

William Paterson University of New Jersey
Department of Computer Science
College of Science and Health
Course Outline

1. TITLE OF COURSE AND COURSE NUMBER:

Computer and Information Technology; CS201;
Credits: 3 (cannot be used to fulfill the Computer Science major requirement)

2. DESCRIPTION OF THE COURSE:

The course has two themes. The first theme introduces computer concepts. Topics include hardware and software fundamentals; computer and information systems; data communications and computer networks; World Wide Web and the Internet; social impact of computers including discussions on privacy, security, civil liberty, risk of computers, intellectual properties, and computer related legislations. The second theme familiarizes students with leading application software such as Excel, Powerpoint, Access, and Web design programs. Practical computer problem-solving skills are emphasized through intensive hands-on exercises.

3. COURSE PREREQUISITES:

None

4. COURSE OBJECTIVES:

Designed to present an overview of computers, the Internet, the use of computers, and the impact of computers on society. The course familiarizes students with hands-on experience and various types of applications. Popular software packages are used to introduce spreadsheets, presentation software, web design, and database applications. Students cannot take both cs215 and cs201 for credit.

5. STUDENT LEARNING OUTCOMES:

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

- Understand the hardware and software that constitute a computing system.
- Learn how to interact with the graphical user interface of the operating system and understand the process and tools of software development.
- Understand the basic vocabulary of computing.
- Gain a general understanding of the various fields of computer science such as databases, languages, software engineering, artificial intelligence, computer networks, etc.
- Utilize computer applications including web design, spreadsheet, database application, and presentation software for school and work related activities.
- Utilize the Web to locate information and evaluate its value.
- Identify the main events and people in the history of computing.

- Participate in discussions on the social impact of computers.

Technology Intensive Outcomes

T1. Demonstrate a sound understanding of technology concepts, systems and operations

Students will demonstrate an understanding of the basic vocabulary of computing and the hardware and software that constitute a computing system . Students will interact with the graphical user interface of the operating system and understand the process and tools of software development. Students will also demonstrate an understanding of the various fields of computer science such as databases, languages, software engineering, artificial intelligence and computer networks.

T2. Use a variety of technologies to access, evaluate, collect, and manage data, information and datasets.

Students will utilize computer applications including Excel to collect and analyze data, Access to manage data and web design software to create web pages. Students will also utilize the web to locate and evaluate information and utilize PowerPoint for presentations,

T3 Understand the impact of technology on themselves, their culture, their environment and their society

Students will demonstrate an understanding of how the computer has impacted society in terms of privacy, security, civil liberty and intellectual property and identify the main events and people in the history of computing.

T4. Practice legal and ethical behaviors in the context of technology

Students will demonstrate an understanding of the social impact of computers and the risks of using the Internet by exploring such topics as computer crime, security issues, intellectual property and computer related legislation.

How they outcomes are met

T1. Upon completion of the course, students will understand hardware and software fundamentals (the role of the operating system, storage and memory mechanisms, how the internet works and various applications on the internet). (evaluated by exams and homework)

T2. They will be somewhat proficient in Excel to analyze data, word processing and Powerpoint, and have utilized Access to manage data , and created a web design.

(Evaluated by projects)

T3 and T4. The students should understand how the computer has impacted society in terms of privacy, security, civil liberty, and intellectual property, and will know some of the risks of using the Internet and how to prevent them, They will also have learned some of the laws that have been enacted to safeguard privacy. (evaluated by exams and homework)

6. TOPICAL OUTLINE OF THE COURSE CONTENT:

1. Basic definitions: algorithms, hardware, software, programs, Internet
Hands-on exercise: operating system (e.g., Windows)
2. Hardware: the system box, bits, bytes, kilobytes, Megs, Gigs, ASCII code, binary numbers, CPU = ALU + CU, main memory - where programs run, ROM-BIOS, the motherboard, cache, ports, expansion cards (graphics, sound, etc.)
Hands-on exercise: review of word processing
3. Storing data- memory vs. storage, storage technologies: magnetic vs. optical; secondary storage (floppy, hard drives)
Hands-on exercise: word processing – tables, outlines
4. Hardware: input and output devices.
Hands-on exercise: desktop publishing, wizards.
5. System software: operating systems (booting; mulitasking; DOS, the current version of Windows and Windows NT, Unix, and MacOS); utilities (compression, antivirus).
Hands-on exercise: spreadsheet basics
6. Application software: shareware, freeware, commercial software, copyrights, versions.
Hands-on exercise: spreadsheets – formula, charts
7. The Intenet: history, packet switch network, web services, web geography, WWW, FTP, clients, servers
Hands-on exercise: spreadsheets – functions
8. The World Wide Web: Search techniques, HTML, search engines, URL's
Hands-on exercise: creating a Web site
9. Telecommunications: circuit switching, bandwidth, modems
Hands-on exercise: presentation application
10. Networks: Protocols, Topologies, networking software, physical media
Hands-on exercise: project presentation
11. Privacy and Encryption: cookies, spyware, banner ads, public key encryption
Hands-on exercise: database application
12. Computer crime and security- cyber crime, fraud, firewalls, viruses
Hands-on exercise: database application
13. Databases and information systems: databases, data warehousing
14. Programming languages and development: compilers, interpreters, machine language, assemblers, high level languages.

7. GUIDELINES/SUGGESTIONS FOR TEACHING METHODS AND STUDENT LEARNING ACTIVITIES:

- Classroom lectures, presentations, and discussions.
- Classroom hand-on exercises.
- Projects involving the application software.

8. GUIDELINES/SUGGESTIONS FOR METHODS OF STUDENT ASSESSMENT (OUTCOMES):

- Two-three examinations, culminating in a comprehensive final examination.
- Weekly projects using application software.
- Oral presentation with power point (e.g. buying a computer or privacy, security issues).

9. SUGGESTED READINGS, TEXTS, OBJECTS OF STUDY

Laberta, C., *Computers Are Your Future Complete*, Twelfth Edition, Prentice Hall, 2011.

Grauer, Robert T., *Exploring Office 2010*, Enhanced Edition, Prentice Hall, 2010.

10. BIBLIOGRAPHY OF SUPPORTIVE TEXTS AND OTHER MATERIALS:

Baase, S., *A Gift of Fire: Social, Legal, and Ethical Issues for Computers and the Internet*, Second Edition, Prentice Hall, 2003.

Brookshear, J. G., *Computer Science: An Overview*, 6th Edition, Addison-Wesley, 1999.

Capron, H. L. and Johnson, J., *Computers: Tools for an Information Age*, Seventh Edition, Prentice Hall, 2002.

Daley, B., *Computer are Your Future 2008*, Complete Edition, Pearson Prentice Hall, 2008.

Evans, A., Martin, K., Poatsy, M. A., *Technology in Action*, Pearson Prentice Hall, 2005.

Grauer, R.T., Poatsy, M, and Hogan, L. S., *Exploring Getting Started with Computing Concepts*, Prentice Hall, 2011

Hester, M. and Ford, P., *Computers and Ethics in the Cyber Age*, Prentice Hall, 2001.

Hogan, L., *Practical Computing*, Pearson Prentice Hall, 2005.

Hutchinson, S. and Sawyer, C. S., *Computers, Communication and Information*, Comprehensive Seventh Edition w/PowerWeb, McGraw-Hill, 2000.

Lauckner, K. F. and Bahorski, Z., *The Computer Continuum*, Fifth Edition, Prentice Hall, 2009.

Long, L. E. and Long, N., *Computers*, 8th Edition, Prentice Hall, 2000.

O'Leary, T. J., *Computing Essentials 2011, Complete Edition, 21st Edition*, McGraw-Hill, 2011.

Preston, J., Preston, S., and Ferrett, R., *Computers in a Changing Society*, Pearson Prentice Hall, 2005.

Snyder, L., *Fluency with Information Technology: Skills, Concepts, & Capabilities*, Fourth Edition, Addison Wesley, 2011.

11. PREPARER'S NAME AND DATE: A. Cheo and E.W.Hu, 1985

12. ORIGINAL DEPARTMENTAL APPROVAL DATE:

Fall 1985 (many revisions since then)

13. REVISERS' NAME AND DATE:

L. Kaufman & C.S. Ku, Spring 2004.

14. DEPARTMENTAL REVISION APPROVAL DATE:

Spring 2004.