

Bachelor of Applied Science in IT Networking

Prerequisites

Full-time applicants to the BAS-ITN Program must possess a minimum of an AAS-T degree in Networking from any one of the many options at regional two-year institutions, or from other regionally accredited institutions. Additionally, applicants must have a cumulative grade point average (GPA) of at least 2.0, and a 2.5 or higher GPA in Networking related coursework.

Prior to acceptance into the BAS-ITN, applicants will have completed the following coursework:

- Networking Introduction – 5 credits – specific courses such as: NET 120
- Cisco I, II, III (CCNA) – 15 credits – specific courses such as: NET 142, NET 144, NET 146
- Unix and Security – 15 credits – specific courses such as: ITC 136, ITC 151
- General Education* – 30 credits – 10 credits of English (ENGL& 101 and ENGL& 102); 5 credits VLP (HUM 105); 5 credits of Q/SR (MATH& 146); 5 credits of ICS (PSYC& 100); and 5 credits of NW (CSC)
*A total of 60 will be required for the BAS degree. It is suggested that 30 credits be earned prior to BAS enrollment
- In addition to general education, students who lack business/management skills will be advised to consider enrolling in any of the Business Technology Management courses that include human resources, supervision, project management, and customer relations as part of their AAS-T degree.

Full-Time Program Planning Sheet

The BAS-ITN curriculum is designed to meet the needs of AAS-T graduates, individuals with Networking coursework and incumbent workers who may already possess a baccalaureate degree in a non-networking related field.

FULL-TIME STUDENT PATHWAY		
BAS-ITN YEAR 1		
FALL	WINTER	SPRING
Linux and Enterprise Scripting Technologies (5) NTI 300	Linux Applications (5) NTI 310	Optimization and Monitoring of Enterprise Networks (5) NTI 320
Enterprise Routing - CCNP 1 (5) NTI 340	Enterprise Switching - CCNP 2 (5) NTI 350	Enterprise Troubleshooting - CCNP 3 (5) NTI 360
Gen Ed: Information Literacy (5) SOC 330	Gen Ed (5): Intro to Logic PHIL& 106	Gen Ed (5): Programming CSC 110 or Higher
BAS-ITN YEAR 2		
FALL	WINTER	SPRING
Collaboration and Secure Content Management (5) NTI 430	Network Security for the Enterprise (5) NTI 410	Capstone or Internship (5) NTI 470
Identity and Information Security for the Enterprise (5) NTI 400	Devices and Services Cloud Environments (5) NTI 440	Practicum (5) NTI 460
Gen Ed: International Relations (5) POLS& 203	Gen Ed (5): ECON& 201 or ECON& 202	Gen Ed (5): Lab Science

Part-time Stackable Pathway Certificates

Courses will be grouped into content areas, such as CCNP, Linux, and Cloud Specialization, providing short-term certificate opportunities for students to attend classes part-time, to add new skills, or to refresh skills. Classes can be taken individually or as a set for Seattle Central certification.

SHORT-TERM CERTIFICATES		
LINUX		
FALL	WINTER	SPRING
Linux and Enterprise Scripting Technologies (5) NTI 300	Linux Applications (5) NTI 310	Optimization and Monitoring of Enterprise Networks (5) NTI 320
Prerequisite: Linux administration experience through coursework or employment experience		
CCNP		
FALL	WINTER	SPRING
Enterprise Routing - CCNP 1 (5) NTI 340	Enterprise Switching - CCNP 2 (5) NTI 350	Enterprise Troubleshooting - CCNP 3 (5) NTI 360
Prerequisite: CCNA coursework		
CLOUD SPECIALIST		
FALL	WINTER	SPRING
Collaboration and Secure Content Management (5) NTI 430	Devices and Services Cloud Environments (5) NTI 440	Enterprise Virtualization and Cloud Management Capstone or Internship (5) NTI 470
Prerequisite: Windows Enterprise and Linux administration experience		

Linux Certificate

This three-class series of courses prepares individuals with previous Linux administration skills for implementation in enterprise computing environments, past the equivalence of Linux+ certification. Students examine and demonstrate auto-configuration, file systems, partitioning, logical volumes, firewalling, LAN/WAN support applications, Enterprise Applications, like web, mobility, email, storage, cloud virtualization, database, and troubleshooting. Students will also implement third-party applications and mixed server environments, including integration with Microsoft and Apple products.

Cisco CCNP Certificate

Students work through the Cisco CCNP curriculum to earn a college certificate and be Cisco certification ready. Applying Cisco coursework to industry, this certificate validates the ability to plan, implement, and verify local and wide-area enterprise networks. This foundational CCNP curriculum prepares administrators for additional variants that support advanced troubleshooting, provisioning for the cloud, advanced security, and voice, wireless and video solutions. The CCNP Routing and Switching certification is appropriate for those with a CCNA and/or a year of networking experience.

Cloud Specialist Certificate

This certificate is designed to provide core knowledge in Internet (cloud) technologies. Four areas of emphasis include: Solution architectures, risk and governance, mobility and applications, and service management. Cloud computing at Seattle Central focuses on new Internet-only business models and the re-ordering of traditional client server local area networking technologies in a highly distributed, mobile world. Entry into the certificate requires Linux and Windows experience. The Enterprise Virtualization and Cloud Management Capstone course requires the highest skill set.

Course Titles and Descriptions

Linux and Enterprise Scripting Technologies (5) NTI 300

Students will explore and develop command-line management skills for Internet Servers and Departmental Servers. They will invoke services at the command line interface to release/invoke extensible and secure processes for server environments using various shells. Students will also explore server programming by using a general purpose high level language, and then they will focus on management by using Perl and a database like MySQL.

Information Literacy (5) SOC 330

This course will introduce students to the organization, retrieval, and evaluation of electronic and print information. Students will be provided with an overview of college library systems, networked information systems, traditional scholarly resources, and the concepts underlying the research process. The course will focus these skills specifically in information technology disciplines by examining various specialized resources.

Enterprise Routing - CCNP1 (5) NTI 340

Students will gain the knowledge and skills needed to analyze, plan, construct, implement, and monitor a scalable routed network. Students will focus on routing protocols for both IPv4 and IPv6: EIGRP and OSPF for an enterprise and BGP for enterprise Internet connectivity and addressing for LANs and WANs. They will also learn how to redistribute routes, implement path control, and secure Cisco routers.

Linux Applications (5) NTI 310

Provides necessary tools to support applications in cloud-enabled networking: Network Management, Firewall (packet filtering), File Sharing, Network maintenance, Distributed Computing, Instant messaging, E-Commerce and Web Business, Finance Management, Financial Accounting, Enterprise Automation, Collaboration Software, Project Management, E-mail/Personal information manager/ Groupware Servers, Product data/product lifecycle management (PDM/PLM), SQL Databases, Platform virtual machines, and Windows Compatibility. Implementation and configuration will focus primarily on database-centric application technologies.

Enterprise Switching - CCNP 2 (5) NTI 350

Students will gain the knowledge and skills needed to create an efficient and expandable enterprise network. Students will focus on Layer 2 and multilayer switch functions including VLANs, trunks, inter-VLAN routing, port aggregation, load balancing, spanning tree, and first hop redundancy, as well as network security and high availability features.

Optimization and Monitoring of Enterprise Networks (5) NTI 320

Students will define optimization and monitoring techniques for enterprise networks. They will analyze deployment, implementation, and configuration for availability, capacity, performance, security, reporting, storage, alerts, recovery, backup, and archival. Students will also demonstrate implementation techniques for optimizing and monitoring enterprise networks.

Enterprise Troubleshooting - CCNP3 (5) NTI 360

Students will learn and practice techniques to monitor and troubleshoot routed and switched networks through extensive hands-on lab exercises. Troubleshooting methods, approaches, procedures, and tools will also be explored. A series of different organizations are introduced for each set of troubleshooting scenarios that are presented. Students will solve many of the troubleshooting tickets and debrief and review information that will help further their understanding in the specific issues raised in the scenarios.

Collaboration and Secure Content Management (5) NTI 430

Students will explore the challenges of business case design versus best secure configuration practices. Students will distinguish and apply applications to control data loss and prevention and will investigate collaboration tool challenges in LAN\WAN architectures. Students will also apply basic deployment skills for a DRM enabled workflow environment. Extranet and Intranet collaboration tools and forms are also examined, along with Internet Services, SQL database deployment and security, with a WAN based single sign on process using claims.

Identity and Information Security for the Enterprise (5) NTI 400

Students will create an enterprise view of information security. The course will review and characterize the Information Security Landscape, Risk Management, Security Governance, Legal Frameworks, Policy and Procedure, and Business Continuity. Students will identify and evaluate differences in information technology and information security governance between civil and governmental computing environments.

Network Security for the Enterprise (5) NTI 410

Students will investigate the information enterprise security landscape and describe a design for a hypothetical enterprise. In addition, each student will be expected to operationalize in basic forms: Network security tools, secure Internet applications, application of access controls, implementation of scanning and logging, and a hybrid claims based authentication. Students will also operationalize policy and procedures, compliance, and business continuity in network security configurations for the worlds of client/server and cloud native processes, while reviewing techniques and associated tools.

Devices and Services Cloud Environments (5) NTI 440

Students will describe enterprise mobility, mobility device threats, mobility analytics, and mobility applications. In addition, they will plan and design a mobility implementation for an enterprise scenario while evaluating the limitations and value of an application on different hardware implementations. Students will discuss users, devices, applications, data, and fault tolerance for mobility implementations.

Enterprise Virtualization and Cloud Management Capstone (5) NTI 460

In this practicum course, students will explore and deploy test enterprise class applications as cloud enabled tools and survey and illustrate elements of a services-oriented architecture as compared to a client/server architecture. Students will describe the following as related to cloud computing: automation, scalability, multipath, multi-tenancy, and network virtualization. Students will explore the bandwidth challenges associated with the last mile link to the consumptive devices. Students will also describe and compare current cellular, femtocell, and emerging new Wi-Fi/cellular unification standards using bandwidth constriction points as a guide, as well as architectural and security configuration design associated with implementing a modern hybrid LAN / WAN infrastructure. Students will demonstrate basic server administration through shell scripting as the primary implementation and deployment process.

Practicum (5) NTI 470

Students will gain practical work experience and employment contacts by integrating academic studies with actual on-the-job training situations. Students will produce a major project that responds to a client problem or request. Students may work in teams or carry out an individual project as an internship or externship, while working closely with industry mentors. Emphasis will be placed on research, accuracy, technology skills, timeliness, teamwork, quality, client/customer satisfaction, and usability.

Recommended BAS General Education Courses

Along with the BAS-ITN core curriculum, students will be required to enroll in 30 general education credits (60 total general education credits are required, including 30 earned from the AAS-T degree). The following are recommendations for fulfilling the general education requirements:

- Communication Skills (10 credits required): ENGL& 101, ENGL& 102
- Quantitative/Symbolic Reasoning Skills (5 credits required): MATH& 146
- Humanities (10 credits required): CMST& 220, HUM 105
- Natural Sciences (10 credits required- one class must be a lab class): CSC 110 or Higher, and one lab science course
- Social Sciences (10 credits required): PSYCH& 100, SOC 330
- Additional coursework (15 credits required): ECON& 201, ECON& 202, PHIL& 106, POLS& 203

The BAS-ITN curriculum is rigorous, especially for those who are employed full or part-time. Courses will be offered during nights and weekends and through a variety of modalities including online and hybrid. Within the current AAS-T program, students are supported through advising and counseling, along with tutoring and extended lab hours. In addition, Seattle Central will provide comprehensive advising along with resources for student success.

BAS-ITN Degree Requirements Summary

NETWORKING AAS-T		
Prefix	Course	Credits
ITC 140	Intro to Computer Hardware	5
NET 120	Network Essentials	5
NET 122	Network OS 1 - Windows	5
NET 124	Network OS II - Infrastructure	5
NET 126	Network OS III - Server	5
ITC 136	Intro to UNIX	5
NET 134	Network Communications	5
NET 138	UNIX for Administrators	5
NET 142	Cisco I	5
NET 144	Cisco II	5
NET 146	Cisco III	5
NET 200	Enterprise Applications	5
ITC 151	Network Security	5
CIS 197	Work Experience	3
TOTAL		68
GENERAL EDUCATION RECOMMENDATIONS FOR AAS-T (30 CREDITS)		
ENGL& 101	English Composition I	5
ENGL& 102	English Composition II	5
HUM 105	Intercultural Communications	5
MATH136 OR MATH&146	Inferential Statistics or Intro to Statistics	5
PSYC&100	General Psychology	5
CMST& 220	Public Speaking	5
Total General Education Credits		30
TOTAL FOR AAS-T DEGREE		98
NETWORKING BAS		
Prefix	Course	Credits
NTI 300	Linux and Enterprise Scripting	5
NTI 310	Linux Applications	5
NTI 320	Optimizing and Monitoring of Enterprise Networks	5
NTI 340	CCNP I- Enterprise Routing	5
NTI 350	CCNP II – Enterprise Switching	5
NTI 360	CCNP III – Enterprise Troubleshooting	5
NTI 400	Information Security for the Enterprise	5
NTI 410	Network Security for the Enterprise	5
NTI 430	Secure Content Management	5
NIT 440	Devices and Services Cloud Environment	5
NTI 460	Practicum	5
NTI 470	Capstone	5
TOTAL		60
GENERAL EDUCATION RECOMMENDATIONS FOR BAS (30 CREDITS/60 TOTAL)		
POLS& 203	International Relations	5
SOC 330	Information Literacy in IT	5
CSC 110 or Higher CSC	Intro to Computer Programming	5
ECON& 201 or ECON& 202	Microeconomics or Macroeconomics	5
PHIL& 106	Intro to Logic	5
Choose any (1) Lab Science		5
Total General Education Credits		30
TOTAL FOR BAS DEGREE		188