



**North Idaho College**

Coeur d'Alene · Business · Computer Information Technology

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# Network Security Fundamentals

## CITE-235

Fall 2023 Section 100 3 Credits 08/21/2023 to 12/14/2023 Modified 08/28/2023

### Contact Information

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**Instructor:** Bob Quant

**Email:** robert.quant@nic.edu

**Phone:** 208.929.4036

**Office:** Hedlund Building Room 224 F

**Office Hours:** see schedule posted to the left of my office door.

### Meeting Times

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This is a face to face course.

We will meet in HED 224 B on Monday and Wednesday from 9am to 9:50am.

### Description

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This course prepares students for entry-level security specialist careers by developing an in-depth understanding of network security principles and the tools and configurations needed to secure a network. Students will have hands-on experience with network implementation, network security, firewall implementation and maintenance and server hardening techniques.

### Materials

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This course is delivered through Cisco's Network Academy's Learning Management System (LMS).

**No Text Books Required.**

CCNAv7: Switching, Routing, and Wireless Essentials - **(Optional Text)**

# Outcomes

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At the completion of this course, the student should be able to:

- Describe the security threats facing modern network infrastructures.
- Secure routers.
- Implement Authentication, Authorization, and Accounting (AAA).
- Mitigate threats to routers and networks using Access Control Lists (ACLs).
- Implement secure network design, management, and reporting.
- Mitigate common Layer 2 attacks.
- Implement and administer a firewall.
- Implement a site-to-site VPN.
- Implement a remote access VPN.

## Assessment

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Professionalism:

Work completed on time, criteria for this is reading course material and using all curriculum modalities to aid in your understanding of the course concepts, efficiently manage course responsibilities which include turning in assignments and turning them in on time, having a contingency plan for equipment failure and home Internet outages, avoiding procrastinating so that when crisis occurs you are not at the 11 hour for work to be turned in, maintaining effective communications with instructor and peers, demonstrating a growing aptitude of problem solving and troubleshooting skills, fostering an overall positive demeanor, demonstrating soft skills.

Soft Skills:

<http://www.techrepublic.com/blog/10things/10-highly-valued-soft-skills-for-it-pros/3353>

[http://en.wikipedia.org/wiki/Soft\\_skills](http://en.wikipedia.org/wiki/Soft_skills)

Chapter/Section Knowledge Assessments: 5%

19 Weekly chapter/section quizzes and assignments will provide an opportunity for students to assess the knowledge attained through class readings.

CITE 235 HOL Labs (5) 5% Assessment to determine a student's ability to apply the course material.

CITE 235 Packet Tracers (21) 20% Practical Assessment to determine a student's ability to apply configuration concepts to simulated equipment.

CITE 235 Module Exams 20% - 8 module exams consisting of multiple-choice, drag and drop, and possible PT with MC questions covering designated curriculum modules.

CITE 235 Online Final Exam—25% - The Online Final Exam is a comprehensive assessment of the student's understanding of course material covered throughout the semester. The online Final Exam is a proctored exam. To pass the course you will need to earn a 75% or higher on the exam.

CITE 235 Skills-Based Final Exam—25% - The Skills-Based Final Exam is a comprehensive assessment of the student's ability to apply the content of course material covered throughout the semester. The Skills-Based Final Exam is a proctored exam.

**Please Note: Late work is not accepted**

All activities for this class are submitted through Cisco Networking Academy ([www.netacad.com](http://www.netacad.com)) with weekly deadlines.

Please be aware:

- ALL assignments must be completed by the due date and time.
- Late work is not accepted.
- Make-up work may be accepted with prior permission.
- A minimum of 80% attendance is required
- Attendance is based on online meeting attendance and SUBMITTING assignments in Cisco Networking Academy ([www.netacad.com](http://www.netacad.com)).

## Criteria

### Criteria

Using these weights, letter grades will be based on percentages as follows:

- 92-100 % A
- 90 - 91.99 A-
- 88 - 89.99 B+
- 82 - 87.99 B
- 80 - 81.99 B-
- 78 - 79.99 C+
- 72 - 77.99 C
- 70 - 71.99 C-
- 68 - 69.99 D+
- 62 - 67.99 D
- 60 - 61.99 D-
- 0 - 59.99 F

**NOTE:** You must pass all CITE program courses with a 70% (C-) or better to continue in the CITE/NSA program courses.

## \* Course Policies

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### SYLLABUS CHANGES:

The instructor and institution reserve the right to make any changes to the syllabus. The changes will be communicated to students via announcement in the Learning Management System (LMS-Canvas/NetAcad) or in class.

# Campus Diversity

North Idaho College is committed to its core theme of diversity, defined as a "learning environment that celebrates the uniqueness of all individuals and encourages cultural competency." To support this value, the Diversity Council was formed to develop diversity initiatives campus-wide. The council works to foster a campus climate that is safe, inclusive, and equitable, as well as to provide support for diverse populations. For more information, contact Brian Seguin ([blseguin@nic.edu](mailto:blseguin@nic.edu)), Jo Lien ([jmlien@nic.edu](mailto:jmlien@nic.edu)), or Graydon Stanley ([gastanley@nic.edu](mailto:gastanley@nic.edu)).

## Academic Integrity Information

"Violations of academic integrity may result in failure of an assignment, failure of the course, or more serious sanctions."

## Incompletes

An incomplete is assigned only if the student has been in attendance and has done satisfactory work to within three weeks of the end of the semester (or proportional length of time for a course of less than a semester in length). Incompletes are issued only in cases of extenuating circumstances, such as severe illness or injury. Incompletes are not issued in cases in which the student is simply unable to complete his/her work within the specified semester or session. If a final grade of "I" is recorded, the instructor will indicate in writing to the Registrar what the student must do to make up the deficiency. The instructor will indicate in the written statement what permanent grade should be entered if the Incomplete is not removed by the deadline.

All incomplete grades must be removed within six weeks after the first class day of the following term, excluding the summer session. If the Incomplete is not removed by that date, the grade reverts to the grade indicated by the instructor's written statement authorizing the incomplete.

## Course Expectations

1. Complete required preparation for class which includes reading course material before attending class and other assigned tasks.
2. Attend all classes.
3. Complete course assignments and submit by specified deadlines.
4. Take the Section Exams along with the final examination for the course.

## Attendance

Students are expected to attend all classes:

- \* Students who are absent because of illness or emergency should personally contact their instructor.
- \* Illness and emergency related absences do not relieve students from the responsibility of making up any missed work.
- \* It is the responsibility of the student to obtain information concerning missed work and to see that it is completed and turned in.

A minimum of 80% course attendance is required in order to receive course credit.

## Course Requirements

1. Achieve a 70% or better on the online final exam to pass the course.
2. **Each CITE course must be passed with a grade of C- or better for progression to the next CITE course and for retention in the entire CITE Program.**

## Acceptable Computer Use Policy

The computing hardware, software, and other technologies, utilized during this course are intended solely to support learning and the course objectives. Please do not modify, install, or remove any hardware, software, or modify the computers configuration in any way, unless directed to do so by your instructor.

Playing computer games is not allowed at any time in the classroom or lab.

## Acceptable Internet Use Policy

Internet access, when available, is provided solely to support classroom learning and course objectives.

## Acceptable Food and Drink Use Policy

Food is not allowed at the computer work area at any time. Drinks are allowed in non-spill containers and provided you pick up after yourself and keep your work area clean.

## Schedule

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### CITE 235 Schedule - Fall 2023

The Instructor reserves the right to change or modify any aspect of this syllabus at any time during the course of the semester.

| Week | Module        | Date | NetAcad                                      | Activities                                 | Due Dates |
|------|---------------|------|----------------------------------------------|--------------------------------------------|-----------|
| 1    | 1 & 2<br>Read | 8/21 | 1 - Securing Networks<br>2 - Network Threats | <b>Systems test Exam</b><br><br>Quiz 2.6.2 | 8/27      |
| 2    | 3 Read        | 8/28 | Mitigating Threats                           | <b>3.6.2 Mitigating Threats Quiz</b>       | 9/4       |

|   |                          |      |                                                                                                |                                                                                                                                     |      |
|---|--------------------------|------|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------|
| 3 | 4 Read                   | 9/5  | Secure Device Access                                                                           | PT 4.4.8 Passwords & SSH, 4.5.2 Quiz<br><br>4.4.9 In Class<br><br><b>Group Exam on Modules 1-4</b>                                  | 9/10 |
| 4 | <b>5 &amp; 7</b><br>Read | 9/12 | 5 - Assigning Administrative Roles<br><br>7 - AAA Authentication, Authorization and Accounting | 5.3.2 Quiz<br><br>PT 7.2.6<br><br>PT 7.4.9<br><br><b>7.6.2 Quiz</b>                                                                 | 9/18 |
| 5 | <b>6</b> Read            | 9/19 | Device Monitoring and Management                                                               | PT 6.3.7<br><br>PT 6.6.4,<br><br>PT 6.7.12<br><br><b>6.8.2 Quiz</b><br><br><b>Group Exam on Modules 5-7</b>                         | 9/25 |
| 6 | 8 Read                   | 9/26 | Access Control Lists (ACL)                                                                     | PT 8.1.5<br><br>PT 8.5.5<br><br>PT 8.5.6<br><br>PT 8.5.12<br><br>PT 8.5.13<br><br>PT 8.6.5<br><br>PT 8.7.4<br><br><b>8.8.2 Quiz</b> | 10/3 |

|    |                |       |                                                                   |                                                                                                                         |       |
|----|----------------|-------|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------|
| 7  | 9 & 10<br>Read | 10/3  | 9 - Firewall Technologies<br><br>10 - Zone-Based Policy Firewalls | PT 9.2.4<br><br>9.3.2 Quiz<br><br>PT 10.3.11<br><br>10.4.2 Quiz<br><br>Group Exam on Modules 8-10                       | 10/9  |
| 8  | 11<br>Read     | 10/10 | IPS Technologies                                                  | PT 11.4.6<br><br>11.5.2 Quiz                                                                                            | 10/16 |
| 9  | 12<br>Read     | 10/17 | IPS Operation and Implementation                                  | 12.4.2 Quiz<br><br>Group Exam on Modules 11-12                                                                          | 10/23 |
| 10 | 13<br>Read     | 10/24 | Endpoint security                                                 | Quiz 13.3.2                                                                                                             | 10/30 |
| 11 | 14<br>Read     | 10/31 | Layer 2 Security Considerations                                   | PT 14.3.11<br><br>PT 14.8.10<br><br>PT 14.9.10<br><br>PT 14.9.11<br><br>Quiz 14.10.2<br><br>Group Exam on Modules 13-14 | 11/6  |
| 12 | 15<br>Read     | 11/7  | Cryptographic Services                                            | 15.5.2 Quiz                                                                                                             | 11/13 |
| 13 | 16<br>Read     | 11/14 | Basic Integrity and Authenticity                                  | Quiz 16.4.2                                                                                                             | 11/20 |

|    |                 |       |                                                                           |                                                                                         |                               |
|----|-----------------|-------|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------|
| 14 | 17<br>Read      | 11/21 | Public Key<br>Cryptography                                                | 17.4.2 Quiz<br><br>Group Exam on Modules<br>15-17                                       | 11/27                         |
| 15 | 18<br>Read      | 11/28 | VPN's                                                                     | Quiz 18.6.2<br><br>Practice Final Exam is<br>Open                                       | 12/4                          |
| 16 | 20 & 21<br>Read | 12/5  | 20 - Introduction to the<br>ASA<br><br>21 - ASA Firewall<br>Configuration | Skills Exam<br><br>Feedback Form<br><br>Quiz 20.3.2<br><br>PT 21.7.5<br><br>Quiz 21.8.2 | 12/7<br><br><br><br><br>12/11 |
| 17 |                 | 12/11 | Finals Week                                                               | Final Exam 12/12                                                                        | 12/12                         |

## Additional Items

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### Computer and Internet Access:

This course is online (Internet). To be successful with this course students are required to have readily available access to a reliable computer with dependable high speed Internet access.

### Acceptable Computer Use Policy:

The computing hardware, software, and other tools, utilized during this course are intended solely to support learning and the course objectives. Do not modify, install, or remove any hardware, software, change the wallpaper, or add/change any other configurations, unless directed to do so by your instructor. Computer gaming is not allowed in the lab at any time.

### Acceptable Internet Use Policy:

Internet access, when available, is provided solely to support classroom learning and the course objectives.

### Flexibility for Syllabus Changes Statement

The instructor and institution reserve the right to make any changes to the syllabus when necessary and with notification. The instructor reserves the right to revise class calendar, modify content, and/or substitute assignments in response to institutional, weather, or class situations. Students will be held responsible for all changes." The changes will be communicated to students via announcement in the Learning Management System (LMS- Canvas) and/or during online class meetings.

## Academic Integrity Information

"Violations of academic integrity may result in failure of an assignment, failure of the course, or more serious sanctions."

### Incompletes

An incomplete is assigned only if the student has been in attendance and has done satisfactory work to within three weeks of the end of the semester (or proportional length of time for a course of less than a semester in length). Incompletes are issued only in cases of extenuating circumstances, such as severe illness or injury. Incompletes are not issued in cases in which the student is simply unable to complete his/her work within the specified semester or session. If a final grade of "I" is recorded, the instructor will indicate in writing to the Registrar what the student must do to make up the deficiency. The instructor will indicate in the written statement

what permanent grade should be entered if the Incomplete is not removed by the deadline.

All incomplete grades must be removed within six weeks after the first class day of the following term, excluding the summer session. If the Incomplete is not removed by that date, the grade reverts to the grade indicated by the instructor's written statement authorizing the incomplete.

## Division Policies

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### Student Responsibility

As outlined in the Student Code of Conduct, all North Idaho College students have both rights and responsibilities: Please access [www.nic.edu/ferpa/StudentCode/index.htm](http://www.nic.edu/ferpa/StudentCode/index.htm) for complete information that pertains to this subject. For a complete explanation of the North Idaho College Statement on [Academic Honesty & Academic Integrity](#). (<http://www.nic.edu/modules/images/websites/121/file/section5/5.06.01policy.pdf>) please refer to Policy 5.06 & Procedure 5.06.01:

### Academic Integrity

Disruptive behavior in the class is not tolerated. To quote from the NIC "Student Code of Conduct," Article II, (found in the Student Handbook):

In order to carry out North Idaho College's Mission and to create a community of learners, the students, faculty, staff, and administrators must share common principles or values. These values – which include honesty, trust, fairness, respect, and responsibility – make up academic integrity.

*Violations of academic integrity may result in failure of an assignment, failure of the course, or more serious sanctions.*

## Institutional Policies

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## **Academic Dishonesty**

Violations of academic integrity involve using or attempting to use any method that enables an individual to misrepresent the quality or integrity of his or her work at North Idaho College. These violations include the following:

- Cheating: using or attempting to use unauthorized materials, information, or study in any academic exercise.
- Fabrication: falsifying or inventing any information or citation in an academic exercise.
- Plagiarism: knowingly representing the words or ideas of another as one's own in an academic exercise.
- Violation of Intellectual Property: stealing, altering, or destroying the academic work of other members of the community or the educational resources, materials, or official documents of the college.
- Facilitating Academic Dishonesty: knowingly helping another to attempt to violate any provisions of this policy.

*Violations of academic integrity may result in failure of an assignment, failure of the course, or more serious sanctions.*

For a complete explanation of the North Idaho College Statement on Academic Honesty & Academic Integrity please refer to Policy 5.06 & Procedure 5.06.01 in the [NIC Policy Manual](http://www.nic.edu/policy/) (<http://www.nic.edu/policy/>).

## **Student Code of Conduct**

The Student Code of Conduct applies to any student enrolled at North Idaho College. This includes, but is not limited to, face-to-face classes and Internet classes.

NIC shall maintain a Student Code of Conduct that specifically addresses prohibited behavior and assures due process for alleged violations. The Code of Conduct shall make clear possible sanctions for such actions. [Policy Manual \(https://www.nic.edu/policy/all/506/\)](https://www.nic.edu/policy/all/506/) (See 5.06)

## **Disability Support Services and the Americans with Disabilities Act (ADA)**

In compliance with the Americans with Disabilities Act of 1990 and Section 504/508 of the Rehabilitation Act of 1973, North Idaho College provides accommodations to eligible students who experience barriers in the educational setting due to learning, emotional / mental, physical, visual, or hearing disabilities. Instructors will provide accommodations to students only after having received a Letter of Accommodation from Disability Support Services (DSS).

If a student would like to request accommodations, he or she must contact DSS so that a Letter of Accommodation may be sent to the instructor. Students requesting accommodations should contact DSS as early in the semester as possible to avoid delay of accommodation due to student load.

Accommodations are not retroactive. DSS provides academic accommodations, access, assistance and services at NIC and at the North Idaho Consortium of Higher Education campus.

Contact:

[Disability Support Services Website \(https://www.nic.edu/dss/\)](https://www.nic.edu/dss/)

(208) 769-5947

## Withdrawal

Please check the [NIC Calendar \(https://www.nic.edu/calendar/\)](https://www.nic.edu/calendar/) for the last day students can withdraw from courses.

Instructor-Initiated Withdrawal: An instructor has the right to withdraw a student for academic reasons. For more information, see the [Instructor-Initiated Withdrawal Procedure \(https://www.nic.edu/policy/all/50402/\)](https://www.nic.edu/policy/all/50402/).

Financial Aid Satisfactory Progress (SAP): Federal Regulations require North Idaho College to establish Satisfactory Academic Progress standards (SAP) for all financial aid recipients. The purpose of SAP standards are meant to ensure that students and academic institutions are held accountable to the taxpayer-funded federal student aid programs while students complete their academic goals in a timely manner. This process monitors student performance in all terms of enrollment, including terms in which the student did not receive financial aid. For more information, see the [Financial Aid Satisfactory Progress \(http://www.nic.edu/websites/default.aspx?dpt=29&pagelid=3025\)](http://www.nic.edu/websites/default.aspx?dpt=29&pagelid=3025) website.

For more information on withdrawals, see the [NIC Catalog \(https://www.nic.edu/catalog/\)](https://www.nic.edu/catalog/).

## Title IX

North Idaho College seeks to provide an environment that is free of bias, discrimination, and harassment. If you have been the victim of sexual harassment/misconduct/assault we encourage you to report this. If you report this to any college employee, (except for a licensed counselor or health care professional) she or he must notify our college's Title IX coordinator about the basic facts of the incident (you may choose whether you or anyone involved is identified by name). For more information about your options at NIC, please go to: [NIC Title IX - Sexual Assault, Discrimination, and Harassment \(https://www.nic.edu/titleix/\)](https://www.nic.edu/titleix/) or call (208) 676-7156

## Removal From Class For Non-Attendance

Attendance is based on your participation in this class. Failure to attend will result in your being removed from this class and may result in your financial aid award being reduced. You are responsible for confirming the accuracy of your attendance record.

## Student Questions and Concerns

NIC instructors are a great resource for course related questions as well as general questions regarding your field of study and career. In addition, your instructor is your first point of contact if you have a question or concern about this course. Instructor office hours are posted here on the syllabus as well as in the campus directory. Division chairs are an additional resource you may contact if you are unable to resolve your question or concern with your instructor. The most current contact information for the division chair can be found here. [Office of Instruction - Division Chairs \(https://www.nic.edu/instruction/deans-and-division-chairs/\)](https://www.nic.edu/instruction/deans-and-division-chairs/)