

# INFORMATION TECHNOLOGY SYSTEMS (ITS)

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## **ITS 150 - CCNA 1: Exploration. 3 Credits.**

Offered autumn and spring. Offered at Missoula College. Introduction to networking field including terminology; protocols; local-area and wide-area networks; the OSI model; topologies; IP addressing; cabling and cabling tools; routers and router programming. Ethernet and network standards; and wireless technologies.

## **ITS 152 - CCNA 2: Exploration. 3 Credits.**

Offered autumn. Offered at Missoula College. Prereq., ITS 150. Covers router theory and technologies including configurations, IOS software management, routine protocol configuration, TCP/IP, access-lists and introduction to LAN switching.

## **ITS 165 - OS Commands and Scripts. 3 Credits.**

Offered autumn. Offered at Missoula College. Introduction to operating system concepts through the use of contemporary software. Emphasizes file system management, networking, installation, maintenance, management, and disaster recovery practices using both the command interpreter and graphical user interface.

## **ITS 191 - Special Topics. 1-6 Credits.**

(R-6) Offered intermittently. Offered at Missoula College. Experimental offerings of visiting professors, experimental offerings of new courses, or one-time offerings of current topics.

## **ITS 210 - Network OS - Desktop. 3 Credits.**

Offered spring. Offered at Missoula College. Prereq., ITS 150. In-depth study of a secure, multi-user, client-based network operating system. Topics include installation, administration of resources, performance, network services, and security.

## **ITS 212 - Network OS - Server Admin. 3 Credits.**

Offered autumn. Offered at Missoula College. Prereq./Co-req, ITS 210. Server technologies commonly used in local area networking. Topics include installation, administration, storage, application services, network services, security, reliability, and availability.

## **ITS 214 - Network OS - Infrastructure. 3 Credits.**

Offered autumn. Offered at Missoula College. Prereq., ITS 212. Principles and implementation of enterprise networking services. Topics include Protocol Binding, DNS, DHCP, WINS, Remote Access, IP Routing, IP Security, Network Address Translation, and Certificate Services.

## **ITS 221 - Project Management. 3 Credits.**

Offered autumn. Offered at Missoula College. Prereq., CSCI 172. Investigation of topics in project management including scope, definition, risk, procurement and the RFP. Management of time, cost, quality, and human resources. Concepts are reinforced with PM software.

## **ITS 222 - Enterprise Security. 3 Credits.**

Offered spring. Offered at Missoula College. Prereq./Co-req, ITS 210 and 214. Examination of general information technology security concepts. Topics include access control, authentication, attack methods, remote access, web security, wireless networks, cryptography, internal infrastructure security, and external attacks. Security procedures, organizational policies, risk management and disaster recovery addressed.

## **ITS 250 - CCNA 3: Exploration. 3 Credits.**

Offered spring (first half). Offered at Missoula College. Prereq., ITS 152. Covers router configurations including advanced IP addressing techniques, variable length subnet masking, intermediate routing protocols, Ethernet switching, virtual LANs, spanning-tree protocol, and VLAN trunking protocol.

## **ITS 252 - CCNA 4: Exploration. 3 Credits.**

Offered (second half). Offered at Missoula College. Prereq., ITS 152. Project-based course in wide-area networking including advanced IP addressing techniques, network address translation, port address translation, DHCP, WAN technology and terminology, PPP, ISDN, DDR, Frame Relay, network management, and introduction to optical networking.

## **ITS 255 - IP Telephony. 3 Credits.**

Offered autumn. Prereq./Co-req. ITS 150. Provides an introduction to converged voice and data networks as well as challenges faced by the various technologies. Presents solutions and implementation considerations for signaling, quality of service, security, call control, dial plans, gateway protocols, messaging, congestion, and connecting to a PSTN network.

## **ITS 271 - Securing Desktop/Mobile Dev.. 4 Credits.**

Offered at Missoula College. Course provides advanced technical information and relevant skills to successfully secure end-user devices, including desktop and laptop systems, tablets, cellular phones, and other portable computing equipment. Building on existing knowledge and skills in the areas of server management, network management, and security, students will gain mastery-level knowledge of security issues and best practices. Course content covers client/server exposures and protections (authentication options, packet signing and encryption of network traffic, appropriate implementation of permissions and rights); malware threats and treatments; transmission choices and precautions (wired, wireless, remote desktop access, virtual private networking (VPN)); cloud computing considerations; and corporate mobile device best practices. Hardening of the operating system and application software is also covered. Course content will focus on business-focused security practices to prepare students for Security+, CISSP, and Security Pro industry certifications.

## **ITS 273 - Securing Networks. 4 Credits.**

Offered at Missoula College. Course provides advanced technical information and relevant skills to secure servers and business information. Building on existing knowledge and skills in the areas of server management, network management, and security, students will gain mastery-level knowledge of security issues and best practices. Students will examine and apply hardening techniques to operating systems and infrastructure-based applications. Strategies to ensure business continuity and data security are emphasized, including policy, data preservation, disaster preparedness, and disaster recovery. Legal guidelines and requirements, both domestic and international, are examined in the context of responsible and ethical computer use. Course content will focus on business-focused security practices to prepare students for the Security+, CISSP, and Security Pro industry certifications.

**ITS 275 - Border/Perimeter Network Sec. 4 Credits.**

Offered at Missoula College. Course provides advanced technical information and relevant skills to successfully secure computer networks at the public/private interface. Material focuses on hardware- and software-based techniques to prevent and monitor unauthorized or malicious access to corporate networks and servers. Building on existing knowledge of border and perimeter security, students will develop and implement best practices guidelines for boundary-related devices and software. Students will establish baseline assessments of network security from public access points and identify known and/or potential security vulnerabilities. Course content will focus on business-focused security practices to prepare students for the Security+, CISSP, and Security Pro industry certifications.

**ITS 277 - Software Assurance and File Sy. 4 Credits.**

Offered at Missoula College. Course provides advanced technical information and relevant skills to methodically secure software, including operating systems, custom application software, and commercially-available packages. Students will classify application software (including, but not limited to customer-facing, employee/partner, mobile/endpoint, database, and cloud-based), and perform risk analyses and common weakness assessments against these programs. Students will research various commercial, professional, and governmental security organizations and create a personalized repository of security-related checklists, toolkits, reference material, and resources. Students will investigate low-level file system structures such as master file tables, allocation tables, free space tables, file table entries, and metadata fields. Using common file signatures and checksums, students will verify internal content against external and metadata indicators. Students will examine 'hidden' disk space areas, including file, volume, and/or partition slack. Course content will focus on business-focused security practices to prepare students for Security+, CISSP, and Security Pro industry certifications.

**ITS 280 - Computer Repair & Maint.. 3 Credits.**

Offered spring. Offered at Missoula College. In-depth study of personal computer hardware. Focus on field replaceable components. Topics include: storage devices, processors, system boards, memory, ports, cabling, power supplies, multimedia devices, printers, and troubleshooting.

**ITS 289 - Professional Certification. 1 Credit.**

(R-4) Offered autumn and spring. Offered at Missoula College. Prereq., consent of instr. Review objectives of an information technology industry-based professional certification. Certification objectives, preparation strategies, and exam strategies included. Course can be repeated for different industry-based professional certifications.

**ITS 290 - Undergraduate Research. 1-6 Credits.**

(R-6) Offered at Missoula College. Consent of instructor required. Independent research under the direction of a faculty member. Graded credit/no credit.

**ITS 291 - Special Topics. 1-6 Credits.**

(R-6) Offered intermittently. Offered at Missoula College. Experimental offerings of visiting professors, experimental offerings of new courses, or one time offerings of current topics.

**ITS 292 - Independent Study. 1-6 Credits.**

(R-6) Offered intermittently. Offered at Missoula College. Prereq., consent of instr.

**ITS 297 - Undergraduate Research. 1-10 Credits.**

Offered intermittently. Offered at Missoula College. Prereq. consent of instr. Independent research under the direction of a faculty member. Graded credit/no credit.

**ITS 298 - Internship/Cooperative Educati. 2 Credits.**

Offered autumn and spring. Offered at Missoula College. Not open to non-majors. On-the-job training in positions requiring information technology competencies. This experience increases students' skills, prepares them for initial employment, and increases occupational awareness and professionalism. Students work a minimum of six hours each week at an approved site and attend a weekly one-hour seminar.