I. Introduction to Computing

II. Prerequisite: Exit Learning Support and ESL.


IV. Catalog Description:
This course is intended for non-computer science majors. It provides an overview of selected major areas of current computing technology, organization and use. Topics surveyed include the history of computing, data representation and storage, hardware and software organization, communications, networking, and Internet technologies, ethical and social issues, and fundamental problem-solving and programming skills. Hands-on projects enhance and reinforce the ideas presented in class. Students may NOT receive credit for both CSCI 1100 and CSCI 1300.

V. Course Objective
The course provides the non-computer science (non-math based) students with knowledge of computing concepts and computing skills through extensive problem-solving and hands-on practice as well as knowledge of several modern software tools.

VI. General Notes:
Instructors will cover appropriate sections in text to comply with the Common Course Outline.

VII. Course Outline:

<table>
<thead>
<tr>
<th>Week</th>
<th>Text Chapter</th>
<th>Home Work</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1: Digital Basics</td>
<td>Quick Check Quizzes on book CD Issue: Are you being Tracked Computers in Context: Marketing</td>
<td>New Perspectives Lab: “Working with Binary Numbers”</td>
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<td></td>
<td>2: Computer Hardware</td>
<td>Quick Check Quizzes on book CD Issue: Where does all the e-garbage go? Computers in Context: Military</td>
<td>Send students to a manufacturer’s Web site, such as Dell or Gateway. Within a processor family, have them compare at least three different processors. Can they draw any conclusions about the relationship between processor speed and price of the computer system?</td>
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<tr>
<td>Unit</td>
<td>Topic</td>
<td>Quiz Details</td>
<td>Computers in Context</td>
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<tr>
<td>3</td>
<td>3: Software</td>
<td>Quick Check Quizzes on book CD Issue: How serious is software piracy? Computers in Context: Journalism</td>
<td>Have students browse and search the Internet for public domain software. Have them view the system requirements and then check their own computer systems. Will the software run on their systems?</td>
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<tr>
<td>4</td>
<td>4: Operating Systems</td>
<td>Quick Check Quizzes on book CD Issue: Cyber terrorists or pranksters? Computers in Context: Law enforcement</td>
<td>New Perspectives Lab: “Managing Files” New Perspectives Lab: “Backing up Your Computer” Unit 1 project: Creating Spreadsheets (using MS Excel or Google Docs)</td>
</tr>
</tbody>
</table>
## TOPICS TO BE COVERED WITH SUGGESTED CHAPTER(S)

**History and Vocabulary of Computers (5%)**  Chapter 9
1. What is a Computer?
2. Types of Computers
3. Common terms
4. Historical issues

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1. What is a Computer?
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4. Historical issues
5. Generations of Computers
6. Industry overview

Data Representation and Storage (10%)  Chapters 1 (Section C), 2, 8
1. Binary and decimal number systems
2. Text encoding
   • ASCII/ANSI
   • Unicode
3. Graphics
   • Bitmap
   • Vector

Computer Hardware Concepts (10%)  Ch.2
1. Microprocessor Basics
2. Registers
3. Memory
   • ROM
   • BIOS
   • RAM
   • Cache
4. Secondary Storage
   • Disk/Tape technologies
   • DVD/Blue Ray and other optical technologies
5. Peripheral Devices
   • Input devices
   • Output devices
   • Communications Devices
6. Buying Computer Systems and Components
7. Basic Maintenance

Computer System Software (10%)  Orientation section A, Chapter 4
1. Operating Systems
2. User Interfaces
3. File Management
4. Directory Management
5. Storage Management
6. Backup
7. Virtual Machines

Applications Software Overview (15%) Chapters 3, 11
1. Application/Utility Software
2. Spreadsheet Software
3. Database Software
4. Graphics Software
5. Music Software
Network and Data Communications (10%) Chapter 5
1. Computer network types
2. Network topologies and message passing
3. Client-Server relationships
4. Communication Protocol
5. Ethernet
6. Wireless Communication (Wi-Fi, Bluetooth)

Internet Technologies (10%) O14-21, Chapters 6, 7
1. Internet Protocols
2. Networking components
3. Addressing and domains
4. Data Access Services
   • Cable
   • Satellite Services
   • Wireless
   • Voice over IP
5. Internet Services
   • Cloud Computing
   • File sharing Networks
   • The World Wide Web
6. Web-based technologies
   • HTML/CSS
   • Cookies
   • Search Engines
   • E-Commerce

Computer and Network Security (5%) Orientation Section B, Chapters 5, 7
1. Securing your computer and data
   • Preventing Intrusions
   • File Permissions
   • Encryption
   • Wireless Security
2. Types of Security Attacks
   • Spam
   • Phishing
   • Cookie Exploits
   • Fake Sites
3. Security Software
   • Firewall programs
   • Antivirus software
   • Malware detection & removal

Social and Ethical Issues (10%) Chapters 8, 9
1. Privacy and information access
2. Censorship
3. Intellectual property rights
4. Computer crime
5. Professional responsibilities
6. On-line communities
7. Technology in everyday life
8. Digital Rights Management

Fundamental Problem-solving and Programming Concepts (15%) Chapter 12 + notes
1. Problem analysis
2. Algorithm development and Pseudocode
3. Program Structure (IDE tools)
4. Data Types
5. Input and output
6. Computations
7. Decisions and repetitions
8. Functions (optional)
9. Files (optional)

Note: We strongly recommend using Python or JavaScript for Programming

VIII. Evaluation Methods

- Details of grade determination are left to the instructor with the approval of the Department Head.
- Exams, assignments, and a final exam prepared by individual instructors will be used to determine the course grade.
- The course grade must weigh examinations for at least 50% of the grade. Labs/presentations/Quizzes/programming assignments for not more than 50% of the grade.
- Seven to ten assignments must be assigned.
- Testing must consist of at least two one-hour examinations and a comprehensive 2 hours final examination.
- The final examination must be weighted at not less than 25% or more than 35%.

IX. Effective Date: August, 2015, Approval Date: January 2014

Appendix A: Textbook Features
Appendix B: Python in 5 lessons
Appendix C: Python Examples used in CSCI 1100 (modified from CSCI 1300) classes
Appendix A: Textbook Features

Media-rich Tools

The complete book is available on CD with special electronic features:
1. Each chapter has electronically graded quick-check questions, accessible from the CD.
2. Each chapter has an electronically accessible interactive summary.
3. Each chapter has an interactive practice test with an auto-generated study guide.
4. Each chapter has check points questions on learning objectives that can be used as homework.

Each chapter has projects (individual and group) for student assignment.
On the book site’s web, each chapter has flash cards and glossary—which is an excellent study guide.

LABS
1. The new Perspectives labs are printed in the book for each chapter.
2. Student Edition Labs for each chapter with extra assignments and data files are on the book’s website.

NP2014 BookOnCD. The interactive BookOnCD includes the entire contents of the printed book and brings the concepts to life with animations, videos, and guided software tours. Students are introduced to the BookOnCD technology in the Orientation chapter and icons throughout the text indicate media elements and activities that reinforce material in the printed text.

Interactive BookOnCD with WebTrack assessment help instructors and students work synchronously to understand and apply technology in their personal and professional lives. WebTrack is free. Instructor creates an account ID for students to use. Students can take assessments from the book chapters and either saves their data using internet or save on their flash drive as track files. The instructor can install webtrack client on his flash drive and process student created track files. This is very flexible, the dta is also backed up on the web server (managed by Mediatechnics, creator of Webtrack).

From the first page of each chapter, students can access the BookOnCD to assess their knowledge of the material before digging in. Pre-assessments include study tips to help students identify sections of the chapter where they should spend most study time.

InfoWebLinks. Interspersed throughout each chapter, Info Web Links direct students to Web-based material and links that supplement the text.

BUILT-IN POLLING SYSTEM. Don’t have an in-class response system? Students can use the new polling feature that’s built into the BookONCD. Poll with our clicker questions or make up your own. Gather responses with WebTrack.
Each instructor is encouraged to use as many tools as possible within the time constraints and the students’ interest.
Appendix B: Python in 5 Lessons
Nat Kumaresan

Lesson 1
1. What is Programming? Why to program?
2. Programming Languages and Processes
3. Python’s History
4. How to download and install Python Version 3
5. Tour of Python shell and IDLE
6. Practice with variables, int, float,
7. Practice with +, -, *, /, //, sum, **
8. Practice with math.pi, math.sqrt
9. Practice with print, end=, sep=, \n, \t

Lesson 2
1. Practice with String type
2. Practice with len(), indexing, slices, sort(), split(), join(), find(), count(), upper(), lower(), justify(), concatenation(+), repetition(*)
3. Practice input(), int(), float(), str(), eval()
4. Create a program to read 3 numbers and print their average
5. Create a program to read fullname and print firstname and lastname on separate lines.

Lesson 3
1. Read about List type
2. Practice max(), min(), append(), indexing, slices, sort(), reverse(), count()
3. Practice del(), insert(), pop()
4. Practice range(), for loop
5. Create a program to read 10 names and print the frequency count

Lesson 4
1. Read about Relational and logical operators
2. Practice If, if else, elif, while loop, break, continue
3. Practice Formatted printing, random()

Lesson 5
1. Read about Text file processing
2. Practice open(), read(), readline, readlines, close()
3. Practice print with file=, and write()
Appendix B: Sample of coding exercises for CSC1100

##Computes and outputs travel time

speed = input("Enter your speed in mph: ")
speed = int(speed)
distance = input("Enter your distance in miles: ")
distance = float(distance)
time = distance/speed
print("At", speed, "mph, it will take")
print(time, "hours to travel", distance, "miles.")

##Computes and outputs Average Test Score

test1 = input("Enter your test1 score: ")
test1 = int(test1)
test2 = input("Enter your test2 score: ")
test2 = int(test2)
test3 = input("Enter your test3 score: ")
test3 = int(test3)
print("Average score is ", (test1 + test2 + test3)/3)

##pass/fail program

score = int(input("Type your score"))
if score >70 :
    print('You Passed')
else:
    print('Youfailed')

##Phonebook lookup

book= ["John","1234","Kim","2345","Sam","3333","Santa","1111"]
name=input("enter name: ")

if name in book:
    print("Number is",book[book.index(name)+1])
else:
    print("Name is not in list")

##Check balancing program

posTotal=0
negTotal=0

amount=int(input('Type transaction amount or 0 to stop: 
'))
while amount != 0 :
    if amount > 0 :
        posTotal = posTotal + amount
    else :
        negTotal = negTotal + amount
    amount=int(input('Type transaction amount or 0 to stop: 
'))
print('your total deposits: $', posTotal)
print('your total withdrawals: $', abs(negTotal))

##File processing
f=open('filedata.txt','w')
f.write('Hello Nat
')
f.write('I am having fun
')
f.write('This is way cool
')
f.write('Last line
')
f.close()

##Printing the initials of a name
name = input("Type your firstname and last name separated by a space: ")
fname = name[0 : name.index(' ')]
lname = name[name.index(' ') + 1 :]
print("Initials are: ", fname[0] + lname[0])

##Read a file and print all the 3 letter words one per line

lines = open(“data.txt”).read()
words = lines.split()
for w in words:
    if len(word) == 3:
        print (w)