



Data Networks 3 – AUST 208 Autonomous Systems Technician Program

Course Outline

COURSE IMPLEMENTATION DATE: September 2020
OUTLINE EFFECTIVE DATE: September 2020
COURSE OUTLINE REVIEW DATE: March 2025

GENERAL COURSE DESCRIPTION:

This course introduces technologies that allow networks to scale, it describes the architecture, components, and operations of routers and switches in large and complex networks. A review of switching technologies including VLANs, and inter-VLAN routing provides the foundation to explore spanning-tree and link-aggregation. A review of IPv4 and IPv6 routing fundamentals provides the foundation to explore Enhanced Interior Gateway Routing (EIGRP) and Open Shortest Path First (OSPF) routing protocols. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with OSPF, EIGRP, STP, and VTP in both IPv4 and IPv6 Networks. Included is a review of managing IOS images, configuration files and licensing. In this course, students will be required to use Cisco Networking Academy, an online collaborative service.

Program Information: This course is required for successful completion of the Autonomous Systems Technician program.

Delivery: This course is delivered face to face.

COTR Credits: 3

Hours for this course: 90 hours

Typical Structure of Instructional Hours:

Instructional Activity	Duration
Lecture Hours	45
Seminars / Tutorials	
Laboratory / Studio Hours	45
Practicum / Field Experience	
Other Contact Hours	
Total	90

Practicum Hours (if applicable):

Type of Practicum	Duration
On-the-Job Experience	
Formal Work Experience	
Other	
Total	N/A

Course Outline Author or Contact:

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Signature

APPROVAL SIGNATURES:

Department Head
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Department Head Signature

Dean Signature

EDCO

Valid from: September 2020 – March 2025

Education Council Approval Date

COURSE PREREQUISITES AND TRANSFER CREDIT:

Prerequisites: AUST 108 with a minimum grade of C- (55%) or higher.

Corequisites: N/A

Flexible Assessment (FA):

Credit can be awarded for this course through FA Yes No

Learners may request formal recognition for flexible assessment at the College of the Rockies through one or more of the following processes: External Evaluation, Worksite Assessment, Demonstration, Standardized Test, Self-assessment, Interview, Products/Portfolio, Challenge Exam. Contact an Education Advisor for more information.

Transfer Credit: For transfer information within British Columbia, Alberta and other institutions, please visit <http://www.cotr.bc.ca/Transfer>.

Student should also contact an academic advisor at the institution where they want transfer credit.

Prior Course Number: N/A

Textbooks and Required Resources:

Textbook selection varies by instructor and may change from year to year. At the Course Outline Effective Date the following textbooks were in use:

Cisco Networking Academy online course materials

Companion Guide text from Cisco Press (Optional)

Please see the instructor's syllabus or check COTR's online text calculator

<http://go.cotr.bc.ca/tuition/tCalc.asp> for a complete list of the currently required textbooks.

LEARNING OUTCOMES:

Upon the successful completion of this course, students will be able to

- describe technologies used to provide scalability in campus and enterprise networks;
 - describe the operations and benefits of the Spanning Tree Protocol (STP);
 - describe and create Ether Channels to facilitate link aggregation;
 - implement, configure and troubleshoot EIGRP in an enterprise system;
 - implement OSPF in an enterprise system;
 - provide scalability in the routing domain by implementing Multi-Area OSPF;
 - configure and troubleshoot operations of routers in a complex routed network for IPv4 and IPv6; and
 - manage IOS images, configuration files and licensing for routers and switches.
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COURSE TOPICS:

- Complex Networks
- Switching Technologies (VLAN and inter-VLAN)
- IPv4 and IPv6 Fundamentals
- Enhanced Interior Gateway Routing
- Open Shortest Path First Routing
- Troubleshooting Routers and Complex Networks

See instructor's syllabus for the detailed outline of weekly readings, activities and assignments.

EVALUATION AND ASSESSMENT (Face-to-Face Delivery):

Assignments	% of Total Grade
Theory	60%
Practical	<u>40%</u>
Total	100%

Please see the instructor's syllabus for specific classroom policies related to this course, such as details of evaluation, penalties for late assignments and use of electronic aids.

EXAM POLICY:

Students must attend all required scheduled exams that make up a final grade at the appointed time and place.

Individual instructors may accommodate for illness or personal crisis. Additional accommodation will not be made unless a written request is sent to and approved by the appropriate Department Head prior to the scheduled exam.

Any student who misses a scheduled exam without approval will be given a grade of "0" for the exam.

COURSE GRADE:

Course grades are assigned as follows:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F
Mark (Percent)	≥ 90	89-85	84-80	79-76	75-72	71-68	67-64	63-60	59-55	54-50	< 50

A grade of "D" grants credit but may not be sufficient as a prerequisite for sequential courses.

ACADEMIC POLICIES:

See www.cotr.bc.ca/policies for general college policies related to course activities, including grade appeals, cheating and plagiarism.

COURSE CHANGES:

Information contained in course outlines is correct at the time of publication. Content of the courses is revised on an ongoing basis to ensure relevance to changing educational, employment and marketing needs. The instructor endeavours to provide notice of changes to students as soon as possible. The instructor reserves the right to add or delete material from courses.