

Nashville State Community College
Science, Technology, Engineering, and Mathematics (STEM)
Computer Information Technology

Spring 2023 Master Course Syllabus

CITC 2356 Penetration Testing & Net Def

This syllabus sets forth the expectations for course content, work, and grading as well as expectations for student performance and conduct. The syllabus does not constitute a contract between the student and the instructor or the College. The information contained here is subject to change at any time. Students will be notified if any changes are made. Though changes are possible, it is expected that the course will be conducted as described in this syllabus.

Course Information:

Course Title: CITC 2356 Penetration Testing & Net Def

Credits: 3

Class Hours: 3

Course Description:

Develops essential skills for penetration testers and other network security professionals, focusing on how hackers attack computers and networks, and how to protect Windows and Linux systems. Topics include legal restrictions and ethical guidelines enforcement, hands-on labs, both attacking and defending, using port scans, footprinting, buffer overflow exploits, SQL injection, privilege escalation, Trojans, and backdoors, and the legal, ethical, and technical aspects of using computer systems in unexpected ways. Prepares the student for CompTIA CySA+ Certification.

Prerequisite(s): CITC 1301 and CITC 1332

Instructor Information:

Name:

Email:

Office Phone:

Office Location:

Office Hours:

Zoom Room Address:

Required Textbook(s) & Other Materials:

TestOut CyberDefense Pro ISBN 978-1-935080-73-2

Reference Materials: internet access

Supplies: External storage (optional)

Once enrolled, all students should verify that they have the correct textbook and materials information by consulting the D2L/NS Online shell for the course. If you are registered with the Access Center and require an alternate format for the textbook and other course materials, please contact the Access Center at 615-353-3721, 615-353-3741, or accesscenter@nsc.edu.

Digital Course Materials (DCM):

To ensure the lowest cost for students, this course includes a materials fee. This means that some or all of the required textbooks and materials for this course are available through your *NS Online* course shell. When you register for this course, the charge will appear on your account. If you decide you do not want to purchase the course materials embedded in *NS Online*, you can opt out of the program until the end of the second week of classes. If you opt out, you

will be responsible for obtaining the required course materials on your own. For more information, please visit www.nsc.edu/dcm.

Course Outcomes:

Upon successful completion of this course, students should be able to:

- *Explain what an ethical hacker can and cannot do legally, and explain the credentials and roles of penetration testers.*
- *Define the types of malicious software found in modern networks.*
- *Explain the threats and countermeasures for physical security and social engineering.*
- *Use a variety of tools and techniques to perform footprinting to learn about a company and its network.*
- *Perform enumeration on various targets.*
- *Perform simple scripting and coding tasks, specifically oriented towards the needs of network security professionals.*
- *Identify vulnerabilities on various operating systems.*
- *Describe how to take control of Web Servers, and how to protect them.*
- *Locate and define weaknesses in various wireless networks, and protect them.*
- *Explain how cryptography and hashing work, and perform attacks against them such as password cracking and man-in-the-middle attacks, using various tools*

Course Competencies:

The following are detailed course competencies intended to support the course outcomes:

The following are general education competencies intended to support the course outcomes:

Topics to Be Covered:

- Ethics of Hacking and Cracking
- Reconnaissance
- Scanning Tools
- Sniffers
- TCP/IP Vulnerabilities
- Encryption and Password Cracking
- Spoofing
- Session Hijacking
- Hacking Network Devices
- Trojan Horses
- Denial-of-Service Attacks
- Buffer Overflows
- Programming Exploits
- Mail Vulnerabilities
- Web Application Vulnerabilities
- Windows Vulnerabilities
- Linux Vulnerabilities
- Incident Handling

Course Assessments:

The following performance assessments will be used to demonstrate students' understanding, knowledge, and skills:

- Students will complete quizzes and exams to demonstrate their individual competency in the application of concepts used in the assigned exercises. Specific criteria for evaluation of these tests are included in the grading policy shown below.
- Students will perform as team members in the completion of case project exercises that require individual contributions to the team’s solution. Criteria for performance will be based on established criteria that include all necessary components used in the solution of the exercise, as detailed in the grading policy below.
- Students’ ability to ask and respond to questions will be measured through a series of assigned hands-on and productivity tasks completed both individually and in teams within required specifications. Criteria for evaluation of performance will include accurate and efficient application of technical skills and knowledge as well as appropriate behaviors and attitudes. For example, students will be observed to determine the degree to which they ask relevant questions, remain open to ideas, think critically, adapt what they know to new information, approach work with inventiveness and enthusiasm, use precise language when communicating, set and meet deadlines, and so on. Students will participate in scenarios; an observation tool (checklist or matrix) will be used to document findings. Team productivity grades will result from these observations.

Grading Policy:

Area	Percent
LinkedIn Learning Video Homework	20
Labs	30
Section Quizzes	30
Final	20
Total	100

Late Work Policy & Make-up Procedures for Missed Assignments and Work:

All work must be completed and turned in by the due date. No work will be accepted after the last class meeting.

Attendance Policy

The College is not an attendance taking institution as defined by 34 CFR 668.22(b)(1) in the Code of Federal Regulations; however, students are expected to attend all scheduled classes and laboratories.

- Absences in a course may affect a student’s final grade.
- Tardiness may also affect a student’s final grade.
- Students are responsible for all work/tests that occur during any missed class session(s) regardless of reason(s) for absence.
- Students who are sick or not well enough to attend class must notify the instructor as soon as possible before the scheduled class time, unless incapacitated or unable to do so. In that case, students must contact the instructor as soon as reasonably possible.
- If a student has an unavoidable conflict with a scheduled class session, students must notify the instructor, preferably before the class session, or as soon as possible.

For purposes of financial aid continued attendance is determined via engagement in the course. This can be accomplished in several ways including, but not limited to, continued attendance and/or participation in on-ground class sessions, participating in D2L as prompted (e.g., responding to an instructor’s email, posting to a discussion board), and/or completing and submitting assignments.)

To the extent that attendance is kept in this class it is not for the purpose of the College but is instead associated with the instructor’s individual grading rubric. The attendance policy for this class is: *(add attendance policy)*.

Grading Scale:

Letter Grade	Percentage Range
A	90 – 100
B	80 – 89
C	70 – 79

Letter Grade	Percentage Range
D	60 – 69
F	Less than 60

FA

According to NSCC policy, an FA is awarded to students who do not officially withdraw from a course and do not attend after the cut-off date provided in the academic calendar. Please refer to the current academic calendar available on the Nashville State web site, looking for the date that indicates it is the “Last Day to Earn F for Attendance (FA).” Students who stop attending on or before this date receive an FA; students who stop attending after this date receive an F.

For online courses, attendance is defined by submission of assignments. Students who fail a course and whose last assignment is submitted on or before the FA date will earn an FA for the course. Students who fail a course and whose last assignment is submitted after the FA date will earn an F for the course. An FN is assigned to students who do not submit any assignments.

FN

An FN is awarded to students who never attended class.

Technology Statement

- All classes at the College are web enhanced.
- It will be essential for students to have access to a computer and an internet connection to complete assignments, engage in online discussions, and access various course materials through D2L/NS Online course shells.
- Students may also be required to use free video conferencing platforms (ex: Zoom, Teams) for classes and meetings.
- Students will be responsible for appropriate dress while on video, to ensure a distraction free environment (mute sound as needed) and to ensure their background is neutral for others to view.
- If you have questions or concerns regarding access to a computer or internet resources, please contact your instructor. Additional information available: <https://www.nsc.edu/current-students/student-online-resources/access-to-internet-and-technology>.
- Certain publisher materials may not work on cellphones.

Computer Labs

Computers are available for student use at each campus during campus open hours. Open computer lab availability for Spring 2021 may vary from campus to campus.

Students should check NSCC website for current hours of operation.

D2L/NS Online and myNSCC

It is students’ responsibility to check D2L/NS Online course shells for all enrolled courses and myNSCC, including student email, on a regular basis. These are the official communication channels between the college and students, who are responsible for the information communicated through those channels. D2L/NS Online contains specific course information and myNSCC contains information important for other purposes.

ADA Compliance Statement

Nashville State complies with the Americans with Disabilities Act (ADA). Nashville State complies with the Americans with Disabilities Act (ADA) and so provides accommodations for students with a documented physical, emotional, and/or learning condition. If you require accommodations for any courses in which you are enrolled, contact the Access Center at 615.353.3741 or 615.353.3721, or e-mail accesscenter@nsc.edu. If you are registered with the Access Center and require an alternate format for the textbook and other course materials, please contact the Access Center.

Classroom Misconduct

Nashville State Community College has a zero-tolerance policy for disruptive conduct in the classroom. Students whose behavior disrupts the classroom will be subject to disciplinary measures. Please review the [Nashville State Student Code of Conduct policy](#). Please be aware that children are not allowed in class or to be left unattended on campus.

Academic Misconduct

Any form of academic dishonesty, cheating, plagiarizing, or other academic misconduct is prohibited. Students are responsible for understanding and abiding by the [Academic Misconduct Policy](#) in the Nashville State Student Code of Conduct. In addition to other possible disciplinary measures that may be applied through regular college procedures as a result of academic dishonesty, the instructor has the authority to assign an "F" or a "zero" for the exercise, paper, or examination, or to assign an "F" for the course. Students may appeal through the appropriate college grade appeal procedures.

Academic Early Alert System

Nashville State Community College uses an Early Alert System to let students know of a faculty member's concern in one or more of these academic areas: lack of attendance, lack of classroom participation, late or missing assignments, and/or poor performance on assignments/tests. *Please note that Early Alerts do not affect a student's academic standing. If you receive an Early Alert email, please see your instructor and your academic advisor as soon as possible.

RAVE Emergency Alert System

Emergency events can happen at any time, and Nashville State Community College wants to notify students if and when they occur. For this reason, all students have been enrolled in the free RAVE alert system. If you have not already done so, please log in at <https://www.getrave.com/login/nscc> to confirm and update your contact information and notification preferences. It is critical that your information be correct so that you will receive any emergency notifications. Your RAVE Username is your NSCC email address. If you've never received an email from RAVE with your password, or if you need to reset your password, select "Forgot your password?" and a new password will be emailed to you. Should the RAVE system indicate "user not found", select Register and create your own RAVE account.

Student Wellness

- The general well-being of students is an important component of their academic success. With this in mind, Nashville State Community College has several resources available to provide support when needed:
 - **Tutoring options and appointments:** <https://www.nsc.edu/current-students/on-campus-resources/learning-center-and-tutoring>
 - **Academic and student resources for school:** <https://www.nsc.edu/current-students/student-online-resources>
 - **Support services:** <https://www.nsc.edu/current-students/on-campus-resources/student-support-services>

Equity Statement

Nashville State Community College has a relentless commitment to the transformation of our institution through the intentional design of college experiences that expect and promote excellence from students, faculty, staff and administration. We consider equity to be an obligation of higher education. We strive to ensure that each student receives what that student needs to be successful, with goals of success beyond the classroom. We do this through an evidence-based and collaborative effort, understanding that our student population has diverse needs that must be addressed. We recognize that this effort may not always be comfortable and that partnering with students is the driving force to overcome barriers to success.

Inclement Weather & Campus Closings

Virtual and online classes will meet as scheduled. Nashville State will use the RAVE alert system to send a text message to students, staff, and faculty about adjusted hours of operation and/or closings at individual campuses. All students should check the Nashville State web site home page at www.nsc.edu for announcements on campus closures, which may vary from campus to campus. Campus closures will also be announced on local television stations. Students should

use their own best judgment in determining whether to report to campus during inclement weather when classes are not cancelled.

Even when campuses are closed, students are still responsible for completing all assigned work. When classes are cancelled, faculty will post online assignments and any additional instructions in the D2L/NS Online course shell. Check D2L/NS Online for a message from your instructor regarding your online assignment requirements. Faculty have discretion over adjusting deadlines or due date for assignments, but students are responsible for completing all assigned work by the due date established by the instructor.

Class Cancellation Policy

If the class is cancelled, the instructor will notify all students by posting in the D2L/NS Online course, e-mailing through D2L/NS Online, and/or by posting a sign on the classroom door. In the event of class cancellation, students must access D2L/NS Online to complete classwork and the assignment that will be posted in the course D2L site.