Nashville State Community College
Computer and Engineering Technologies Division
Electrical Engineering Technology

Master Course Syllabus

EETH 2360 Industrial Communications

3 Credits
2 Class Hours
2 Lab Hours

An introductory course in data communication as used in the industrial environment. Topics include the theoretical aspects of data communication such as bandwidth, channel capacities, error detection/correction, setting up and configuring different types of networks, RS-232, RS485, Ethernet, fiber optics, wireless networks, and several proprietary industrial networks.

Prerequisite: EETH 111

Instructor Information:
Name:
Email:
Office Phone:
Office Location:
Office Hours:

Textbook and Other Materials:
Textbook:
Reference Materials:
Supplies:

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

- Design a functioning local area network using routers, switches, and network interface cards.
- Demonstrate an understanding of the role of each layers of the OSI model and how each layer functions in data communications.
- Identify strengths and weaknesses in various network designs and topologies.
- Use an industrial network to establish communication between a processor and industrial control devices.
Course Competencies:
The following are detailed course competencies intended to support the course outcomes
- Set up a functioning RS232 link.
- Understanding the different functions of various network devices such as hubs, switches, routers, and bridges.
- Distinguish between the functionality of the various layers of the OSI model.
- Identify the role of various protocols used in data communications as well as the corresponding OSI layer implemented by the protocol.
- Understand the advantages and disadvantages of different network topologies.
- Distinguish between logical and physical network topologies.
- Understand the purpose, advantages, and disadvantages of several different industrial networks.
- Setup and configure a DeviceNet network.
- Setup and configure a Data Highway and Remote I/O network.
- Setup and configure an Ethernet network.
- Setup and configure the TCP/IP protocol on a PC, HMI device, PLC, and other intelligent devices.

Course Assessments:
The following performance assessments will be used to demonstrate students' understanding, knowledge and skills:
- The student will be required to demonstrate satisfactory performance on tests and class assignments.
- The student must have an adequate understanding of and capabilities to work with, program, and troubleshoot the laboratory equipment.
- The student must be able to effectively communicate his/her understanding of the course material and laboratory assignments through written and verbal communication.

Topics to Be Covered:
1. Serial communications (RS232, RS422, RS423, RS485)
2. Serial communications lab
3. Industrial networks – Remote I/O and Data Highway
4. Industrial networks – Profibus and DeviceNet
5. Industrial network configuration lab
6. OSI Model and TCP/IP
7. Troubleshooting TCP/IP networks
8. Network topologies
9. Ethernet and CAT5 cabling standards
10. Routers, switches and hubs
11. SLC 500 communication instructions

Grading Policy
Three tests 60%
Final Exam 20%
Assignments and participation 20%

Grading Scale:
A (90-100%), B (80-89%), C (70-79%), D (60-69%), F (less than 60%)
Make-up procedures for missed assignments and work.
Assignments missed due to excused absences may be made up with no penalty as long as the student makes arrangements for make-up by the next class session after the absence. It is the student's responsibility to arrange makeup work with the instructor. Work missed due to unexcused absences will be assessed a penalty of 10% per day late (weekdays not class periods). Work missed due to unexcused absences will not be accepted after 2 weeks.

Attendance Policy
A student is expected to attend all scheduled classes and laboratories. Each instructor will formulate an attendance policy and provide it on the course syllabus. Absences are counted from the first scheduled meeting of the class, and it is the responsibility of each student to know the attendance policy of each instructor in whose class he/she is enrolled. If a student is absent from a class, he/she should give an advanced explanation to the instructor. Absences in a course may affect a student's final grade. The student is responsible for all assigned work in the course regardless of excused or unexcused absences. Tardiness may also affect a student's final grade.

Failure to attend class will result in a final course grade of “FA” or “FN” (see explanation below) depending on the individual instructor's course policy.

FA= failure, attendance-related (unofficial withdrawal) Last recorded date of attendance required.
FN= failure, never attended class (unofficial withdrawal)

Student Communication Channels
It is the student’s responsibility to check D2L and MyNSCC email on a regular basis. These are the official communication channels between the college and students. Students are responsible for the information communicated through those channels. D2L contains specific course information and MyNSCC contains information important for other purposes.

ADA Compliance Statement
Nashville State complies with the Americans with Disabilities Act. If you wish to request any special accommodations for any courses in which you are enrolled, contact the Student Disabilities Office at 615.353.3721.

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 sanctions. Please consult your Student Handbook for more specific details.

The instructor has primary responsibility for control over classroom behavior and maintenance of academic integrity. He/she can order temporary removal or exclusion from the classroom of any student engaged in disruptive conduct or in conduct which violates the general rules and regulations of the College.
Disruptive behavior in the classroom may be defined as, but is not limited to, behavior that obstructs or disrupts the learning environment (e.g., offensive language, harassment of students and professors, repeated outbursts from a student which disrupt the flow of instruction or prevent concentration on the subject taught, failure to cooperate in maintaining classroom decorum, etc.), the continued use of any electronic or other noise or light emitting device which disturbs others (e.g., disturbing noises from beepers, cell phones, palm pilots, lap-top computers, games, etc.).

Please be aware that children are not allowed in class or unattended on campus.

**Academic Dishonesty (Honor Code)**

Any form of academic dishonesty, cheating, plagiarizing, or other academic misconduct is prohibited. “Plagiarism may result from: (1) failing to cite quotations and borrowed ideas, (2) failing to enclose borrowed language in quotation marks, and (3) failing to put summaries and paraphrases in your own words (A Writer’s Reference 331). Academic dishonesty may be defined as, but is not limited to, intentionally trying to deceive by claiming credit for the work of another person, using information from a web page or source without citing the reference, fraudulently using someone else’s work on an exam, paper, or assignment, recycling your own work from another course, purchasing papers or materials from another source and presenting them as your own, attempting to obtain exams/materials/assignments in advance of the date of administration by the instructor, impersonating someone else in a testing situation, providing confidential test information to someone else, submitting the same assignment in two different classes without requesting both instructor’s permission, allowing someone else to copy or use your work, using someone else’s work to complete your own, altering documents, transcripts or grades, and forging a faculty/staff member’s signature.

In addition to other possible disciplinary sanctions that may be imposed 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.

**Inclement Weather Policy**

In the event of an inclement weather event, check the Nashville State web site home page at www.nscc.edu for announcements on campus closures. Campus closures will also be announced on local television stations (channels 2, 4, 5, and 17).

When classes are cancelled, an online assignment will be posted in NS Online. Check your NS Online email for a message from your instructor regarding your online assignment requirements. Even though classes may be cancelled, some areas, i.e. Testing Center, may be open. However, you should check before commuting to campus.

The Vice President for Academic Affairs and the Director of Security are responsible for cancellation decisions during an inclement weather event for the Nashville State main campus and the Southeast campus. Cookeville, Waverly, and Dickson Campus Directors will make class cancellation decisions based on conditions in their respective areas. Decisions about class cancellations are based on actual conditions, not forecasts. The perspective used for making decisions is that of the college as an employer, not as a K-12 institution. Students should use
their own best judgment in determining whether to report to campus during inclement weather when classes are not cancelled.