

COMPUTER INFORMATION SYSTEMS: NETWORKING (CISN)

CISN 11 Telecommunications Networking

3 Units (Degree Applicable, CSU)

Lecture: 54

Corequisite: CISN 11L

Advisory: CISB 11

Prepares students for the first year Cisco Certified Network Associate (CCNA) and Network+ certification. Telecommunications networking focusing on network concepts and designs; network standards; Transmission Control Protocol and Internet Protocol (TCP/IP) version 4 (IPv4) and version 6 (IPv6); Open Systems Interconnection (OSI); network protocols; transmission media; switch; hardware architecture; local area network (LAN); wide area network (WAN); remote connectivity; Microsoft and Linux network operating system; network troubleshooting, maintenance, and upgrade; network and wireless security; system vulnerability; and network sniffing analysis.

CISN 11L Telecommunications/Networking Laboratory

0.5 Units (Degree Applicable, CSU)

Lab: 27

Corequisite: CISN 11

Telecommunications Networking lab preparing students for first year Cisco Certified Network Associate (CCNA) and Network+ certification. Telecommunications Networking focusing on network concepts and designs, network standards, Transmission Control Protocol and Internet Protocol (TCP/IP) version 4 (IPv4) and version 6 (IPv6), Open Systems Interconnection (OSI), network protocols, transmission media, switch, hardware architecture, local area network (LAN), wide area network (WAN), remote connectivity, Microsoft and Linux network operating system, network troubleshooting, maintenance, and upgrade, network and wireless security, system vulnerability, and network sniffing analysis.

CISN 21 Windows Operating System

3 Units (Degree Applicable, CSU)

Lecture: 54

Advisory: CISB 11 or CISB 15

Windows operating system installation and performance tweaking, including hardware and software issues, Windows system files, and Windows security.

CISN 24 Window Server Network and Security Administration

3 Units (Degree Applicable, CSU)

Lecture: 54

Corequisite: CISN 24L

Advisory: CISN 11

Computer Network Administration and Security Management (CNASM) core. Install, configure, and manage Windows Hyper-V virtual server, Windows container, Docker, cloud, Cyber, and Virtual Private Network (VPN) security, File system security, Internet Protocol version 4 and 6 (IPv4 and IPv6), Dynamic Host Configuration Protocol (DHCP), Domain Name Service (DNS), DNS security (DNSSEC), Active Directory (AD) security and Group Policy, user environment setup automation, and AD software deployment. Cover both private and public cloud network and security administration.

CISN 24L Window Server Network and Security Administration Laboratory

0.5 Units (Degree Applicable, CSU)

Lab: 27

Corequisite: CISN 24

Laboratory to Install, configure, and manage Windows Hyper-V virtual server, Windows container, Docker, cloud, Cyber, and Virtual Private Network (VPN) security, File system security, Internet Protocol version 4 and 6 (IPv4 and IPv6), Dynamic Host Configuration Protocol (DHCP), Domain Name Service (DNS), DNS security (DNSSEC), Active Directory (AD) security and Group Policy, user environment setup automation, and AD software deployment. Cover both private and public cloud network and security administration.

CISN 31 Linux Operating System

3 Units (Degree Applicable, CSU)

Lecture: 54

Corequisite: CISN 31L

Advisory: CISB 11

Concepts and skills in planning and installing Linux Operating System (OS) and its graphical user interface (GUI); using Linux Shells and system administration commands; managing user accounts; installing hardware and software; and maintaining file systems and system resources. Students must take CISN 31L concurrently.

CISN 31L Linux Operating System Laboratory

0.5 Units (Degree Applicable, CSU)

Lab: 27

Corequisite: CISN 31

Laboratory for planning, installing, and managing Linux Operating System (OS) and its graphical user interface (GUI); using Linux Shells and system administration commands; managing user accounts; installing hardware and software; and maintaining file systems and system resources. Concurrent enrollment in CISN 31 lecture course is required.

CISN 34 Linux Networking and Security

3 Units (Degree Applicable, CSU)

Lecture: 54

Corequisite: CISN 34L

Advisory: CISN 31

Installation and management of Linux operating system networks and security modules. Concept study and installation of Transmission Control Protocol/Internet Protocol (TCP/IP) protocols, Internet Protocol (IP) addressing, network protocols and servers, routers, and network applications. Creating Linux intranets and connecting to Internet. Student must take CISN 34L, a concurrent lab co-requisite.

CISN 34L Linux Networking and Security Laboratory

0.5 Units (Degree Applicable, CSU)

Lab: 27

Corequisite: CISN 34

Laboratory for installation and management of Linux operating system networks and security modules. Concept study and installation of Transmission Control Protocol/Internet Protocol (TCP/IP) protocols, Internet Protocol (IP) addressing, network protocols and servers, routers, and network applications. Creating Linux intranets and connecting to Internet. Student must be enrolled in CISN 34, a concurrent lecture course co-requisite.

CISN 51 Cisco CCNA Networking and Routing**3 Units** (Degree Applicable, CSU)

Lecture: 54

Corequisite: *CISN 51L C***Advisory:** *CISN 11*

Computer Network Administration and Security Management (CNASM) core. Preparation for Cisco Certified Network Associate (CCNA) certification and industry network security implementation. Design and configuration of remote cloud access, Cyber, and Virtual Private Network (VPN) security, local area networks (LAN), wide area networks (WAN), Virtual LANs (VLAN), Spanning Tree Protocol (STP), advanced Subnetting and Supernetting, command line Interface (CLI), Transmission Control Protocol and Internet Protocol version 4 and 6 (IPv4 and IPv6), advanced switching, virtual LAN (VLAN) and InterVLAN routing, access control lists (ACL), wireless security, dynamic and static routing, network architecture, controller-based network automation, and security services. Student must be enrolled in CISN 51L, a concurrent lab co-requisite.

CISN 51L Cisco CCNA Networking and Routing Laboratory**0.5 Units** (Degree Applicable, CSU)

Lab: 27

Corequisite: *CISN 51*

Lab to prepare for Cisco Certified Network Associate (CCNA) certification and industry network security implementation. Design and configuration of remote cloud access, Cyber, and Virtual Private Network (VPN) security, local area networks (LAN), wide area networks (WAN), Virtual LANs (VLAN), Spanning Tree Protocol (STP), advanced Subnetting and Supernetting, command line Interface (CLI), Transmission Control Protocol and Internet Protocol version 4 and 6 (IPv4 and IPv6), advanced switching, virtual LAN (VLAN) and InterVLAN routing, access control lists (ACL), wireless security, dynamic and static routing, network architecture, controller-based network automation, and security services. Student must be enrolled in CISN 51, a concurrent lecture co-requisite.

CISN 71 Introduction to Cloud Computing**3 Units** (Degree Applicable)

Lecture: 54

Advisory: *CISB 11*

Concepts and principles of cloud computing that shift information systems from on-premises computing infrastructure to highly scalable internet architectures. Topics includes cloud computing technologies, cloud services (storage, servers and software applications), cloud providers, industry cloud practices, cloud careers, and industry demand for cloud skills. Students analyze a variety of case studies to effectively evaluate and assess the business and technical benefits of cloud computing and cloud applications.

CISN 72A Cloud Computing Database Essentials for Amazon Web Services**3 Units** (Degree Applicable)

Lecture: 54

Prerequisite: *CISN 71*

Concepts and skills in planning, designing, and using different cloud database data storage solutions; define, operate and scale both Structured Query Language (SQL) and Not only SQL (NoSQL) data storage solutions; using Amazon Relational Database Service (RDS) and SQL to create and fill tables, retrieve and manipulate data; using object-based Application Programming Interface (APIs) to serialize objects to Amazon DynamoDB for NoSQL solutions and other topics like automated backups, transaction logs, restoration, and retention.

CISN 73A Compute Engines in Amazon Web Services**3 Units** (Degree Applicable)

Lecture: 54

Prerequisite: *CISN 71*

Concepts and skills on building cloud computing systems using a common set of core technologies, algorithms, and design principles centered around distributed systems; using Amazon Web Services (AWS) Management Console to provision, load-balance, and scale applications with compute engines like Elastic Compute Cloud (EC2) and the AWS Elastic Beanstalk (EB); and rationale for using AWS and design principles of scalable cloud applications.

CISN 74A Security in Amazon Web Services**3 Units** (Degree Applicable)

Lecture: 54

Prerequisite: *CISN 71*

Concepts and skills on protecting confidentiality, integrity, and availability of computing systems and data; how Amazon Web Service (AWS) uses redundant and layered controls, continuous validation and testing, and a substantial amount of automation to ensure the underlying infrastructure is continuously monitored and protected; AWS Shared Responsibility Model; and identifying through the AWS Management Console the security tools and features provided by the AWS platform.

CISN 81 Work Experience in Computer Networking**0 Units** (Degree Applicable)

(May be taken for Pass/No Pass only)

Provides students with actual on-the-job experience in computer security at an approved work site, which is related to classroom based learning. A minimum of 75 paid clock hours or 60 non-paid clock hours per semester of supervised work is required for each one unit of credit. It is recommended that the hours per week be equally distributed throughout the semester. Work experience placement is not guaranteed, but assistance is provided.