

More and more, the use of **formal methods** is recommended in the development of safety-critical systems, for instance in standards like IEC 61508, ISO 26262 or DO-178B/DO-254. But this raises the question of what it means to use formal methods, and what value it provides in practice.

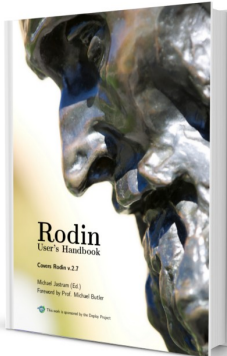
## Content

This workshop starts by outlining what formal methods are, what value they add, and which popular formal methods exist. This provides the foundation for this workshop.

The principal part is concerned with getting to know a concrete formal method, and using it as part of the system development process. We use the Event-B method and the Open Source tool "Rodin" in combination with the extensions for requirements traceability and model checking. These user-friendly tools are widely used in teaching and are well-suited for learning. Together, we start with a small number of requirements. These are formalized, maintaining a traceability between the requirements and the model. We use the resulting system description to demonstrate the areas where formalization can provide an added value in the development process. We will touch on the following topics as well: change management, test generation, validation, visualization, animation, and code generation.

## Added Value

After attending this workshop, you will be able to clearly assess the strength and weaknesses of formal methods in various situations. You will understand how you can realize the demands of safety standards with respect to formal methods. You will be capable of identifying the fields of application for formal methods in your organization, as well as their benefits.



## Rodin Handbook

Participants will receive a printed version of the Rodin Handbook.



## At a glance

This workshop provides you with an overview of the possibilities and limitations of **formal methods** in systems development.

**Duration:** 1 day (recommended). ½ day or 2 days possible.

**Type of Training:** On site, interactive workshop.

**Prerequisites:** Basic knowledge of systems development, a fundamental understanding of set theory and logic.

**Target Groups:** System engineers, developers, safety experts, development engineers, head of development, requirements managers, product managers.

**Equipment:** Participants are encouraged to provide their own computers and to preinstall the required open source software.

**Language:** English or German (Teaching Materials in English).

**Cost:** Upon request.

**Dates:** Upon agreement.

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