SMART TRIANGLES
Quality, Effectiveness, Accuracy

Class Name: *Advanced UNIX Shell*
Level: Advanced
Duration: 3.0 days
Audience: System programmers, and sophisticated end users with 2-5+ years of UNIX shell scripting experience.

Description: An in-depth look at the most powerful tools used in the UNIX shell to control and coordinate shell programs to a finest possible degree. Topics include Interprocess Program Execution, using even more sophisticated logic conditions in programs, and using advanced data manipulation commands and programming techniques. Approximately 30 commands are covered.

Outline:

Module Description	Time in Hours
DAY 1----------------------------------	
• Command Processing & Program Execution	2.75
- Understanding **ksh** Command Line Parsing Order & Tokens	
- Command Grouping, Advanced Command Substitution	
- Programming Security	
- Custom Command Parsing using **getopts** and **xargs**	
• Job Control	
- Foreground/Background Jobs: Using **nice**, **nohup**, **wait**	
- Off line Program Execution using **at**, **batch** & **crontab**	1.00
• Advanced File Redirection & Pipes	
- File Descriptors	
- Named Pipes	
- Using "Here" Documents	
- File Overwrite Protection	3.00
• Advanced editing techniques using the **vi** editor	2.00
DAY 2----------------------------------	
• Interprocess Communications	
- Process Signaling with **trap** and **kill**	
- Using Flag Files	
- Running Multiple Background Co-Processes	2.50
• Advanced Shell Constructs	4.00
- Advanced Syntax of the **case** statement	
- The **select** statement	
- Advanced Syntax of the **if** statement	
- Advanced Syntax of the **while** and **until** loops	
- Advanced Syntax of the **for** loops	
• User to User Communications	
- Command Line E-mail with **mail**	
- Message notification with **write**	.75
DAY 3----------------------------------	
• Using the **find** Command	1.75
• Math & Statistical Functions of the Shell	1.00
- **bc**, **factor**, **let, sum, units**	
• Advanced File Manipulation and Commands	4.00
- Commands include:	
bdiff, cmp, comm, cpio, csplit, dd, diff, diff3, dircmp, join, od, paste, sort, split, tr, uniq, what	
Approximate Total Time	24.00 hrs