RAPITA
SYSTEMS
A **DANLAW** COMPANY

Safety through quality

BROCHURE

Rapita **Verification Suite** (R**VS**) Training

RVS training courses

R**VS** tools support software verification for the avionics, space, and automotive electronics industries. Our training courses make sure you can get the best from your use of R**VS**.

Expert training

We provide training courses that teach the fundamentals of efficient verification and how to use R**VS** solutions to verify your software efficiently.

Our training programs focus on problem-solving and gaining practical experience with R**VS**, as well as understanding some of the fundamental concepts behind how our solutions work.

Hands-on learning

We have designed our standard training programs to cover core concepts and skills, but we'll work with you to ensure we deliver everything your trainees need.

We provide example projects, code and materials to support the practical components of the training. We can also provide virtual workspaces with pre-installed, licensed versions of R**VS** so that all trainees can get hands-on experience using our tools, regardless of your licensing set-up.

Delivery

Our standard training programs take 1-2 days per course, depending on your requirements. We can accommodate training in a variety of formats in order to meet your needs:

On-site training,
We provide private training at your preferred location.

Remote training,
We provide private training online.

Local workshop training,
We provide training at a public venue.

We can provide both printed and digital copies of our training materials that can be used as valuable references for on-going project activities. We also provide certificates on request to trainees who complete our training courses.

Our Trainers

Our training courses are delivered by specialist Rapita Field Application Engineers, who provide support services to customers daily and are experts in using R**VS** in real-world verification projects.

Here is what our customers liked about our trainers:

RVS capabilities

The Rapita **Verification Suite** (R**VS**) provides an automated tool framework to support your certification needs. Together, its various plugins support different parts of your verification workflow:

- Rapi**Test** – Test management tool for generation and execution of system and unit tests on embedded targets

- Rapi**Cover** – Low-overhead structural coverage analysis.

- Rapi**Time** – Execution-time measurement and optimization.

- Rapi**Task** – RTOS-independent visualization of scheduling and event-tracing on single or multicore systems.

"**Interactive and engaging** with the switching between theory and practical aspects of the training."
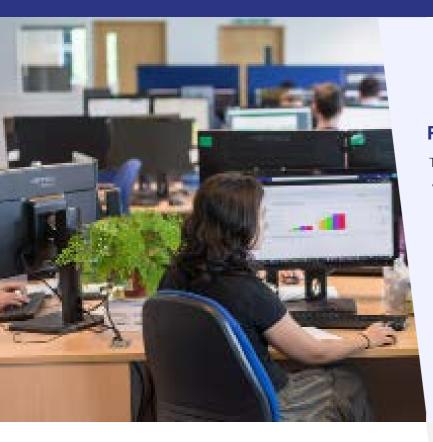
"The exercises were very **well written,** and it was **easier to follow**. The availability from both people from Rapita was amazing."

"**Good knowledge** from course deliverers - able to answer questions well."

"[I liked] the **quality of the material** source, presentation and **knowledge of both hosts.**"
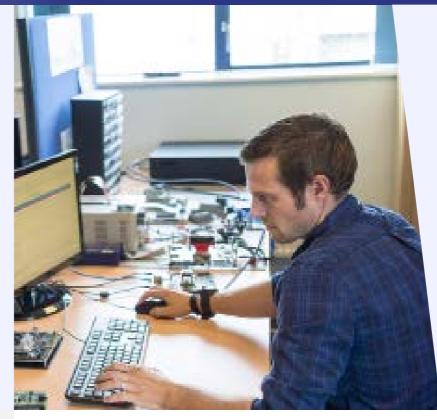
Standard training programs

Functional testing with RapiTest

This course focuses on teaching trainees how to write and execute requirements-based tests using Rapi**Test**, covering a variety of simple to advanced testing techniques.

*You can combine this training with "Structural coverage analysis with Rapi**Cover**" to combine our powerful testing framework with comprehensive coverage analysis.*

Structural coverage analysis with RapiCover

This course focuses on using Rapi**Cover** to measure structural coverage in an example application, and how (and why) coverage gaps should be addressed.

*You can combine this course with "Functional testing with Rapi**Test**" to explore how using these two solutions together can help you improve coverage results even further.*

Functional testing with RapiTest	
Example program	
1 day option / **2 day option**	Introduction to functional testing concepts and how to use Rapi**Test**
	Running tests using the **RVS Project Manager** and the command line Optional inclusion: • Continuous integration and Rapi**Test**
	Analyzing and exporting results
	Writing tests: Creating and developing test templates in the Spreadsheet Test Format
	Writing tests: Using test local variables and stubbing to test a function in various scenarios
	Solving problems with your tests with tips, tricks and R**VS** error messages
	Adding a requirements model to import and link software requirements, unit tests and test results
	Introduction to the Rapi**Test** Editor
	Writing tests: Advanced techniques including support functions, loops and handling arrays
	Optional inclusion: Advanced case study: Write a suite of tests from scratch for an example project

Structural coverage analysis with RapiCover	
Example program	
1 day option	Introduction to structural coverage analysis concepts, including MC/DC
	Producing results using the **RVS Project Manager** and the command line Optional inclusion: • Continuous integration and Rapi**Cover**
	Analyzing and exporting results
	Improving coverage via unit testing (includes a practical test-writing component if combined with Rapi**Test** training)
	Merging coverage data
	Using justifications to mark untestable code as covered by analysis
	Optional inclusions: • Advanced coverage configuration, including coverage profiles, scopes and datasets • Advanced case study: Write or and develop unit tests to improve decision and MC/DC coverage for an example application (if combined with Rapi**Test** training) • Zero-footprint coverage analysis with RapiCover^{Zero}

Standard training programs

Execution time analysis and scheduling visualization with RapiTime and RapiTask

This course focuses on helping trainees understand the importance of and challenges involved with analyzing worst-case execution time (WCET) for embedded systems. It covers more advanced RVS integration concepts, including how timing data can be extracted and converted from embedded targets.

This course includes training on Rapi**Time**, and optionally includes sessions on scheduling visualization with Rapi**Task**.

Custom training days

As well as our standard training packages, we offer additional custom training days where trainees can explore more advanced testing or integration techniques (for example, writing tests for a specific complex application), or other specialized topics or challenges related to their verification projects.

Execution time analysis and scheduling visualization with RapiTime and RapiTask	
Example program	
1 day option	Principles and challenges of execution time analysis, including worst-case execution time (WCET)
	Our recommended approach to WCET analysis
	Exploring and understanding a Rapi**Time** report
	Producing results using the **RVS Project Manager** and the command line Optional inclusion: • Continuous integration and Rapi**Time**
	WCET case study: Finding and addressing path misalignments
2 day option	Refining the analysis using Rapi**Time** annotations
	Advanced integration concepts, including data collection and conversion techniques and calibrating for instrumentation overhead
	Optional inclusions: • Zero-footprint timing analysis with Rapi**Time**^{Zero} • Scheduling analysis and visualization with Rapi**Task**

Want to learn about multicore DO-178C compliance?

Our training covers:

- Introduction to the challenges of using multicore processors for safety-critical projects
- Introduction to A(M)C 20-193
- Evaluating and selecting multicore hardware and RTOS
- Multicore interference
- Integrated Modular Avionics
- And more...

Check out our multicore training page for more information:
rapitasystems.com/training/DO178C

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About Rapita

Rapita Systems provides on-target software verification tools and services globally to the embedded aerospace and automotive electronics industries.

Our solutions help to increase software quality, deliver evidence to meet safety and certification objectives and reduce costs.

Find out more

A range of free high-quality materials are available at:
rapitasystems.com/downloads

SUPPORTING CUSTOMERS WITH:

Tools	Engineering Services	Multicore Verification
Rapita **Verification Suite**:	V&V Services	**MACH**[178]
Rapi**Test**	Integration Services	Multicore Timing Solution
Rapi**Cover**	Qualification	
Rapi**Time**	SW/HW Engineering	
Rapi**Task**	Compiler Verification	

Contact

Rapita Systems Ltd.
Atlas House
Osbaldwick Link Road
York, YO10 3JB
UK

+44 (0)1904 413945

Rapita Systems, Inc.
41131 Vincenti Ct.
Novi, Mi, 48375
USA

+1 248-957-9801

Rapita Systems S.L.
Parc UPC, Edificio K2M
c/ Jordi Girona, 1-3
Barcelona 08034
Spain

+34 93 351 02 05

rapitasystems.com

linkedin.com/company/rapita-systems

info@rapitasystems.com