

**NORMANDEALE COMMUNITY COLLEGE  
COMMON COURSE OUTLINE**

- I. Effective Date of outline**  
Spring Semester, 2017. To be reviewed by department annually.
- II. Catalog Description**  
COMT 1173 PC Architecture Operation and Interface  
3 credits  
Offered: Spring  
Prerequisites: COMT 1107 or consent of instructor  
Course description: Introductory course on the architecture of computers. Using the Personal Computer as a representative architecture, the primary components of the Personal Computer and their interfaces are examined. Function of the operating system and its interaction with the hardware.
- III. Recommended Entry Skills/Knowledge**  
Reading level 3, English level 2, Math level 1
- IV. Major Content Areas (Topics)**  
The organization of computer systems at various levels – various diagrams, hardware and software. Analysis of the central processing unit from the perspective of both the computer designer and the software programmer. Conversion between decimal and binary number systems. Uses of binary numbers by digital computers. Fundamental logic operations – and, or, not as logic elements. The bus structure and busses as implemented in small computers. The instruction set architecture.
- V. Learning Outcomes**  
Upon successful completion of the course, the student should be able to:
  - a. describe the fundamental organization of computer system hardware
  - b. demonstrate an understanding of computer hardware technology and architecture
  - c. understand the role of system software and how it's interaction with application software
  - d. describe data representation in terms of coding formats and digital signals
  - e. demonstrate understanding of the architecture and the primitive instruction set of a central processing unit of the central processing unit (CPU)
  - f. distinguish between various forms of memory in a computer system and of primary and secondary storage, and their implementation with various technologies
  - g. understand communication among computer system components and various methods of performance enhancement
  - h. understand Input/Output devices including keyboards, pointing devices, printers and plotters, video display terminals, graphic displays, optical scanners, and audio devices
  - i. able to describe operating systems and detailed descriptions of resource allocation, processor control, process and thread management, and memory management
  - j. be able to perform basic math operations using the binary number system
  - k. explain the operation of fundamental logic operations in a computer
  - l. distinguish between the roles of CISC and RISC computers
- VI. Methods Used for Evaluation of Student Learning**  
Participation in online learning activities, online labs, weekly quizzes, mid-term exams, final research project, and final exam
- VII. Special Information**  
None