

# OpenTURNS developers training: agenda

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Developers training



## Objectives

This 4 days training will give you the first elements to:

- Understand the OpenTURNS aim and architecture,
- Discover the coding rules, the development process and the associated infrastructure,
- Make your first steps in the OpenTURNS development by adding a new specialization of an existing concept both in the C++ library and the Python interface,
- Make your first steps in the OpenTURNS module development.

## Agenda

Each of these four days will be organized as follow:

- 9.30am Welcome (coffee & tea)
- 9.45am Theory
- 12.15pm Lunch
- 13.15pm Theory or experimentation
- 15.15pm Break (coffee & tea)
- 15.30pm Experimentation
- 17.30pm End of the day

## Day 1: uncertainties, OpenTURNS platform, architecture

- Uncertainties: quick reminder on analysis, probability and statistics
- OpenTURNS platform: the global picture of OpenTURNS product and the website, short presentation of the development life-cycle.
- Architecture: the general organization of the product with some highlights on the key mechanisms and their implementation.
- Experimentation: basic manipulation of a numerical function and a probability distribution, navigation in the website (tickets, versioning system), exploration of examples in C++ and python.
- Selection of the challenges.

## Day 2: development in the C++ library

- The development infrastructure: some elements on CMake.
- The development process: architecture, C++ implementation, tests.
- Experimentation: C++ implementation of the challenge.

## Day 3: make the development visible in python

- Interfacing C++ and Python using SWIG.
- The development process: SWIG interface, python modules, tests, documentation.
- Experimentation: Python binding and documentation of the challenge.

## Day 4: create an OpenTURNS module

- The concept of module, its standard structure.
- The key steps in the development of a module.
- How to install and use a module?
- Experimentation: implementation of the second challenge as a module.

## You are a new OpenTURNS developer!

- All the developments made during this training session will become part of OpenTURNS sooner or later, depending on their degree of maturity (quality ;) ?).
- The missing steps for a direct integration will be the testing phase, the validation phase and probably parts of the documentation phase.
- The integration will be done using a development branch on GitHub.

Check the upcoming release or the next to see your work in action!