CIS 164: Networking Fundamentals I

COURSE SYLLABUS

COURSE INFORMATION

CIS 164 (27494): Networking Fundamentals I, 3 credits, Tuesdays 8:00 – 10:45 AM, CTE 115.

Course Description: This course focuses on the following: network terminology and protocols, local area networks (LANs), wide area networks (WANs), open system interconnection (OSI) models, cabling, cabling tools, routers, router programming, Ethernet, Internet Protocol (IP) addressing, and network standards.

INSTRUCTOR

Yulia Kovaleva, Office #117 CTE/Western Star Building, Classroom / Lab – Room 115

Office Phone: (701) 774-4207, E-mail: yulia.kovaleva@willistonstate.edu.

Office Hours: Monday, Wednesday, Friday – 9:00AM to 11:00AM.

TEXTBOOK & MATERIALS

- https://www.netacad.com
- Blackboard LMS
- Packet Tracer Network Simulator
- Notebook Computer
- Other URLs TBA

The above sites will provide links to the digital curriculum, learning management system and resources for this course.

STUDENT LEARNING OUTCOMES

INSTITUTIONAL OUTCOMES

    I.   Students will use reasoning skills to analyze and solve problems.

II.   Students will demonstrate effective communication skills.

PROGRAM OUTCOMES

- Demonstrate computer network installation maintenance and repair skills
- Design, install and troubleshoot a Local Area Network (LAN)
- Describe the fundamentals of a Wide Area Network (WAN)
- Apply knowledge and interact with Windows server technologies to manage users, active directories, network infrastructure, configuration and server application
- Demonstrate knowledge of computer network security concepts and techniques
- Demonstrate knowledge of basic project management concepts and management tools
- Perform fundamental desktop management skills using Linux based operating system
- Demonstrate a knowledge of wireless LAN
- Troubleshoot and repair computer hardware and software problems

COURSE OUTCOMES

- Set up a personal computer system, including the operating system, interface cards, and peripheral devices
- Plan and install a small network connecting to the Internet
- Troubleshoot network and Internet connectivity
- Share resources such as files and printers among multiple computers
- Recognise and mitigate security threats to a home network
- Configure an integrated wireless access point and wireless client

ASSESSMENT TASKS (FOR COURSE OUTCOMES)
- Quizzes, Tests, and Assignments
- Demonstration of course specific skills
- Midterms and Final Exam

PROCESS SKILLS

- Describe networking standards, concepts, topology, and media including LANs, WANs, the OSI model, cabling, IP addressing, sub-netting, network hardware and various protocols.
- Explain networking theory and protocols on common network systems.
- Apply IP routing concepts and router administration, distance vector and link state- based IP routing algorithms, router interfaces, routing tables, and routing protocol configuration and network security concepts.

CONCEPTS & ISSUES

- Introduction to Networks
- The Open Systems Interconnection Specifications

- Networking Topologies, Connectors, and Wiring Standards
- Networking Devices
- Introduction to Internet Protocol (IP)
- IP Addressing
- Introduction to IP Routing
- Switching and Virtual LANs (VLANs)
- Wireless Technologies
- Authentication and Access Control
- Network Threats and Mitigation
- Physical and Hardware Security
- Wide Area Networks
- Software and Hardware Tools

ASSESSMENT PORTFOLIO

Students who are taking classes controlled by Williston State College are required to maintain an assessment portfolio on Blackboard for his/her time at WSC. For this class you should include evidence of completing institutional learning outcomes of what you learned in this class.

GRADING POLICY

A=(100-90%), B=(89-80%), C=(79-70%), D=(69-60%), F=(59-0%)

The instructor reserves the right to assign borderline grades as deemed appropriate. Participation, professionalism, and assignment completion are taken into account.

Packet Tracer Activities 25%

A critical component of learning is to work in lab/simulations. CIS 164 provides an opportunity to learn via various tasks to complete and the Packet Tracer Simulation is one.

Labs 25%

The labs in CIS 165 provide the students a great opportunity to work in teams and explore and research the tasks presented in the labs.

Chapter Assessments 20%

The students will complete the assessment from each chapter to help determine strengths and weaknesses in understanding the material and content presented.

Final Lab project 15%

The final lab project is a culmination of packet tracer and lab activities during the semester. Portfolio will also be included in this grade.

Final Assessment 15%

The final assessment is a comprehensive multiple- choice tool to help the students better understand the basics of networking.

(For the students at Dakota College, Lake Region State, Turtle Mountain Community College and Minot State University, they are not required to complete this.)

ATTENDANCE POLICY

As an on-campus class, participation and attendance is crucial to fully engage and learn the subject matter. Students who have not shown to class **by Wednesday, September 4th**, will be reported as no-shows and dropped from the class. Students are expected to attend class regularly. If you anticipate being absent for a class, contact the instructor *before the class begins*. If you miss a class, you are still expected to complete all work and are responsible for getting notes from a classmate. Failure to notify the instructor of the absence prior to the start of class will result in earning a "0" grade for any in-class activities, assignments, and/or participation points.

Attendance involves not just physical presence in the classroom, but engagement in the class as well.

ACCESSIBILITY STATEMENT

Williston State College is committed to providing equal access to students. If you have a disability which may impact your performance, attendance, or grades in this course that requires accommodations, you must first register with Accessibility Support Services. Please note that classroom accommodations cannot be provided until your instructors receive an Accommodations Form, signed by you and the Accessibility Support Services Coordinator. The link to the WSC Accessibility webpage is https://willistonstate.edu/students/Student-Services/Accessibility/.

IMPORTANT DATES

- Last day to add or drop without record: **September 4th, 2024**
- Last day to withdraw from term or drop with record: **November 15th, 2024**
- For important dates concerning holidays, last date to withdraw from class, etc., please visit the WSC catalog available on the website: <u>Williston State College</u>.

ACADEMIC RESOURCES

Take advantage of academic resources available to you at Williston State College:

- *Math Computer Lab:* Supplemental instruction is provided to assist students who are either having difficulty or desiring extra help with specific subjects. The Math Lab is located in Stevens Hall 209.
- *Communication Lab:* Supplemental instruction is provided to assist students who are either having difficulty or desiring extra help with specific subjects. The Communication Lab assists with composition, writing, communication, and public speaking. The Communication Lab is

located in the Fireside Lounge in the Learning Commons. Students can make appointments at wsc.writinglab@willistonstate.edu.

- *Learning Commons:* It's not just the Library anymore. In addition to the normal library functions (book checkout, research assistance, etc.), the Learning Commons serves a number of other functions. Get help with the learning management system and other Distance Ed questions. The "technology counter" provides an opportunity to play with some of the latest technology. Computers and printers available. If you have questions, call (701-774-4226). To contact the Office of Extended Learning please email wsc.extendedlearning@willistonstate.edu.
- *NetTutor:* Web based service that provides on demand tutoring across a wide variety of subject areas. With NetTutor you can access live tutors, ask a question, and come back later for a response and/or submit written work for review. This program can be accessed through the NetTutor link in any WSC Blackboard course. If you have questions or need assistance, please contact Extended Learning at wsc.extendedlearning@willistonstate.edu.

STUDENT ACADEMIC INTEGRITY

Work submitted for this course must follow Student Academic Integrity as cited in the WSC Student Code of Conduct, p. 14:

Acts of cheating and plagiarism are prohibited. Cases of academic dishonesty may be treated as an academic matter or as a disciplinary matter at the discretion of the instructor.

Cheating is defined as fraud, deceit, or dishonesty in an academic assignment. It includes using or attempting to use materials or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question.

Plagiarism is presenting someone else's work or ideas as your own, with or without their consent, by incorporating it into your work without full acknowledgement. All published and unpublished material, whether in manuscript, printed or electronic form, is covered under this definition.

Self-plagiarism is the use of one's own previous work in another context without citing that it was used previously.

The instructor may reflect the incident of academic dishonesty through the assignment of the student's grade in the course. If the student has a grievance related to this action, that grievance would be directed to the Chair of the department in which the course is housed.

Alternatively, the instructor may refer the case as a disciplinary matter to the Vice President for Academic Affairs. The Vice President for Academic Affairs may refer the case to the Student Review Committee for action.

Breach of academic integrity may result in failure of the assignment, exam, and/or class.

STUDENT RESPONSIBILITIES:

- You are expected to read the relevant materials and participate in class discussions in a timely manner.
- You are expected to respect your fellow students and the Instructor in online and on campus discussions.
- It is your responsibility to ask questions when you are uncertain about assignments or course materials.
- If you have questions concerning grades, you should contact the Instructor immediately. You are responsible for checking Blackboard in a timely fashion to ensure that the grade recorded is your correct grade.
- It is your responsibility to contact the Instructor as soon as possible if you are encountering any issues that would hinder your performance in this class.
- You are responsible for earning your grade (with the Instructor making every effort to help you learn the material).
- If you are concerned about your grade, you should speak to the Instructor NO LATER than mid-term. No consideration will be given to request to adjust your grade at the end of the semester unless there is an error in calculations.

GRIEVANCE POLICY

Occasionally, students are dissatisfied with some dimension of the course. In such cases, students should first schedule a meeting with the instructor. If the student and instructor cannot reach a satisfactory resolution, the student should schedule a meeting with the Chair of the Department. (See the Student Code of Conduct.)

TITLE IX

Survivors of sexual assault, domestic violence, and sexual harassment please be aware that as an instructor, I am legally obligated to report all instances of sexual assault, domestic violence, and sexual harassment involving students. If you would like to speak to someone confidentially, please contact the WSC Counselor at (701)774-4212 (they are NOT mandated to report such instances).

COMMUNICATION: PROFESSIONALISM & SAFETY

As with your intended career path, this class expects quality communication: you need to be both professional and mindful of how you communicate. Be mindful of your responses within class, so as to not include judgments or criticisms. You have every right to disagree with others but be respectful in how you display this. If at any point you feel your safety (physical, mental, or emotional) has been compromised, please notify the instructor as soon as possible.

When communicating with others, oral or written, please remember your audience. Always give a background and provide additional information as though your audience has not had the same experiences as you, since they most likely have not.

I ask for your professionalism and mindfulness in your communication because the only way this will become second-nature for you is through regular practice of this behavior. This will help make you stand out from others in the highly competitive work environment; it is expected from industry leaders.

The official means of communication is your Williston State College e-mail address. This will be used for all notices, general bulletins, and other communications, including mandated provision of consumer information. As listed in the Student Code of Conduct, "WSC exercises the right to send e-mail communication to students and expects that e-mail communication is received and read by students in a timely manner".

When you e-mail me at yulia.kovaleva@willistonstate.edu, you must e-mail from your WSC e-mail account and list your course name in the subject line (example: CIS 164). E-mails from outside service providers will not be answered.

FINAL EXAMS/ACTIVITIES

Students are required to take the final examination or engage in the final activity on the date and at the time presented as part of the course syllabus. Exceptions may be made only in emergency situations and in the case of scheduling conflicts with college sponsored events by promptly submitting a written request detailing the circumstances to the instructor of the course. **If you do not complete your final exam you will receive an F for a final grade**. Your final exam is: **Tuesday, December 17th, 7:30-9:30 AM.**

ANNOUNCEMENTS

Please check your email regularly to make sure you don't miss any important information.

SCOPE AND SEQUENCE OF THE COURSE (SUBJECT TO CHANGE)

Week	Instruction Includes
Week 1	Networking Today
Week 2	Basic Switch and End Device Configuration
Week 3	Protocols and Models
Week 4	Physical Layer
Week 5	Number Systems
Week 6	Data Link Layer
Week 7	Ethernet Switching
Week 8	Network Layer, Address Resolution
Week 9	Basic Router Configuration
Week 10	IPv4 Addressing
Week 11	IPv6 Addressing
Week 12	ICMP
Week 13	Transport Layer
Week 14	Application Layer
Week 15	Network Security Fundamentals

Week	Instruction Includes
Week 16	Build a Small Network
Final Exam	December 17th 7:30-9:30 AM