

Syllabus for NET-564

LARGE-SCALE NETWORK OPERATIONS, ADMINISTRATION, AND MAINTENANCE

COURSE DESCRIPTION

Network operations centers (NOC) are the command and control hubs used to manage network resources in large networks. NOC personnel are concerned with the operation, administration, and maintenance of these systems. Operation pertains to keeping the network up and running efficiently. This includes monitoring the network to identify and resolve issues as soon as possible. Administration involves keeping track of resources in the network and how they are allocated. It includes all the day-to-day, detail work needed to control the network. Maintenance is concerned with performing repairs and upgrade as well as corrective and preventive measures to make the managed network operate more efficiently. In this course, students will develop the knowledge and skills in network management to allow them to control, plan, allocate, deploy, coordinate, and monitor network resources. Topics include network planning, frequency allocation, predetermined traffic routing to support load balancing, cryptographic key distribution authorization, configuration management, fault management, security management, performance management, bandwidth management, route analytics, and accounting management.

COURSE TOPICS

- Network operations center (NOC)
- Simple Network Management Protocol (SNMP)
- Network management models
- Remote network monitoring (RMON)
- Network management systems
- Network management applications

COURSE OBJECTIVES

After completing this course, you should be able to:

- CO1** Outline the major components of network management.
- CO2** Compare the models used for managing networks, systems, and services.

- CO3** Evaluate the major network management protocols.
- CO4** Compare the tools, utilities, and techniques used to monitor and manage networks.
- CO5** Evaluate the categories of network management applications.
- CO6** Examine the network operations center (NOC).

COURSE MATERIALS

You will need the following materials to complete your coursework. Some course materials may be free, open source, or available from other providers. You can access free or open-source materials by clicking the links provided below or in the module details documents. To purchase course materials, please visit the [University's textbook supplier](#).

Required Textbook

- Clemm, A. (2007). *Network management fundamentals*. Indiana, IN: Cisco Systems Press.
ISBN- 158-7201372
- Subramanian, M. (2010). *Network management: Principles and practices* (2nd ed.). India: Pearson Education.
ISBN-13: 978-8131734049

COURSE STRUCTURE

Large-Scale Network Operations, Administration, and Maintenance (NET-564) is a three-credit, online course consisting of six modules. Modules include an overview, topics, learning objectives, study materials, and activities. Module titles are listed below.

- **Module 1: Network Management Overview**
Course objectives covered in this module: CO1, CO6
- **Module 2: Network Management Foundations**
Course objectives covered in this module: CO1, CO2
- **Module 3: Network Protocols and Models**
Course objectives covered in this module: CO1, CO3
- **Module 4: Advanced Models**
Course objectives covered in this module: CO2, CO3

- **Module 5: Remote Monitoring**
Course objectives covered in this module: CO3, CO4, CO6
- **Module 6: Network Management Tools And Applications**
Course objectives covered in this module: CO4, CO5

ASSESSMENT METHODS

For your formal work in the course, you are required to participate in online discussion forums, complete written assignments, take a proctored midterm examination, and complete a final project. See below for details.

Consult the Course Calendar for due dates.

Promoting Originality

One or more of your course activities may utilize a tool designed to promote original work and evaluate your submissions for plagiarism. More information about this tool is available in [this document](#).



Discussion Forums

You are required to participate in **eight** discussion forums. The discussion forums are on a variety of topics associated with the course modules.

Discussion Requirements

One of the considerations when participating in course discussions is to keep an open mind and be appreciative of the fact that we don't all share the same perspective. The discussion boards are an opportunity to present what you have learned and to apply your own experiences. Use this opportunity to learn more about how others view the same material. Part of your job in this course is to show not only what you know about the theory, but more importantly, how you can apply it to the situations that are being discussed. This holds true in the discussions that ask for personal experience. In fact, being able to see the connections personal experience has to theory truly highlights your increased learning in the course. Keep this in mind as you write your original responses and as you respond to other learners' posts. Although your opinion does add value to the overall discussion and learning level in the course, your opinion is not sufficient reasoning.

Your responses to the discussion questions should relate the assigned readings and viewings to the discussion topic and should not consist only of personal opinion. Your opinion is important to the discussion, but it is important that you add connections to the assigned material to support your views. Without a foundation in the literature, your opinion has little professional value. For example, "Based on IEEE.802p, devices do not have to authenticate with each other (year, page number), therefore I do not feel this is a necessary step..." This type of statement allows you to connect your views to the literature.

This is possible even when you are providing personal examples.

Your replies to fellow students should contain substance, should be more than just opinion, and must go beyond a simple agreement or disagreement.

Written Assignments

You are required to complete **five** written assignments. The written assignments are on a variety of topics associated with the course modules.

Final Project

Students will submit a 2000- to 3300-word literature review (8 to 12 pages) related to one of the topics covered in the class. The paper will be authoritative and based on at least 10 high-quality sources (no Wikipedia, newspaper, or web page citations). It is not an essay, but a research paper, based on published facts. The purpose is to give students the opportunity to conduct research from scholarly publications to gain more depth on a topic related to the class.

GRADING AND EVALUATION

Your grade in the course will be determined as follows:

- **Online discussions (8)—30%**
- **Written assignments (5)—30%**
- **Final project (literature review)—40%**
 - Topic proposal—5%
 - Final topic—5%
 - Final paper—30%

All activities will receive a numerical grade of 0–100. You will receive a score of 0 for any work not submitted. Your final grade in the course will be a letter grade. Letter grade equivalents for numerical grades are as follows:

A	=	93–100	B	=	83–87
A–	=	90–92	C	=	73–82
B+	=	88–89	F	=	Below 73

To receive credit for the course, you must earn a letter grade of C or higher on the weighted average of all assigned course work (e.g., assignments, discussion postings, projects). Graduate students must maintain a B average overall to remain in good academic standing.

STRATEGIES FOR SUCCESS

First Steps to Success

To succeed in this course, take the following first steps:

- Read carefully the entire Syllabus, making sure that all aspects of the course are clear to you and that you have all the materials required for the course.
- Take time to read the entire Online Student Handbook. The Handbook answers many questions about how to proceed through the course and how to get the most from your educational experience at Thomas Edison State University.
- Familiarize yourself with the learning management systems environment—how to navigate it and what the various course areas contain. If you know what to expect as you navigate the course, you can better pace yourself and complete the work on time.
- If you are not familiar with web-based learning be sure to review the processes for posting responses online and submitting assignments before class begins.

Study Tips

Consider the following study tips for success:

- To stay on track throughout the course, begin each week by consulting the Course Calendar. The Course Calendar provides an overview of the course and indicates due dates for submitting assignments, posting discussions, and scheduling and taking examinations.
- Check Announcements regularly for new course information.

Using AI Ethically: A Guide for TESU Students

TESU's [Academic Code of Conduct](#) permits student AI use in support of their writing and research process—not as a replacement for original writing. Document AI use with an acknowledgment statement at the end of each assignment, noting the tools and prompts used. Cite any AI-generated content on the References page. Please review [Using AI Ethically: A Guide for TESU Students](#) for more detailed information.

ACCESSIBILITY AND ACCOMMODATIONS

Thomas Edison State University adheres to the Americans with Disabilities Act (ADA, 1990; ADAAA, 2008) and Section 504 of the Rehabilitation Act of 1973. The Office of Student Accessibility Services (OSAS) oversees requests for academic accommodations related to disabilities; a student who is pregnant, postpartum, or a student parenting a newborn who is not the birth parent [as covered under

NJSA18A]; and students requesting academic accommodation for a short-term/temporary illness and/or injury. Information can be found on the [Office of Student Accessibility Services](#) webpage and questions can be sent to ADA@tesu.edu.

ACADEMIC POLICIES

To ensure success in all your academic endeavors and coursework at Thomas Edison State University, familiarize yourself with all administrative and academic policies including those related to academic integrity, course late submissions, course extensions, and grading policies.

For more, see:

- [University-wide policies](#)
- [Undergraduate academic policies](#)
- [Undergraduate course policies](#)
- [Graduate academic policies](#)
- [Graduate course policies](#)
- [Nursing student policies](#)
- [Nursing graduate student policies](#)
- [International student policies](#)
- [Academic code of conduct](#)