SYLLABUS

INFOTECH 106 Introduction to Information Technology

Course Description
This course provides students with an introduction to computers and information technology. Topics include an overview of hardware, software, operating systems, networks, security, the Internet, careers, ethics, privacy, and current technologies. Emphasis is placed on fundamental knowledge and skills necessary for those aspiring to an information technology career. 3 Units

Prerequisites/Co-requisites
None

Student Learning Outcomes
Upon completion of this course, students should be able to:

1. Describe the function of commonly-used computer peripherals and common hardware components used in PCs and in basic network infrastructures.

2. Describe the functions of operating systems, software, and applications, and perform basic hands-on tasks including file management and system configuration.

3. Explain the importance of security, ethics, and privacy as relates to computers and the Internet, and perform basic hands-on tasks related to these topics.

4. List and describe information technology careers, important emerging technologies, and current issues related to computers and the Internet.

5. Describe computer networks, various network topologies, data transmission, and network media.

Instructor:
Lenny Bailes; Lenny_Bailes@heald.edu; (Lenny.Bailes@sanfrancisco.heald.edu)
Winter 2010
Office Hours: by appointment

Topics Covered

- Careers in Information Technology
- Digital Computing
- Input and Processing
- Computer Components
- Output and Storage
- System Software
- Command Line Interface

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- Networks
- Internet - World Wide Web
- Computer and Network Security
- Computer Ethics

Textbook(s)

- Fuller, F., & Larson, B. (2008). *Computers: Understanding Technology, Comprehensive* (3rd ed.). St. Paul, MN: Paradigm Publishing, Inc. ISBN: 0763829358

Student Lab Kit

- INFOTECH 106 Student Lab Kit - Kit number: LABKITI105

Grading

Exams	**40%**
Projects and Assignments	**50%**
Participation	**10%**

A grade of 90 percent or higher earns an A grade; 80 to 89 percent earns a B grade; 70 to 79 percent earns a C grade; 60 to 69 percent earns a D grade. A minimum grade of C is required in major courses or courses that are prerequisites for advanced courses.

Course at a Glance

Week 1	
Topics	- Careers in Information Technology (IT) - Types of IT careers available - Education and Certifications
Reading Assignments and Homework	*Understanding Technology, 3rd Edition*, Read Chapters 15 (pages 680 – 708) *Understanding Technology, 3rd Edition*, Matching - Chapter 15 Exercises 2 – 10 even-numbered (page 710) *Understanding Technology 3rd Edition,* Multiple Choice - Chapter 15 Exercises 2 – 10 even-numbered (pages 710 - 711) - Read Chapter 1 (pages 2-35) for Week 2
In Class Activities	- Present this week's topics and subtopics using the textbook, PowerPoint slides, the whiteboard, and other tools available to engage the student. - Active Learning Activities - Have students (in groups of 3 to 5) research and discuss with the class some of the careers available in IT (emphasize those that relate to the Heald Program they

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	are taking), as well as the Certifications related to these fields. Note the certifications that track to the Heald classes the student will be taking. • Install the Operating System to be used for the course.
Assessments	None.

Notes to Instructor	• It is important to remind students why they are in school and what they can look forward to upon graduation. Work with Career Services to identify potential guest speakers to talk about careers in their field of study. Schedule a speaker to visit during week 6 and invite Career Services to introduce the speaker and provide additional information after the presentation.
	
	• This course is starting with Chapter 15 (Information Technology Careers) in order to get the students excited about their choice of study and future career.
	
	• At the end of each chapter there are a number of good activities called Ethical Dilemmas, Things that Think - Brainstorming New Uses, etc. While the author has chosen personal favorites, feel free to select the one that best matches the current class or add exercises as time permits.
	
	• Operating System installation is likely to be completed inside a virtual environment, such as Virtual PC. It is recommended that students start to learn about Virtual PC early on in their programs.
	
	• The text used in this course teaches to Microsoft Vista.
	
	• You might want to bring in one or two of your own certifications, as appropriate. Encourage students to sit for the A+ and Network+ exams within the first twelve months, if possible. It is important to stress the importance of obtaining these certifications from the beginning of the students' program.
	
	• You might also want to bring in one or two current or former students who have passed certification exams come in to talk to the class about their experiences.
	
	• IMPORTANT NOTE: There are two benchmark assessments in this course that must be administered to your students. These map to the course Student Learning Outcomes (SLOs) and are **required**. These are:
	  1. Benchmark Assignment - IT Scenarios
	    This required assignment consists of two IT Scenarios; each has a hands-on element and a written element.

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It is advised that you assign the scenarios at different times during the quarter since both will take time for the students to complete and for you to observe.

The course author recommends assigning Scenario 1 in Week 5, after you have covered the Command Line Interface topic and exercise.

It is recommended that you assign Scenario 2 in Week 9.

See the following benchmark files located on the SharePoint site for this course:

INFOTECH_106_Benchmark Assignment_IT Scenarios_V1.0_121709

INFOTECH_106_Benchmark Assignment Rubric_IT Scenarios_V1.0_121709

2. Benchmark Assignment Required Questions for Inclusion on the Final Exam

It is **required** that the final exam includes the questions listed on the following handout located on the SharePoint site for this course:

INFOTECH_106_Benchmark Assignment_Required Final Exam Questions_V1.0_121509

This file is found in the Handouts section of the INFOTECH 106 Course Plan on SharePoint.

These required questions must be the first twelve questions on the exam and must be numbered as shown.

- It is strongly recommended that you include at least one formative assessment each week to monitor student progress and understanding of the concepts in the class; you can thus take remediation steps as needed. It is critical that you provide feedback on these assessments. Formative assessments could be quizzes or other activities that allow you to monitor student comprehension of the subject matter.

Week 2	

Topics	• Digital Computing
	    ○ Computers, computer systems, and components
	    ○ Wired and wireless computing

Reading Assignments and Homework	• *Understanding Technology, 3rd Edition*, Read Chapter 2 (pages 45 - 90)
	• *Understanding Technology, 3rd Edition*, Matching
	    • Chapter 1 Exercises 2 – 10 even (page 38)
	• *Understanding Technology 3rd Edition,* Multiple Choice
	    • Chapter 1 Exercises 2 – 10 even (page 39)

In Class Activities	• Present this week's topics and subtopics using the textbook, PowerPoint slides, the whiteboard, and other tools available to engage the student.
	
	• Active Learning Activities
	
	    • Have students perform Windows Tutorial 1 on pages WT-1 through WT-3.
	
	    • Have students (in groups of 3 to 5) read through the computer systems timeline on pages Tl-A1 – Tl-A14 and pick what they feel are the 5 most important events. Have groups explain their choices to the class.

Assessments	• Formative • Chapter 15 Quiz
Notes to Instructor	• It is recommended that you model what a good presentation might look like to your students to help them with activities such as the computer systems timeline above. Encourage audience participation, as well, by showing your students how to ask the right questions of the presenter. Teaching these things from the start will benefit your students greatly by helping them build strong communications skills. This will help them as they move into more rigorous courses, but also when it is time to move into the professional world. • The use of study guides can do a great deal to alleviate student stress when preparing for quizzes and exams. • You can create your own quizzes and exams or use the ExamView CD-ROM. • Tutorials are found in the Appendix at the back of the book. They are based on Vista, but instructor should be prepared to answer questions relating to Windows 7 (for example, how Windows 7 differs from Vista).

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Week 3	
Topics	• Input and Processing • Computer Components

Reading Assignments and Homework	• *Understanding Technology, 3rd Edition*, Read Chapter 3 (pages 99 - 142)
	• *Understanding Technology, 3rd Edition*, Matching
	    • Chapter 2 Exercises 2 – 10 even (pages 93 and 94)
	• *Understanding Technology 3rd Edition,* Multiple Choice
	    • Chapter 2 Exercises 2 – 10 even (pages 94 and 95)

In Class Activities	• Present this week's topics and subtopics using the textbook, PowerPoint slides, the whiteboard, and other tools available to engage the student.
	
	• Active Learning Activities
	
	    • Have students perform Windows Tutorial 2 on pages WT-4 – WT-6
	        o Note: The intended operating system (OS) for the tutorial is Windows Vista.
	
	    • Have students perform the Ethical Dilemmas – Group Discussion and Debate exercise on page 98 in groups of 4 to 5. Have each group present their discussion results from the exercise.
	
	    • What's new in consumer technology – Have students discuss any new IT technology that catches their imaginations (phones, OSes, games, etc.). This could be a show-and-tell activity.

Assessments	• Formative • Chapter 1 Quiz
Notes to Instructor	• Students always know about new technologies and are excited to talk about them. This discussion could lead into other interesting topics related to how they learn how to use new technologies, how they deal with technical problems, etc. You might want to kick off the activity with a little show and tell of your own to appeal to the visual learners and model good communications skills.

Week 4	
Topics	• Output and Storage

Reading Assignments and Homework	• *Understanding Technology, 3rd Edition*, Read Chapter 4 (pages 153 - 191)
	
	• *Understanding Technology, 3rd Edition*, Matching
	    • Chapter 3 Exercises 2 – 10 even (page 146)
	• *Understanding Technology 3rd Edition,* Multiple Choice
	    • Chapter 3 Exercises 2 – 10 even (pages 147 and 148)

In Class Activities	• Present this week's topics and subtopics using the textbook, PowerPoint slides, the whiteboard, and other tools available to engage the student.
	
	• Active Learning Activities
	
	    • Have students perform Windows Tutorial 3 on pages WT-7 – WT-9
	
	    • Have students perform the Things That Think – Brainstorming New Uses exercise on page 148 by having students breaking up into groups of 4 to 5 and having each group do question 1 or 2. Have each group present their discussion results from the exercise.
	
	    • Newspaper day! Every student brings in an article on technology and describes its relevance to IT and/or their course of study at Heald.

Assessments	• Formative • Chapter 2 Quiz
Notes to Instructor	• The Things that Think – Brainstorming New Uses exercise provides another opportunity to discuss ethical dilemmas. If time permits, have corresponding teams discuss possible privacy/ethical issues related to the question from the exercise. • Newspaper day - Students may bring in technology-related articles on anything they want and take a few minutes to get up and tell what's cool about their articles. This gets them doing a little light research and keeps open the opportunity for them to be looking into things that they can see themselves doing in the future. You might want to kick off the discussion by bringing in your own article. You might also suggest some good tech sites your students could visit beyond Google.

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Week 5	

Topics	• System Software
	    • Operating Systems
	    • User Interfaces
	    • Utilities
	    • Compilers and Interpreters
	• Command Line Interface

Reading Assignments and Homework	• *Understanding Technology, 3rd Edition*, Read Chapter 6 (pages 254 - 294)
	
	• *Understanding Technology, 3rd Edition*, Matching
	    • Chapter 4 Exercises 2 – 10 even (page 194)
	• *Understanding Technology 3rd Edition,* Multiple Choice
	    • Chapter 4 Exercises 2 – 10 even (pages 195 and 196)

In Class Activities	• Present this week's topics and subtopics using the textbook, PowerPoint slides, the whiteboard, and other tools available to engage the student.
	
	• Active Learning Activities
	
	    • Have students perform Windows Tutorial 4 on pages WT-10 – WT-12
	
	    • Have students perform the Things That Think – Brainstorming New Uses exercise on page 196 by having students breaking up into groups of 4 to 5 and having each group do question 1, 2 or 3. Have each group present their discussion results from the exercise.
	
	    • Take a guided tour of the campus IT department; the students can meet the network administrator and see some of the things he or she does in her role at Heald.
	
	    • Command Line Interface Labs - Have students complete the following labs which are located in the Handouts folder on the SharePoint site for this course:
	
	    INFOTECH_106_Student Handout_Command Line Interface Lab 1_V1.0_011210
	
	    INFOTECH_106_Student Handout_Command Line Interface Lab 2_V1.0_011210

Assessments	• Formative
	    • Chapter 3 Quiz
	• **Summative**
	    • Benchmark Assignment - IT Scenarios - Scenario 1

Notes to Instructor	• The book does not cover Command Line Interface in great

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detail, but Heald faculty strongly supported a brief introduction to the topic in this course. There is also a CLI component to the IT Scenario Benchmark Assignment, so it is critical that you cover this material.

- **Scenario 1** from the IT Scenarios Benchmark Assignment should be administered this week or next. Be sure to hand out the following assignment and rubric to your students:

  INFOTECH_106_Benchmark Assignment_IT Scenarios_V1.0_121709

  INFOTECH_106_Benchmark Assignment Rubric_IT Scenarios_V1.0_121709

  This scenario requires you to check that the appropriate folders exist and to observe the operation of the batch file. You should decide the best way to do this if you have a large class. If necessary, observation of multiple demos simultaneously is permitted.

  Please note that it is recommended that you administer Scenario 2 later in the quarter. These scenarios will take time and you will also want to make sure the appropriate topics have been covered in class.

- With the midterm occurring in week 6, allow some time for review of previously presented materials.

- IMPORTANT - Students will need their Lab Kits for next week's cabling exercise.

Week 6	

Topics	• Networks
	    • How data is transmitted
	    • Network classifications
	    • Topologies
	    • Protocols

Reading Assignments and Homework	None

In Class Activities	• Present this week's topics and subtopics using the textbook, PowerPoint slides, the whiteboard, and other tools available to engage the student.
	
	• Active Learning Activities
	
	    • Have students perform Windows Tutorial 5 on pages WT-13 – WT-15
	
	    • Have students research types of UTP/STP cabling including straight-thru, cross-over, and rollover cables.
	
	    Students should present their discoveries and complete the CAT 5 Cabling Exercise found in the Handouts folder on the SharePoint site for this course:
	
	    INFOTECH_106_Student Handout_CAT5 Cabling _V1.0_011210
	
	    Students will use their Lab Kits for this activity.

Assessments	• Summative • Midterm
Notes to Instructor	• Extend the CLI activities into this week, if necessary. • **IMPORTANT**: While the CAT 5 Cabling Exercise is not a benchmark assignment, it is critical that you run this activity in INFOTECH 106. Faculty and Program Directors widely support this activity and your students have purchased a Lab Kit that will allow them to perform it. • This week's active learning activities are expected to stretch into Week 7. • If facilities permit, utilize the created cables to test the different cables in functional network or router connections.

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Week 7	
Topics	• Networks (continued)

Reading Assignments and Homework	• *Understanding Technology, 3rd Edition*, Read Chapter 7 (pages 304 - 348)
	
	• *Understanding Technology, 3rd Edition*, Matching
	    • Chapter 6 Exercises 2 – 10 even (page 297)
	• *Understanding Technology 3rd Edition,* Multiple Choice
	    • Chapter 6 Exercises 2 – 10 even (pages 298)

In Class Activities	• Present this week's topics and subtopics using the textbook, PowerPoint slides, the whiteboard, and other tools available to engage the student.
	
	• Active Learning Activities
	
	    • Have students perform Windows Tutorial 6 on pages WT-16 – WT-18
	
	    • Have students perform the Ethical Dilemmas – Group Discussion and Debate exercise on page 302 in groups of 4 to 5. Have each group present their discussion results from the exercise.

Assessments	None
Notes to Instructor	• The Things That Think – Brainstorming New Uses section this week is also a very good activity for this topic. If time permits consider adding this activity as an active learning activity.

Week 8	
Topics	• Internet – World Wide Web

Reading Assignments and Homework	• *Understanding Technology, 3rd Edition*, Read Chapter 8 (pages 358 - 390)
	
	• *Understanding Technology, 3rd Edition*, Matching
	   • Chapter 7 Exercises 2 – 10 even (page 349 - 350)
	• *Understanding Technology 3rd Edition,* Multiple Choice
	   • Chapter 7 Exercises 2 – 10 even (pages 351)

In Class Activities	• Present this week's topics and subtopics using the textbook, PowerPoint slides, the whiteboard, and other tools available to engage the student.
	
	• Active Learning Activities
	
	   • Have students perform Windows Tutorial 7 on pages WT-19 – WT-21
	
	   • Have students perform the Ethical Dilemmas – Group Discussion and Debate exercise on page 355 in groups of 4 to 5. Have each group present their discussion results from the exercise.

Assessments	• Formative • Chapter 6 Quiz
Notes to Instructor	None

Week 9	
Topics	Computer and Network Security

Reading Assignments and Homework	• *Understanding Technology, 3rd Edition*, Read Chapter 14 (pages 626 - 671)
	
	• *Understanding Technology, 3rd Edition*, Matching
	  • Chapter 8 Exercises 2 – 10 even (page 391 - 392)
	• *Understanding Technology 3rd Edition,* Multiple Choice
	  • Chapter 8 Exercises 2 – 10 even (pages 393)

In Class Activities	• Present this week's topics and subtopics using the textbook, PowerPoint slides, the whiteboard, and other tools available to engage the student.
	
	• Active Learning Activities
	
	  • Have students perform Windows Tutorial 10 on pages WT-28 – WT-30.
	
	  • Have students perform the Things That Think – Brainstorming New Uses exercise 1, 2 or 3 on page 394 in groups of 4 to 5. Have each group present its discussion results from the exercise.

Assessments	• Formative
	  • Chapter 7 Quiz
	• **Summative**
	  • Benchmark Assignment - IT Scenarios - Scenario 2

Notes to Instructor	• Scenario 2 from the IT Scenarios Benchmark Assignment should be administered this week or next. Be sure to hand out the following assignment and rubric to your students:
	
	  INFOTECH_106_Benchmark Assignment_IT Scenarios_V1.0_121709
	
	  INFOTECH_106_Benchmark Assignment Rubric_IT Scenarios_V1.0_121709
	
	  You will need to confirm that the appropriate configurations have been performed.
	
	  An anti-virus software must be installed for Scenario 2. Possible options are the free Avast or AVG products.
	
	• The Things That Think – Brainstorming New Uses activity should be expanded to include ethical topics related to each question.

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Week 10	
Topics	Computer Ethics

Reading Assignments and Homework	• *Understanding Technology, 3rd Edition*, Matching
	   • Chapter 14 Exercises 2 – 10 even (page 672)
	• *Understanding Technology 3rd Edition,* Multiple Choice
	   • Chapter 14 Exercises 2 – 10 even (page 673)

In Class Activities	• Present this week's topics and subtopics using the textbook, PowerPoint slides, the whiteboard, and other tools available to engage the student.
	
	• Active Learning Activities
	
	   • Have students perform Windows Tutorials 14 and 15 on pages WT-41 – WT-46
	
	   • In groups of 4 to 5 have students research copyright laws as pertain to computer applications. Also, have them research fair use policy regarding copyrights. Have groups present and discuss their findings.
	
	   • Social Networking - Have student form small groups to discuss the use of Facebook and other social networking sites. What are the potential positive and negative impacts that social networking sites could have on their careers? Is it ethical for employers to monitor content on these sites to make decisions with regard to potential or current employees? Should you "friend" your colleagues? Have each group report its thoughts with the rest of the class.

Assessments	• Formative • Chapter 8 Quiz
Notes to Instructor	Time allowing, review for next week's final exam.

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Week 11	
Topics	Finals
Reading Assignments and Homework	None
In Class Activities	• Active Learning Activities • Have the students form groups to discuss the important concepts they learned from the quarter and how these relate to their further studies and careers
Assessments	• Summative • Final Exam - see below

Notes to Instructor	• Note: It is **required** that you administer a final exam that includes the questions listed on the following handout located on the SharePoint site for this course:
	
	  INFOTECH_106_Benchmark Assignment_Required Final Exam Questions_V1.0_121509
	
	  These required questions must be the first twelve questions on the exam and must be numbered as shown. You can then add your own questions to complete the exam.

Instructor's Biography

Lenny Bailes has been teaching and designing computer training classes since the mid-1990s. He has designed and taught IT classes for San Francisco State University's College of Extended Learning. More recently he has served as an instructor in the Business Computing department at City College of San Francisco, and has designed and taught CompTIA A+ exam prep courses for several post-secondary non-profit vocational institutions. He has authored or co-authored several computer self-help books and contributed to a number of web-based Windows "tips and tricks" websites;

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