All references and lists of events are available at:

**www.ecqa.org**

Local Training Organisation:

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### EUROPEAN CERTIFICATION AND QUALIFICATION ASSOCIATION (ECQA)

- The ECQA is a non-profit association, joining institutions and thousands of professionals from all over Europe and abroad.
- ECQA provides a worldwide unified certification schema for numerous professions.
- ECQA brings together experts from the market and supports the definition and development of the knowledge (Skills Sets) required for professions.
- ECQA defines and verifies quality criteria for Training organizations and Trainers to assure the same level of training all over the world.
- ECQA promotes all certified professionals.

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Lifelong Learning Programme

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European Certification & Qualification Association

iDesigner

# ECQA Certified **Integrated Design Engineer**

www.integrated-designer.eu

www.ecqa.org

**Improve and certify your skills.**
**Join the European Pool of Experts.**

Learn how to design and develop the Products, Services, and Systems of tomorrow.

# Overview

Designing modern products and systems in an innovative, sustainable and competitive way demands the implementation of new paradigms in development organisations. Design is no longer concentrated on a specific phase. It goes beyond aesthetics to cover all functional aspects of a product or a system, thus driving the entire development process. Consequently, more and more actors of the complete product life cycle have to be integrated in the design process. This creates new challenges for design engineers, as well as for development project managers.
This training program addresses exactly these challenges, and provides answers to the following subjects:

- The definition and motivation of integration in design,
- the targets of integration, including the product life cycle,
- essential methods of integration, including concurrent engineering and product modelling,
- mastering complexity and innovation,
- knowledge management for integration,
- collaborative integrated design,
- selected aspects of integration in design, including sustainable design, risk assessment, safety design, virtual development tools and techniques, etc.

# Target Groups

### EXPERIENCED DESIGN ENGINEERS

*Capitalise on your Project Experience!*

You have worked in product and system development projects, and you want to capitalise on your experiences.

### PRODUCT AND SYSTEM ARCHITECTS

*Establish an Integrated System View!*

You want to assume an architecting role in a product or system development project.

### DEVELOPMENT PROJECT MANAGERS

*Compose and guide Integrated Project Teams!*

You are responsible for composing and managing innovative interdisciplinary project teams.

### RESEARCHERS WORKING WITH INDUSTRY

*Know the Needs of Integration in Design!*

You are a researcher in product, system, process, or organisation development, ready to support industry in finding and implementing processes and organisations which facilitate integrated product and system design.

# Training Services

ECQA certified trainings are offered as

### SEMINARS

providing lectures on training content, examples and best practices. The minimum duration for teaching each element is 45 minutes.

### WORKSHOPS

aimed at participants who want to extend the training scope of the seminars by further genuine practical examples, which they typically bring along from their own experiences and professional work environments.

### E-LEARNING COURSES

offering the same content as seminars, but with additional assignments and homework, through the use of an online learning management system. The exercises done as homework are discussed on-line in groups and moderated by the trainer, so that the exchange of knowledge and experience is leveraged to a maximum.

All trainings are modular, based on learning elements as a minimum unit of modularity.

All ECQA certified trainers and training organizations are trained to provide the same content for each learning element.

# Exam and Certification

To become an ECQA Certified Integrated Design Engineer and to be listed within the pool of experts available at www.ecqa.org, participants have to take the exam and pass a minimum number of elements.

The exam is done electronically, using a central Exam Pool of Multiple Choice Questions.

Participants who pass the ECQA exam for the ECQA Certified Design Engineer successfully, will be able to justify their skills with a Europe-wide, market recognised certificate. This will give them a competitive advantage in their professional career and on the job market.

Training, examination and certification can be done in a modular fashion, i.e., candidates may be trained and certified for certain elements only. This allows them to obtain the complete certification gradually in the course of their professional career.

# Training Program

### UNIT 1: THE REASONS FOR INTEGRATION IN DESIGN

1. Competitive Design, Externalisation and Outsourcing, Sustainable Design, Innovation by Design, Complexity

### UNIT 2: THE TARGETS FOR INTEGRATION IN DESIGN

1. Integrating the whole Life-Cycle
2. Integrating the Stakeholders of the Life-Cycle
3. Integrating the different Stakeholder Cultures

### UNIT 3: ESSENTIAL METHODS OF INTEGRATION

1. Concurrent Engineering
2. Just-Need Approach
3. Product Modelling

### UNIT 4: MASTERING COMPLEXITY AND INNOVATION

1. Integration as a Means to master Complexity
2. Functional Re-Use aware Design Principles
3. Requirements Engineering
4. Design Thinking for Innovation
5. Innovating using TRIZ

### UNIT 5: KNOWLEDGE MANAGEMENT IN INTEGRATION

1. Formalisation of Knowledge
2. Capitalisation on Knowledge
3. Sharing of Knowledge
4. Contextualisation of Knowledge

### UNIT 6: COLLABORATIVE INTEGRATED DESIGN

1. Design Process Moderation
2. Working in Distributed Engineering Teams
3. Communication with Experts from different Domains

### UNIT 7: SELECTED ASPECTS OF INTEGRATION

1. Integrated Risk Evaluation
2. Integrated Safety Design in Automotive
3. Integrated Design of Recycling
4. Virtual Technologies to support Integration
5. etc.