ENTD220

Course Summary

Course : ENTD220 **Title :** Introduction to Python
Length of Course : 8
Prerequisites : ENGR200, ENTD200 **Credit Hours :** 3

Description

Course Description: The course presents the principles of object-oriented programming using the Python language, one of the most increasingly preferred languages for programming today. Python is a high-level general-purpose programming language that is portable and used on different systems to include UNIX and Mac—it is platform independent. Python has been touted as one of the most powerful and easy to learn programming languages. The course addresses syntax, types, variables, strings, branching, loops, tuples, lists, dictionaries, functions, files, exceptions and other related concepts and terms in an effort to establish a solid foundation for more advanced programming using structured language. The course will also provide both conceptual and scenario based exercises, thus enabling students to experience the maximum amount of comprehension and retention of material covered. The Python interpreter is available online for free. This software is not provided by the course material grant and must be purchased/provided by the student. (Prerequisite: ENTD200 or ENGR200)

Course Scope:

In this course describes basic programming concepts and techniques. The course examines theoretical concepts that make the world of programming unique. This course adopts a practical hands-on approach when examining programming styles. Students will learn how to develop Python applications, and examining different coding techniques. This course will explore the advancement of programming, as well as, timeless problem solving strategies.

Objectives

1. Explain the fundamentals of Python programming
2. Apply branching and loop control structures in Python programming
3. Apply tuples in Python programming
4. Explain the use of lists and dictionaries in Python programming
5. Create a program using functions in Python programming

6. Summarize the use of files and exceptions in Python programming

7. Demonstrate use of Python programming language

Outline

Week 1: Installation

Learning Outcomes

1: Explain the fundamentals of Python programming

Required Readings

- Introduction
- Chapter 1, 2, 3, 4
- Review Power Point Presentation/Video Lecture

Assignments

- Week 1 Introduction Week 1 Forum:
- Introduction, Why using python.
- Week 1 Assignment Installation

Recommended Optional Reading and Media

IPython Development Site: http://ipython.org/
Beginning Programming with Python For Dummies **Cheat Sheet:** http://www.dummies.com/how-to/content/beginning-python-for-dummies-cheat-sheet.html

Getting Started with IPython Notebook: https://youtu.be/qb7FT68tcA8?list=PLP7Uc7qhRNFQghC4KdLJkRYYDYlzAojhp

The IPython notebook: https://youtu.be/H6dLGQw9yFQ?list=PLP7Uc7qhRNFQghC4KdLJkRYYDYlzAojhp

Series of short tutorials - Notebooks and Cells - IPython Notebook Tutorial:

https://www.youtube.com/watch?v=lmoNmY-cmSI&list=PLRJx8WOUx5Xd3_dgw5xRmABUd8MWdsA_C

If you have an hour and a half, here is a long talk by the creator of IPython in Depth, SciPy2013 Tutorial, Part 1 of 3:

https://www.youtube.com/watch?v=xe_ATRmw0KM&list=PLP7Uc7qhRNFQghC4KdLJkRYYDYlzAojhp

Week 2: Elements of a Programming Language

Learning Outcomes

1: Explain the fundamentals of Python programming

Required Readings

- Chapter 5, 6, 7, 8
- Review Power Point Presentation/Video Lecture

Assignments

- Week 2 Forum - The elements of a programming language give an example
- Week 2 Assignment - Review python language except; function definition

Recommended Reading and Media

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Week 3: Loops and Functions

Learning Outcomes

2: Apply branching and loop control structures in Python programming

Required Readings

- Chapters 6
- Review Power Point Presentation/Video Lecture

Assignments

- Week 3 Forum - What is the advantage of a function, share an example?
- Week 3 Assignment - Functions

Recommended Optional Reading and Media

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Week 4: Dealing with Errors

Learning Outcomes

4: Apply the use of decision tables to design branching

Required Readings

- Chapter 9
- Review Power Point Presentation/Video Lecture

Assignments

- Week 4 Forum–– Making Explain error handling structure, show an example
- Week 4 Assignment
- Dealing with errors

Recommended Optional Reading and Media

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Week 5: Modules and Strings

Learning Outcomes

5: Create a program using functions in Python programming

Required Readings

- Chapter 10, 11
- Review Power Point Presentation/Video Lecture

Assignments

- Week 5 Forum Working - Discuss the importance of modules.
- Week 5 Assignment - Modules and strings

Recommended Optional Reading and Media

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Week 6: Data Structures and other Data Storage

Learning Outcomes

3: Apply tuples in Python programming

Required Readings

- Chapters 12-13
- Review Power Point Presentation/Video Lecture

Assignments

- Week 6 Forum – What is data structure, show an example
- Week 6 Assignment - Data structures, list, and other data storage

Recommended Optional Reading and Media

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Week 7: Classes and OOP

Learning Outcomes

6: Summarize the use of files and exceptions in Python programming

Required Readings

- Chapters 14
- Review Power Point Presentation/Video Lecture

Assignments

- Week 7 Forum - What are the advantages of using OOP in Python?
- Week 7 Assignment - Classes and OOP

Recommended Optional Reading and Media

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Week 8: Read / Write data

Learning Outcomes

7: Demonstrate use of Python programming language

Required Readings

- Chapters 15
- Review Power Point Presentation/Video Lecture

Assignments

- Week 8 Forum - Good software development practices
- Final Project: Week 8 - Building application with Read/Write

Recommended Optional Reading and Media

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Evaluation

Grading:

Name	Grade %

Materials

Book Title: Beginning Programming with Python For Dummies-E-book available in the APUS Online Library; links also provided in the classroom Lessons section. Hard copy not available from the APUS Bookstore, please try other sources.

Author: Mueller, John Paul

Publication Info: Wiley Lib

ISBN: 9781118891452

Course Guidelines

Citation and Reference Style

- Attention Please: Students will follow the APA Format as the sole citation and reference style used in written work submitted as part of coursework to the University. Assignments completed in a narrative essay or composition format must follow the citation style cited in the APA Format.

Tutoring

- Tutor.com offers online homework help and learning resources by connecting students to certified tutors for one-on-one help. AMU and APU students are eligible for 10 free hours* of tutoring provided by APUS. Tutors are available 24/7 unless otherwise noted. Tutor.com also has a SkillCenter Resource Library offering educational resources, worksheets, videos, websites and career help. Accessing these resources does not count against tutoring hours and is also available 24/7. Please visit the APUS Library and search for 'Tutor' to create an account.

Late Assignments

- Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. The due date for each assignment is listed under each Assignment.
- Generally speaking, late work may result in a deduction up to 15% of the grade for each day late, not to exceed 5 days.
- As a working adult I know your time is limited and often out of your control. Faculty may be more flexible if they know ahead of time of any potential late assignments.

Turn It In

- Faculty may require assignments be submitted to Turnitin.com. Turnitin.com will analyze a paper and report instances of potential plagiarism for the student to edit before submitting it for a grade. In some cases professors may require students to use Turnitin.com. This is automatically processed through the Assignments area of the course.

Academic Dishonesty

- Academic Dishonesty incorporates more than plagiarism, which is using the work of others without citation. Academic dishonesty includes any use of content purchased or retrieved from web services such as CourseHero.com. Additionally, allowing your work to be placed on such web services is academic dishonesty, as it is enabling the dishonesty of others. The copy and pasting of content from any web page, without citation as a direct quote, is academic dishonesty. When in doubt, do not copy/paste, and always cite.

Submission Guidelines

- Some assignments may have very specific requirements for formatting (such as font, margins, etc) and submission file type (such as .docx, .pdf, etc) See the assignment instructions for details. In general, standard file types such as those associated with Microsoft Office are preferred, unless otherwise specified.

Disclaimer Statement

- Course content may vary from the outline to meet the needs of this particular group.

Communicating on the Forum

- Forums are the heart of the interaction in this course. The more engaged and lively the exchanges, the more interesting and fun the course will be. Only substantive comments will receive credit. Although there is a final posting time after which the instructor will grade comments, it is not sufficient to wait until the last day to contribute your comments/questions on the forum. The purpose of the forums is to actively participate in an on-going discussion about the assigned content.
- “Substantive” means comments that contribute something new and hopefully important to the discussion. Thus a message that simply says “I agree” is not substantive. A substantive comment contributes a new idea or perspective, a good follow-up question to a point made, offers a response to a question, provides an example or illustration of a key point, points out an inconsistency in an argument, etc.
- As a class, if we run into conflicting view points, we must respect each individual's own opinion. Hateful and hurtful comments towards other individuals, students, groups, peoples, and/or societies will not be tolerated.

Identity Verification & Live Proctoring

- Faculty may require students to provide proof of identity when submitting assignments or completing assessments in this course. Verification may be in the form of a photograph and/or video of the student’s face together with a valid photo ID, depending on the assignment format.
- Faculty may require live proctoring when completing assessments in this course. Proctoring may include identity verification and continuous monitoring of the student by webcam and microphone during testing.

University Policies

Student Handbook

- Drop/Withdrawal policy

- Extension Requests
- Academic Probation
- Appeals
- Disability Accommodations

The mission of American Public University System is to provide high quality higher education with emphasis on educating the nation's military and public service communities by offering respected, relevant, accessible, affordable, and student-focused online programs that prepare students for service and leadership in a diverse, global society.