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Been at the Forefront of New Technology
Rollout for 20+ Years!*



Catalog of Technology Courses and Services

Eogogics Offers Technical Services and Training on Engineering, Telecommunications, Wireless/RF, Defense, Public Safety/Security, Technical Management/Communications, and Soft Skills (*see inside for details*)

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Unmatched Expertise: Industry-leading 500-course curriculum based on first-hand technology experience. We've been engaged in ground-breaking projects worldwide for 20+ years.

Industry Recognized: Preferred or sole-source provider for Fortune 500 companies, R&D organizations, major US government agencies, and industry trade groups.

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One of the Largest Curricula in the Industry: 400 Technology Courses Augmented by 100 Soft-Skills Courses

- **Engineering:** Systems (Methodology, Best Practices, Management), Unleashing Engineering Creativity, GD&T, Tolerance Analysis, Poka Yoke, Materials and Processes (Metals, Plastics), Manuf. Leadership
- **Software Engineering:** Principles, Writing Requirements, Configuration Management, Testing, Project Management, Project Estimation, Quality Assurance
- **Statistics, Process Controls:** Industrial Statistics, Design of Experiments, Statistical Process Control
- **Reliability Engineering:** Root Cause Failure Analysis (RCFA), Failure Modes and Effects Analysis (FMEA)
- **Networks:** Design/Implementation, Traffic Engineering, Security, Management (SNMP, Ethernet OAM)
- **Data Networks:** Cloud Computing, Cyber Security, Carrier Ethernet, ATM, BGP, IP Geo-location
- **NextGen/Multimedia:** IPv6, MoIP, IP Sec, MPLS, IMS, SIP, SIP Sec, VoIP, VoIP Sec, EoIP, IP TV
- **Intelligent Networks:** CAMEL, SS7, IMS, SIP
- **Optical Networks:** SONET/SDH, DWDM, CWDM
- **5G and 4G Wireless:** 5G (Cognizant Radio, SDR, DSA), 4G (LTE, WiMAX), OFDM/MIMO
- **3G, 2.5G/2G, and Other Wireless:** 3G (UMTS, HSPA), GSM, GPRS/EDGE, CDMA, 1xRTT, EVDO, iDEN™, TETRA, MPBN, MVNO, WiFi, Bluetooth, Mobile TV, Positioning/Location, LBS
- **RF Systems:** RF, RF Safety, HF/VHF, Propagation/Fading, Antennas, Microwaves, SATCOM, Spectrum Engineering and Management, Signal Processing
- **Other Telecom:** Mobile Backhaul, OSS/BSS (Frameworkx, eTOM, SID, TAM), Unified Comm., IEEE WCET
- **Defense, Public Safety and Security:** Emerging Technologies, 5G/4G/3G (Defense/Government Uses), Cyber Security/Warfare, Data/Infrastructure Security, E911, 911 (Voice and VoIP), CALEA
- **Technical Management and Communications:** Project and People Management, Delivery Performance Improvement, Quality Management, Cost Reduction, Engineering Economics, Offshore Supplier Management, Virtual Management, Virtual Collaboration, Out-of-the-Box Thinking, Problem Solving, Technical Writing, Proposal Writing, Technical Presentations
- **Soft Skills:** Time/Stress Management., Team-play, Conflict Management., Delegation, Coaching, Negotiation, Influencing, Difficult Employees, Supervision, Management, Leadership, Leading Up, Strategic Analysis/Planning, Consulting, Customer Service, Sexual Harassment, Workplace Violence, Diversity, HR Metrics, Career Transition

How to Use This Catalog

Embedded in this document are live hyperlinks that allow you to cross-reference back and forth within this document as well as to link with our website to obtain more detailed info. To follow these links, click where indicated.

Check out Our Website and Other Catalogs:

This catalog lists our technology courses; a separate catalog lists our soft skills offerings. It's updated once a year, while our curriculum is constantly growing and evolving. So for the most comprehensive and up-to-date listings, be sure to browse our website.

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Telecom for Non-engineers: SS7, NextGen, MPLS, IMS, VoIP, IPTV, Cyber Security/Warfare, Cloud Computing, Mobile Backhaul, RF, HF, SATCOM, Wireless (General), 3G, 4G (LTE, WiMAX), 5G, WiFi, Bluetooth, and More24

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Engineering: General, Mechanical and Manufacturing, Materials and Processes, Systems; and Product, Process, and Operations Optimization

Course ID	Days	Course Title
Engineering Mathematics and Economics		
INDSTAT	2	Industrial Statistics: A Tutorial
DOE1	1	Design of Experiments: An overview
DOE2	2+	Design of Experiments: A Comprehensive Course and Workshop
SPCON	3	Statistical Process Control
ECONENG	2	Engineering Economics: A Comprehensive Workshop
Engineering Design		
ENG-CREATE	2	Unleashing Engineering Creativity Workshop
ENGCREATE3	3	Unleashing Engineering Creativity: A Comprehensive Workshop
GDT3D	3	Geometric Dimensioning & Tolerancing (GD&T) Workshop
GDT	2	Geometric Dimensioning and Tolerancing
S-TOL-ANAL	2	Statistical Tolerance Analysis: A Comprehensive Workshop
TOL-GDT	2	Tolerance Stack Analysis Using GD&T
POKAYOKE	2	Poka-Yoke: A Comprehensive Workshop for Improving Product and Process Quality By Preventing Defects
PRINTREAD	1	Print Reading Workshop for Engineers and Support Personnel
RELENG	3	Reliability Engineering Workshop
Materials and Processes (Including Metals and Plastics)		
MPPC	1	Metal Parts and Process Capabilities: A Comprehensive Workshop
PLST-OTHR	2	Materials and Methods: Designing for Plastics vs. Other Materials
PLAST-MS	4	Plastic Materials Selection
PLST-DES	3	Plastics: Design for Producibility, Molds, and Molding
PLAST-FA	3	Plastic Parts Failure Analysis
Product and Process Improvement		
SPCON	3	Statistical Process Control
POKAYOKE	2	Poka-Yoke: A Comprehensive Workshop for Improving Product and Process Quality By Preventing Defects

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FMEA	2	<u>Failure Modes and Effects Analysis: A Comprehensive Workshop</u>
RCFA2D	2	<u>Root Cause Analysis of Systems Failure: A Tutorial</u>
RCFA3D	3	<u>Root Cause Failure Analysis and Experiment Design Workshop</u>
DPI	2	<u>Delivery Performance Improvement</u>
QUALMGT	3	<u>Quality Management</u>
COSTRED	2	<u>Cost Reduction: Opportunities and Strategies</u>
MANULEAD	3-4	<u>Manufacturing Leadership Workshop</u>
OFFSHORE	2	<u>Offshore Supplier Management and Performance Assurance</u>
Systems Engineering		
SYSENGM	4	<u>Systems Engineering: Methodology, Best Practices, and Management</u>
SYSENG	2	<u>Systems Engineering: An Intermediate Tutorial and Workshop</u>
OUTOFBOX	2	<u>Thinking Out of the Box: A Systems Engineering Imperative</u>



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Reliability Engineering: Root Cause Failure Analysis, Failure Modes and Effects Analysis

Course ID	Days	Course Title
Statistics and Experiment Design		
INDSTAT	2	Industrial Statistics: A Tutorial
DOE1	1	Design of Experiments: An overview
DOE2	2+	Design of Experiments: A Comprehensive Course and Workshop
Reliability Engineering: Root Cause Analysis, Failure Modes and Effects Analysis		
RELENG	3	Reliability Engineering Workshop
FMEA	2	Failure Modes and Effects Analysis: A Comprehensive Workshop
RCFA2D	2	Root Cause Analysis of Systems Failure: A Tutorial
RCFA3D	3	Root Cause Failure Analysis and Experiment Design Workshop
RCFA-ME	2-4	Root Cause Analysis of Component Failure: Understanding Human and Engineering Factors for Improved Product Performance
RCFA4D	4	Root Cause Analysis of Systems Failure: A Comprehensive Course
RCFA5	5	Root Cause Failure Analysis: Workshop and Simulation
RCFA	5	Root Cause Analysis of Systems Failure: A Comprehensive Five Day Workshop



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Software Engineering

Course ID	Days	Course Title
SWENG1	2	<u>Principles of Software Engineering</u>
SWENG2	3	<u>Software Engineering: An Advanced Tutorial</u>
PROJMGT2	2	<u>Project Management Workshop</u>
PROJMGT4	4	<u>Project and Team Management Workshop</u>
WREQ	3	<u>Writing Requirements with Structured Use Case Descriptions</u>
SWCM	2	<u>Software Configuration Management</u>
SWT	2	<u>Effective Software Testing</u>
SWPE	2	<u>Software Project Estimation</u>
COSTRED	2	<u>Cost Reduction: Opportunities and Strategies</u>
SWPM	2	<u>Software Project Management</u>
SWQA	1	<u>Software Quality Assurance</u>



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Engineering and Technical Management and Leadership

Course ID	Days	Course Title
Technical Project Management		
MANULEAD	3-4	Manufacturing Leadership Workshop
OFFSHORE	2	Offshore Supplier Management and Performance Assurance
DOS-DONTS	1	Succeeding at Technical Management: Do's and Don'ts for the Technical Manager
PFMEEXEC	2	Project Portfolio Management: What Every Executive Must Know
PFMEEXEC3	3	Executive's Guide to Project Portfolio Management
PROJMGT1	1	Overview of Project Management
PROJMGT2	2	Project Management Workshop
PROJMGT3	3	Effective Project Management
PROJMGT4	4	Project and Team Management Workshop
PROJMGT5	5	Project Management: A Comprehensive Course and Simulation
PMPREP5	5	Preparation for the PMP® / CAPM® Certification Examination
ADVPM	4	Advanced Project Management for the Experienced Practitioner
VLEAD	1-3	Leading Virtual (Global) Teams
SWPM	2	Software Project Management
Performance, Quality, Risk, and Cost Management		
ECONENG	2	Engineering Economics: A Comprehensive Workshop
DPI	2	Delivery Performance Improvement
QUALMGT	3	Quality Management
CONTROL	2	Controlling Change to Scope and Requirements
RISK	3	Controlling Project Risk: Managing Threats and Promoting Opportunities
PROJBUG	2	Building and Controlling Project Budgets
COSTRED	2	Cost Reduction: Opportunities and Strategies
People Management and Leadership		
PEOPLE	3-4	People in Projects: Foundation for Project Success
CONFRES	1	Conflict Resolution for Project Managers
LCHANGE	3	Leading People to Embrace Change
LEAD3	3	Advanced Leadership Workshop: The Vision, the Strategy, and the Execution



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LEADUP	1-2	<u>Creating a Leading Up Culture</u>
MANAGUP	1-2	<u>Managing and Leading upward to Achieve Your Organization's Mission</u>
STRAT1	1-2	<u>Strategic Analysis and Planning Workshop</u>



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Technical Communications: Creative Thinking, Writing, Proposals, Presentations, Meetings, Consulting

Course ID	Days	Course Title
CREATE	1	<u>Think Smart: Unleash Your Hidden Creativity!</u>
THINKSOLVE	2	<u>Problem Solving and Critical Thinking: Making Sound Decisions in a Fast-Paced World</u>
TECHWRITE	2	<u>Hands-on Technical Writing</u>
TWRT	2	<u>Technical Writing: Proposals, Reports, E-mails, and SWOT Analyses</u>
WREQ	3	<u>Writing Requirements with Structured Use Case Descriptions</u>
PROPWRITE	2	<u>Writing Successful Proposals</u>
PRESENT	2	<u>Presentations That Inform, Motivate, and Sell!</u>
BIZCOM	1	<u>Business Communication: In-Person, Written, Verbal, and Internet</u>
VCOLLAB	1-3	<u>Collaborating Effectively on a Virtual Team</u>
ECOM	1	<u>Effective Office Communications: E-mail, Voice-mail, Video-Mail, Skype, Twitter, and More</u>
MEETINGS	1	<u>Effective Meetings: For Leaders and Participants</u>
SERVICE	2	<u>Internal Consulting and Customer Service</u>



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Network Engineering: Design, Operations, Management

Course ID	Days	Course Title
SW-ROUTE	5	<u>Introduction to Switching and Routing</u>
MPBN	5	<u>Mobile Packet Backbone Network (MPBN)</u>
NETWORK	5	<u>CompTIA Network + Certification Training</u>
NETSEC	3-4	<u>Principles of Network Security: CompTIA Security+ and US DoD Directive 8570.1</u>
IPSEC	2-3	<u>IP Security v2 (IPSec v2) Architecture and Protocols</u>
IPSECWS	2-3	<u>IP Security v3 (IPsec v3) Workshop</u>
SIPSEC	2	<u>SIP Security: A Comprehensive Short Course</u>
VOIPSEC	2	<u>VoIP Security</u>
WIFISEC	3	<u>IEEE 802.11 (WiFi) Wireless LAN Security</u>
TELETRAF	2-3	<u>Traffic Engineering for Voice and Data Networks</u>
SNMP-ESSENT	3	<u>SNMP Essentials: A Fast-Track Tutorial</u>
SNMPV3	1	<u>SNMPv3: Secure SNMP</u>
SNMP-AGENT	1	<u>SNMP: Agent Development</u>
SIGPROC	4	<u>Signal Processing Concepts for Communications System Analysis and Design</u>



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IP and Data Networks: ATM, IPv6, MPLS, SIP, VoIP, EoIP, IMS, Multimedia, BGP, SNMP, Carrier Ethernet, Cloud Computing

Course ID	Days	Course Title
e-Learning Courses on NextGen Technologies		
S-NGN	0.2	NextGen Networks (NGN): 1-hr Mini-course for All Audiences (S-NGN, 1 hr)
N-NGN	0.5	NextGen Networks (NGN) Explained: For All Audiences (N-NGN, half day)
N-MPLS	1	MPLS Backbone: For Technical Audiences (N-MPLS, 2 half days)
N-IPTV	0.5	IPTV: For All Audiences (N-IPTV, half day)
Networks: General, Security, Traffic Engineering, Ethernet, and More		
SW-ROUTE	5	Introduction to Switching and Routing
NETWORK	5	CompTIA Network + Certification Training
NETSEC	3-4	Principles of Network Security: CompTIA Security+ and US DoD Directive 8570.1
TELETRAF	2-3	Traffic Engineering for Voice and Data Networks
ETHER1	2	Ethernet OAM (Operations, Administration and Management/Maintenance)
C-CCNA		Configuring and Administering Cisco Networking Devices
C-ROUTING		Cisco Routing Protocols: Configuration and Maintenance
ATM		
ATM	3	ATM: A Survival Course
ATM-ADV	2	ATM: An Advanced Tutorial
IP, Mobile IP, IP Security (IPSec), Geo-location, BGP		
IP5D	5	IP Networks: A Comprehensive 5-Day Workshop
IPV6-IW	2-4	IPv6 Implementation Workshop
IPV6-MW	2-4	IP Workshop: IPv4, IPv6, and Migration
IPSYS	2-3	IP-Based Systems: TCP/IP and Mobile IP
IPV6	2-3	Internetworking with TCP/IP Version 6
IPSEC	2-3	IP Security v2 (IPSec v2) Architecture and Protocols
IPSECWS	2-3	IP Security v3 (IPsec v3) Workshop
MOIP	2	Mobile IP: An Intensive Tutorial
IPGEOLOC	2-3	IP, Location and Geo-Location Technologies for Law Enforcement, Intelligence, and Public Safety
BGP	1	BGP: An Intensive Tutorial

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MPLS: Technology, QoS, Traffic Engineering, Applications		
MPLS1D	1	MPLS: A Short Tutorial
MPLS	2-3	MPLS: Integrated Routing with End-to-End QoS for the Next Generation Networks
MPLSEA	2-3	MPLS: Emerging Applications
MPLS10	2-4	MPLS: Technology, Engineering, Applications, and QoS
Multi-media: Convergence, EoIP, VoIP, SIP, IMS		
CONVERGENCE	5	CompTIA Convergence +: Broadband VoIP Networking
SIP	1	SIP Protocol, Architecture, and Design
SIPSEC	2	SIP Security: A Comprehensive Short Course
VOIP	2-3	VoIP: Protocols, Design, and Implementation
VOIPSEC	2	VoIP Security
VOIP-EXEC	1	State-of-the-art of VoIP Technology for Professionals, Managers, and Executives
EOIP	5	Everything over IP (EoIP): Data, Voice, Video, Signaling and Telemetry over IPv4/IPv6 Networks
MULTIMEDIA	2	Multimedia Applications: IMS, SIP, and VoIP
IMS	2	IMS: The Technology, Applications, and Challenges
LTE-IMS	4	LTE and IMS: Technologies and How They Interwork
3G-IMS-STRAT	2	3G, IMS, and the Carrier Business Economics
SNMP: Basics, Security (SNMPv3), Agent Development		
SNMP-ESSENT	3	SNMP Essentials: A Fast-Track Tutorial
SNMPV3	1	SNMPv3: Secure SNMP
SNMP-AGENT	1	SNMP: Agent Development

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Mobile Backhaul: Technology, Business/Marketplace Issues, Architecture/Implementation, Standards/Protocols, Security, Application Case Studies

Course ID	Days	Course Title
BHAUL-E2E	1	Mobile Backhaul End-to-End™
BHAUL-BRIEF	1	Mobile Backhaul Business and Technology Briefing™
BHAUL-MKT	1	Mobile Backhaul Market Briefing
BHAUL-APP	1+	Mobile Backhaul Application Case Studies
BHAUL-AI	2-3	Mobile Backhaul Architecture and Implementation
BHAUL-STND	2-3	Mobile Backhaul Standards and Protocols
BHAUL-SEC	1	Mobile Backhaul Security



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IN: CAMEL, IMS, SIP, SS7/C7; Intelligent Networks and Value-Added Services

Course ID	Days	Course Title
Intelligent Networks (IN) and Value-Added Services		
CAMEL	3	CAMEL for Intelligent Networks: Value-Added Services for GSM, GPRS, UMTS
CAMEL-ADV	3	CAMEL: An Advanced Tutorial
IMS	2	IMS: The Technology, Applications, and Challenges
MULTIMEDIA	2	Multimedia Applications: IMS, SIP, and VoIP
SIP	1	SIP Protocol, Architecture, and Design
SS7C7-O	2	SS7/C7: A Technology Overview
SS7-ARCH	4-5	SS7/C7 Architecture and System Operation in Depth
SS7C7	3	SS7/C7 Protocols and System Operation
Related Courses		
3G-IMS-STRAT	2	3G, IMS, and the Carrier Business Economics
EOIP	5	Everything over IP (EoIP): Data, Voice, Video, Signaling and Telemetry over IPv4/IPv6 Networks
FUTURE	1-2	Future of Wireless: WiMAX, LTE, OFDM/MIMO
MOBILETV	2	Mobile TV: Technology and Market Trends
SIPSEC	2	SIP Security: A Comprehensive Short Course
VOIP	2-3	VoIP: Protocols, Design, and Implementation
VOIP-EXEC	1	State-of-the-art of VoIP Technology for Professionals, Managers, and Executives
VOIPSEC	2	VoIP Security
SIGPROC	4	Signal Processing Concepts for Communications System Analysis and Design



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Cloud Computing End-to-End: Business Issues, Market, Standards, Protocols, Architectures, and Security

Course ID	Days	Course Title
CLOUD-BRIEF	1	Cloud Computing Business and Technology Briefing™
CLOUD-MKT	1	Cloud Computing Market Briefing
CLOUD-APP	1	Cloud Computing Application Case Studies
CLOUD-AI	3-4	Cloud Computing Architecture and Implementation
CLOUD-STND	3-5	Cloud Computing Standards and Protocols
CLOUD-SEC	3-5	Cloud Computing Security
CLOUD-E2E	1	Cloud Computing End-to-End™
CLOUD1	2	Understanding, Designing, and Implementing Cloud Computing



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Optical Networks: SONET/SDH, DWDM, CWDM

Course ID	Days	Course Title
LIGHTMST	3-5	LightMASTER Certified Fiber Optic Training
OPTNET	2-3	Optical Networking for Professionals, Managers, and Executives
SONET-SDH	2	SONET/SDH: Principles and Design
DWDM101	2	DWDM: An Introductory Tutorial
DWDM	2-3	DWDM Principles and Design: An Advanced Tutorial



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DoD, DHS, Security, Public Safety, Law Enforcement Wireless/WiFi, Cyber Security and Warfare, IP/SIP/VoIP and Network Security, Geo-location, 911, Unified Communications, Emerging Technologies, CALEA

Course ID	Days	Course Title
General		
CALEA	2-3	Communications Assistance to Law Enforcement Act (CALEA): Technologies and Compliance for TDM and Packet Voice Services
EMERGE-LAW	2-3	Emerging Communications and Technologies in Public Safety, Law Enforcement, and Homeland Security
SECURITY-EXEC	2-3	Security, Privacy and Information Integrity for Managers Executives, and Policy Makers
Cyber Security and Cyber Warfare		
CYBERSEC	2	Cyber Security and Cyber Warfare
CYBERPOL	2	Cyber Space and Cyber Conflict Policy
RF and Wireless Networks		
LTE-PUBSAFE	3	Emergency, Priority Access, and Public Safety Support in LTE
GSMSEC	5	GSM Architecture, Operation, and Security
CDMASEC	5	WCDMA & CDMA2000 Architecture, Operation, and Security
RF-PUBSAFE	5	RF Propagation, Analysis, and Design for Land Mobile and Public Safety Radio Systems
HF	1-2	HF Communications: An Overview
RFPROP	2-3	RF Propagation, Fading, and Link Budget Analysis
ANTENNA	1-3	Antennas: Characteristics, Deployment, and the Future
MICROWAVE2	2	Microwave and Fixed Line-of-Sight Link Design Principles
MICROWAVE4	4	Microwave and Fixed Line-of-Sight Link Design Workshop
RFSAFETY	1/2-1	RF Safety for the Wireless Industry (including Real-Estate) Professionals
WIFISEC	3	IEEE 802.11 (WiFi) Wireless LAN Security
WIRELESS-TI	4-5	Architecture & Operation of Wireless Networks for Technical Investigators: From Their Analog Origins to the Emerging 3G Technologies
ALL-WIRELESS	5	Everything Wireless: RF/Cellular Basics, WiFi, Bluetooth, WiMAX, CDMA, GSM/GPRS/EDGE, UMTS/HSPA, and LTE

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5GSEC	1	5G Wireless: Federal and Defense Applications and Implications
WNETSEC	5	Wireless Communications, Networking, and Security for US Federal Government Personnel
Data Networks		
IPSEC	2-3	IP Security v2 (IPSec v2) Architecture and Protocols
IPSECWS	2-3	IP Security v3 (IPsec v3) Workshop
NETSEC	3-4	Principles of Network Security: CompTIA Security+ and US DoD Directive 8570.1
SIPSEC	2	SIP Security: A Comprehensive Short Course
SIPWS	2-3	Session Initiation Protocol (SIP) Workshop
UNIFIED	2-3	Unified Communications in Public Safety, Law Enforcement, and Homeland Security
VOIPSEC	2	VoIP Security
Geo-location and Location-Based Services/Applications		
POSLOC	3	Positioning and Location Workshop
ADVPL	2	Advanced Workshop on Positioning and Location
E911-3G4G	2	4G LTE & UMTS/HSPA Location Based Services to Support E911 Requirements
IPGEOLOC	2-3	IP, Location and Geo-Location Technologies for Law Enforcement, Intelligence, and Public Safety
Courses for 911 Professionals		
VOICE-911	2-3	Voice Communications and Technologies for 911 Call Takers, Supervisors, and Trainers
VOIP-911	2-3	VoIP for 911 Administrators, Managers, Directors, and Regulators
911-IP	2-3	911 for IP Professionals



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OSS/BSS: Solution Framework (Frameworkx), Business Process Framework (eTOM), Information Framework (SID), Application Framework (TAM), and Related Areas

Course ID	Days	Course Title
FWX1	3-4	<u>Introduction to Solution Framework (Frameworkx) using Business Process Framework (eTOM), Information Framework (SID), and Application Framework (TAM)</u>
FWX1D	1	<u>Overview of the TMF-Solution Frameworks (a.k.a Frameworkx) and the eTOM Business Process Framework</u>
ETOM-SID	2	<u>eTOM and SID Workshop</u>
SID	1	<u>Overview of the TeleManagement Information Framework a.k.a SID</u>
2GTO4G	4-5	<u>2G to 4G+: Technologies, Drivers, and Business Case</u>
WIRELESS	5	<u>Wireless Technologies: A Comprehensive Overview</u>
EWT	5	<u>Emerging Wireless Technologies</u>
WIRELESS-BIZ	3-5	<u>History, State-of-the-art, and Future of Wireless: Wireless Technology and Applications for Businessmen</u>
PROJMGT5	5	<u>Project Management: A Comprehensive Course and Simulation</u>
SWPM	2	<u>Software Project Management</u>
WREQ	3	<u>Writing Requirements with Structured Use Case Descriptions</u>
ENGECON	3	<u>Engineering Economics for Telecom and Media Engineers</u>

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Telecom for Non-engineers: SS7, NextGen, MPLS, IMS, VoIP, IPTV, Cyber Security/Warfare, Cloud Computing, Mobile Backhaul, RF, HF, SATCOM, Wireless (General), 3G, 4G (LTE, WiMAX), 5G, WiFi, Bluetooth, and More

Course ID	Days	Course Title
Telecommunications: Switching/Routing, Ethernet, Optical Networks, SS7, More		
SW-ROUTE	5	Introduction to Switching and Routing
ETHER1	2	Ethernet OAM (Operations, Administration and Management/Maintenance)
OPTNET	2-3	Optical Networking for Professionals, Managers, and Executives
SS7C7-O	2	SS7/C7: A Technology Overview
FWX1D	1	Overview of Framework and eTOM
SECURITY-EXEC	2-3	Security, Privacy and Information Integrity for Managers Executives, and Policy Makers
ENGECON	3	Engineering Economics for Telecom and Media Engineers
NextGen (NGN), MPLS, Multi-Media (IMS, VoIP), IPTV		
S-NGN	0.2	NextGen Networks (NGN): 1-hr Mini-course for All Audiences (S-NGN, 1 hr)
N-NGN	0.5	NextGen Networks (NGN) Explained: For All Audiences (N-NGN, half day)
MPLS1D	1	MPLS: A Short Tutorial
VOIP-EXEC	1	State-of-the-art of VoIP Technology for Professionals, Managers, and Executives
IMS	2	IMS: The Technology, Applications, and Challenges
3G-IMS-STRAT	2	3G, IMS, and the Carrier Business Economics
N-IPTV	0.5	IPTV: For All Audiences (N-IPTV, half day)
Cloud Computing		
CLOUD1	2	Understanding, Designing, and Implementing Cloud Computing
CLOUD-BRIEF	1	Cloud Computing Business and Technology Briefing™
CLOUD-MKT	1	Cloud Computing Market Briefing
CLOUD-APP	1	Cloud Computing Application Case Studies
Cyber Security and Warfare		

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CYBERSEC	2	Cyber Security and Cyber Warfare
CYBERPOL	2	Cyber Space and Cyber Conflict Policy
Mobile Wireless Backhaul End-to-End: Technologies, Business Issues, Marketplace, Architecture/ Implementation, Standards/Protocols, Security, Application Case Studies		
BHAUL-MKT	1	Mobile Backhaul Market Briefing
BHAUL-AI	2-3	Mobile Backhaul Architecture and Implementation
BHAUL-STND	2-3	Mobile Backhaul Standards and Protocols
BHAUL-APP	1+	Mobile Backhaul Application Case Studies
BHAUL-E2E	1	Mobile Backhaul End-to-End™
BHAUL-BRIEF	1	Mobile Backhaul Business and Technology Briefing™
BHAUL-SEC	1	Mobile Backhaul Security
Wireless: MVNO's, Handsets, Wireless Intro., Technology Surveys, More		
MVNO	1/2	Mobile Data MVNO
HANDSETS	2	Understanding the Mobile Handset Industry: Technology Landscape, Market Dynamics, and Trends
WIRELESS-TL	3	Broadband Wireless: Evolution, Technology, Infrastructure, and Regulation
WIRELESS-EXEC	4	State-of-the-art of Wireless Communications for Non-engineering Professionals, Managers, and Executives
EWT	5	Emerging Wireless Technologies
WIRELESS-BIZ	3-5	History, State-of-the-art, and Future of Wireless: Wireless Technology and Applications for Businessmen
2GTO4G	4-5	2G to 4G+: Technologies, Drivers, and Business Case
FUTURE	1-2	Future of Wireless: WiMAX, LTE, OFDM/MIMO
ALL-WIRELESS	5	Everything Wireless: RF/Cellular Basics, WiFi, Bluetooth, WiMAX, CDMA, GSM/GPRS/EDGE, UMTS/HSPA, and LTE
All-IN-ONE	5	Wireless All-in-One: RF Propagation, Cellular Principles, Personal Radio Services, WiFi, WiMAX, CDMA, and GSM
Wireless: 3G, 4G (LTE, WiMAX), 5G, Mobile TV		
3G-IMS-STRAT	2	3G, IMS, and the Carrier Business Economics
W-4G	0.5	4G Technologies & Services: For All Audiences (W-4G, half day)
S-LTE	0.2	LTE: 1-hr Mini-course for All Audiences (S-LTE, 1hr)
W-LTE1	0.5	LTE Explained: For All Audiences (W-LTE1, half day)
LTE-BIZ	2	LTE: Technology, Business, and Competitive Landscape

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LTE-EXEC	1	LTE for Business Professionals
S-WMX	0.2	WiMAX: 1-hr Mini-course for All Audiences (S-WMX, 1 hr)
W-WMX1	0.5	WiMAX Explained: For All Audiences (W-WMX1, half day)
WIMAX-BIZ	2	WiMAX: Technology, Business, and Competitive Landscape
5GTUTE	1	5G Wireless: A Fast-Paced Tutorial
5GCOMP	4	5G Wireless: State-of-the-art of Research, Policy, and Standards
MOBILETV	2	Mobile TV: Technology and Market Trends
Short-range Wireless: WiFi, Bluetooth		
SHORTRANGE	3	Short-Range Wireless Survey: WiFi, WiMedia, Bluetooth, and ZigBee
WIFI	1	State-of-the-art of WiFi for Non-engineering Professionals, Managers, and Executives
RF and SATCOM		
RF-TECH	4	RF for Technicians: A Fast-Track Workshop
HF	1-2	HF Communications: An Overview
RFSAFETY	1/2-1	RF Safety for the Wireless Industry (including Real-Estate) Professionals
RFSAFETY-EXEC	1	RF Safety for Corporate Management and Environmental Health Professionals
SATCOM-EXEC	1	State-of-the-art of Satellite Communications for Non-engineering Professionals, Managers, and Executives



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2G to 5G Wireless

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5G and Beyond: Cognitive Radio, Dynamic Spectrum Access (DSA) ...

Course ID	Days	Course Title
5G/5G+ Technologies		
5GCOMP	4	<u>5G Wireless: State-of-the-art of Research, Policy, and Standards</u>
5GTUTE	1	<u>5G Wireless: A Fast-Paced Tutorial</u>
5GSEC	1	<u>5G Wireless: Federal and Defense Applications and Implications</u>
4G Foundations		
W-4G	0.5	<u>4G Technologies & Services: For All Audiences (W-4G, half day)</u>
W-ENB	0.5	<u>4G Enablers - OFDM and MIMO: For Technical Audiences (W-ENB, half-day)</u>
OM	3	<u>Principles of OFDM and MIMO</u>
W-LTE2	1	<u>LTE Technology: For Technical Audiences (W-LTE2, 2 half days)</u>
W-WMX2	1	<u>WiMAX Technology: For Technical Audiences (W-WMX2, 2 half days)</u>
LTE-CT	3	<u>LTE: A Comprehensive Tutorial</u>
LTE-C3DC	3	<u>LTE: A Comprehensive Three Day Course</u>
WIMAX-C3DC	3	<u>WIMAX: A Comprehensive Three Day Course</u>



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4G: LTE, WiMAX, MIMO, OFDM

Course ID	Days	Course Title
e-Learning Courses on 4G, LTE, WiMAX, and OFDM/MIMO		
W-4G	0.5	4G Technologies & Services: For All Audiences (W-4G, half day)
W-ENB	0.5	4G Enablers - OFDM and MIMO: For Technical Audiences (W-ENB, half day)
S-LTE	0.2	LTE: 1-hr Mini-course for All Audiences (S-LTE, 1hr)
W-LTE1	0.5	LTE Explained: For All Audiences (W-LTE1, half day)
W-LTE2	1	LTE Technology: For Technical Audiences (W-LTE2, 2 half days)
S-WMX	0.2	WiMAX: 1-hr Mini-course for All Audiences (S-WMX, 1 hr)
W-WMX1	0.5	WiMAX Explained: For All Audiences (W-WMX1, half day)
W-WMX2	1	WiMAX Technology: For Technical Audiences (W-WMX2, 2 half days)
OFDM and MIMO		
OM	3	Principles of OFDM and MIMO
LTE: Courses for Radio Planners, Hardware/Software Developers, Defense/Homeland Security Applications, and Other Audiences		
LTE-C3DC	3	LTE: A Comprehensive Three Day Course
LTE-CT	3	LTE: A Comprehensive Tutorial
E911-3G4G	2	4G LTE & UMTS/HSPA Location Based Services to Support E911 Requirements
LTE-NPC	3-5	LTE Network Planning Course
LTE-FUND	3	LTE/SAE Fundamentals
LTE-RADIO	2	LTE Radio Access
LTEAI4D	4-5	LTE Air Interface: A Comprehensive Course
LTE-CORE	5	LTE Core Network
LTE-SAE-NGN	3	LTE/SAE Next Generation Network Transport
LTE-IMS	4	LTE and IMS: Technologies and How They Interwork
LTEWK	5	LTE: RF Network Design Workshop
LTEHSW	5-10	LTE Air Interface: An Advanced Course for Hardware/Software Developers
LTE-PUBSAFE	3	Emergency, Priority Access, and Public Safety Support in LTE
LTE: A Comprehensive Technology Curriculum		
LTE-TECH	3	LTE/SAE: A Technology Overview
LTEAI	3	LTE Air Interface Techniques

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LTESIG	3	LTE Signaling and Functionality
LTEPLAN	4	LTE Planning Considerations
LTE-ADV	4	LTE Advanced System Techniques
WiMAX Courses		
WIMAX-C3DC	3	WIMAX: A Comprehensive Three Day Course
WIMAX-2DT	2	WIMAX: A Two-Day Tutorial
WIMAX-TECH	3	WiMAX / Mobile WiMAX: An Advanced Tutorial Including 802.16e
WIMAX5D	5	WiMAX/Mobile WiMAX Radio Planning & Optimization Workshop
TRAFFIC-WIMAX	3	Traffic and Capacity Engineering for WiMAX Networks
Less Technical Courses: 4G LTE and WiMAX for Planning/Strategy, Marketing/Sales, Telecom Policy/Regulation, Etc.		
LTE-EXEC	1	LTE for Business Professionals
LTE-BIZ	2	LTE: Technology, Business, and Competitive Landscape
WIMAX-BIZ	2	WiMAX: Technology, Business, and Competitive Landscape
2GTO4G	4-5	2G to 4G+: Technologies, Drivers, and Business Case
FUTURE	1-2	Future of Wireless: WiMAX, LTE, OFDM/MIMO
Other Courses to Consider		
ALL-WIRELESS	5	Everything Wireless: RF/Cellular Basics, WiFi, Bluetooth, WiMAX, CDMA, GSM/GPRS/EDGE, UMTS/HSPA, and LTE
ALL-IN-ONE	5	Wireless All-in-One: RF Propagation, Cellular Principles, Personal Radio Services, WiFi, WiMAX, CDMA, and GSM
HSDPA	2	HSDPA: Network Architecture, Operation, and Design
HSDPA-ADV	2	HSDPA: An Advanced Tutorial
HSUPA	2	HSUPA: Network Architecture, Operation, and Design
HSPAOPT	3	Optimizing HSPA (HSDPA and HSUPA) Networks
TRAFFICMM	2-4	Traffic Engineering of QoS-Aware Multimedia Networks: Access and Backbone
MPBN	5	Mobile Packet Backbone Network (MPBN)
SIGPROC	4	Signal Processing Concepts for Communications System Analysis and Design
Applications and Services		
POSLOC	3	Positioning and Location Workshop
ADVPL	2	Advanced Workshop on Positioning and Location
E911-3G4G	2	4G LTE & UMTS/HSPA Location Based Services to Support E911

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		<u>Requirements</u>
CAMEL	3	<u>CAMEL for Intelligent Networks: Value-Added Services for GSM, GPRS and UMTS</u>
CAMEL-ADV	3	<u>CAMEL: An Advanced Tutorial</u>
IMS	2	<u>IMS: The Technology, Applications, and Challenges</u>
LTE-IMS	4	<u>LTE and IMS: Technologies and How They Interwork</u>
3G-IMS-STRAT	2	<u>3G, IMS, and the Carrier Business Economics</u>
MULTIMEDIA	2	<u>Multimedia Applications: IMS, SIP, and VoIP</u>
VOIP	2-3	<u>VoIP: Protocols, Design, and Implementation</u>
EOIP	5	<u>Everything over IP (EoIP): Data, Voice, Video, Signaling and Telemetry over IPv4/IPv6 Networks</u>
MOBILETV	2	<u>Mobile TV: Technology and Market Trends</u>



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3G/WCDMA: UMTS-FDD, UMTS-TDD, HSDPA, HSUPA, LTE

Course ID	Days	Course Title
UMTS: UMTS-FDD and UMTS-TDD		
3G5D	5	<u>3G Systems: WCDMA/UMTS and CDMA2000</u>
CDMASEC	5	<u>WCDMA & CDMA2000 Architecture, Operation, and Security</u>
UMTS-FDD	3	<u>UMTS-FDD: Network Architecture, Operation, and Design</u>
UMTS-FDD-DO	2	<u>UMTS-FDD Network Design and Optimization</u>
UMTS-TDD	2	<u>UMTS-TDD: Network Architecture, Operation, and Design</u>
UMTS-TDD-DO	2	<u>UMTS-TDD Network Design and Optimization</u>
WG-INTER	3	<u>WCDMA-GSM Interoperability Tuning</u>
E911-3G4G	2	<u>4G LTE & UMTS/HSPA Location Based Services to Support E911 Requirements</u>
MPBN	5	<u>Mobile Packet Backbone Network (MPBN)</u>
Beyond 3G: HSDPA, HSUPA, LTE (4G)		
HSDPA	2	<u>HSDPA: Network Architecture, Operation, and Design</u>
WHSPA-DIM	5	<u>WCDMA/HSPA Planning and Dimensioning</u>
HSDPA-ADV	2	<u>HSDPA: An Advanced Tutorial</u>
HSUPA	2	<u>HSUPA: Network Architecture, Operation, and Design</u>
HSPAOPT	3	<u>Optimizing HSPA (HSDPA and HSUPA) Networks</u>
LTE4	4	<u>LTE/4G: A Comprehensive Look at the Next Generation Mobile Networks</u>
MPBN	5	<u>Mobile Packet Backbone Network (MPBN)</u>
LTE4G	2	<u>LTE/4G: The Next Generation Mobile Networks</u>
Applications and Services		
POSLOC	3	<u>Positioning and Location Workshop</u>
ADVPL	2	<u>Advanced Workshop on Positioning and Location</u>
CAMEL	3	<u>CAMEL for Intelligent Networks: Value-Added Services for GSM, GPRS and UMTS</u>
CAMEL-ADV	3	<u>CAMEL: An Advanced Tutorial</u>
IMS	2	<u>IMS: The Technology, Applications, and Challenges</u>
3G-IMS-STRAT	2	<u>3G, IMS, and the Carrier Business Economics</u>
MULTIMEDIA	2	<u>Multimedia Applications: IMS, SIP, and VoIP</u>
VOIP	2-3	<u>VoIP: Protocols, Design, and Implementation</u>

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MOBILETV	2	<u>Mobile TV: Technology and Market Trends</u>
Related RF		
ALL-WIRELESS	5	<u>Everything Wireless: RF/Cellular Basics, WiFi, Bluetooth, WiMAX, CDMA, GSM/GPRS/EDGE, UMTS/HSPA, and LTE</u>
ALL-IN-ONE	5	<u>Wireless All-in-One: RF Propagation, Cellular Principles, Personal Radio Services, WiFi, WiMAX, CDMA, and GSM</u>
FUTURE	1-2	<u>Future of Wireless: WiMAX, LTE, OFDM/MIMO</u>
GSM-I	5	<u>GSM: Network Architecture, Operation, and Design</u>
CDMA	3	<u>CDMA Technology and Its Evolution to cdma2000</u>
RFOPT	3-5	<u>RF Optim. Workshop: GSM/GPRS/EDGE, UMTS, cdmaOne, 1xRTT, EVDO</u>
TRAFFIC	3	<u>Traffic Engineering Models for Network Design</u>
TRAFFIC3G	3	<u>Traffic Engineering Models for 3G Network Design</u>
TRAFFICMM	2-4	<u>Traffic Engineering of QoS-Aware Multimedia Networks: Access and Backbone</u>
SIGPROC	4	<u>Signal Processing Concepts for Communications System Analysis and Design</u>



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GSM, GPRS, EDGE (EGPRS)

Course ID	Days	Course Title
GSM: Basic to Advanced		
GSM-B	1	GSM: A Technology Overview
GSM-I	5	GSM: Network Architecture, Operation, and Design
GSMSEC	5	GSM Architecture, Operation, and Security
GSM-A	2	GSM: Optimization and Advanced Features
GSMPLUS	3	GSM, GPRS, and EDGE: An Intensive Tutorial
MPBN	5	Mobile Packet Backbone Network (MPBN)
2.5G/2.75G: GPRS and EDGE (EGPRS)		
GPRS	3	GPRS: Network Architecture, Operation, and Design
EDGE	2	EDGE: Network Architecture, Operation, and Design
EGPRS	2	EGPRS Engineering: Designing and Optimizing a GPRS/EGPRS Network
EGPRS-OPT	5	GSM/GPRS/EDGE RAN Optimization: Features and Parameters
WG-INTER	3	WCDMA-GSM Interoperability Tuning
MPBN	5	Mobile Packet Backbone Network (MPBN)
Applications and Services		
POSLOC	3	Positioning and Location Workshop
ADVPL	2	Advanced Workshop on Positioning and Location
CAMEL	3	CAMEL for Intelligent Networks: Value-Added Services for GSM, GPRS, UMTS
CAMEL-ADV	3	CAMEL: An Advanced Tutorial
IMS	2	IMS: The Technology, Applications, and Challenges
3G-IMS-STRAT	2	3G, IMS, and the Carrier Business Economics
MULTIMEDIA	2	Multimedia Applications: IMS, SIP, and VoIP
VOIP	2-3	VoIP: Protocols, Design, and Implementation
MOBILETV	2	Mobile TV: Technology and Market Trends
Related RF		
ALL-WIRELESS	5	Everything Wireless: RF/Cellular Basics, WiFi, Bluetooth, WiMAX, CDMA, GSM/GPRS/EDGE, UMTS/HSPA, and LTE
ALL-IN-ONE	5	All Wireless: RF Propagation, Cellular Principles, WiFi, WiMAX, CDMA, GSM
FUTURE	1-2	Future of Wireless: WiMAX, LTE, OFDM/MIMO

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RFOPT	3-5	<u>RF Optimization Workshop: GSM/GPRS/ EDGE, UMTS,IS95, 1xRTT, EVDO</u>
TRAFFIC	3	<u>Traffic Engineering Models for Network Design</u>
TRAFFIC3G	3	<u>Traffic Engineering Models for 3G Network Design</u>
TRAFFICMM	2-4	<u>Traffic Engineering of QoS-Aware Multimedia Networks: Access and Backbone</u>
SIGPROC	4	<u>Signal Processing Concepts for Communications System Analysis and Design</u>



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CDMA: DSSS, CDMA, cdmaOne (IS95), cdma2000 (1xRTT, EVDO, UMB, EVDV)

Course ID	Days	Course Title
CDMA Basics, cdmaOne, and cdma2000 Overview		
3G3D	3	3G Systems: WCDMA/UMTS and CDMA2000 Overview
CDMA	3	CDMA Technology and Its Evolution to cdma2000
IS95	2	cdmaOne/IS95: Network Architecture, Operation, and Design
cdma2000 in Depth		
3G5D	5	3G Systems: WCDMA/UMTS and CDMA2000
CDMASEC	5	WCDMA & CDMA2000 Architecture, Operation, and Security
1XRTT	2	1xRTT: Network Architecture, Operation, and Design
EVDO	3	1xEVDO: Network Architecture, Operation, and Design
EVDV	3	1xEVDV: Network Architecture, Operation, and Design
Applications and Services		
POSLOC	3	Positioning and Location Workshop
ADVPL	2	Advanced Workshop on Positioning and Location
MULTIMEDIA	2	Multimedia Applications: IMS, SIP, and VoIP
VOIP	2-3	VoIP: Protocols, Design, and Implementation
MOBILETV	2	Mobile TV: Technology and Market Trends
Related RF		
WIRELESSNET	3-4	Wireless Network Structure, Operation, and Technologies
ALL-WIRELESS	5	Everything Wireless: RF and Cellular Basics, WiFi, Bluetooth, WiMAX, CDMA, GSM/GPRS/EDGE, UMTS/HSPA, LTE
ALL-IN-ONE	5	Wireless All-in-One: RF Propagation, Cellular Principles, Personal Radio Services, WiFi, WiMAX, CDMA, and GSM
FUTURE	1-2	Future of Wireless: WiMAX, LTE, OFDM/MIMO
RFPROP	2-3	RF Propagation, Fading, and Link Budget Analysis
RFOPT	3-5	RF Systems Optimization: GSM, GPRS, EDGE, UMTS, cdmaOne, 1xRTT, EVDO
TRAFFIC	3	Traffic Engineering Models for Network Design
TRAFFIC3G	3	Traffic Engineering Models for 3G Network Design
TRAFFICMM	2-4	Traffic Engineering of QoS-Aware Multimedia Networks: Access and Backbone
SIGPROC	4	Signal Processing Concepts for Communications System Analysis and Design

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Trunked Radio: iDEN™ and TETRA

Course ID	Days	Course Title
iDEN™ and TETRA Courses		
IDEN-O	1	<u>iDEN™: A Technology Overview</u>
IDEN	4-5	<u>iDEN™: Network Architecture, Operation, Design, and Optimization</u>
TETRA	3	<u>TETRA: Network Architecture, Operation, and Design</u>
Related Courses		
RFOPT	3-5	<u>RF Systems Optimization Workshop: GSM, GPRS, EDGE, UMTS, cdmaOne, 1xRTT, EVDO</u>
TRAFFIC	3	<u>Traffic Engineering Models for Network Design</u>
TRAFFICMM	2-4	<u>Traffic Engineering of QoS-Aware Multimedia Networks: Access and Backbone</u>
SIGPROC	4	<u>Signal Processing Concepts for Communications System Analysis and Design</u>



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Overview, Comparison, Evaluation of Wireless Technologies

Course ID	Days	Course Title
3G3D	3	<u>3G Systems: WCDMA/UMTS and CDMA2000 Overview</u>
3G5D	5	<u>3G Systems: WCDMA/UMTS and CDMA2000</u>
GSMPLUS	3	<u>GSM, GPRS, and EDGE: An Intensive Tutorial</u>
2GTO4G	4-5	<u>2G to 4G+: Technologies, Drivers, and Business Case</u>
RF4D	4	<u>Radio Systems Analysis and Design Workshop</u>
3G-BEYOND	2-5	<u>3G and Beyond: Advanced Wireless Technologies</u>
3G-IMS-STRAT	2	<u>3G, IMS, and the Carrier Business Economics</u>
MULTIMEDIA	2	<u>Multimedia Applications: IMS, SIP, and VoIP</u>
CDMA	3	<u>CDMA Technology and Its Evolution to cdma2000</u>
FUTURE	1-2	<u>Future of Wireless: WiMAX, LTE, OFDM/MIMO</u>
WIRELESS-TL	3	<u>Broadband Wireless: Evolution, Technology, Infrastructure, and Regulation</u>
WIRELESSEXEC	4	<u>State-of-the-art of Wireless for Non-engineers, Managers, and Executives</u>
COMPARISON	2-4	<u>Wireless Technologies: A Comparative Study</u>
ALL-WIRELESS	5	<u>Everything Wireless: RF/Cellular Basics, WiFi, Bluetooth, WiMAX, CDMA, GSM/GPRS/EDGE, UMTS/HSPA, and LTE</u>
ALL-IN-ONE	5	<u>Wireless All-in-One: RF Propagation, Cellular Principles, Personal Radio Services, WiFi, WiMAX, CDMA, and GSM</u>
LTE4G	2	<u>LTE/4G: The Next Generation Mobile Networks</u>
SHORTRANGE	3	<u>Short-Range Wireless Survey: WiFi, WiMedia, Bluetooth, and ZigBee</u>
SIGPROC	4	<u>Signal Processing Concepts for Communications System Analysis and Design</u>

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Cell Planning and Deployment: Antennas, RF Propagation, Wireless Network Basics, RF Planning/Optimization, Traffic/Capacity, Site Acquisition, RF Safety

Course ID	Days	Course Title
IEEE WCET Oriented Courses		
WCET1	4	Review of Select Topics Included in IEEE WCET Exam: RF Propagation, Analysis, and Design
WCET2	3	Review of Select Topics Included in IEEE WCET Exam: Wireless Access, Network Architecture, Management, Security, Facilities, and More
RF Safety for Engineers, Technicians, Real-Estate Personnel, and Safety Policy Makers		
RFSAFETY	1/2-1	RF Safety for the Wireless Industry (including Real-Estate) Professionals
RFSAFETYEXEC	1	RF Safety for Corporate Management and Environmental Health Professionals
Wireless Systems Basics: Architecture, RF Propagation, Antennas, Link Budgets		
WIRELESSNET	3-4	Wireless Network Structure, Operation, and Technologies
RF4D	4	Radio Systems Analysis and Design Workshop
RFPROP	2-3	RF Propagation, Fading, and Link Budget Analysis
ANTENNA	1-3	Antennas: Characteristics, Deployment, and the Future
Cell Planning and Optimization Including Traffic Engineering		
CELLPLAN	3	Cell Planning and Site Development
TRAFFIC	3	Traffic Engineering Models for Network Design
TRAFFIC3G	3	Traffic Engineering Models for 3G Network Design
TRAFFIC-WIMAX	3	Traffic and Capacity Engineering for WIMAX Networks
TRAFFICMM	2-4	Traffic Engineering of QoS-Aware Multimedia Networks: Access and Backbone
RFOPT	3-5	RF Systems Optimization Workshop: GSM, GPRS, EDGE, UMTS, cdmaOne, 1xRTT, EVDO
Wireless Technologies		
3G-BEYOND	2-5	3G and Beyond: Advanced Wireless Technologies
ALL-WIRELESS	5	Everything Wireless: RF/Cellular Basics, WiFi, Bluetooth, WiMAX, CDMA, GSM/GPRS/EDGE, UMTS/HSPA, and LTE
All-IN-ONE	5	Wireless All-in-One: RF Propagation, Cellular Principles, Personal Radio Services, WiFi, WiMAX, CDMA, and GSM

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COMPARISON	2-4	<u>Wireless Technologies: A Comparative Study</u>
Site Development		
WIRELESS-EXEC	4	<u>State-of-the-art of Wireless Communications for Non-engineering Professionals, Managers, and Executives</u>
SITEACQ	2-3	<u>Site Acquisition: Where to Hang All Those Antennas!</u>
SASKILLS	2	<u>Critical Success Skills for Site Acquisition: Project Management, Negotiating, and Interpersonal Communications</u>
PROJMGT2	2	<u>Project Management Workshop</u>
PROJMGT4	4	<u>Project and Team Management Workshop</u>



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RF, SATCOM, WiFi, Bluetooth

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Spectrum Engineering and Management: Planning, Monitoring, Licensing, Economics, Radio Measurement Equipment, Vector Network Analysis, RF/Wireless Technology Overview

Course ID	Days	Course Title
Spectrum Engineering and Management		
BROADREG	5	Broadband: Technologies, Policy, Regulation, NBP
SPECMGT	2-3	Spectrum Management: Planning, Monitoring, Licensing, and Economics
SPECMON	3-5	Spectrum Monitoring Workshop: Principles and Practice
RMEQUIP	2-3	Radio Measurements Equipment: Principles and Operation
VECTOR	3-5	Spectrum Monitoring: Principles of Vector Network Analysis, Procedures, and Key Results
Courses That Provide the RF/Wireless Foundation		
RFSYS	3	RF Systems: Principles, Design, and Deployment
RFPROP	2-3	RF Propagation, Fading, and Link Budget Analysis
WIRELESSNET	3-4	Wireless Network Structure, Operation, and Technologies
SIGPROC	4	Signal Processing Concepts for Communications System Analysis and Design
Courses That Overview RF/Wireless Technologies		
ALL-WIRELESS	5	Everything Wireless: RF/Cellular Basics, WiFi, Bluetooth, WiMAX, CDMA, GSM/GPRS/EDGE, UMTS/HSPA, and LTE
ALL-IN-ONE	5	Wireless All-in-One: RF Propagation, Cellular Principles, Personal Radio Services, WiFi, WiMAX, CDMA, and GSM
LTE-C3DC	3	LTE: A Comprehensive Three Day Course
WIMAX-C3DC	3	WIMAX: A Comprehensive Three Day Course
3G5D	5	3G Systems: WCDMA/UMTS and CDMA2000
3G3D	3	3G Systems: WCDMA/UMTS and CDMA2000 Overview
GSMPLUS	3	GSM, GPRS, and EDGE: An Intensive Tutorial

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RF, HF/VHF, Microwaves: RF Safety, RF Propagation/Fading, Antennas, RF Design/Deployment, Microwave Link Design

Course ID	Days	Course Title
WCET1	4	Review of Select Topics for IEEE WCET Exam: RF Propagation, Analysis, Design
ANTENNA	1-3	Antennas: Characteristics, Deployment, and the Future
HF	1-2	HF Communications: An Overview
MICROWAVE2	2	Microwave and Fixed Line-of-Sight Link Design Principles
MICROWAVE4	4	Microwave and Fixed Line-of-Sight Link Design Workshop
MW8-10	8-10	Microwave Systems Engineering: A Comprehensive Course and Workshop
RFPROP	2-3	RF Propagation, Fading, and Link Budget Analysis
RFSAFETY	1/2-1	RF Safety for the Wireless Industry (including Real-Estate) Professionals
RFSYS	3	RF Systems: Principles, Design, and Deployment
RF4D	4	Radio Systems Analysis and Design Workshop
RF-TECH	4	RF for Technicians: A Fast-Track Workshop
RF-PUBSAFE	5	RF Propagation, Analysis, Design for Land Mobile and Public Safety Radio Systems
SIGPROC	4	Signal Processing Concepts for Communications System Analysis and Design

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Satellite Communications: Commercial and Military

Course ID	Days	Course Title
Satellite Communications		
SATCOM-EXEC	1	State-of-the-art of Satellite Communications for Non-engineering Professionals, Managers, and Executives
SATCOM	2	Satellite Communications Principles and Design: A-to-Z of Modern Commercial and Military Satellite Systems
SATSHOP	1	Satellite Network Design Workshop: VSAT Design, Installation, and Program Management
SATCOM5D	5	Satellite Communications: Earth Station Design and Analysis
Related RF		
ANTENNA	1-3	Antennas: Characteristics, Deployment, and the Future
RFSYS	3	RF Systems: Principles, Design, and Deployment
RF-TECH	4	RF for Technicians: A Fast-Track Workshop
TRAFFIC	3	Traffic Engineering Models for Network Design
TRAFFICMM	2-4	Traffic Engineering of QoS-Aware Multimedia Networks: Access and Backbone
SIGPROC	4	Signal Processing Concepts for Communications System Analysis and Design



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Short-Range Wireless: WiFi, Bluetooth, ZigBee, More

Course ID	Days	Course Title
Short-Range Technologies: General Courses		
SHORTRANGE	3	Short-Range Wireless Survey: WiFi, WiMedia, Bluetooth, and ZigBee
SIGPROC	4	Signal Processing Concepts for Communications System Analysis and Design
WiFi Architecture, Operation, Deployment, and Security Audit		
WIFI-NOS	4	Wi-Fi Local Area Network Operation and Security
WIFI-TO	3	WIFI: A Tutorial for Those Familiar with Wireless/Cellular Networks
WIFI	1	State-of-the-art of WiFi for Non-engineering Professionals, Managers, Executives
WIFI3	3	Wi-Fi Technology: Principles and Operation
WIFINET	4	Metropolitan WiFi Network Design and Deployment
WIFISEC	3	IEEE 802.11 (WiFi) Wireless LAN Security
WIFI-TECH	2	Wi-Fi: Technology, Applications, Design, and Deployment
Bluetooth Curriculum		
BLUETOOTH5	5	Bluetooth: An In-depth Five Day Course
BLUETOOTH	3	Bluetooth: A Comprehensive Technology Overview
BLUEOP	3	Bluetooth: Operation, Security, Applications, and Coexistence



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