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
Semesters/Terms:	21F
Course Description:	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:	60
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
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 &	NOTE: You must obtain a minimum mark of 50% in both the Theory portion and the Lab portion

In response to public health requirements pertaining to the COVID19 pandemic, course delivery and assessment traditionally delivered in-class, may occur remotely either in whole or in part in the 2021-2022 academic year.

Assessment Requirements:

of the course. Failing to do so, will result in an overall failing grade (F).

The professor reserves the right to adjust the mark up or down based on attendance, participation, leadership, creativity and whether there is an improving trend.

- Students must complete and pass both the test and lab portion of the course in order to pass the entire course.
- All Assignments must be completed satisfactorily to complete the course.
- A minimum of 80% attendance required in the lectures and labs.
- Makeup Tests are at the discretion of the instructor and will be assigned a maximum grade of 50%.
- The professor reserves the right to adjust the number of tests, practical tests and quizzes based on unforeseen circumstances. The students will be given sufficient notice to any changes and the reasons thereof.
- A student who is absent for 3 or more times without any valid reason or effort to resolve the problem will result in action taken.

NOTE: If action is to be taken, it will range from marks being deducted to a maximum of removal from the course.

Books and Required Resources:

CCENT ICND1 Study Guide: Exam 100-105 by Todd Lammle
Edition: 3
ISBN: 978-1-119-28880-0

Course Outcomes and Learning Objectives:

Course Outcome 1	**Learning Objectives for Course Outcome 1**
Explain the basics of how communication occurs on the Internetwork and how this relate to the OSI Model	• Describe the Internetworking basics • Identify the components used in networking including routers, switches, and hubs • Describe the OSI Model and how it relates to networking • Describe how the functions of the three upper OSI model layers provide network services to end user applications • Describe how the TCP/IP Application Layer protocols provide the services specified by the upper layers of the OSI model. • Define how people use the Application Layer to communicate across the information network
Course Outcome 2	**Learning Objectives for Course Outcome 2**
Explain Ethernet Networking and Data Encapsulations	• Describe the concepts of a collision and broadcast domains. • Describe communication over Ethernet and how it relate to Data Link and Physical Layer. • Describe the variety of Ethernet cabling • Describe the Three Layer Cisco Hierarchical model • Use available resources to create Ethernet cabling
Course Outcome 3	**Learning Objectives for Course Outcome 3**
Explain the TCP/IP (DOD) Layer Model and IP Addressing	• Describe the Process/Application Layer protocols • Describe the Transport Layer protocols • Describe the Internet Layer protocols • Define IPV4 addressing and Types
Course Outcome 4	**Learning Objectives for Course Outcome 4**

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Describe the role of Subnetting in the Network Environment	• Explain how to create Subnets to manage network resources • Define and use Subnet Masks in a network environment • Define Classless Inter-Domain Routing (CIDR). • Use available resources to Subnet Class A, B, and C addresses
Course Outcome 5	**Learning Objectives for Course Outcome 5**
Explain VLSMs, Summarization, and Troubleshooting TCP/IP	• Define Variable Length Subnet Masks and implantation in a network environment. • Examine Summarization. • Discuss troubleshooting TCP/IP and resolve IP address problems .
Course Outcome 6	**Learning Objectives for Course Outcome 6**
Explore and use the Cisco`s Internetworking Operating System (IOS)	• Explore and define the Cisco IOS Interface. • Determine the process of entering and using the Cisco Command Line Interface • Discuss Administrative configurations. • Explore the process of viewing, editing, and saving configurations on a Cisco Device.
Course Outcome 7	**Learning Objectives for Course Outcome 7**
Explore managing a Cisco Internetwork	• Examine the internal components of a router and switch. • Describe the process of backing up and restoring a Cisco configuration. • Explore the process of configuring DHCP on a Cisco Router • Discuss the NTP (Network Time protocol) • Explore the process of using Telnet to connect to Cisco Devices • Discuss the process of resolving hostnames • Explore Network Troubleshooting including the use of ping, traceroute, and process commands
Course Outcome 8	**Learning Objectives for Course Outcome 8**
Explore Managing a Cisco Device	• Describe the process of managing the configuration registers. • Explore backing up and restoring the Cisco IOS • Explore upgrading the Cisco IOS.
Course Outcome 9	**Learning Objectives for Course Outcome 9**
Explore the process of IP Routing	• Explain routing basics • Describe the IP Routing Process • Configure IP Routing on a Cisco Router
Course Outcome 10	**Learning Objectives for Course Outcome 10**
Discuss and explore Layer 2 Switching	• Define switch functions available at Layer 2 • Configure a Catalyst Switch and verify its operation • Discuss Port Security.
Course Outcome 11	**Learning Objectives for Course Outcome 11**

	Discuss and configure Virtual LANs	• Define the role of Virtual LAN in a network environment • Explore the process of configuring a virtual LAN on a Cisco Switch • Discuss Inter-VLAN routing.

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Attendance and Assignments	10%
Labs	30%
Quizzes	10%
Tests	50%

Date: September 7, 2021

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

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