

We provide the following training classes to organizations located in the greater Chicago-Milwaukee corridor (N.E. Illinois, N.W. Indiana, S.W. Wisconsin):

## Databases & SQL

### Introduction to SQL Databases (4.5 hours)

*Description:* A gentle, hands-on introduction to generic database concepts and standard Structured Query Language (SQL). Class will begin with no mention of computers, software or database languages. After fundamental concepts become clear, the generic computer software database will be considered. A basic version of the standard SQL "command language" will be taught. Hands-on work will enable you to develop some real SQL database skills that are applicable to any standard SQL database.

*Topics:* Basic database principles; database engines and clients; tables; rows; columns; data types; SQL syntax and semantics; symbols and operators; queries; sorting and filtering; SQL functions; visual formatting.

*Includes:* 76-page textbook and a free copy of the SQLite3 database software.

*Audience:* Smart, technically-oriented persons who need to know just enough about standard SQL databases to be "dangerous".

*Prerequisites:* Basic computer software skills (generic).

### Intermediate SQL Database Concepts (7.5 hours)

*Description:* A hands-on exploration of generic database concepts and standard SQL at the intermediate level. In addition, some Oracle- and Sybase-specific topics will be covered as well. Class will begin with a review of basic SQL as covered in *Introduction to SQL Databases*. A rich set of SQL database topics will be covered in detail. Hands-on work will exercise your new SQL database skills.

*Topics:* Operators; comments; parenthesis; NULL; table aliases; subqueries; data filters; group operations; joins; Data Description Language (DDL); views; primary and foreign keys; data types and literals; SQL functions; triggers; indexes; sequences; transactions; web-based database reports.

*Includes:* 103-page textbook and a free copy of the SQLite3 database software.

*Audience:* Smart, technically-oriented persons who already know all topics covered in *Introduction to SQL Databases*, but need to learn many additional, powerful concepts.

*Prerequisites:* Basic computer software skills (generic); basic standard SQL; basic generic database concepts.

## Information Security

### An Engineer's Primer on Information Security (4.0 hours)

*Description:* An introduction to the field of information security, which deals with the protection of critical data and the information systems that store such data. Also introduced are "best practices" in information security, which are tried-and-true security-related guidelines for designing, implementing and maintaining any kind of information system. On a more detailed and practical level, this class will bring into focus security and privacy issues affecting individuals and corporations. It describes common attacks and their defenses; data leaks and their prevention; effective individual and corporate policies; and technological solutions and their shortcomings.

*Topics:* Formal definition, objectives and scope; risk management; security policies; laws and regulations; "best practices"; cybercrime; malware; worms; viruses; spyware; adware; ransomware; trojans; rootkits; zero-day exploits; zombies and botnets; anti-virus software; networking concepts and diagnostic software; port management; firewalls; safe computing; network and Internet threats; wireless threats; PDF and multimedia threats; strong passwords and user IDs; social engineering; facility security; property theft; "data leaks" and meta-data; privacy; e-mail; voice-mail; web servers; equipment disposal and repair; shredding; encryption; data backup and restoration; paper files; hand-held electronic devices; media and memory sticks; storage of backup media; uninterruptible power supplies; policies.

*Includes:* 44-page White Paper and free software copies of the Firefox web browser, Thunderbird e-mail client, Outpost firewall, Spybot anti-spyware, ClamAV anti-virus, and Knoppix Linux.

*Audience:* Smart, responsible, technically-oriented professionals engaged in business and/or digital product engineering, design and development activities.

*Prerequisites:* Basic computer hardware and software skills (generic).

## Data Mining

### Internet Data Mining (1.0 hour)

*Description:* A hands-on tutorial on how to reach deep into the Internet to extract information that few others can find. Advanced search engine techniques will be discussed, with emphasis on Google.

*Topics:* Search engine theory; web crawlers (spiders); keywords; Boolean operators; wildcards; META tags; Hypertext Markup Language (HTML); file types; caches; archives.

*Includes:* Class notes.

*Audience:* Smart, ethical, technically-oriented persons who need to dig deeply into publicly available Internet data sources.

*Prerequisites:* Basic computer software skills (generic).

## Network Communications

### Introduction to Wired Network Communications (4.0 hours)

*Description:* A gentle, hands-on introduction to generic wired network data communications, including Local Area Networks (LANs) and the Internet. Class will begin with no mention of computers, software, cables, network equipment or the Internet. After fundamental data communications concepts become clear, the generic wired data communications network will be considered (including the Internet). Hands-on work with hardware and software will enable you to develop some real network communications skills that are applicable to any generic wired network.

*Topics:* Electronic signals; cable types and characteristics; modulation; protocols (UDP, TCP, IP, etc.); Ethernet; hubs; switches; routers; ports; addresses; subnets; gateways; route tracing, pinging, network interface cards (NICs); setup and configuration; client/server relationship; packets; handshaking; negotiation.

*Includes:* Textbook and a free copy of the Advanced IP Address Calculator software.

*Audience:* Smart, technically-oriented persons who need to know just enough about generic networking to be "dangerous".

*Prerequisites:* Basic computer hardware and software skills (generic).

### Network Packet Sniffing (2.0 hours)

*Description:* A hands-on exploration of how generic network data communications can be monitored, precisely recorded and analyzed for troubleshooting purposes. Covers theory, installation and usage of network packet sniffer software, with emphasis on the Wireshark (Ethereal) packet sniffer, which can decode and interpret 500+ protocols. Applies to wired and wireless Local Area Networks (LANs) and the Internet.

*Topics:* Packets; data streams; ports; addresses; protocols (TCP, FTP, ICMP, HTTP, etc.); handshaking; negotiation; troubleshooting.

*Includes:* Textbook and a free copy of the Ethereal packet sniffer software.

*Audience:* Smart, ethical, technically-oriented persons who already know all topics covered in *Introduction to Wired Network Communications*.

*Prerequisites:* Basic computer software skills (generic); basic generic networking skills (hardware and software).

## Network Port Scanning (2.0 hours)

*Description:* A hands-on tutorial that explains how to locate and identify computers, devices and software that are connected to a generic data communications network. This is required for troubleshooting and network security purposes. Covers theory, installation and usage of the Nmap network port scanner software. Nmap can find what ports are open, what network services are running, what computers may be vulnerable to network attacks, and even what computers are infected with certain malware (such as the "W32.Nachi" worm). Applies to wired and wireless Local Area Networks (LANs) and the Internet.

*Topics:* Packets; ports; addresses; troubleshooting; ping sweeping; port scanning; vulnerability assessment; fingerprinting; malware.

*Includes:* Textbook and a free copy of the Nmap port scanner software.

*Audience:* Smart, ethical, technically-oriented persons who already know all topics covered in *Introduction to Wired Network Communications*.

*Prerequisites:* Basic computer software skills (generic); basic generic networking skills (hardware and software).