

Systems Admin. Technology

SAT 1200 - Introduction to Programming

Introductory course in C++ programming. Topics include top-down analysis of problems, structured programming, control statements, loops, and functions, arrays, and pointers. Basic concepts of object-oriented programming (classes, objects, function overloading) will also be introduced.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Fall

Restrictions: Must be enrolled in one of the following Major(s): Industrial Technology, Computer Network & System Admn; Must be enrolled in one of the following Class(es): Freshman, Sophomore

SAT 1610 - Computer and OS Architecture

Fundamentals of computer organization, operating system architecture, PC/WS major subassemblies, PC and server configuration planning, power interfaces, system assembly/set-up, connection of peripherals, installing fundamental operating system software, system testing/debugging and planning and installation of application software portfolio.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Fall, Spring

Restrictions: Must be enrolled in one of the following Major(s): Computer Network & System Admn

Pre-Requisite(s): SAT 1200

SAT 1700 - Computer-Cyber Ethics/Policy

Ethical, privacy, liability, and regulatory compliance issues in managing computer and network administrations. Other topics include the digital ID debate, biometrics, computer use policy, privacy statements, P3P, security policy, FCC mandates, state utility commission mandates, W3C, standards development bodies.

Credits: 3.0

Lec-Rec-Lab: (0-3-0)

Semesters Offered: Fall

Restrictions: Must be enrolled in one of the following Major(s): Computer Network & System Admn

SAT 2343 - Network Administration I

Introduction to basic networking concepts and implementation. Topics include OSI model, subnetting, network addressing, data encapsulation, network topologies, administration UNIX and NT systems running TCP/IP, and basic configuration of networking hardware including cabling, bridges, routers, and other communications.

Credits: 4.0

Lec-Rec-Lab: (0-3-2)

Semesters Offered: Fall

Pre-Requisite(s): SAT 1610

SAT 2511 - MS System Administration I

Microsoft server software installation and configuration. Development of system interface scripts to perform tasks specific to client/server applications. Other topics include RDP, directory services, device drivers, SLIP/PPP, and SAN/NAS access.

Credits: 4.0

Lec-Rec-Lab: (0-3-2)

Semesters Offered: Spring

Pre-Requisite(s): SAT 2343

SAT 2711 - Unix & Linux Administration I

Study of networked systems in Linux and UNIX. Topics include Linux file system administration, Bash shell, system initialization and X windows, Linux processes management, print and log administration, compression, system back up/restore, network services (FTP, NFS, Samba) and security (firewall) configuration.

Credits: 4.0

Lec-Rec-Lab: (0-3-3)

Semesters Offered: Fall, Summer

Pre-Requisite(s): SAT 1200

SAT 3200 - Storage Area Networking

Study of distributed network storage methods, that is iSCSI, DAS, NAS, and SAN technologies. Other topics include storage and computer virtualization, configuration management, storage farms, backup and recovery.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Fall

Pre-Requisite(s): SAT 2511 and SAT 2711

SAT 3210 - Database Management

Introductory course on database management. Topics include the essential concepts, principles, and techniques of modern database systems. Administration of latest RDBMS, such as Oracle and SQ2 language.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Fall, Summer

Restrictions: Must be enrolled in one of the following Major(s): Computer Network & System Admn

Pre-Requisite(s): SAT 2511 and SAT 2711

SAT 3343 - Network Administration II

Study of network devices in various architectures. Topics include routing protocols, TCP/IP, access-lists, remote network structures, network topologies, telnet and SSH authentication, switch programming, VLAN and STP configuration, IP traffic control, network troubleshooting and WAN encapsulation.

Credits: 4.0

Lec-Rec-Lab: (0-3-2)

Semesters Offered: Spring, Summer

Pre-Requisite(s): SAT 2343

SAT 3511 - MS System Administration II

Advanced MS administration functions. Topics include TCP/IP infrastructures, managing storage, grid and clustered computing, configuring print servers, Windows terminal server, MS system tuning, remote access, and back up and recovery from failures.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Fall

Pre-Requisite(s): SAT 2511

SAT 3711 - Unix & Linux Administration II

Advanced study of UNIX and Linux OS. Topics include system management, installation and maintenance, network security, data integrity, and enterprise infrastructures such as identity management, authentication, authorization and directory services.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Spring, Summer

Pre-Requisite(s): SAT 2711

SAT 3812 - Network Security Engineering I

Planning and managing system security in a TCP/IP converged enterprise network environment. Topics include security architecture, attack methods and counter-measures, patch management, performance monitoring, security management tools, best practices, policy management, virus scanning, security protocols, intrusion detection, firewalls, and SSL/TLS.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Fall

Pre-Requisite(s): SAT 2511 and SAT 2711

SAT 3820 - Mobile Computing & FCC Regulations

Evolution of the wireless communications, standards, and regulations. Topics include IEEE 802.11b/a/g Physical & MAC Layer Standards, Site Survey, WLAN Security and Vulnerabilities, Troubleshooting, Personal, Metropolitan, and Wide Area Wireless Networks (Bluetooth, WiMax, Cellular & Satellite Networks).

Credits: 4.0

Lec-Rec-Lab: (0-3-2)

Semesters Offered: Spring, Summer

Restrictions: Must be enrolled in one of the following Major(s): Computer Network & System Admn

Pre-Requisite(s): SAT 3812

SAT 4240 - VoIP Engineering

Voice over IP (VoIP) engineering and design. Topics include call and session protocols such as SIP, H.323, IAX and MGCP; VAD and PLC; common practical issues such as call redirection; codec integration and quality of service measurements.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Spring - Offered alternate years beginning with the 2010-2011 academic year

Restrictions: Must be enrolled in one of the following Major(s): Computer Network & System Admn

Pre-Requisite(s): SAT 2511 and SAT 2711 and SAT 3343

SAT 4310 - Advanced Scripting Programming

Emphasizes advanced portions of scripting programming, testing, implementation and documentation (i.e. PERL, PHP, Python and Shell Scripting). Other topics include language syntax data and file structures, input/output devices, file and graphical user interfaces.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Fall

Restrictions: Must be enrolled in one of the following Major(s): Computer Network & System Admn

Pre-Requisite(s): SAT 1200 and SAT 2511 and SAT 2711

SAT 4343 - Network Engineering

Topics include router and switch flow control; VoIP, compression and load balancing; VPN networks involving MPLS, IPSEC and PPP; advanced access-list configuration; AAA; Kerberos; TACACS; Firewalls; and configuration of advanced routing protocols.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Spring - Offered alternate years beginning with the 2009-2010 academic year

Pre-Requisite(s): SAT 3343

SAT 4480 - Senior Project I

Capstone course requiring the application of knowledge gained in lower division courses. Projects are team oriented, require weekly progress reports, and culminate with a final report and oral presentation.

Credits: 3.0

Lec-Rec-Lab: (0-0-6)

Semesters Offered: Fall, Spring, Summer

Restrictions: Permission of instructor required; Must be enrolled in one of the following Major(s): Computer Network & System Admn; Must be enrolled in one of the following Class(es): Junior, Senior

SAT 4541 - Windows 2000 Directory Services

Advanced concepts of planning and implementing enterprise services including LDAP directory service, Microsoft Active Directory and Kerberos in an enterprise environment. The course covers the concept of sustainability, green computing and best practices in industry.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Fall, Summer

Pre-Requisite(s): SAT 3511(C) and SAT 3711

SAT 4600 - Web/App Server Administration

In depth study of Apache web server, Microsoft Internet Information Server (IIS) and email services. Topics include server configuration, load balancing, connecting to the Internet, web security and administration, communication media, HTTP, fault tolerance, and proxy servers.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Spring

Pre-Requisite(s): SAT 3511 and SAT 3711

SAT 4812 - Network Security Engineering II

Cryptographic, authentication, key distributions, and e-commerce security protocols. Security protocol properties: authentication, secrecy, integrity, availability, non-repudiation, atomicity, certified delivery; crypto-protocol attacks; security protocols design, implementation and analysis. Email, IP, and wireless security, virtual private networks, firewalls, content filtering, network security policies, and intrusion detection.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Spring

Pre-Requisite(s): SAT 3812

SAT 4880 - Senior Project II

Capstone course requiring the application of knowledge gained in lower division courses. Projects are team oriented, require weekly progress reports, and culminate with a final report and oral presentation.

Credits: 3.0

Lec-Rec-Lab: (0-0-6)

Semesters Offered: Fall, Spring, Summer

Restrictions: Permission of instructor required; Must be enrolled in one of the following Class(es): Junior, Senior

Pre-Requisite(s): SAT 4480

SAT 4996 - Special Topics in Computer Network Systems Administration

Selected additional topics of interest in Computer Network Systems Administration based on student and faculty demand and interest. May be a tutorial, seminar, workshop, project, or class study.

Credits: variable to 3.0; Repeatable to a Max of 6

Semesters Offered: On Demand

Restrictions: Permission of instructor required; Must be enrolled in one of the following Major(s): Computer Network & System Admn; Must be enrolled in one of the following Class(es): Senior

SAT 4997 - Independent Study in Computer Network Systems Administration

Independent study of an approved topic under the guidance of a Computer Network Systems Administration faculty member. May be either an academic, design, or research problem/project.

Credits: variable to 3.0; Repeatable to a Max of 6

Semesters Offered: On Demand

Restrictions: Must be enrolled in one of the following Major(s): Computer Network & System Admn; Must be enrolled in one of the following Class(es): Senior

SAT 4998 - Undergraduate Research in Computer Network Systems Administration

An undergraduate research experience in Computer Network Systems Administration. Under the guidance of a CNSA faculty member, students work on a selected/approved research problem or work directly with faculty on active research projects/grants. May require more than one semester to complete.

Credits: variable to 6.0; Repeatable to a Max of 6

Semesters Offered: On Demand

Restrictions: Permission of instructor required; Must be enrolled in one of the following Major(s): Computer Network & System Admn; Must be enrolled in one of the following Class(es): Senior