Join the ANSYS SCADE Academic Community
ANSYS SCADE®
Embedded System and Software development

The ANSYS SCADE Product Line is a formal, comprehensive, industry-proven solution for developing critical systems and software, particularly relevant for the challenges of the Civilian Avionics, Aerospace and Defense, Industry automations, Rail Transportation, Energy, Automotive and Medical. The ANSYS SCADE product family supports the entire development workflow, from requirements analysis to design verification, implementation, and deployment.

ANSYS SCADE Academic Program

We at ANSYS want to partner with academia to ensure they have the best tools and educational resources to meet the future’s toughest problems.

Systems and software engineering are playing growing roles in higher education. In incorporating embedded systems into curricula, academic programs face a number of challenges, such as limited budgets (compared to industry), efficient deployment of tools, and cross-department or cross-campus usage. The bottom line is often measured by how much the tools promote out-of-the-box thinking.

The ideal solution is one that scales for application by a wide range of users, from multiple teachers to students and researchers.

ANSYS provides a wide range of affordable tools and services to help meet the growing and diverse needs of academia. Universities, colleges and research institutes around the world turn to ANSYS for high-quality development solutions to ensure students receive the best possible education.

The ANSYS SCADE Academic Package

ANSYS provides all-inclusive resources for teaching industrial modeling of critical systems and software. This means:

- Fully functional ANSYS SCADE products
- A comprehensive curriculum of material
- Interactive courseware including teaching material, exercises, laboratories, and industry-like projects
- E-learning videos

We want you to get your hands on the tools quickly and enjoy the ANSYS SCADE academic experience at its maximum.

Industrial Connections

Partnering with industry leaders via consortia and collaborative research projects - while simultaneously leveraging young engineers education and large academic clusters - a number of university professors and researchers around the world are working on the ANSYS SCADE model-based design technology.
The ANSYS Systems & Embedded Software Product Family

ANSYS SCADE® empowers users with a systems design environment for use on systems with high dependability requirements, providing full support of industrial systems engineering processes, such as ISO 26262, and automotive architecture standards such as AUTOSAR. This product features functional and architectural system modeling and verification in a SysML-based environment. SCADE System provides a strong foundation to deploy Model-Based Systems Engineering (MBSE) processes and best practices. By using SCADE System in conjunction with ANSYS SCADE®, system and software engineers can work within the same framework.

SCADE System

Embedded System Design

SCADE System® empowers users with a systems design environment for use on systems with high dependability requirements, providing full support of industrial systems engineering processes, such as ISO 26262, and automotive architecture standards such as AUTOSAR. This product features functional and architectural system modeling and verification in a SysML-based environment. SCADE System provides a strong foundation to deploy Model-Based Systems Engineering (MBSE) processes and best practices. By using SCADE System in conjunction with ANSYS SCADE®, system and software engineers can work within the same framework.

SCADE Suite

Control Software Design

SCADE Suite® empowers users with a model-based development environment for critical embedded software. With native integration of the Scade language and its formal notation, SCADE Suite is the only integrated design environment for critical applications spanning requirements management, model-based design, simulation, verification, qualifiable/certified code generation, and interoperability with other development tools and platforms. SCADE Suite code generators produce C and Ada.

SCADE Test

Testing Environment

SCADE Test provides test engineers with a complete testing environment for creating and managing test cases, measuring coverage, managing test results, and automating execution of test cases for SCADE® applications on host and on target. Test creation and maintenance, together with test execution and coverage analysis, are very time-consuming activities. Test engineers using SCADE Test for Verification and Validation (V&V) activities can now benefit from best-in-class technology in both a model-based approach and a cost-effective testing environment, allowing them to significantly reduce testing efforts.

SCADE Display

HMI Software Design

SCADE Display® empowers users with a versatile graphics design and development environment for embedded Human Machine Interfaces (HMI). With a native support for the OpenGL® SC (Safety Critical) and ES (Embedded System) standards, SCADE Display represents a new generation of graphics software development tools, spanning prototyping, display design, simulation, verification and validation, and certified code generation supporting several safety standards in a certifiable environment.

SCADE LifeCycle

System & Software Lifecycle Management

SCADE LifeCycle® includes modules combining a unique support for application lifecycle management. This product line features requirements traceability management, configuration and change management, automatic documentation generation, and project monitoring. SCADE LifeCycle enhances the functionalities of SCADE System®, SCADE Suite®, SCADE Display®, and SCADE Test with add-on modules that embed architecture and design activities within your whole Product/Application Lifecycle Management framework.

SIMPLORER

System Modeling & Simulation

Simplorer® is a powerful platform for modeling, simulating, and analyzing virtual system prototypes. Simplorer enables product development teams to verify and optimize performance of their software-controlled, multi-domain systems designs. With flexible modeling capabilities and tight integrations with ANSYS solutions for 3-D multiphysics simulation and ANSYS SCADE products for embedded software design, Simplorer provides broad support for assembling system-level physical models and helping product development organizations connect conceptual design, detailed analysis, and system verification.
Research Proven Success

The ANSYS SCADE Academic Program fosters strong relationships with Research Entities. Research projects provide the community with access to the very latest collaborative programs in which the ANSYS SCADE products are used.

These projects apply to various industrial domains and mix academic with industrial partners at a worldwide scale.

Among them we count success stories such as:

CertMod - Certified code generation of model-based Modelica controllers

The Clean Sky consortium handles a project on modeling and simulation of aircraft systems with the multi-domain modeling language Modelica. The final goal is to not only utilize these models for design and evaluation, but also to directly use Modelica controller models for generation of certified code in embedded systems.

The objective of the CertMod project is to define the type of models and the Modelica subset that shall be handled for a prototype of a DO-178C Level A qualified code generator.

Instituto Tecnologico de Aeronautica – ITA

The Brazilian Aeronautics Institute of Technology (Instituto Tecnologico de Aeronautica – ITA) is one of the most renown Aeronautics and Defense institute in Brazil. Every year an Interdisciplinary Problem Based Learning is proposed to more than 70 undergraduate and graduate students from different courses within just four months to have the opportunity of conceptualizing, modeling, and developing an Avionics Real-Time Embedded System.

It represents just one example of how to solve the old problem of teaching and learning complex real-time avionics embedded systems, by collaboratively using the Scrum agile method with ANSYS SCADE.

A Complete Solution

As a solution provider in the critical systems and software industry, ANSYS offers professional services expertise, providing ANSYS SCADE-usage ramp-up services, including product training, over-the-shoulder support. ANSYS SCADE modeling optimization, methodology guidelines and training videos. Project support services like tool integration, customization and qualification services, and test strategy optimization services are also available, along with process training and certification expertise services.

What does it mean to be part of the Academic Program?

- **Industrial Connections**
  - Same tools and processes used in production by leading development organizations around the globe
  - Preparation for the next generation of leading engineers
  - Opportunities for collaborative research

- **Hands on**
  - Extensive curriculum
  - Training materials and documentation

- **Academia Opportunities**
  - Recognition for academic leadership in embedded SW development and visibility of activities
  - Flexible pricing and opportunities for collaboration

ANSYS SCADE Academic Program - Research & Teaching

**ANSYS SCADE Academic Research**

With the ANSYS SCADE Academic Research Bundle of licenses, RESEARCHERS get access to the latest system and software engineering technology. They benefit from full product licenses, with no restrictions, granted along with a library of references around the technology.

You become part of the ANSYS SCADE Academic Community, allowing you to share your latest findings and communicate with other researchers and industrial users around the world.

**ANSYS SCADE Academic Teaching**

As part of the ANSYS SCADE Teaching Bundle of licenses, PROFESSORS have the opportunity to introduce every level of a system and software development life cycle to their students. The qualified/certified code generation aspects of the ANSYS SCADE tools allow professors to link classes directly with critical industries, formal environments and best practices. Due to the complete portfolio of material provided by ANSYS, in particular customer use cases, you have the tools to prepare students to face real challenges that they will have to solve during their professional life.
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Latest news on the ANSYS SCADE Academic Program
http://www.esterel-technologies.com/scade-academic-program/