



NEW YORK CITY COLLEGE OF TECHNOLOGY

Computer Engineering Technology

| Course Outline

Course: CET 1100: Introduction to Computer & Software Engineering Technology

Course Coordinator: Dr. Xiaohai Li & Dr. Lili Ma

Revised on: November, 2024

Credits: 2 **This course is:** ☒ Required ☐ Elective

☐ Selective Elective

Contact Hours: 3 **Class Hours:** 1 **Lab Hours:** 2

Ind. Study Hours: 0 **Internship Hours:** 0

Catalogue Description:

Introduction to computer and software engineering technology, and the degree programs in the Computer Engineering Technology (CET) Department. This course introduces the basics of computer hardware and software systems, and prepares students to achieve academic success in CET majors. Topics include history of computing and computers, basic computer organization and components, survey of various computing machines and platforms, discrete mathematics, introduction to programming languages and development tools, basic system administration, software categories, overview of software development life cycle, copyrights, security, and ethical issues.

Pre-Requisites: None

Co-Requisites: None

Required Texts [Title. Authors. Publisher. Year.]

1. Evans, A., Martin, K., & Poatsy, M. A. (2021). *Technology in action : complete* (17th edition). Pearson.

Other Suggested References or Supplemented Material

1. Patt, Yale N. and Patel, Sanjay J., Introduction to computing systems, 3rd Edition. New York, NY : McGraw-Hill, 2020.
2. Pressman, Roger S. and Maxim, Bruce Maxim, Software Engineering: A Practitioner's Approach, 9th Edition, McGraw-Hill Higher International; ISBN-10: 1259872971; ISBN-13: 978-1259872976, 2020.
3. Randal E. Bryant and David R. O'Hallaron, Computer Systems: A Programmer's Perspective, Third Edition (CS:APP3e), Pearson, 2016 (ISBN 0-13-409266-X).
4. G. Michael Schneider and Judith Gersting, Invitation to Computer Science, 8th Edition. Cengage Learning, ISBN-13: 978-1-3375-6191-4

Course Learning Outcomes

Upon successful completion of this course, the student will be able to:

1. Understand the basic components of a computer system;
2. Describe the function and integration of computer hardware and software systems
3. Have a knowledge of a number of computing platforms
4. Perform basic Linux system administration tasks
5. Use one of the major integrated development environment for simple programming
6. Have a general knowledge of SDLC
7. Know different software copyrights; understand ethical issues in the field
8. Understand the curricula of the degree programs in CET Department; know how to select and register courses
9. Have a career goal and make a plan toward it

General Education Outcomes

INTEGRATION/Integrate Learning: Understand the challenges in the integration of modern computer hardware and software systems

KNOWLEDGE/Depth of Knowledge: Use disciplined, Inquiry-based learning in the major.

KNOWLEDGE/Depth of Knowledge: Understand and appreciate the range of academic disciplines and their relationship to the fields of professional and applied study.

KNOWLEDGE/Lifelong learning: Acquire tools for lifelong learning—how to learn, how they learn, knowledge of resources.

Student Outcomes listed in the ETAC/ABET Criterion 3 Addressed in this Course

Student Outcomes	Level
1. An ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve well-defined engineering problems appropriate to the discipline;	I
2. An ability to design solutions for well-defined technical problems and assist with the engineering design of systems, components, or processes appropriate to the discipline;	I
3. An ability to apply written, oral, and graphical communication in well-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;	I
4. an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results;	
5. An ability to function effectively as a member of a technical team;	I

ABET Program Criteria: Computer Engineering Technology

Curricular Area	Level
a. TBD	I
b. TBD	I
c. TBD	I

Legend: I (Introduce), R (Reinforce) and E (Emphasize). Unmarked means not addressed.

Brief list of topics to be covered

Week 1	Introduction to CET department (degree programs, curricula, program objectives, lab facilities, department resources, students' clubs); advisement and degree road map (DegreeWorks, academic planner, course selection and registration)
Week 2	History of computing and computers
Week 3	Introduction to computer engineering, survey of various computing machines and platforms
Week 4	Introduction to computer architecture; basic computer organization and components
Week 5, 6	Introduction to discrete mathematics
Week 7~9	Introduction to programming languages; introduction to IDEs, Git and other development tools
Week 10, 11	Introduction to Linux; basic Linux commands and system administration
Week 12	Software categories; introduction to software engineering; overview of software development life cycle
Week 13	Introduction to information security
Week 14	Software and hardware licenses and copyrights; Ethical issues
Week 15	Final Exam