

# INFORMATION TECHNOLOGY SYSTEMS (ITS)

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## **ITS 130 - Cybersecurity Essentials. 3 Credits.**

The Cybersecurity Essentials course develops foundational understanding of cybersecurity and how it relates to information and network security. This course introduces students to characteristics of cybercrime, security principles, technologies, and procedures to defend networks. The course is presented using interactive multimedia content, lab activities using network simulators and virtual machines, and multi-industry case studies.

## **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 - Introduction to Operating Systems and the Command Line. 3 Credits.**

Offered autumn. Offered at Missoula College. Introduction to operating system concepts through the use of contemporary software. Emphasizes interaction with the operating system through the command interpreter and shell-type scripts. Will explore multiple operating systems through a variety of modalities including virtual operating systems.

## **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. This class provides 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 Administration. 3 Credits.**

Offered autumn. Offered at Missoula College. This course covers 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. 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 233 - Introduction to DevOps. 3 Credits.**

Offered spring. Prereq., CSCI 150 or consent of instructor. DevOps is the art of automation and Infrastructure as Code (IaC) used to build powerful, dynamic, systems. This course will explore DevOps using scripting, Application to Programmer Interface (API) libraries, and a variety of tools to automate and administer local, remote, and virtual systems.

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

Offered spring. 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 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 271 - Securing Desktop/Mobile Development. 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. Prerequisite Skills: Course builds upon established skills in security, server management, and network management. Students should be working as a network manager or have completed appropriate skills-based coursework using MS Server 2008/2012 & Mware.

**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. Prerequisite Skills: Course builds upon established skills in security, server management, and network management. Students should be working as a network manager or have completed appropriate skills-based coursework using MS Server 2008/2012 & Mware.

**ITS 274 - Ethical Hacking and Network Defense. 3 Credits.**

Prereq., ITS 152 and ITS 212 or consent of Instructor. This Course will provide students the skills to analyze and defend network and computer resources. The course will combine knowledge and skills from programming, networking, and operating systems and leverage those skills for enumerating and securing networks. An emphasis is placed on scenario-based and exploratory learning.

**ITS 279 - Cloud Systems. 3 Credits.**

Offered Spring. Offered at Missoula College. This course will introduce the student to the creation, use, and administration of cloud-based resources. The course will survey cloud terminology and concepts, examine use-cases and models, examine oversight and security concerns, and consider financial implications and governance. The student will engage in creation, use, and administration of cloud services as well as exploration of virtualization resources.

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

Offered spring. Offered at Missoula College. This course provides an in-depth study of personal computer hardware with focus on field replaceable units (FRU's). Topics include: system boards, processors, storage devices, I/O ports, cabling, power supplies, multimedia devices, printers, and troubleshooting.

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

(R-4) Offered autumn. Offered at Missoula College. Prereq., ITS 280 or consent of instr. Review objectives of an information technology industry-based professional certification. A thorough review of certification objective, preparation strategies, and exam strategies will be covered. 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 294 - Seminar. 1-6 Credits.**

(R-6) Offered intermittently. Offered at Missoula College.

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

Offered autumn and spring. Offered at Missoula College. Not open to non-majors. On-the-job training in positions requiring advanced computer 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 scheduled one-hour seminar. Offered for CR/NCR grading only.

**ITS 498 - Internship. 1-6 Credits.**

(R-6) Offered intermittently. Consent of department is required for registration. Extended classroom experience which provides practical application of classroom learning during placements off campus. Prior approval must be obtained from the faculty supervisor. A maximum of 6 credits of Internship (198, 298, 398, and 498) may count toward graduation.