

*Custom*

TRAINING INSTITUTE

# Programming in XWindows

(5 Days)

## Custom Training Institute

9085 Coyote Springs Road  
Prescott Valley, AZ 86314  
(928) 772-3811  
FAX (928) 441-6444

## Programming in XWindows

(CTI 017)

*The XWindow System provides a platform-independent means of developing graphically-oriented applications that "look and feel" the same across UNIX, Macintosh, and Windows platforms. Designed for students who already have a firm foundation in UNIX and C programming, this course teaches students how to develop X applications.*

Minimum hardware requirements (per student): 486 PC at 33 MHz; 32 Mb RAM; 320 Mb free hard disk space. Alternative: UNIX workstation, plus one terminal for each student.

Software requirements: Linux, UnixWare, or other version of UNIX for the PC; or existing version of UNIX on workstation and XWindows software installed on each workstation.

Microsoft PowerPoint and Internet installed at instructor's workstation for presentation purposes.

### Module 1: XWindow System Concepts

- X Environment
- Goals of Using the X System
- Using X
- Programming in X

### Module 2: A First Program in X

- What "helloworld.c" Does
- Outline of "helloworld.c"
- Dissecting, Building and Running the Program
- Structure of an XWindow System Application

### Module 3: Windows in X

- X Network Protocol
- Xlib Procedural Interface
- Display Connections
- Resources, Events
- Error Handling

### Module 4: Event Handling in X

- Window Configuration
- Attributes and Characteristics
- Advanced Window Manipulation
- Window Manager Interactions
- Window Sizing Strategies
- Notification Events

### Module 5: Graphics in X

- Graphics Pipeline
- Graphics Contexts
- Manipulating Graphic Context Resources
- Drawing
- Clearing Windows
- Copying Areas
- Advanced Drawing Techniques
- Workstation Performance

### Module 6: Text and Color in X

- Fonts and Simple Font Selection
- Drawing Character Strings
- Font Structures
- Searching for Fonts

### Module 7: Pixel Maps, Bitmaps and Images

- Color Concepts
- Workstation Capabilities
- Color Strategies
- Service Functions
- Monochrome/Gray Scale Monitors
- Color Map Manipulation
- Pixel Maps, Bitmaps and Images

### Module 8: The Mouse, the Pointer and the Keyboard

- Pointer Control
- Cursors
- Mouse Events
- Keyboard Events
- Keyboard Focus
- Controlling the Keyboard
- Advanced Event Handling:
  - Polling the Event Queue
  - Event Compression
  - Multiple Display Connections

### Module 9: Communicating Between Applications

- Cut Buffers
- Properties
- Selections

### Module 10: Summary