



Functional Safety using Ansys SCADE Software

Facilitator's Guide

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Ansys Software Used

This case study uses Ansys SCADE®, the embedded software product collection.

This guide supports the implementation of a Functional Safety in Automotive ADAS module using the Ansys SCADE tool. The content was originally developed in collaboration with Professor Rolf Jung from Hochschule Kempten with the goal of making a two part functional short course on functional safety.

Teaching Package Contents and File Types:

- 01_Facilitator's Guide (PDF)
- 02_Preview (Folder)
 - » 02_Preview Instructions (PowerPoint)
 - » Scade_Walkthrough (ETP File)
 - » Walkthrough_Package.xscade (XSCADE File)
- 03_Activity Overview (PowerPoint)
- 04_Session 1 (Folder)
 - » 04_Session I Instructor Slides (PowerPoint)
 - » Session I Participant Simulation Files (Folder)
 - » Scademodel_Session_I_A_1 (Folder with simulation files)
 - » Scademodel_Session_I_A_2 (Folder with simulation files)
 - » Scademodel_Session_I_B_1 (Folder with simulation files)
 - » Scademodel_Session_I_B_2 (Folder with simulation files)
 - » clean_up (Batch File)
- 05_Session 2 (Folder)
 - » 05_Session II Instructor Slides (PowerPoint)
 - » Session II Participant Simulation Files (Folder)
 - » Scademodel_Session_II_A_1 (Folder with simulation files)
 - » Scademodel_Session_II_A_2 (Folder with simulation files)
 - » Scademodel_Session_II_B_1 (Folder with simulation files)
 - » Scademodel_Session_II_B_2 (Folder with simulation files)
 - » clean_up (Batch File)
- 06_SCADE Project Creation Guide (PDF)

Target Level:

This content is targeted for students learning more about embedded systems and their implementation for functional safety. Some background knowledge is recommended.

Learning Objectives:

By the end of this activity series, students will:

- Implement and analyze a safety-critical functionality
- Learn about Automatic Cruise Control
- Practice Model-based software development with respect to safety processes
- Learn the basics of the Ansys SCADE software

Prerequisite Knowledge Required:

Understanding of the design of embedded systems is recommended, as this is a more advanced resource.

Understanding of how to use the Ansys SCADE tool is nice but not a requirement. The PowerPoint and simulation files inside the **02_Preview** Folder should be given to students ahead of time to help familiarize them to software.

Estimated time for Completion:

This content was designed and implemented in two 90 minute sessions, however four 45 minute sessions or a half day with breaks would also work.

Implementation Guidance:

For the first workshop implementation, students were in groups of 2-3 with one computer with Ansys SCADE Software installed per group (~25 students total).

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Document Information

This case study is part of a set of teaching resources to help introduce students to related to embedded systems.

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