

New York City College of Technology
Department of Career and Technology Teacher Education

Course Number: **EDU-2460**
Credit Hours: 4 (3cl, 3 lab hrs)

Title: **Communications Systems**
Class Meeting Times: TBA

COURSE DESCRIPTION

An introduction to the study of communication systems, including electronic data communications; technical drawing and CAD; optics; graphic production techniques; photography; audio; and video production. Classroom presentations and activities will emphasize design, use, and impacts of communication technologies.
Prerequisite: None (open to CTTE & Tech Ed majors only)

PURPOSE OF THE COURSE

The course is designed to help students develop an understanding of how communication systems work; of the importance of communication to the societies of the world; and of the interrelationship between communications technology and other technological systems. Teacher education students will be exposed to information and experiences that will further develop their technical skills and assist them in promoting technological awareness in their own students.

COURSE OBJECTIVES

Upon completion of the course, students should be able to:

1. Discuss the evolution of communication technologies and their influence on society and the environment.
2. Exhibit a working knowledge of the proper use of communication tools, techniques, and resources.
3. Provide creative solutions to design challenges relating to communication systems.
4. Discuss, plan, and use instructional techniques associated with methods of problem solving, decision-making, and experimentation in the communications technology classroom.
5. Integrate other academic disciplines with the study of communication technology.
6. Describe the implementation of communication technology systems into business, industrial, and educational settings.
7. Describe the interrelationship between communication technology systems and other technological areas such as transportation, manufacturing, construction and bio-related technologies.
8. Identify various career opportunities that are associated with communication technology.
9. Develop activities for use with students in communication technology courses at either the elementary, middle, or secondary level.

REQUIRED TEXT AND MATERIALS

1. No Textbooks
2. New York State Education Department. *Communication Systems Curriculum Guide*. Available: <http://www.nysed.gov/common/nysed/files/programs/career-technical-education/technology-education-communication-systems-grades-9-12-systems-course.pdf>
3. EDU 2460 Open Educational Resource Project. <https://openlab.citytech.cuny.edu/edu2460/>
4. USB Drive, greater than 1GB.
5. Arduino, Project Starter Kit (e.g., [ELEGOO UNO Project Super Starter Kit with Tutorial and UNO R3 Compatible with Arduino IDE](#))
6. Arduino Bluetooth Module HC-05. (sold on Amazon, \$10)
7. Project materials (will be assigned, approximately \$50)

ATTENDANCE/PARTICIPATION

- You can attend in-person on campus or attend class virtually in real-time through Zoom.
- You will earn 0-10 points per class within the following guidelines. This policy begins in the first class.
- 10 points are awarded for students who are on time, stay on task, contribute to the overall class discussions, and complete all required activities during each class.
- 9-1 points are awarded for students who arrive late, do not stay on topic, and come to class unprepared to engage in class discussions.
- 0 points were awarded for absence from class.
- Students are allowed **no more than two (2) absences**. Absences in excess of this will lower the final grade by one full letter grade.
- All students should attend the class on time. Two late days represent one absence.

Please Note: **The instructor has the right to award any point value between 1-10 following the above guidelines.**

EXCUSED ABSENCE

- An excused absence must be pre-approved by the instructor
- Medical absences will only be awarded when the student provides a Drs. note based on appropriate situations.
- Only documented emergencies or unavoidable events will be excused.

EVALUATION

10% Active participation in the class/class discussions

40% Mini Projects

30% Midterm examination

20% Term Project

Grading System

100-93: A	92.9-90: A-	89.9-87: B+	86.9-83: B	82.9-80: B-
79.9-77: C+	76.9-73: C	72.9-70: C-	69.9-60: D	Below 60: F

SAFETY

1. All safety procedures and rules outlined apply to this class's members.
2. Approved eye protection devices must be worn when using any power equipment in the laboratory, if applicable.
3. Students should wear eye protection gear while working on hands-on tasks.
4. **No food or drink should be brought into the fabrication lab.**
5. After a lab activity, all students are responsible for cleaning the lab.
6. If you are not confident using a particular machine or tool, you should immediately stop using it and report to the instructor.

STUDENTS WITH SPECIAL NEEDS

Qualified students with disabilities will be provided reasonable academic accommodations if determined eligible by the Office of Students Support Services (OSSS). Prior to granting disability accommodations in this course, the instructor must receive written verification of a student's eligibility from OSSS, which is located in Room A-P508. It is the student's responsibility to initiate contact with the OSSS staff and to follow the established procedures to send the accommodation notice to the instructor.

Weekly schedule (Updated on 1/28/20223)

Week	Date	Topics	Reading & Assignments Activities
1	1/31	Syllabus Review Communication System Curriculum Review Def of Communication	ITEEA (2000), Standards for Technological Literacy NYSED (1996). Communication Systems Patil (2013). Communication Yesterday, Today, and Tomorrow
2	2/7	Communication & Information Systems	Hacker & Burghardt (1990, pp 262-276). Project I -Telegraph Project (1/2) Exploring solutions
3	2/14	Computer Systems and Hardware	Telegraph Project (2/2) – Designing & Making
4	2/28	Computer Software Intro to Python Programming	Programming with Scratch
5	3/7	The Internet	Project II – Smart Home (1/3) Exploring solutions
6	3/14	Communicating using microcontroller	Project II – Smart Home (2/3) Circuit design
7	3/21	Computer Networking	Project II – Smart Home (3/3) Building smart home
8	3/28	Midterm Exam	
9	4/4	Graphic Communication	T-Shirt logo design
10	4/18	Digital multimedia communication	Project III – Video production (1/2)
11	4/25	Video Editing	Project III – Video production (2/2)
12	5/2	Physical computing	Final Project (1/3)
13	5/9	AI and voice recognition	Final Project (2/3)
14	5/16	Programming voice recognition	Final Project (3/3)
15	5/23	Final Project Presentation	

Project 1 – Telegraph

Samuel Morse (1791-1872) was born in Charlestown, Massachusetts, and studied at Yale University before moving to England to become a painter. However, he was not very successful artistically and later moved to the United States and painted in Washington, DC. While he was working in Washington, DC, his wife suddenly passed away, but she heard the news late, so she was unable to attend her funeral. After this incident, Morse gave up art and became an inventor, making the Morse telegraph. In this project, let's understand the principle of the Morse telegraph and make a model to send a message to a friend far away. This project will be done individually.

Materials: Wood panel (18" x 12"), nail, wire, a battery, metal strips, **enameled copper wire**

Reference: A Simple Telegraph from Instructables (<https://www.instructables.com/A-simple-telegraph/>),

Homemade Telegraph (<https://www.instructables.com/homade-telegraph/>)

Project 2 - Smart Home

More than 1 million people over 65 live in New York City, half of whom live alone. Roughly a quarter of New York City's residents are senior citizens, and nearly 60% live in poverty and receive federal aid. Recently, with the development of smart home technology, a device with a built-in computer has been installed in the house to make life easier, but many elderly people who have not learned to use computing technologies do not enjoy the benefits. In addition, in the case of elderly people living alone need an emergency contact device or security alarm system to get help when an emergency occurs. The project aims to develop an affordable smart home system for your local community seniors for their safety and convenience. Two students will work together as a team.

Required materials: Arduino Uno, HC-05 Bluetooth module, wires, cardboard (will be provided)

Requirements:

- Build a model house using form boards
- Use Arduino UNO, sensor kit, and Bluetooth module
- Include at least three smart home functions.
- Design and build a circuit for the smart home system.

Project 3 - Video Production

Produce a video that promotes the CTTE department's technology education program. The total length of the video must be less than 3 minutes, and images and music that do not violate copyright must be used. You will need to submit storyboards and finished videos. Three students will work together as a team. Use your smartphone for recording.

Final Project - Smart Thing with AI & Voice Recognition

With the generalization of artificial intelligence, technologies using voice recognition and AI are increasing in everyday life. In this open-ended final project, you will need to develop a smart device. The device must be automatically controlled through voice recognition or camera recognition. Three students will work together as a team.

Required materials: Voice recognition modules (e.g., elechouse - \$28) or camera module for motion detection

Academic Integrity Pledge

I understand the value of personal integrity and ethical behavior in all aspects of my professional and personal life. By committing to honesty and personal responsibility, I earn respect and trust of others. As a student at New York City College of Technology, I recognize that the value of my education is not just being able to say I am a college graduate but also incorporating the skills, deals, and knowledge I have acquired. I thus commit myself to upholding academic integrity as an important aspect of my personal integrity. I understand that academic integrity includes:

1. Fully observing the rules governing exams and assignments regarding resource material, electronic aids, copying, collaborating with others, or engaging in any other behavior that subverts the purpose of the exam or assignment, and the directions of the instructor.
2. Only turning in work that I have done myself, and not using unattributed work done by others. While working and studying with others can be an effective way to learn, submitted work will be my own.
3. Giving full and proper credit to sources and references, and acknowledging the contributions and ideas of others, in my academic work.

I have read and understand the Academic Integrity Policy found in the New York City College of Technology College Catalog

Printed Name _____

Signature _____

Date _____

Course, section _EDU2460 _____

Modified from the Marquette University Honor Code, PB, RB; AM; 12/23/20