WIND RIVER

EDUCATION SERVICES

VxWorks 6.x and Workbench Fundamentals

Wind River Education Services enables you to unleash the power of Wind River's technology. Our training and mentoring empower developers with the knowledge and proficiency required to program and manage device software faster and more reliably. Reduce your project risks and shorten your development timelines by equipping your engineers with the right training by our experts.

Course Title:	VxWorks 6.x and Workbench Fundamentals
Duration:	Four days
Format:	Instructor-led lectures and hands-on lab sessions; instructor-led Live Remote delivery available
Price:	Contact your local sales representative

Course Description

The VxWorks 6.x and Workbench Fundamentals training course provides engineers with a fast, cost-effective way to acquire the knowledge necessary to develop real-time applications with VxWorks and Wind River Workbench.

After this course, participants will be able to do the following:

- Design and develop real -time applications in kernel and user modes.
- Debug, build, and test real-time applications in a target-host development environment with Workbench and VxWorks.

Products Supported

- VxWorks 6.8 and later
- Wind River Workbench 3.2
- Earlier product releases (topics may vary)

Who Should Attend

- Anyone who will receive Workbench and VxWorks 6.8 within 60 days
- Developers who work with Workbench and VxWorks
- New project members on teams using Wind River products
- Senior engineers who want to evaluate VxWorks technology

Prerequisite Skills

- One year of C programming
- Basic understanding of operating systems and debugging techniques
- Functional knowledge of UNIX /Linux

Prerequisite Courses

- None

Related Courses

- Workbench On-Chip Debugging Fundamentals for VxWorks and Linux
- VxWorks 6.x Board Support Package
- VxWorks 6.x Device Drivers
- Wind River Tilcon Graphics Suite Fundamentals
- Platform for Network Equipment, VxWorks Edition

Course Format

- This four-day instructor-led course consists of lectures and lab sessions.
- Students gain hands-on experience and receive personal guidance from expert Wind River instructors.
- Students examine details of the Workbench environment, focusing on the most commonly used areas.
- Specific questions are addressed.
- Lab sessions allow hands-on application of course concepts.

Global Reach of Wind River Education Services

With more than 20 years of device software experience, we provide education services in every region of the world. You can rely on our expertise—acquired by delivering hundreds of classes each year to thousands of students—to provide a highly effective learning experience, wherever your developers are located.

Private Classes

Private classes are conducted at your location, scheduled for your convenience. Private classes include the use of a preconfigured laboratory environment that may consist of a connection to a remote lab environment or equipment that we bring to your facility. Private classes can be tailored to your specific needs by adding or removing topics from multiple courses, maximizing the benefit of your time in class. Visit education.windriver.com for registration and schedule information.

Mentoring

Our Rapid Integration and Mentoring programs provide coaching from a seasoned expert who can increase your team's productivity and reduce your project's risk. An experienced engineering specialist will review your specific goals, project environment, and challenges and address productivity obstacles. Whether you need assistance with product installation and configuration, advice on development workflow, debug assistance, or optimization best practices, mentoring can shorten your trial-and-error cycle, document recommended procedures, and ensure your developers are using tools and technology efficiently.

Syllabus

Day 1

Getting Started

- Product Overview
- Workbench 3.2 Features
- Product Delivery, Installation, and Licensing
- Host Support
- VxWorks 6.8 Features

Using the VxWorks Simulator

- Introduction to VxSim
- Remote Systems Target Server Connections
- VxWorks Simulator Configuration
- Connecting to VxSim
- Wind Debug Agent (WDB)
- VxWorks Simulator VxSim Lab

Managing Projects in Workbench

- Introduction to VxWorks Projects
- Project Explorer Overview
- Application Projects
- Build Specifications
- Project Management Lab

VxWorks Source Builds

- Introduction and Purpose of VSBs
- Workbench Projects
- Command-Line Usage
- VSB Options
- VSB Projects and VxWorks Builds
- VSB Lab

Day 2

Using VxWorks Shells

- Introduction to VxWorks Shells
- Host Shell and Shell Interpreters
- Kernel Shell
- Host Shell Lab

Debugging

- Debugger
- Feature Overview
- Configuration
- GUI and Usage Overview (Setting Breakpoints, etc.)
- Kernel-Space and Application-Space Debugging
- Debugger Lab

Real-Time Multitasking

- Multitasking Environment Overview
- Task Creation and Deletion
- Other Task APIs (taskDelay(), Task Variables, Task Hooks, etc.)
- System Tasks
- Real-Time Multitasking Lab

Day 3

VxWorks Events

- Event Register
- Task Synchronization
- Events Lab

Semaphores

- Semaphores and Synchronization
- Mutual Exclusion Semaphores
- Semaphores Lab

Intertask Communication

- Shared Memory
- Message Queues
- Pipes
- Intertask Communications Lab

Memory

- Memory Maps
- Memory Allocation
- Memory Management Routines
- Partition Management
- Memory Lab (optional)

Day 4

Real-Time Processes (RTPs)

- RTP Overview
- RTP File Generation
- Starting an Application
- Shared Data Usage
- Shared Library Usage
- Real-Time Processes Lab

Exceptions, Interrupts, and Timers

- Exceptions
- Using Signals to Recover from Hardware Exceptions/Fatal Errors
- Interrupts
- Interrupt Flow Example
- ISR Stack, ISR Restrictions
- Timers
- Watchdog Interface and Polling
- Auxiliary Clock for Polling at Higher Speed
- Exceptions, Interrupts, and Timers Lab

Error Detection and Reporting

- Error Reporting Framework
- Persistent Memory
- Error Records
- Error Detection and Reporting Configuration
- Error Detection and Reporting Lab

System Viewer

- System Viewer
- System Viewer Configuration and Log Explanation
- Triggering
- User Events
- System Viewer Lab

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