

Information Systems Technology

Information Systems Technology (IST) Classes

IST112G : Applied Logic

The course will present formal logic with a concentration on Classical and Symbolic Logic. Control flow, data manipulation and planning methods will be discussed, including diagramming and pseudo-coding. This course will emphasize systems thinking as an approach to solving will emphasize systems thinking as an approach to solving problems and understanding formal logic. Programming theory and logic will be presented with a hands-on practice in model environments, while students are provided with essential problem-solving methods, techniques and essential problem-solving methods, techniques and disciplines using digital semiconductors and micro-controllers. Students will develop confidence in applying programming solutions, will be exposed to pertinent technology, and will learn the effective use of reference material.

Credits 3

Theory Hours 2

Lab Hours 2

Semester Offered

Fall semester

IST113G : IT Essentials: PC Hardware and Software

This course presents exposure to computer peripherals and operating systems. Students learn the functionality of hardware components as well as suggested best practices in maintenance and safety issues. Through hands-on activities and laboratory exercises, students learn how to assemble and configure a computer, install operating systems and software, and troubleshoot hardware and software problems. The primary objective of this course is to provide the student with a general understanding of computer hardware and system software. The material covered in this course is intended to form a foundation of technical knowledge for system analysis, design, configuration, procurement, and management. This course is a Cisco Academy course and helps prepare students for the industry recognized CompTIA's A+ certification.

Credits 3

Theory Hours 2

Lab Hours 2

Semester Offered

Fall semester

IST122G : Introduction to Networks

As an introduction to local area networking systems and protocols, this course is the first of a three-course sequence within the Cisco Academy program. Based on the Exploration I curriculum, an introduction to networks in the modern world explores network models, applications, fundamental protocols, and data communications. Laboratory experiences involve both simulation and implementation of Ethernet local area network systems.

Credits 3

Theory Hours 2

Lab Hours 2

Semester Offered
Fall/Spring semesters

IST123G : Switching, Routing, and Wireless Essentials (SRWE)

Switching, Routing, and Wireless Essentials (SRWE) is the 2nd of 3 courses in the version 7 CCNA track and covers the architecture, components, and operations of routers and switches in small networks and introduces wireless local area networks (WLAN) and security concepts. Students learn how to configure and troubleshoot routers and switches for advanced functionality using security best practices and resolve common issues with protocols in both IPv4 and IPv6 networks.

Credits 3

Theory Hours 2

Lab Hours 2

Prerequisites

[IST122G](#) or permission of the Instructor

Semester Offered

Fall/Spring semesters

IST142G : Virtualization Essentials

This course in the IST Cloud path focuses on concepts surrounding virtualization with emphasis on the Desktop Virtualization. Virtualization and its components will be examined. Subsections will include managing CPUs, memory, storage, and other peripherals. Specific labs include basic installation, setup and configuration of a PC Virtual Machine. Required knowledge includes PC experience, PC architecture, and how programs use PC resources.

Credits 3

Theory Hours 2

Lab Hours 2

Prerequisites

[IST113G](#) or [IST122G](#) or permission of the Instructor

Semester Offered

Spring semester

IST150G : Network Operating System Fundamentals

This course is an introduction to Windows Operating System in general. Basic Concepts in both user and server configuration are explored. Concepts explored will involve topics such as Configuration tools, the use of the MMC to administer a network, adding a new library, and configuring user rights on a PC and Server. This course is part of the Microsoft Technology Associate (MTA) Certification Program which is an entry level certification program focused at individuals wishing to gain introductory knowledge of Microsoft.

Credits 3

Theory Hours 2

Lab Hours 2

Semester Offered

Summer semester

IST161G : Fundamentals of Networking/Security

This course will provide information system users with the basic knowledge of their role and responsibilities towards protecting information systems resources. Discussions will include workstation and office security, types of malicious programs such as viruses, access control schemes, and management. This will provide a foundation for further study of systems security and protection issues such as terminology, threats to information resources, computer abuse, and system vulnerabilities. This course maps to much of the Security+ Certification.

Credits 3

Theory Hours 2

Lab Hours 2

Semester Offered

Spring semester

IST163G : Legal Issues in Information Security

This course provides an in-depth study of the legal issues affecting the selection, design, and implementation of internal security controls in business and government organizations. Students will study security policies, standards, procedures, guidelines, laws, regulations, industry best practices, and related concepts in order to apply this information for selecting the proper security control framework to meet business and government objectives. An understanding of the legal issues affecting internal control is critical to understanding appropriate security measures used to meet business and government objectives.

Credits 3

Theory Hours 3

Lab Hours 0

Semester Offered

Fall semester

IST200G : Communication Electro-Optics

As informational systems approach physical limitations in performance, understanding electronics, optics, and electromagnetic propagation is critical for IST professionals. In this course, physical layer operations including communications theories, guided and unguided signal propagation, and physical layer phenomena are explored using intuitive, modeled, and experimental approaches.

Credits 3

Theory Hours 2

Lab Hours 2

Prerequisites

[IST113G](#) or [IST122G](#) or equivalent competencies

Semester Offered

Spring semester

IST212G : Mobile Systems Architecture

This course will focus on Computer Systems for Mobile and imbedded processing. System on a Chip (SoC) architectures will be examined in an integrated approach that combines hardware and software functions of

the CPU. To support this study the components of the ARM architecture and its programming environment will be thoroughly explored. Basic microControllers and multicore processors will be used in the lab exercises to support the study of the interplay between the hardware & software.

Credits 3

Theory Hours 2

Lab Hours 2

Semester Offered

Spring semester

IST222G : Enterprise Networking, Security, and Automation (ENSA)

The third class in a three-course sequence focusing on the CCNA within the Cisco Academy program that is based on the Version 7 curriculum. LAN switching protocols and concepts are explored including VLANs, NAT, ACLs, QoS, Security, NTP, SNMP and Coding Data Structures. Laboratory experiences involve advanced LAN configuration and testing with an emphasis on OSPF routing protocol, ACL writing, and NAT configuration.

Credits 3

Theory Hours 2

Lab Hours 2

Prerequisites

[IST122G](#) or permission of the Instructor

Semester Offered

Fall/Spring semesters

IST242G : Advanced Virtualization

This course in the IST Cloud path focuses on concepts surrounding enterprise virtualization with emphasis on VMware vSphere. Enterprise and cloud-based application delivery through virtualization will be examined. Subsections will include configuring storage, networking, high availability, and systems management for virtual infrastructures. Specific labs include: the installation and configuration of vSphere hosts, configuring iSCSI and NFS storage area networks, configuring virtual switches, and the maintenance and deployment of virtual machines. Required knowledge includes PC experience, PC and server architecture, Windows servers and Active Directory, storage technologies, and a thorough understanding of TCP/IP networking.

Credits 3

Theory Hours 2

Lab Hours 2

Prerequisites

[IST142G](#) or Permission from Instructor

Semester Offered

Summer semester

IST245G : Enterprise Data Management

This course introduces storage technology including Storage Area Networks (SANs) and file sharing appliances (NAS) that will enable the student to make informed decisions concerning the selection and implementation of storage systems in a complex IT environment. The student will define the architectures, features, and benefits

of an intelligent storage system. Topics include networked storage technologies, long-term archiving solutions, information security, cloud services, and the emerging field of storage virtualization technologies. This course focuses on storage technology concepts and principles that are reinforced with examples of actual solutions. Realistic case studies enable you to design the most appropriate solution for given sets of criteria.

Credits 3

Theory Hours 2

Lab Hours 2

Semester Offered

Fall semester

IST251G : Windows Network Operating Systems Services

Windows networking services including DHCP, DNS, WINS, remote access and security features are explored, installed, and configured in this strong laboratory experience course. The services are explored with respect to standard protocols and their impact on the operation of the network.

Credits 3

Theory Hours 2

Lab Hours 2

Prerequisites

[IST150G](#) or permission of the Instructor

Semester Offered

Spring semester

IST253G : Windows Server 2008 Active Directory

Windows 8 Server is a course in the Microsoft MTA path. Topics include configuring, maintenance and troubleshooting of Active Directory on a 2008 Server. Organizational Unit structure in relation to security will be explored. Define and configure Group Policy as a security tool will be examined.

Credits 3

Theory Hours 2

Lab Hours 2

Prerequisites

[IST150G](#) or permission of the Instructor

Semester Offered

Fall semester

IST262G : Advanced Network Security

This course in the IST Security track focuses on the overall security processes with an emphasis on secure perimeter, secure connectivity, security management, identity services, and intrusion detection. Specific labs include data encryption technology, VPNs including L2TP, PPTP, GRE, and IKE, AAA Security, TACACS+, IPSec, Perimeter routers & advanced ACL/CBAC/PAM, TCP Intercept & Denial of Service attacks, NAT/PAT. Some knowledge of TCP/IP protocol is assumed. This course is a Cisco Academy course and covers many of the Security+ Certification Domains of Knowledge and is recognized as CNSS 4011.

Credits 3

Theory Hours 2

Lab Hours 2

Prerequisites

[IST123G](#) or permission of Instructor

Semester Offered

Spring semester

IST263G : Information Assurance/Information Risk Management

This course provides an in-depth study of information assurance and information risk management covering risk management business challenges; implementing risk mitigation; and, developing risk mitigation plans. Part 1 lays the foundation for understanding risk management terms and techniques including how to recognize cyber-security threats, security vulnerabilities and vulnerability exploits. Part 2 covers defining risk assessment approaches, performing risk assessments, identifying and analyzing security threats, vulnerabilities, and exploits as well as identifying administrative, technical and physical controls that mitigate both information and technology risk; and, most importantly, how to turn risk assessments into executable risk mitigation plans. Part 3 offers direction on creating and implementing several different risk mitigation plans - Business Impact Analysis, Business Continuity, Disaster Recovery, and Computer Incident Response.

Credits 3

Theory Hours 2

Lab Hours 2

Semester Offered

Spring semester

IST264G : Configuration Security Appliance

This course in the IST Security track focuses on the configuration of the Cisco PIX Security Appliance, with a major emphasis on hands-on skills in the areas of secure perimeter, secure connectivity, security management, identity services, and intrusion detection. Specific labs include basic configuration, DHCP server, NAT/PAT, conduits, multiple interfaces, advanced ACL/CBAC/PAM, object groups, AAA Security, CSACS, advanced protocols and intrusion detection systems, failover and system maintenance. Some knowledge of TCP/IP protocol is assumed. This course covers many of the Security+ Certification Domains of Knowledge.

Credits 3

Theory Hours 2

Lab Hours 2

Prerequisites

[IST123G](#) or permission of the Instructor

Semester Offered

Fall semester

IST265G : CCNA Cybersecurity Operations

The CCNA Cybersecurity Operations curriculum provides an introduction to the knowledge and skills needed for a Security Analyst working with a Security Operations Center team. It teaches core security skills needed for monitoring, detecting, investigating, analyzing and responding to security events, thus protecting systems and organizations from cybersecurity risks, threats and vulnerabilities. This course is a Cisco Academy course.

Credits 3

Theory Hours 2

Lab Hours 2

Prerequisite Courses

IST122G: Introduction to Networks

Semester Offered

Spring semester

IST266G : Security+

This course provides an in-depth study of the security requirements in a business enterprise environment. The core material is based on the Security+ SY-401 exam. Students will study risk related concepts and apply appropriate risk mitigation strategies. An understanding of the types of equipment found in a network is critical to understanding appropriate security measures used to protect network assets. The end result of this class is to be ready to take the CompTia Security+ exam proctored by a third party.

Credits 3

Theory Hours 2

Lab Hours 2

Prerequisites

[IST122G](#) or Permission from Instructor

Semester Offered

Summer semester

IST275G : Network Protocols and Services

Understanding network protocols and services is essential for a working with network systems. This course provides in depth coverage of key protocols and services that are key ingredients in network systems. A primary focus on TCP/IP will include explorations of other Layer 3 and 4 protocols including TCP/IP, IPX, SNMP and ICMP. Upper layer protocols such as HTTP, SMTP, Telnet and FTP will also be investigated.

Credits 3

Theory Hours 2

Lab Hours 2

Prerequisite or Corequisite

[IST123G](#) or [IST113G](#) or equivalent competencies

Semester Offered

Summer semester

IST281G : Internship

This capstone course will allow students to receive on-the-job experience at an off-site location related to their specific area of academic concentration. Students are required to work eight hours per week at paid/unpaid positions that meet the criteria established by the Internship Manual. A seminar meeting one period per week will review internship progress and discuss issues related to successful employment. Outside work and research concerning the weekly topic will be required.

Credits 3

Theory Hours 1

Lab Hours 8

Prerequisites

Completion of coursework for the first three semesters of the student's program of study and approval of the Department Chair and/or Program Advisor