Red River College campuses are located on original lands of Anishinaabeg, Cree,   
Oji-Cree, Dakota and Dene peoples, and on the homeland of the Métis Nation.

Course Outline

Course Information

**Course Code and Title:** NTWK-2010 Network Computing 2

**Course Section:** All Sections

**Department:** Applied Computer Education

**Program:** Business Information Technology

**Total Hours:** 80

**Credit Hours:** 5

## Course Description:

This course conforms to the second of three courses leading to the Cisco Certified Network Associate (CCNA) designation. The course expands on topics covered in Cisco Networking Level 1 and examines new topics. The course describes the architecture, components and operation of routers and switches in a small to medium business environment. Students will analyze, configure, verify and troubleshoot the following using both IPv4 / IPv6 protocols and services: Security, Redundancy, DHCP, WLAN, Static Routing, Inter-VLAN routing, Routing tables, Trunking, VLANs, STP and EtherChannel. By the end of this course, students will be able to recognize and correct common routing / switching issues. Basic procedural labs are introduced in each module. Students then perform basic configuration, implementation, and troubleshooting on provided equipment. Packet Tracer activities reinforce new concepts and allow students to model and analyze routing.

## Recognition of Prior Learning (RPL):

RPL is a process in which students have the opportunity to obtain credit for College-level knowledge and skills gained outside the classroom and/or through other educational programs. It is a process that documents and compares a student’s prior learning gained from education, work and life experience to the learning outcomes in College courses/programs. For more information about RPL at Red River College, refer to the RPL website at [rrc.ca/RPLservices](http://www.rrc.ca/RPLservices) or [A14 - RPL Policy](https://www.rrc.ca/legal/policies/recognition-of-prior-learning/).

Contact Lisa Case at lmcase@rrc.ca for information regarding RPL processes and opportunities for this course.

For general information and assistance with RPL, contact Red River College’s RPL Advisor at 204.632.3094 or [rpladvisor@rrc.ca](mailto:rpladvisor@rrc.ca).

## Accessibility Statement:

If you are a student with a disability and require reasonable accommodations, you are encouraged to discuss this privately with your instructor to facilitate greater understanding of your learning needs. To receive accommodations, you must connect with Counselling and Accessibility Services, who will assist in developing and implementing your accommodation plan. You can contact Counselling and Accessibility Services in person at NDC (D102) or EDC (P210), or by filling out the online intake form [rrc.ca/accessibility/getting-started/book-an-appointment](https://www.rrc.ca/accessibility/getting-started/book-an-appointment/).

For further information about RRC’s accommodation process, see the Disability Documentation Guide at [rrc.ca/accessibility/getting-started](https://www.rrc.ca/accessibility/getting-started/).

## Academic Requisites:

NTWK-1010 Network Computing 1

## Course Delivery Methods:

Blended or online

The following communication tools will be used in this course:

Academic Email, Microsoft Teams, Online Content in Learn.

Course format:

This course is offered in an blended or online environment.

The theory content of the course is available on Cisco’s Network Academy website, and internet connection is required to access it. The lab environment provides students with the opportunity to put skills to use as they are learned. The lecture component of the course delivery comprises approximately one to two hours per week. The lab component approximately three hours per week, and student can expect to spend another 2 hours per week outside of class.

## Effective Date:

January 4, 2022

Instructor Information

**Instructor’s name:** Various

**Email:** Click or tap here to enter text.

**Office phone:** Click or tap here to enter text.

**Office location:** Click or tap here to enter text.

**Office hours:** Click or tap here to enter text.

[Delete this text and add information for TA if required]

Student Readiness

## Technology and Equipment Readiness:

* Laptop meeting BIT program requirements
* Internet access with sufficient bandwidth for video conferencing
* Web camera and microphone are required
* Lab journal for recording notes

**Other Equipment (Optional for online delivery)**

* **USB to 9 pin serial interface**
* 3ft Ethernet Cable x2

## Student Commitments and Contact Times:

* 5 hours scheduled daytime attendance per week via synchronous or asynchronous online delivery.
* Students are expected to commit time outside of regularly scheduled classes.
* Students in this course are expected to regularly check their academic email account or ensure it is forwarded to another checked account.
* Instructors will notify students at the beginning of the term of any course-specific communication methods.

## Course Resources:

Cisco equipment, roll-over cables are provided

Cisco Packet Tracer is available online – <https://www.netacad.com>

Textbook(s):

None Required – All material available online

References:

Online content – <https://www.netacad.com/>

Student Learning

## Learning Outcomes:

By the end of this course of study, you should be able to...

1. Describe an ethernet network in a small to medium sized business
2. Explain basic switching concepts and perform basic switch configuration
3. Configure secure VLANs and trunks in a switched network
4. Plan, configure and troubleshoot First Hop Redundancy Protocol (FHRP)
5. Plan, configure and troubleshoot Inter-VLAN routing
6. Plan, configure and troubleshoot EtherChannel
7. Explain routing concepts and interpret routing tables
8. Design, configure and troubleshoot redundant network design
9. Plan, configure and troubleshoot DHCPv4, SLAAC and Stateful/Stateless DHCPv6
10. Plan, configure and troubleshoot LAN and WLAN security
11. Wireless Local Area Network (WLAN) concepts and components
12. Plan, configure and troubleshoot static routing

## Instructional Schedule:

**NOTE:** The following schedules are subject to change based on the needs of the students at the instructor’s prerogative. Students will be notified ahead of time of any changes.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Week | Topic | Weekly Assignments (PT/Labs) | | Module Exams |
| 1 | Basic Device Configuration | PT 1.3.6  PT 1.4.7  PT 1.5.10  PT 1.6.1 | Lab 1.1.7  Lab 1.6.2 |  |
| 2 | Switching Concepts | PT 3.1.4  PT 3.2.8  PT 3.3.12  PT 3.4.5 | Lab 3.4.6  Lab 3.6.2 |  |
| 3 | VLANs | PT 3.6.1  PT 4.2.7  PT 4.3.8 | Lab 4.2.8 |  |
| 4 | Inter-VLAN Routing | PT 4.4.8  PT 4.5.1 | Lab 4.4.9  Lab 4.5.2 |  |
| 5 | STP Concepts | PT 5.1.9  PT 6.2.4  PT 6.3.4 |  | *Modules 1-4 Exam* |
| 6 | EtherChannel | PT 6.4.1 | Lab 6.4.2 |  |
| 7 | DHCP and SLAAC | PT 7.2.10  PT 7.4.1 | Lab 7.4.2  Lab 8.5.1 | Module 5-6 Exam |
| 8 | Winter Break |  |  |  |
| 9 | Midterm Project |  |  |  |
| 10 | FHRP | PT 9.3.3 |  | *Module 7-9 Exam* |
| 11 | LAN Security Concepts and Configuration | PT 11.1.10  PT 11.6.1 | Lab 11.6.2 |  |
| 12 | WLAN Concepts | PT 13.1.10  PT 13.2.7 | Lab 13.1.11 |  |
| 13 | WLAN Configuration | PT 13.3.12  PT 13.4.5  PT 13.5.1 |  | *Module 10-13 Exam* |
| 14 | Static Routing Concepts | PT 14.3.5  PT 15.6.1 | Lab 15.6.2 |  |
| 15 | Troubleshooting Static and Default Routes | PT 16.3.1 | Lab 16.3.2 | Modules 14 – 16 Exam |
| 16 | Final Project |  |  |  |
| 17 | Final Project Cont. |  |  | Cisco Final Exam |

## Important Dates:

**NOTE:** The following dates are subject to change based on the needs of the students at the instructor’s prerogative. Students will be notified ahead of time of any changes.

|  |  |
| --- | --- |
| Date | Important Information |
| January 4, 2022 | First day of classes |
| April 7, 2022 | Voluntary Withdrawal Deadline |
| April 29, 2022 | Last day of classes |

## Assessment and Evaluation:

|  |  |
| --- | --- |
| Assessment | Weight |
| Cisco Module Exams | 5% |
| Weekly Assignments (Packet Tracers/Labs) | 40% |
| Midterm Project | 20% |
| Final Project | 30% |
| Cisco Final Exam | 5% |
| Total: | 100% |

**NOTE:**

1. Near the end of the course the student will write an online Cisco final exam. This exam MUST be taken on a specified date and time and invigilated by an authorized Cisco representative. The exam cannot be taken unless these criteria are met. If a student is unable to attend on a specified exam day – sufficient documentation (e.g. doctor’s note) must be provided to the instructor on the first class following the specified exam day. Failure to do so will result in a mark of zero for the Cisco final exam.
2. A minimum mark of 70% must be attained on the Online Cisco Final Examination in order to complete the requirements for the CCNA 2 letter of merit. If a minimum mark of 70% is not achieved on the Online Cisco Final Examination, a single opportunity to re-write the exam will be available. However, on the exam re-write, a minimum mark of 80% must be achieved to receive the letter of merit.
3. Through the Cisco agreements with Red River College Academy – students are not allowed to copy ANY of the Cisco material (either electronically or in printed format). This includes all test material and online material. Failure to honor this policy will result in immediate expulsion from this course and may have serious implications in the event that the student wishes to continue Cisco studies through the Red River College Regional Cisco Academy.
4. The Cisco course material and tests are available online at the following site: <http://www.netacad.com>. Students will be provided a logon id and password. The instructor will ensure that all students can successfully logon to the site during the first class.

## Letter Grade Distribution:

|  |  |  |
| --- | --- | --- |
| A+ | 4.5 | 90 to 100% |
| A | 4.0 | 80 to 89% |
| B+ | 3.5 | 75 to 79% |
| B | 3.0 | 70 to 74% |
| C+ | 2.5 | 65 to 69% |
| C | 2.0 | 60 to 64% |
| D | 1.0 | 50 to 59% |
| F | 0.0 | 0 - 49% |

Minimum performance requirement for this course: A minimum grade of 50% or letter grade of D to pass the course A minimum grade of 70% is required on the Cisco Final Exam to receive a letter of merit.

Course Policies

## Academic Integrity:

Academic Integrity describes a commitment to honesty, truthfulness and accountability in teaching, learning and research. Academic misconduct describes acts and activities that breach standards of academic integrity, including and not limited to fraud, cheating, plagiarism, misuse or misrepresentation of sources, unauthorized collaboration, etc. Academic misconduct will be treated seriously and will not be tolerated. Clear expectations will be communicated to students to promote positive academic practices in compliance with RRC policy [S4 Academic Integrity](https://www.rrc.ca/legal/policies/academic-integrity/)**.**

## General Academic Policies:

It is the student's responsibility to be familiar with and adhere to the Red River College (RRC) Academic Policies. These Policies can be found in the RRC calendar or online under A SERIES – ACADEMIC MATTERS at [rrc.ca/legal/policies](https://www.rrc.ca/legal/policies/).

## Date Revised:

October 29, 2021

Mental Health and Well-being at RRC

Having good personal health and well-being will support your success in this program.

## We encourage you to:

• Recognize that stress is an expected part of being a college student.

• Rethink how you view difficulty. Being challenged is actually a part of learning and reaching success.

• Reflect on your role in taking care of yourself throughout the term. Do your best to balance your schoolwork and life demands.

• Reach out to your instructor, program coordinator, or College supports at any time if something is affecting your academic performance. It’s always best to reach out early and it’s the responsible thing to do.

## College supports ready and willing to assist you:

• [Student Counselling Services](https://www.rrc.ca/counselling/)

• [Indigenous Student Supports](https://www.rrc.ca/indigenous/supports/)

• [International Student Supports](https://www.rrc.ca/international/student-support/)

• [Academic Success Centre](https://www.rrc.ca/academic-success/)

• [Student Accessibility Services](https://www.rrc.ca/accessibility/)

• [Health Services](https://www.rrc.ca/health/)

• [Library Services](https://library.rrc.ca/home)

## Authorization:

This course is authorized for use by:



\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_November 15, 2021\_\_\_\_\_\_\_\_\_\_\_  
Program Manager, Applied Computer Education Date

© Red River College 2021 Approved by Senior Academic Committee April 16, 2021