

# Software Reliability

## Reliability Foundation 6



***To cope with the latest economic developments, organizations must develop new products and systems with an intrinsic high level of reliability. RAMS, Reliability-Availability-Maintainability-Safety, is an upcoming discipline in product development helping to get an integral grip on the Reliability of your product during the Design Phase with accurate and quantitative methods.***

**Design Reliable Software into your products!**

Register: [www.holland-innovative.nl](http://www.holland-innovative.nl)

### Integration into the Product Creation Process

In this training the entire software development process is covered. Focusing on early design concepts, methods and procedures will be taught to define software reliability requirements and realize and validate this required software reliability during the software design and development. Using proper software reliability engineering, risks will be identified, controlled, and mitigated early in the software development process.

### A selection of the skills that will be acquired

Software reliability is - as opposed to hardware reliability - mainly about systematic faults that have been designed into the system. During this training the following software reliability engineering aspects will be covered: operational profiles, dependency on other software quality characteristics, fault prevention, fault detection, fault tolerance and fault forecasting. Risk analysis methods like FMEA and FTA- including human aspects - will be discussed. The link will be made to software reliability testing including root cause analysis and orthogonal defect classification (ODC). Reliability growth models and judgment on software reliability are also part of the software validation process.

### The aim and result of the training

You will be trained to become a software reliability engineering professional capable of supporting software architects, developers, and engineers in creating reliable software for complex systems. By focusing on software reliability you will be able to provide pro-active and solid engineering and management recommendations throughout the entire software development and engineering process.

### Target group

The course aims at professionals dealing with design, testing, warranty analysis, reliability, project planning, maintenance, or inspection.

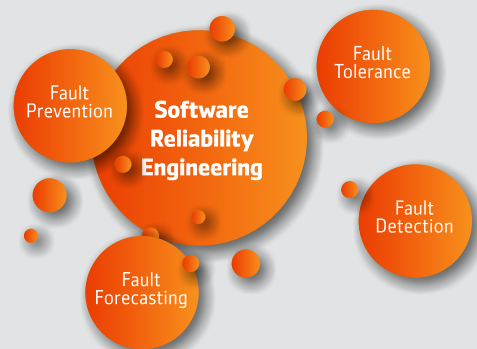
**Course duration and number of participants** 1 Block of 3 days, from 9.00 am to 5.00 pm. Maximum group size: 16 participants.

**Teacher** Ir. Bryan Bakker (Sioux Embedded Systems B.V.) and Ronald Schop (Holland Innovative B.V.)

**Location and costs** Location: Holland Innovative, High Tech Campus 9, Eindhoven. The costs are €2.300,- (ex. VAT) per participant. This includes 3 training days, a syllabus of the course material, templates, additional literature on software reliability engineering, beverages and lunches. Not included in the price are the costs for the theory exam and certification by the University of Stuttgart.

**Dates, registration and further information** See [www.holland-innovative.nl](http://www.holland-innovative.nl) under Academy, where you can also sign up.

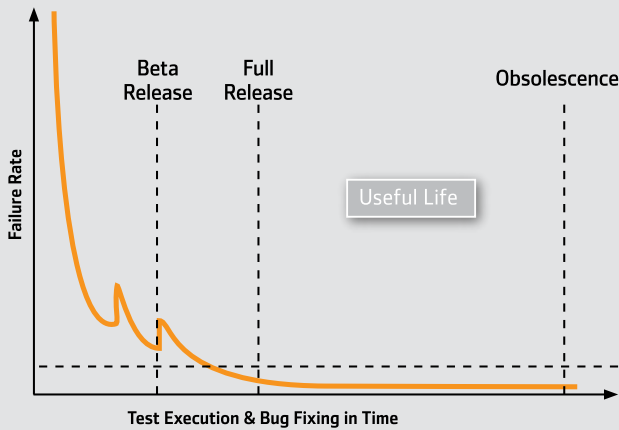
**Contact** HI Team Academy, tel. +31 40 85 14 611, [academy@holland-innovative.nl](mailto:academy@holland-innovative.nl)



Software Reliability Engineering Landscape



## Reliability Growth in Time



### Product leadership: Factor 10

What does it mean for your business if you can develop reliable software - first time right? Or if you are able to identify, define, and mitigate risks at an early stage in your software development process? The Factor 10 approach: methodical and structured software reliability engineering is crucial in achieving superior software quality and reliability. Mastering reliability methods and techniques is important in order to achieve a superior product quality. In this training, the Factor 10 approach will be integrated in all subjects.

### Level

University or college level, or equivalent level of knowledge gained through experience. Participants are recommended to first follow the training courses Reliability Foundation 1 and Reliability Foundation 2 or to ensure that their body of knowledge includes Life Data Analysis, Reliability Testing, and System Reliability.

### Materials

You are invited to bring your own cases to analyse during the training.

### Program:

#### Day 1

- Introduction to software reliability engineering, glossary
- Software reliability landscape
- Software development processes
- Verification and validation strategy
- Software reliability requirements

#### Day 2

- Risk analysis (FMEA – failure mode and effects analysis) for software
- Fault tolerance
- Robustness
- Operational and user profiles

#### Day 3

- Integration and testing
- Root cause analysis, orthogonal defect classification (ODC)
- Predicting software reliability
- Reliability growth models

### Cooperation and certification

The Reliability Foundation Program is a post-graduate education, focusing on the practical aspects of reliability engineering. The program has been developed in accordance with VDI 4002 reliability guidelines in collaboration with the University of Stuttgart and consists of several modules that will result into a VDI Reliability Engineer certification.



The **Holland Innovative House**: ■ ■ core ■ results ■ enablers

### Holland Innovative BV:

- For solutions in project management, product & process development and improvement, and reliability
- 30 Professionals with an average of 20 years experience
- Market areas: HighTech Industry, Automotive, Solar & Energy, Healthcare, Agro & Food

