COURSE OUTLINE: NASA101 - NETWORK ESSENTIALS

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Course Code: Title	NASA101: NETWORKING ESSENTIALS AND MANAGEMENT
Program Number: Name	2196: NETWRK ARCH & SEC AN
Department:	COMPUTER STUDIES
Academic Year:	2024-2025
Course Description:	Computers use common communication protocols over digital interconnections to connect with each other. In today`s technology driven environment end users just want to get work done and networking is an integral part of that effort. This course focuses on the network protocols and devices that enable them to function and how they are used to transmit data between senders and receivers.
Total Credits:	4
Hours/Week:	4
Total Hours:	56
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
This course is a pre-requisite for:	NASA207
Vocational Learning Outcomes (VLO's) addressed in this course: **Please refer to program web page for a complete listing of program outcomes where applicable.**	**2196 - NETWRK ARCH & SEC AN** VLO 1 Design an enterprise network by applying knowledge of networking and routing protocols. VLO 3 Develop a security architecture plan to incorporate both perimeter and endpoint security controls and devices to provide layers of security.
Essential Employability Skills (EES) addressed in this course:	EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience. EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication. EES 3 Execute mathematical operations accurately. EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems. EES 6 Locate, select, organize, and document information using appropriate technology and information systems. EES 7 Analyze, evaluate, and apply relevant information from a variety of sources. EES 8 Show respect for the diverse opinions, values, belief systems, and contributions of others. EES 9 Interact with others in groups or teams that contribute to effective working

	relationships and the achievement of goals. EES 10 Manage the use of time and other resources to complete projects. EES 11 Take responsibility for ones own actions, decisions, and consequences.
Course Evaluation:	Passing Grade: 50%, A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.
Other Course Evaluation & Assessment Requirements:	A+ = 90-100% A = 80-89% B = 70-79% C = 60-69% D = 50-59% F < 50% Students are expected to be present to write all tests in class, unless otherwise specified. If a student is unable to write a test due to illness or a legitimate emergency, that student must contact the professor prior to class and provide reasoning. Should the student fail to contact the professor, the student shall receive a grade of zero on the test. If a student is not present 10 minutes after the test begins, the student will be considered absent and will not be given the privilege of writing the test. Students exhibiting academic dishonesty during a test will receive an automatic zero. Please refer to the College Academic Dishonesty Policy for further information. In order to qualify to write a missed test, the student shall have: a.) attended at least 75% of the classes to-date. b.) provide the professor an acceptable explanation for his/her absence. c.) be granted permission by the professor. NOTE: The missed test that has met the above criteria will be an end-of-semester test. Labs / assignments are due on the due date indicated by the professor. Notice by the professor will be written on the labs / assignments and verbally announced in advance, during class. Labs and assignments that are deemed late will have a 10% reduction per academic day to a maximum of 5 academic days at 50% (excluding weekends and holidays). Example: 1 day late - 10% reduction, 2 days late, 20%, up to 50%. After 5 academic days, no late assignments and labs will be accepted. If you are going to miss a lab / assignment deadline due to circumstances beyond your control and seek an extension of time beyond the due date, you must contact your professor in advance of the deadline with a legitimate reason that is acceptable. It is the responsibility of the student who has missed a class to contact the professor immediately to obtain the lab / assignment. Students are responsible for doing their own work. Labs / assignments that are handed in and are deemed identical or near identical in content may constitute academic dishonesty and result in a zero grade. Students are expected to be present to write in-classroom quizzes. There are no make-up options for missed in-class quizzes. Students have the right to learn in an environment that is distraction-free, therefore, everyone is expected to arrive on-time in class. Should lectures become distracted due to students walking

in late, the professor may deny entry until the 1st break period, which can be up to 50 minutes after class starts or until that component of the lecture is complete.

The total overall average of test scores combined must be 50% or higher in order to qualify to pass this course. In addition, combined tests, Labs / Assignments total grade must be 50% or higher.

Books and Required Resources:

CCNA 200-301 Official Cert Guide, Volume 1 by Wendell Odom
Publisher: Cisco Press Edition: 2nd
ISBN: 9780138229634

Course Outcomes and Learning Objectives:

Course Outcome 1	**Learning Objectives for Course Outcome 1**
1. Explore the Fundamentals of Networking	1.1 Describe how communication occurs over a network 1.2 Identify the components used in networking including routers, switches, and firewalls 1.3 Identify the different cable types and interfaces used in networking 1.4 Describe the OSI Model and TCP/IP Suite and how they relate to networking 1.5 Describe IPV4 and IPV6 Addressing concepts 1.6 Take part in creating and testing an Ethernet Cable
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2. Describe the role of Subnetting in the Network Environment	2.1 Explain how to create Subnets to manage network resources and devices 2.2 Define and use Subnet Masks in a network environment 2.3 Define Classless Inter-Domain Routing (CIDR) 2.4 Explain Variable Length Subnet Masks 2.5 Use available resources to Subnet Class A, B, and C addresses
Course Outcome 3	**Learning Objectives for Course Outcome 3**
3. Explore and use the Cisco`s Internetworking Operating System (IOS)	3.1 Explore and define the Cisco IOS Interface and it`s functions 3.2 Determine the process of entering and using the Cisco Command Line Interface 3.3 Discuss configurations settings 3.4 Explore the process of viewing, editing, and saving configurations on a Cisco Device. 3.5 Use available resources to configure the Cisco IOS
Course Outcome 4	**Learning Objectives for Course Outcome 4**
4. Explore Layer 2 Switching	4.1 Define switch functions available at Layer 2 4.2 Discuss the makeup and life of Frame at Layer 2 4.3 Discuss Port Security 4.4 Discuss the role of Virtual LANs (VLANs) 4.5 Configure a Catalyst Switch and verify its operation
Course Outcome 5	**Learning Objectives for Course Outcome 5**
5. Explore Layer 3 Routing	5.1 Define the makeup of packet at Layer 3

	5.2 Describe the IP Routing Process 5.3 Configure IP Routing on a Cisco Router 5.4 Define the role of a Virtual LAN in a network environment 5.5 Discuss and configure Inter-VLAN routing.

Course Outcome 6	**Learning Objectives for Course Outcome 6**
6. Explore Network Security and Troubleshooting	6.1 Identify Security Components on a network including Firewalls, Routers, and Switches 6.2 Discuss the setup and monitoring of Access Lists 6.3 Configure passwords and Access List 6.4 Identify scenarios causing networking congestion/problems 6.5 Take part in troubleshooting network issues

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Lab and Assignments	40%
Quizzes	10%
Test #1	25%
Test #2	25%

Date: June 17, 2024

Addendum: Please refer to the course outline addendum on the Learning Management System for further information.