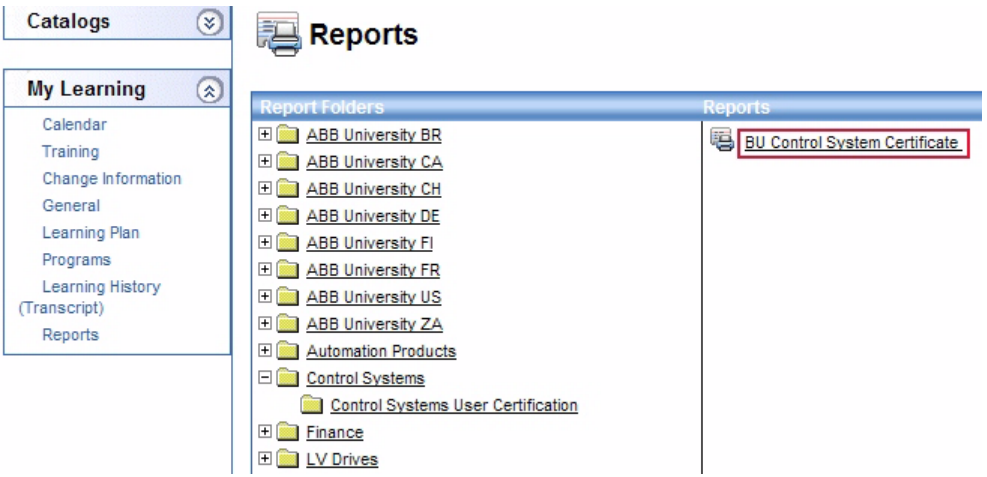

Figure 25. My Learning - Report BU Control System Certificate

3. Click **OK** for the report filter:

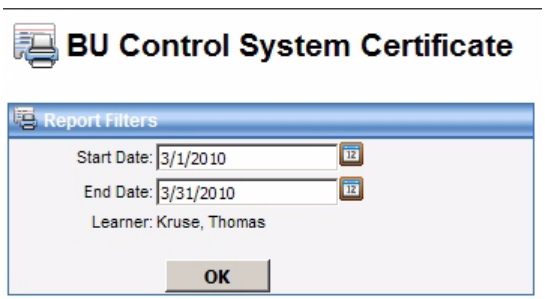

Figure 26. My Learning - Report filter

4. Your certificate will be shown. Now click on the diskette symbol to save the certificate as PDF on your computer:

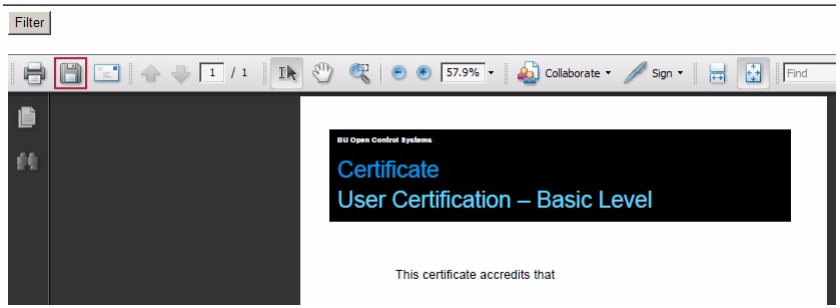

Figure 27. My Learning - Save certificate as PDF

5. Now you may print your certificate.

What Happens if I Fail?

If you did not pass an examination, you may try again.

Simply enroll for the same assessment module. This needs to be confirmed by the assessment manager. Make sure, that you did acquire additional training in order to pass the exam. One week minimum time span between two tries is required.

You may try to pass an assessment three times.

Section 4 Expert User Assessment

Introduction

In this section the User Assessment on expert level is described. It deals with details such as what user roles the assessment applies to, an overview of the assessment workshops, what functionality is covered by the assessment, the test scope and the prerequisites.

Competence Areas

Expert level User Assessment tests cover different competence areas such as engineering, system administration, and fieldbus. Expert level user assessment is in place for **System 800xA**.

System 800xA

For System 800xA the expert level User Assessment tests cover four different competence areas:

- Engineering using AC 800M (*T730*)
- System Administration and Maintenance (*T731*)
- Device Management with Asset Optimization[1] (*T732*)
- AC 800M HI Safety Engineering[1] (*T733*)

1. In preparation.

Assessment Workshop

The exam for a competence area of System 800xA is organized as an assessment workshop using the facility of a local ABB University or another ABB place. The workshop will be conducted by an instructor from Consult IT.

The total duration is 4 days. The first two days are reserved for a review of the subject matter pertinent to the assessment topic, and helping the students refresh their knowledge prior to the exam. The third day is reserved for the practical examination with System 800xA equipment. The last day is then reserved for a review of the test results together with the assessors.

The goal of an assessment workshop is to help the students prepare for the user assessment exam on an expert level and then successfully pass this exam.

Upon passing the exam, the participants will have demonstrated a comprehensive understanding of System 800xA and shall receive their expert level certification.

Participant Profile and Prerequisites

This examination is targeted at lead engineers and senior application engineers. There is a strict prerequisite before you can take the test:

- At least 1 year of project experience using System 800xA.

It is strongly recommended that candidates have attended appropriate training courses or Expert Workshops.

Exam Characteristics

Characteristics of the expert level exam are:

- Organized at ABB University
- Access to a running 800xA system
- Solving problems under time pressure
- Doing exercises by applying methods and best practice

There is a time limit of 6 hours for the examination, implying an efficient approach to the given tasks. Later, the results are checked by the instructor against the desired functionality.

Validity

An assessment is typically valid for 1.5 year and then a re-assessment is needed (for instance, new major versions of System 800xA is launched roughly every 18 months).

Description of Competence Areas

System 800xA

Table 11. Description of competence areas for System 800xA

Competence Area	Description
Engineering Using AC 800M	This test focuses on engineering methods and best practice using Control Builder M, Function Designer, Bulk Data Manager, Graphics Builder.
System Administration and Maintenance	Covers administration, maintenance, and troubleshooting of an 800xA system as well as automation network considerations.
Device Management with Asset Optimization	Device management and asset optimization. The focus is on engineering and commissioning of devices integrated in System 800xA by the Device Integration Center as well as devices that are not integrated.
AC 800M HI Safety Engineering	Safety solutions with AC 800M High Integrity and functional safety.

Competence Matrix and User Roles

This competence matrix is a suggestion on which examinations the different 800xA users typically should take. Some tests may only apply to certain regions, industries, or applications.

System 800xA

Table 12. Competence modules and user roles for System 800xA

Module / Role	Sales	Sales Support	Application Engineer	System Engineer	Maintenance and Service
Engineering Using AC 800M	—	Medium	High	Medium	High
System Administration and Maintenance	—	Medium(1)	Medium	High	High
Device Management with Asset Optimization	—	Medium(1)	High(1)	High(1)	High(1)
AC 800M HI Safety Engineering	—	Medium(1)	High(1)	High(1)	High(1)

(1) If applicable in the industry/region.

Sources for Know How and Training

Where to find information on the subject? Here some sources to acquire knowledge:

- ABB University Training Courses
- Consult IT Expert Workshops
- System 800xA Manuals
- Web Tech Talks

Test Scope and Prerequisites

System 800xA

Table 13. Test scope and prerequisites for System 800xA

Competence Module	Test Scope	Prerequisites
Engineering Using AC 800M	**This test focuses on engineering methods and best practice using Control Builder M, Function Designer, Bulk Data Manager, Graphics Builder. Your task is to completely engineer a small project from process signals to faceplates in a given time frame (6 hours). The project as such is not BU specific. However, you can use** • your BU specific control libraries (from Oil & Gas, Pulp & Paper, Minerals). • your BU specific engineering tools. **The final result is checked by the examiner against the desired functionality.**	**1 year of project experience using System 800xA is required.** **Recommended Expert Workshops are E121 and E123.**
System Administration and Maintenance	**This test focuses on troubleshooting an 800xA system. Your task is to** • deal with problems in a domain or domain controller and with network issues. • troubleshoot - OPC data access and graphics performance - alarm and event handling - history and trend functions - the service framework - time synchronization - Aspect Directory issues - user rights and user roles • retrieve information from the Windows operating system and from AC 800M controllers.	**1 year of project experience using System 800xA is required.** **Recommended Expert Workshop is E143.**

Table 13. Test scope and prerequisites for System 800xA

Competence Module	Test Scope	Prerequisites
Device Management with Asset Optimization	This test focuses on engineering and commissioning of devices integrated in System 800xA by the Device Integration Center and devices that are not integrated. Your task is to • add devices to an 800xA System. • configure the devices with the engineering tool. • engineer process values and status propagation (cyclic communication). • parameterize, configure, and load up asynchronous parameters (cyclic communication). • use devices in applications, PID, CAS slave implementation. • change a device with one from a different vendor (inter operability). • run diagnostics on a device, handle device alerts, capability (alarm & event, asset monitoring). • For devices not integrated in System 800xA, you create new Object Types for - Profibus devices via GSD File with a specific DTM and a generic Asset Monitor. - Foundation Fieldbus devices via CFFs. - HART devices with a specific DTM with a specific DTM and a generic Asset Monitor. You search and solve bugs during engineering and commissioning.	1 year of project experience using System 800xA is required. Recommended Expert Workshops are E132, E134, E135, and E170.
AC 800M HI Safety Engineering	Not yet defined.	Not yet defined.

Section 5 How to get Assessed on Expert Level?

Introduction

This section describes how you can get assessed on expert level.

How Do I Enroll?

Login

Exams on expert level are provided by ABB University (www.abb.com/abbuniversity).

On your local web page of ABB University find the **Student login** link:

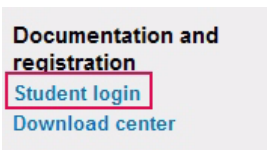

Figure 28. ABB University - Link to student login

If you do not have an account yet, refer to How Do I Register? on page 35 for information on how to register at ABB University.

Go to course locator

On your local web page of ABB University find the link to the course locator. You may use this direct link:

http://www.abb.com/ABBUniversity/Courses.aspx

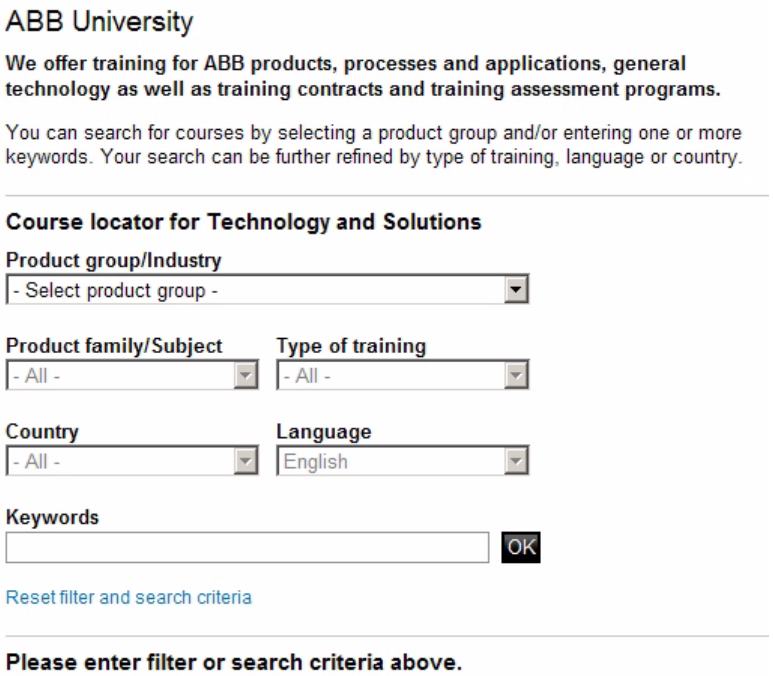

Figure 29. ABB University - Course locator

Search for an exam

Each assessment workshop has a unique identifier. For System 800xA, all assessment on expert level workshops start with “T73”. You may search for it

directly by entering T73 in the text field **Keywords**, and then click on OK. You will get a results like the following

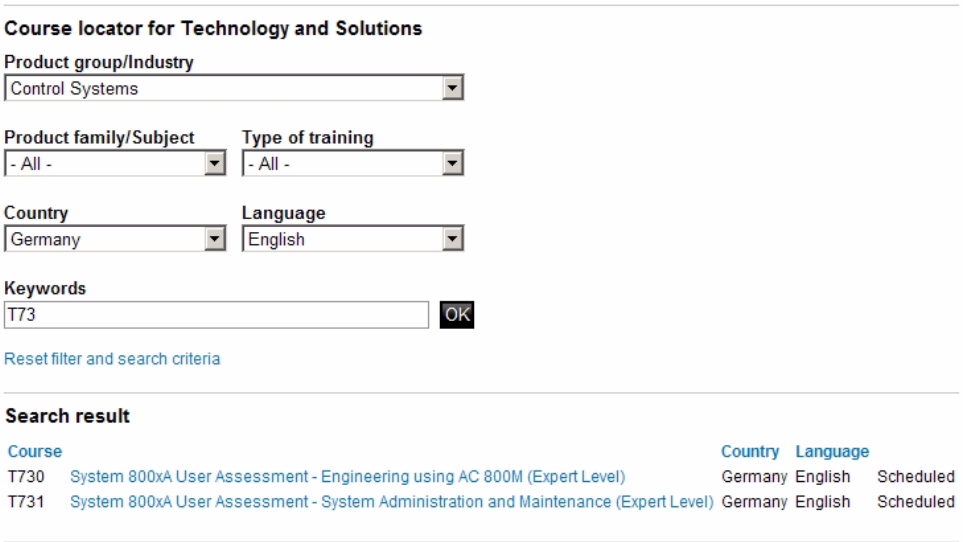

Figure 30. ABB University - Course locator search result

Otherwise, you can use the filter functions narrow down the results. First select as product group **Control Systems** and wait until the screen has been refreshed. Then select **800xA** as Product family/Subject, and look for the T73x codes.

Select an exam

Click on the link of the assessment you want to take. This leads you to the details:

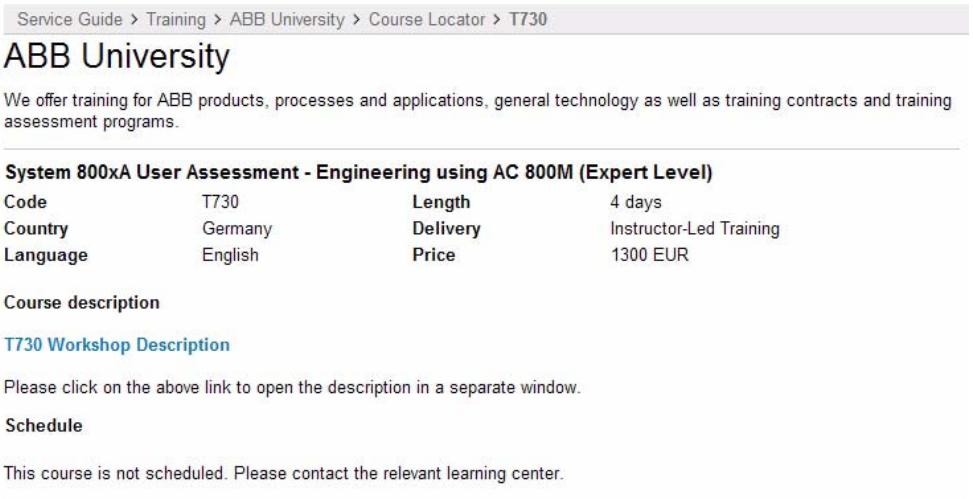

Figure 31. ABB University - Assessment details

Click on the link in blue color to access the workshop description in PDF format.

Section 6 FAQs

Frequently Asked Questions

Question

When I fail in a basic level assessment, what happens?

Answer

You may try again. You need enroll to that assessment module again. Make sure, that you did acquire additional training in order to pass the exam. The enrollment needs to be confirmed by the assessment management. One week minimum between two tries is required. You'll be granted three try's be module.

Question

What about the lifetime of the certificate?

Answer

A certificate is valid for about 1.5 years.

Question

Is there a restriction on which module to take?

Answer

No, there is no restriction.

Question

Do I get the detailed test results?

Answer

The pass percentage will be shown directly after the exam. Further details will not be given.

Question

Where do I find information about training?

Answer

Look at ABB’s training portal:

www.abb.com/abbuniversity

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Open Control Systems
Mannheim, Germany
Phone: +49 1805 26 67 76
Fax: +49 1805 77 63 29
E-Mail: marketing.control-products@de.abb.com
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