

NET-120-51 Course Syllabus

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| Instructor | Jane Adams |
| Email | jadams@champlain.edu |
| Office hours | TBD |
| Phone | (508) 435-3896 |
| Course Title | Computers and Telecommunications |
| Course Number | NET 120-51 |
| Course Dates | 09/2/08 - 12/09/08; Final Exam Week of 12/15/08 Note: There will be NO class on October 14, 2008 |

Course Description

Understand the fundamentals of computer nomenclature, particularly with respect to personal computer hardware and software and the World Wide Web; make use of the World Wide Web as a repository for the latest information and an integrated learning tool; develop an in-depth understanding of why computers are essential components in the business world and society in general; focus on the computer as a valuable productivity tool; recognize the personal computer's position as the backbone of the computer industry and emphasize its use as a stand-alone and networked device; present strategies for purchasing, installing, and maintaining a personal computer system; and, assist students in planning a career in the computer field.

Student Centered Learning Outcomes

Through the use of discussions, two projects, written essays and regular weekly assignments, students will be exposed to a wide range of topics and material that will prepare them for the more advanced courses in their curriculum. By the end of the semester, students will attain a broad range of learning objectives, and will be able to:

- Discuss the history of computers and identify significant milestones.
- Define the term computer and clearly identify its various components.
- Recognize the purpose and components of a network including both the hardware and the software (and protocols).
- Discuss the uses of the Internet and World Wide Web.
- Recognize how web pages use graphics, animation, audio, video, and plug-ins.
- Understand the steps necessary to build a computer from scratch using a variety of peripherals, input / output devices, storage, and other components. Students will be given a broad overview of all the hardware necessary to build a functioning system.
- Identify the categories of application software. In addition, students will also be able to discuss the functions of an operating system, and will be able to briefly contrast some of the more widely used operating systems.
- Identify Database technology, discuss the functions common to most DBMSs, and describe the characteristics of relational, object oriented, and multidimensional databases.
- Recognize the importance of security, and discuss techniques to prevent unauthorized access and use.
- Identify ways to safeguard against computer viruses, worms and Trojan horses.
- List the phases in the system development cycle and discuss the importance of project management, data and information gathering techniques, and documentation.
- Understand how IT professionals support an information system.
- Discuss the steps in the program development life cycle, and identify a variety of programming methodologies.
- Understand the special information requirements of an enterprise sized corporation. Then be able to list the types of technologies used throughout the enterprise.
- Determine why computer backup is important and how it is accomplished.
- Describe career opportunities available in various segments of the computer industry.
- Discuss the benefits of certification for employers, employees, and vendors.

Textbooks

Technology in Action, Fifth Edition

Evans, Alan, Kendall Martin, and Mary Anne Poatsy, Pearson Prentice Hall, 2009, ISBN: 978-0-13-513723-9

- Chapter 1 – Why Computers Matter to You: Becoming Computer Literate
- Chapter 2 – Looking at Computers: Understanding the Parts
- Chapter 3 – Using the Internet: Making the Most of the Web's Resources
- Chapter 4 – Application Software: Programs That Let You Work and Play
- Chapter 5 – Using System Software: The Operating System, Utility Programs, and File Management
- Chapter 6 – Understanding and Assessing Hardware: Evaluating Your System
- Chapter 7 – Networking and Security: Connecting Computers and Keeping Them Safe from Hackers and Viruses

- Chapter 8 – Mobile Computing: Keeping Your Data on Hand
- Chapter 9 – Behind the Scenes: A Closer Look at System Hardware
- Chapter 10 – Behind the Scenes: Software Programming
- Chapter 11 – Behind the Scenes: Databases and Information Systems
- Chapter 12 – Behind the Scenes: Networking and Security
- Chapter 13 – Behind the Scenes: The Internet: How It Works

Academic Standards

Satisfaction of Core Competencies

The course is structured in such a way as to provide experiences associated with the five core competencies as outlined by Champlain College. These core competencies are as follows:

- Technology Competence
- Critical & Creative Thinking
- Global Studies Awareness
- Written / Oral Communication
- Quantitative Literacy
- Ethical Reasoning

The manner in which this course addresses these competencies is outlined in the sections that follow.

Technology Competence

This entire course is about technology! Students are exposed to internetworking hardware, software and theory from the ground up in all class lectures, assignments, and hands-on exercises. Students are provided with a fairly technical background of computer terminology and architectures. Upon completion of the course, students will have been exposed to a wide-range of technologies along with a broad range of theoretical topics. Students are made aware of the necessary tools, technical resources, and documentation that will assist them in their administrative and / or troubleshooting tasks. When they enter the "real" technical world, this ability to use available resources is important for their success. It is important that students utilize these resources during homework and project assignments. In addition, more technically astute students in each class are called upon to provide assistance when others have difficulty. Finally, students obtain the technical expertise necessary to make valid choices as to the appropriate environment for each specific topic covered. The appropriate technical choice in a business environment is wide and varied. Students must be able to not only derive a choice from available solutions, but must also be able to justify their choices (technically, orally, and in written form).

Critical & Creative Thinking

Once again, due to the highly technical nature of the technology covered in class, students must, from the information provided, successfully implement functioning systems. Technical issues arise along the way where students are highly encouraged to use these available resources (internet, peers, documentation, and instructor) to quickly arrive at a resolution. Troubleshooting is as much an art as it is a science! Taking it a step further, students are also repeatedly instructed that proper planning, testing, and documentation are a necessity. Students must be able to distinguish that a stable business systems environment is a lot different than playing around with systems at home. User satisfaction and "uptime" are critical. Improperly stabilized systems with significant downtime can have an adverse financial impact on an organization. Though there are students that are more technically astute than others in the class, a key learning comes from deriving a methodology that is more appropriate for a business environment (rather than a non-disciplined approach with a "play" machine in their dorm, or home). There are "many ways to skin a cat" as the saying goes. As it pertains to this course, there are many ways to solve a specific business problem or application need. Students are encouraged to understand these approaches and their significance in the satisfaction of a task. This course provides the students with the necessary skills to make valid technical choices necessary to satisfy the needs of any real business environment. Students are given homework assignments and a project that assist them in researching a topic in more detail. Most important of all, these serve to take their combined course experiences and apply them where appropriate (even if it includes material from other courses). The homework assignments and final project provide enough information to begin the task, however, it is up to the student to utilize their critical thinking skills to fill in the gaps necessary to complete the homework or project. Finally, students obtain the knowledge that this course as well as others requires a life long learning process. Students are encouraged to load the operating system on a system at home (dorm). Where this is not possible, students are provided an account on an instructor provided server (that they can use from anywhere). Students are also encouraged to investigate additional resources outside the scope of this course.

Global Studies Awareness

Though global awareness is not a major focus of this course, there still exists the need to understand where a particular technology fits as it pertains to the global enterprise. There are many instances throughout the course where global relevance is discussed. The following items are either highlighted, or brought to the attention of the students in this course:

- All technologies maintain a global presence. In addition, in order to allow for interoperability, adherence to standards is essential. These standards are global in nature.
- The Open Systems Interconnection (OSI) model of networking was standardized by the International Standards Organization (ISO). All of the networking standards and protocols studied in this course are international in scope.
- All operating systems and network operating system provide for multi-language support. Students are briefly exposed to where this may be applicable.
- The world-wide web, is as it states...world wide. The systems that a student will administer in the "real world" will, for sure, have global interoperability.

Written / Oral Communications

In order for students to be successful in the business world, their ability to communicate in both written and oral form is also of primary importance to their success. The course does focus on the technical issues of a wide range of technologies, however, through their interaction with their peers (during class), through homework exercises, essays on an exam, and the hands-on experiences, students are required to clearly communicate what they have learned. This occurs both in writing, and in the form of orally communicating these results to the class. The successful technical person can communicate effectively with people at all levels (not just at the technical level). This makes them effective. In this class, students are made aware of these different levels. The following is what is specifically highlighted:

- Students must be able to communicate with each other, at the technical level. They must understand the concepts, and apply these concepts in an effective manner. Using proper language to do so is important. Students are made aware of the appropriate technical terms and applicability as it pertains to this class. They must speak and write the "lingo". All lectures and labs place a heavy emphasis on the terms that are applicable for each network operating system discussed.
- Students must be able to explain technical concepts in a manner appropriate for the non-technical user. Again, this must be done both orally as well as in written form. A successful "technologist" must be able to effectively communicate a user's issues or business needs in a common language, and then translate these needs into a technical solution. This appears to be the most challenging portion of their development. The labs in this course outline a business need; the students must technically solve these needs. When unable to do so immediately due to insufficient information, they must ask the appropriate business questions (as well as the technical) to come to a resolution.
- Students must be able to communicate at all levels in an organization, as well as at all levels of understanding. This can be from upper management, to a supervisor, to a peer, or to a real "techno-phobic" individual. In all essays, and written assignments, students must use proper literary composition that clearly states the required results. In addition to a formal short presentation, students are highly encouraged to participate, express themselves clearly, and demonstrate proper translation from business need to technical solution.
- Finally, the more technically astute students are highly encouraged to serve as mentors for those not at the same level (or having difficulty with an assignment). This must be effectively communicated (without intimidation). This not only enhances their communication skills, but also serves to enhance both their leadership as well as "mentoring" capabilities. Class participation is a must for success!

Quantitative Literacy

Though this is not a math class, students must apply some basic quantitative reasoning to succeed in several of the lectures and assignments. In particular, students must understand the decimal, octal, binary, and hexadecimal numbering systems. Students must also be able to demonstrate the ability to make conversions between these systems as it is an integral part of the technology.

Ethical Reasoning

As with any powerful technology, computers can be used for both good and bad intentions. The standards that determine whether an action is good or bad are known as ethics. Computer ethics are the moral guidelines that govern the use of computers and information systems. The following areas are discussed throughout the course: unauthorized use of computers and networks; software theft (piracy); information accuracy; intellectual property rights; codes of conduct; and information privacy.

Grading:

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|------------------------|-----|------|
| Homework /Labs | 20% | |
| Three Exams | | 30% |
| Projects (2) | | 30% |
| Final Exam (inclusive) | | 20 % |

Total 100 %

The following scale will be used to determine letter grades:

Grade Range

A 93+

A- 90-92

B+ 87-89

B 83-86

B- 80-82

C+ 77-79

C 73-76

C- 70-72

D+ 67-69

D 63-66

D- 60-62

F Below 60

Lectures

Each class will consist of a lecture outlining the technology subject for the day. The focus is on the "how to" as well as to make the student begin thinking about the real life applicability of the particular topic. Students will be required to participate in each discussion. Though most of the lectures will cover topics in the textbook, it is assumed that the students will read all assigned material. Lectures will go above and beyond the material in the textbook. Students will be required to use the Internet for research and homework / projects completion.

Homework

In addition to textbook readings, students will be given homework assignments geared toward the successful completion of a given task. Of primary importance is the planning necessary for the implementation of a technology, and the documentation of available resources. The homework assignments are research oriented, and will be submitted in written form. Students are sometimes asked to discuss their homework assignments in the discussion forum, and hopefully generate interesting discussions around a myriad of approaches that solve a similar problem. Homework will be collected the day it is do.

Projects

There will be 2 projects assigned. The projects will require the student to hand in a written MS-WORD document and also do an oral presentation with the appropriate set of MS-PowerPoint slides.

Exams

There will be 3 hourly tests and an inclusive final exam aimed specifically at testing their understanding of the technology rather than their ability to memorize facts for a particular exam. Testing includes multiple choices, true / false, fill in the blanks, short answers, and essays. Most of the questions are designed to have the student think about what they have learned, and answer accordingly. There will be no make up exams.

Attendance Policy

You are expected to attend every class session. If you miss 2 {3 hour} classes your grade will be lowered by 10 points. If you are ill or have serious personal issues, please contact instructor via phone or email.

Students with Special Needs

If you believe that you have a disability requiring accommodations in this class, please contact the Coordinator of Support Services for Students with Disabilities as soon as possible. After you receive a letter documenting the appropriate accommodations, please see me so I can work with you to implement them in a timely fashion. It is the student's responsibility to seek and secure accommodations prior to the start of a test or project.

Contact:

Janine Allo – office: Hauke 007; phone: 802-651-5961; email: allo@champlain.edu

Academic Honesty Policy

In the preparation and presentation of any assigned work-including examinations, tests, quizzes, term papers, reports, themes and other written or oral exercises-every student shall conform to a strict standard of academic honesty. Any attempt to deceive a faculty member or to help another student to do so will be considered a violation of this standard. In all assignments, students must acknowledge the words and/or ideas of others taken from print or electronic media, whether a direct quotation or a paraphrase; any omission of this is dishonest. Cheating on examinations or tests consists of knowingly giving, receiving or

using-or attempting to give, receive or use-unauthorized assistance during an examination or test. A faculty member may record a grade of "zero" for any assignment on which a student has plagiarized or cheated. For repeat offenses within a single course, the faculty member may record a grade of "F" for the course. Violations of this policy in multiple courses may result in dismissal from the College. A student may appeal these decisions according to the Academic Grievance Procedure.

Additional information

Brief Rationale

The primary goal of this class is to expose the student to all facets of computing and telecommunications technology. It is critical that students at least have a working knowledge of the various components of hardware and software, and have an understanding of how they are used to develop larger systems. The course provides a basic foundation for all other IT courses offered at Champlain. It assumes very little prior knowledge. However, it has been the instructor's observation that no matter how advanced some of the students are when they begin the class, they still learn something new. This field is too volatile and too complex for someone to have an in-depth knowledge of every aspect of it. Thus, it is very common for students to help one another to understand various aspects of the course.

Course Outline

| NET 120 Course Outline | |
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| Class | Activity |
| One | Chapter 1 |
| Two | Chapter 2 |
| Three | Chapter 3 |
| Four | Exam One (covers Chapter 1 - 3) / Chapter 4 |
| Five | Chapter 5 |
| Six | Written - Oral Projects One / Chapter 6 |
| Seven | Exam Two (Covers Chapters 4-6) / Chapter 7 |
| Eight | Chapter 8 |
| Nine | Chapter 9 |
| Ten | Exam Three (Covers Chapters 7-9) / Chapter 10 |
| Eleven | Chapter 11 |
| Twelve | Written - Oral Projects Two / Chapter 12 |
| Thirteen | Chapter 13 |
| Fourteen | Wrap UP / Review for Final |