ANIXTER

ANIXTER UNIVERSITY
FOUNDED 2007 • GLENVIEW, ILLINOIS • USA

2010
COURSE CATALOG

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Products. Technology. Services. Delivered Globally.

Anixter University

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The Anixter University

Anixter University is an educational institution with curriculum designed to create awareness and provide general solutions for current and future infrastructure issues. Topics covered include 10 Gigabit Ethernet, thermal management, access control and video surveillance, and numerous others. The Anixter University format brings a comprehensive array of technical and informational courses directly to the customer's site.

The Anixter Difference

Anixter has the experience, knowledge and contacts to bring together expert presenters on a wide variety of current and relevant topics. In addition, our experienced sales and engineering teams have the ability to coordinate comprehensive solutions to the most challenging technology issues. We encourage our customers to rely on our expertise to help them optimize the performance and reliability of their voice, video and security systems. Anixter can provide knowledge and products to make your enterprise secure, productive and future-ready. We can manage the entire process of providing comprehensive and timely knowledge of issues and help to specify the best products for your applications, including sourcing and supplying the most progressive products and services in the industry.

Anixter's range of products and technical expertise can help reduce time and cost by:

- Specifying the right products for your application
- Sourcing products for the entire bill of materials for your project
- Selecting and coordinating product combinations to ensure that your components work together effectively
- Anticipating changes and trends in the market.

The Anixter Infrastructure Solutions Lab in Glenview, IL, is the premier testing facility in the network cabling industry. The highly-qualified professionals who staff The Lab perform testing as well as research and development to provide our customers with reliable cabling and security systems. Anixter is listed as a UL Verified participant in the Certificate Services Program for verified cabling products. For more information about the lab, visit page 15.

Academics and Faculty

Anixter University's faculty is an esteemed group of sales and engineering professionals from around the industry. The faculty's expertise combines academic and real-world knowledge.

Many of our instructors are Anixter Systems Engineers (SEs) receive ongoing, extensive training on new products, technologies, applications and market trends. In addition, many of our SEs participate in local standards and industry committees and associations, which keeps them current on the latest standards being introduced. Many of these SEs are certified as RCDDs (Registered Communications Distribution Designers). The RCDD is recognized as one of the industry's premier networking infrastructure design certifications.

For additional information, contact your local Anixter sales representative or call 1.800.ANIXTER.

Data Center College

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Data Center Design 5

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Cabling Infrastructure Design (CID) 1 BICSI Credit

The introduction of new legislation and regulations regarding the storage and use of information has further increased the proliferation of information generated by all types of organizations. As a result, more businesses are building data centers and storage area networks (SANs) to provide access and storage for all types of data. Until recently, the business need and technology dictated the design and construction of a data center, neglecting a common or standardized methodology or a clear migration path to future systems and technologies.

The TIA/EIA-568 series of standards continues to deliver enormous benefits to commercial building owners and operators. The TIA/EIA-942 "Telecommunications Infrastructure Standard for Data Centers" provides similar benefits to the mission-critical applications and systems deployed in data centers and storage area networks.

This presentation will provide a step-by-step guide to the advantages of following a structured approach to cabling infrastructure in the data center. Following the TIA/EIA-942 standard, we will identify design elements and system components that will provide the highest levels of flexibility, critical asset protection, performance advantages and deployment options.

Topics will include:

- Copper or fiber
- Copper cabling options for 10 Gigabit Ethernet
- 10 Gigabit Ethernet and Fibre Channel
- Density, deployment and adaptability
- Fire safety and electronic asset protection

Data Center Design (DCD) 1 BICSI Credit

Data Center Design will illustrate the importance of the data center and introduce relevant standards and terms unique to this environment. The class will cover major data center infrastructure topics such as reliability tiers, design, layout, space consideration and total cost of ownership in detail. It will also address tough cable management situations and take a comprehensive look at power distribution and cooling challenges.

Topics will include:

- Data center design, TIA/EIA-942 standard
- Cabling topology and layout considerations
- Design considerations for LANs and SANs
- Green data center design considerations.

For additional information, contact your local Anixter sales representative or call 1.800.ANIXTER.

Designing a Telecom Grounding System for Network Reliability (DTGS) 1 BICSI Credit

Proper data center grounding improves network performance and reliability, protects valuable network equipment and safeguards against potential personnel injury. This course will cover the purpose of grounding, the practical applied theory behind grounding, the detrimental effects of improper grounding and key elements of grounding standards.

We will also introduce a new structured ground system for data centers and telecom rooms that demonstrate how to implement this solution properly. Once you complete this course, you will understand the purpose of grounding and how to apply the proper grounding specifications according to TIA-942 and J-STD-607-A.

Topics will include:

- The applicable standards
- The effects of proper grounding
- Proper grounding techniques
- The use of components.

Infrastructure Management and Monitoring Solutions (IMMS) 1 BICSI Credit

As we move from the centralized computing environments of the early 1990s to the more distributed computing environments of today's modern enterprise, the need to properly manage both the logical and physical elements of the network become more critical. The increased number of dispersed network assets such as Web servers, policy servers, switches, routers, etc., in addition to the physical infrastructure needed to support them, have forced organizations to reconsider the methods needed to manage these devices and systems while ensuring network resiliency.

This course will cover the latest trends within the computing industry, such as the migration toward the consolidation of network resources within the data center. It will also provide an overview of the most recent regulatory requirements that are pushing organizations to achieve greater oversight and management of IT systems (e.g., Sarbanes-Oxley, HIPAA). A technical overview of infrastructure management solutions includes intelligent cabling systems and software, KVM and console management, and environmental monitoring.

Topics will include:

- Data center management trends
- Intelligent Infrastructure Management
- Business and regulatory considerations.

For additional information, contact your local Anixter sales representative or call 1.800.ANIXTER.

Leveraging Supply Chain Principles for Data Center Deployments (SC)

Anixter's fundamental distribution model can help expedite deployment, monitor specification compliance, take costs out of your business and improve customer satisfaction. We will address specific material management challenges, identify delays and earnings leaks, discuss ways to process and present a supply chain model that is flexible to the unique challenges of a data center deployment. This course will focus on the process side of the project. Our intent is to take the basic principles of supply chain management and help define its fit into your data center.

Topics will include:

- Traditional approaches to project deployment
- Anixter's READY!℠ Deployment Services
- The benefits of cost reductions, waste mitigation and time savings.

Anixter's Fundamental Distribution Model

Anixter's supply chain model includes six key supply chain components that should be addressed when building an effective solution. To be able to scale to a project's or program's demands, the solution needs to address the process as a whole, not just the individual components of a model.

Power Distribution (PD) 1 BICSI Credit

The significant growth in data center power consumption and the continual increase in server densities have made it necessary to understand the various power distribution options available from current and future technologies. The Power Distribution course illustrates how to configure a power distribution system for modern-day data centers, as well as options for the future.

Topics will include:

- Basic power terminology
- Vulnerability of the national power grid
- Trends in public sector power generation
- Trends in server evolution
- Single vs. three-phase power distribution systems
- The interest in data center power systems
- Basic power system designs
- The relationship of power, density and real estate costs.

For additional information, contact your local Anixter sales representative or call 1.800.ANIXTER.

Thermal Management (TM) 2 BICSI Credits

The ever increasing complexity of data center installations demands creative solutions for thermal management issues. Proper thermal management is critical to component life and network availability.

Topics will include:

- Basic power management terminology
- Server and chip density trends
- Thermal sources and suggested solutions
- Cable management
- Power distribution issues and recommendations
- Data center layout recommendations
- Introduction to Computational Fluid Dynamics (CFD) overview.

Introduction to Computational Fluid Dynamics (CFD) overview
See how data center design can impact the environment inside your data center.

Uptime Institute™ Tier Classifications (UITC) 1 BICSI Credit

The Uptime Institute™ has developed a series of tier classifications to define levels of operational availability for data centers. The concept of "Five Nines" availability was founded in the tier classifications. The tier classifications have been included in the TIA/EIA-942 Data Center Standard. This course summarizes the information contained in the standard and outlines the differences between the four tiers, from a number of different perspectives.

The course provides definitions of the various terms commonly used to define data center availability. In addition, it provides a summary of the criteria associated with each of the four availability tiers.

Topics will include:

- Typical data center configurations
- Data center tiers and terminology
- Tiers versus down time
- Availability versus cost.

For additional information, contact your local Anixter sales representative or call 1.800.ANIXTER.

Automation College

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Industrial Automation 10

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Access Control 11

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Securing the Perimeter NEW 11

School of Industrial Automation

Industrial Automation (IA) 1 BICSI Credit

Bringing IP networking knowledge to the process industry and factory floor helps to create a seamless communications infrastructure to integrate production information with day-to-day operations. We will focus on current industrial communications systems and the migration path to Industrial Ethernet.

Topics will include:

- Industrial network infrastructure design
- Standards
- Cable topologies.

For additional information, contact your local Anixter sales representative or call 1.800.ANIXTER.

School of Building Automation

Access Control (AC) 1 BICSI Credit

Learn about the various internal and external security threats companies face while protecting their people, bytes and assets and what they can do to minimize these security risks by installing a state-of-the-art access control system. Trends in access control systems will also be discussed.

Topics will include:

- Defining what critical areas need to be protected in corporations via access control
- The importance of selecting an open, integrated IP-based access control system.

Video Surveillance (VS) 1 BICSI Credit

This course provides an overview of analog, digital and IP-based video surveillance products and the technologies being deployed in security applications. This course covers the importance of installing a cabling infrastructure that will support future migration to newer digital and IP-based video surveillance systems. Trends in video surveillance systems will also be discussed.

Topics will include:

- Analog, digital and IP-based video surveillance products and the advantages and disadvantages of each
- The importance of installing a cabling infrastructure that can meet your video requirements today and five to 10 years in the future.

IP Connected Enterprise℠ (IPC) 1 BICSI Credit

Prepare for the IP Connected Enterprise. Learn how to overcome the inherent challenges of adding dissimilar building systems such as data, voice, video, access control, industrial control and HVAC to the IP network.

Topics will include:

- Internal building systems and their suitability for placement on an IP network
- Current and future applications surrounding a building's subsystems, and how to prepare your infrastructure to support these technologies.

Securing the Perimeter (SP) 2 BICSI Credits

Correctly deploying and installing the latest technologies are essential when protecting your facility. Learn about securing your perimeter with the latest data communications and security technologies from fiber cabling and wireless mesh technologies to access control and video surveillance. Attendees will also learn about perimeter sensing technologies, hardened enclosures and switches, video analytics and biometrics.

Topics will include:

- How to deploy and install the latest technologies
- Perimeter sensing technologies, video analytics and biometrics.

For additional information, contact your local Anixter sales representative or call 1.800.ANIXTER.

LAN Cabling College

LAN Cabling College. 13

Copper Cabling 13

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LAN Cabling College

LAN Cabling College is a modular course that covers the basics of copper and fiber cabling through presentations and hands-on exercises. It is intended to help end-users maximize the return on their cabling system investment. The workshop consists of two independent class offerings, which will create awareness of both proper installation techniques and the essentials of both copper and fiber cabling system performance.

Anyone involved in the design, specification, acquisition or administration of LAN cabling infrastructures should attend the workshop. This course is also of benefit to physical security personnel involved with installing and/or maintaining the cabling for coax, fiber and Ethernet /IP-based security cabling.

Copper Cabling **Up to 7 BICSI Credits**

Participants in this course will learn how to identify and correct the most common cabling errors. The course begins with an introduction to structured vs. unstructured cabling and a detailed summary of the latest cabling standards from TIA/EIA, ISO and IEEE (e.g., 10 Gigabit Ethernet, Power over Ethernet, etc.). The presentation emphasizes the importance of adhering to the standards to ensure top performance of your cabling systems. The course also covers copper cabling basics including electrical properties, proper installation, testing and troubleshooting. To ensure students can put their knowledge to work in the real world, the workshop includes hands-on learning segments covering cable termination and proper testing procedures.

Sample Copper Course Agenda

Morning session, 8:00 a.m. – 12:00 p.m.

- Introduction and Cabling Basics
- Standards Overview (TIA, ISO, IEEE)
- Electrical Properties
- UTP Cabling Systems
- Cable Termination – Hands-on Lab

Afternoon session, 12:00 p.m. – 4:30 p.m.

- Coax Cabling (optional)
- Network Performance Issues
- Proper Cabling Installation Practices
- Testing and Troubleshooting of Installed Cabling Links
- Cable Testing – Hands-on Lab

Fiber Optic Fundamentals **Up to 7 BICSI Credits**

Anixter has designed the Fiber Optics Fundamentals course to help end-users determine when to use certain fiber optic cables and connectors while maintaining industry standards and keeping economic factors in mind. The class provides you with the knowledge necessary to monitor an installation of your entire fiber optic system, providing you with the know-how and confidence to ensure that the job is done correctly.

Participants in this course will receive the practical information and one-on-one interactive instruction required to make educated decisions about fiber optics. To ensure that students can put their knowledge to work in the real world, the course includes hands-on learning segments covering connector installation and proper testing procedures.

Sample Fiber Course Agenda

Morning session, 8:00 a.m. – 12:00 p.m.

- Standards Update
- Fiber Optic Properties
- Cable Types and Fiber Manufacturing
- Connectorization and Splicing Theory

Afternoon session, 12:00 p.m. – 4:30 p.m.

- Connector Installation – Hands-on Lab
- Technology Update
- Cable and Hardware
- Fiber Optic Testing – Hands-on Lab

BICSI Credits

Data Center College

Cabling Infrastructure Design 1
Data Center Design 1
Grounding and Bonding 1
Infrastructure Management and Monitoring 1
Power Distribution 1
Thermal Management 2
Uptime Institute™ Tier Classification 1
Infrastructure Solutions for IP Connected Enterprise 1
Migration to Intelligent Networks 1

Automation College

Video Surveillance 1
Access Control 1
Industrial Automation 1
Securing the Perimeter 2

LAN Cabling College

Copper Cabling . . . . . Up to 7
Fiber Optic Fundamentals . . . . . Up to 7

Anixter's Infrastructure Solutions Lab

Anixter's educational opportunities and technical expertise start at our Infrastructure Solutions Lab, located at our headquarters in Glenview, IL. This state-of-the-art facility provides a unique venue for Anixter to educate, demonstrate and evaluate technology for our customers.

The Lab incorporates the latest technology in fiber and copper network cabling, video surveillance, access control, Power over Ethernet and wireless products from best-in-class manufacturers. The Lab is staffed by industry professionals with extensive experience in a wide array of technological disciplines, which include cable testing and manufacturing, network design and implementation, software development, wireless, video and access control.

Educate – As technology evolves, customers are challenged with making the right product decisions to meet their continually changing organizational requirements. Anixter's heritage of technical involvement in standards development and its long-standing relationships with supplier partners provide a wealth of knowledge that we can deliver to our customers. The Infrastructure Solutions Lab gives Anixter a forum to share our acquired industry knowledge with our customers in a manufacturer-neutral format.

Customers can experience Anixter's cutting-edge educational programs from Anixter University such as LAN Cabling College or Data Center College when they visit The Lab.

Demonstrate – The Lab's flexible infrastructure layout and design allows us to demonstrate myriad product solutions in an environment that can be modeled to simulate a customer's specific application or a worst-case installation scenario. We can demonstrate the critical role that infrastructure plays in ensuring error-free data transmission and application integrity. In addition, the integration and interoperability of video surveillance, recording and access control solutions from our manufacturing partners are displayed in a lab that is the only one of its kind in the industry.

Evaluate – As a reseller of technological solutions, our philosophy is to ensure that the products we provide to our customers meet our rigorous quality standards. We randomly test our product inventory throughout the year, and what doesn't comply with our purchasing specification requirements is returned to the manufacturer before it can be installed.

Anixter Lab Facts

- Conducted rigorous, independent third-party testing of emerging 10 Gigabit twisted-pair cabling solutions, and most recently, smaller diameter 10 Gigabit cabling solutions
- Discovered the importance of cabling delay skew on Ethernet data transmission
- Defined different performance specifications for twisted-pair cabling
- Developed and implemented nondestructive patch cord testing (previous test methods required alterations that rendered the patch cord unusable)
- Simulated real-world network applications over copper and fiber optic cabling
- Received UL certification (only lab of its type with this certification)
- Tested fusion vs. mechanical splicing techniques on data center fiber optic patch cables
- Certified Power over Ethernet (PoE) midspan equipment to the then new IEEE PoE standard
- Evaluated and uncovered transmitter variability in networking ports within the same switch

THE LAB
ANIXTER'S INFRASTRUCTURE SOLUTIONS LAB

For a video tour of The Lab, visit anixter.com/lab. To schedule a live visit or set up your Anixter University sessions to take place at The Lab, contact your local Anixter sales representative or call 1.800.ANIXTER.

ANIXTER

Aerospace Hardware • Electrical and Electronic Wire & Cable • Enterprise Cabling & Security Solutions • Fasteners

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Anixter is a leading global supplier of communications and security products, electrical and electronic wire and cable, fasteners and other small components. We help our customers specify solutions and make informed purchasing decisions around technology, applications and relevant standards. Throughout the world, we provide innovative supply chain management services to reduce our customers' total cost of production and implementation. A NYSE listed company, Anixter, with its subsidiaries, serves companies in more than 52 countries around the world. Anixter's total revenue exceeded $6.1 billion in 2008.