ENTD320

Course Summary

Course : ENTD320 **Title :** Intermediate Python Programming
Length of Course : 8
Prerequisites : ENTD220 **Credit Hours :** 3

Description

Course Description: This course presents the principles of object-oriented programming using the Python language, one of today's preferred languages for programming. Python is a high-level general-purpose programming language that is portable and used on different systems, including UNIX and Mac, and it is platform independent. Python has been touted as one of the most powerful and easy-to-learn programming languages. The course addresses data structures and algorithms; efficient and scalable Python programming; RESTful application programming, interface services, microservices, and multiprocessing using the Python programming language; 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 an intermediate level of both conceptual and scenario-based exercises, thus enabling students to maximize their comprehension and retention of material covered. The Python interpreter is available online for free. This software is not provided via the course material and must be obtained by the student. (Prerequisite: ENTD220)

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.

The course will also provide an intermediate level of 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 via the course material and must be purchased/provided by the student. (Prerequisite: ENTD220)

Objectives

1. Demonstrate use of Python programming language
2. Describe data structures and algorithms in respect to programming

3. Develop RESTful Application Programming Interface services using Python programming
4. Create template using Python programming
5. Develop database application
6. Apply testing and debugging in Python programming
7. Summarize the use of microservices and multiprocessing
8. Explain the need for efficient and scalable Python programming

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Outline

Week 1: Week 1: Installation

Learning Outcomes

Demonstrate the use of Python programming language.

Required Readings

Mueller, John P. (2014). ***Beginning Programming with Python For Dummies***.

Hoboken, NJ: John Wiley & Sons, Inc. ISBN 978-111-8891-452.

Assignments

Week 1: Forum

Assignment:

Week 1 : Installation

Recommended Optional Reading

Additional Links to Consider:

- https://blog.anvileight.com/posts/simple-python-http-server/
- http://docs.python-requests.org/en/master/user/quickstart/
- https://www.junian.net/python-http-server-client/
- https://daanlenaerts.com/blog/2015/06/03/create-a-simple-http-server-with-python-3/
- https://www.acmesystems.it/python_http
- https://stackoverflow.com/questions/15965646/posting-html-form-values-to-python-script

Recommended Media

Week 2: Data Structures and Algorithms

Learning Outcomes

Describe data structures and algorithms in respect to programming

Required Readings

Mueller, John P. (2014). ***Beginning Programming with Python For Dummies***.

Hoboken, NJ: John Wiley & Sons, Inc. ISBN 978-111-8891-452.

Assignments

Week 2: Forum

Assignment:

Week 2 Assignment Data Structure and algorithms

Recommended Optional Reading

Additional Links to Consider:

- https://blog.anvileight.com/posts/simple-python-http-server/
- http://docs.python-requests.org/en/master/user/quickstart/
- https://www.junian.net/python-http-server-client/
- https://daanlenaerts.com/blog/2015/06/03/create-a-simple-http-server-with-python-3/
- https://www.acmesystems.it/python_http
- https://stackoverflow.com/questions/15965646/posting-html-form-values-to-python-script

Recommended Media

Week 3: Web development and Restful web services

Learning Outcomes

Develop RESTful Application Programming Interface services using Python programming

Required Readings

Mueller, John P. (2014). ***Beginning Programming with Python For Dummies***.

Hoboken, NJ: John Wiley & Sons, Inc. ISBN 978-111-8891-452.

Assignments

Week 3: Forum

Assignment:

Week 3 Assignment Web Development

Recommended Optional Reading

Additional Links to Consider:

- https://blog.anvileight.com/posts/simple-python-http-server/
- http://docs.python-requests.org/en/master/user/quickstart/
- https://www.junian.net/python-http-server-client/
- https://daanlenaerts.com/blog/2015/06/03/create-a-simple-http-server-with-python-3/
- https://www.acmesystems.it/python_http
- https://stackoverflow.com/questions/15965646/posting-html-form-values-to-python-script

Recommended Media

Week 4: Template Programming

Learning Outcomes

Create templates using Python programming

Required Readings

Mueller, John P. (2014). ***Beginning Programming with Python For Dummies***.

Hoboken, NJ: John Wiley & Sons, Inc. ISBN 978-111-8891-452.

Assignments

No forum this week

Assignment:

Week 4 Assignment Template Programming

Recommended Optional Reading

Additional Links to Consider:

- https://blog.anvileight.com/posts/simple-python-http-server/
- http://docs.python-requests.org/en/master/user/quickstart/
- https://www.junian.net/python-http-server-client/
- https://daanlenaerts.com/blog/2015/06/03/create-a-simple-http-server-with-python-3/
- https://www.acmesystems.it/python_http
- https://stackoverflow.com/questions/15965646/posting-html-form-values-to-python-script

Recommended Media

Week 5: Python and SQL

Learning Outcomes

Develop database application.

Required Readings

Mueller, John P. (2014). ***Beginning Programming with Python For Dummies***.

Hoboken, NJ: John Wiley & Sons, Inc. ISBN 978-111-8891-452.

Assignments

Week 5 : Forum

Assignment:

Week 5 Assignment **Databases**

Recommended Optional Reading

Additional Links to Consider:

- https://blog.anvileight.com/posts/simple-python-http-server/
- http://docs.python-requests.org/en/master/user/quickstart/
- https://www.junian.net/python-http-server-client/
- https://daanlenaerts.com/blog/2015/06/03/create-a-simple-http-server-with-python-3/
- https://www.acmesystems.it/python_http

- https://stackoverflow.com/questions/15965646/posting-html-form-values-to-python-script

Recommended Media

Week 6: Debugging and Unit testing

Learning Outcomes

Apply testing and debugging in Python programming

Required Readings

Mueller, John P. (2014). ***Beginning Programming with Python For Dummies***.

Hoboken, NJ: John Wiley & Sons, Inc. ISBN 978-111-8891-452.

Assignments

Week 6: Forum

Assignment:

Week 6 Assignment Debugging and Unit Testing

Recommended Optional Reading

Additional Links to Consider:

https://blog.anvileight.com/posts/simple-python-http-server/
http://docs.python-requests.org/en/master/user/quickstart/
https://www.junian.net/python-http-server-client/
https://daanlenaerts.com/blog/2015/06/03/create-a-simple-http-server-with-python-3/
https://www.acmesystems.it/python_http
https://stackoverflow.com/questions/15965646/posting-html-form-values-to-python-script

Recommended Media

Week 7: Microservices and Multiprocessing

Learning Outcomes

Summarize the use of microservices and multiprocessing

Required Readings

Mueller, John P. (2014). ***Beginning Programming with Python For Dummies***.

Hoboken, NJ: John Wiley & Sons, Inc. ISBN 978-111-8891-452.

Assignments

Week 7 Forum

Assignment:

Week 7 Assignment **Microservices and Multiprocessing**

Recommended Optional Reading

Additional Links to Consider:

- https://blog.anvileight.com/posts/simple-python-http-server/
- http://docs.python-requests.org/en/master/user/quickstart/
- https://www.junian.net/python-http-server-client/
- https://daanlenaerts.com/blog/2015/06/03/create-a-simple-http-server-with-python-3/
- https://www.acmesystems.it/python_http
- https://stackoverflow.com/questions/15965646/posting-html-form-values-to-python-script

Recommended Media

Week 8: Scaling Python

Learning Outcomes

Explain the need for efficient and scalable Python programming

Required Readings

Mueller, John P. (2014). ***Beginning Programming with Python For Dummies***.

Hoboken, NJ: John Wiley & Sons, Inc. ISBN 978-111-8891-452.

Assignments

No forum this week

Assignment:

Week 8 Assignment Scaling Python

Recommended Optional Reading

Additional Links to Consider:

- https://blog.anvileight.com/posts/simple-python-http-server/
- http://docs.python-requests.org/en/master/user/quickstart/
- https://www.junian.net/python-http-server-client/
- https://daanlenaerts.com/blog/2015/06/03/create-a-simple-http-server-with-python-3/
- https://www.acmesystems.it/python_http
- https://stackoverflow.com/questions/15965646/posting-html-form-values-to-python-script

Recommended Media

Evaluation

Grading:

Name	Grade %
Forums	15.00 %
Week 1 Introduction	7.50 %
Week 7 Forum	7.50 %
Assignments	65.00 %
Week 1 : Installation	9.29 %

Week 2 : Data structures and Algorithms	9.29 %
Week 3 : Web Development	9.29 %
Week 4 : Template Programming	9.29 %
Week 5 : Database	9.29 %
Week 6 : Debugging and Unit Testing	9.29 %
Week 7 : Microservices and Multiprocessing	9.29 %
Final Project	20.00 %
Week 8 : Scalling Python	20.00 %

Materials

Book Title: Various resources from the APUS Library & the Open Web are used. Please visit http://apus.libguides.com/er.php to locate the course eReserve.

Author: No Author Specified

Publication Info:

ISBN: N/A

Download Python:

This video demonstrates how to download version 3.X or the latest version based on your operating system type.

Downloadable Video Transcript for Downloading Python.docx

You should download the Python programming language editor and compiler. To download Python, go to https://www.python.org/downloads/ (**Download version 3.x** or later view the video above).

You may use www.pythontutor.com to practice your codes. You will not be able to save from here but it is a great site for practicing your work.

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Mueller, John P. (2014). ***Beginning Programming with Python For Dummies***.

Hoboken, NJ: John Wiley & Sons, Inc. ISBN 978-111-8891-452.

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- http://docs.python-requests.org/en/master/user/quickstart/
- https://www.junian.net/python-http-server-client/
- https://daanlenaerts.com/blog/2015/06/03/create-a-simple-http-server-with-python-3/
- https://www.acmesystems.it/python_http
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Course Guidelines

An online course is not a self-paced course, but requires weekly interaction with the class and the instructor, per the

requirements of the syllabus and schedule. You can expect to spend as much time each week on an online course and its assignments as you would in a traditional classroom-based course and its assignments (approximately 8-12 hours per week). It is your responsibility to read the syllabus and other information provided by the instructor, and to follow the instructions contained therein. Feel free to ask questions when something is not clear. If you fail to submit an assignment on time, the instructor has the option of not accepting the late work, or accepting the late work with a downgrade penalty. If, for any reason, you feel you are at risk of falling behind in your work, (illness, accident, temporary duty, etc.) contact your instructor immediately. Your success is important to us!

The course is designed using weekly lessons. Each academic week has a lesson with corresponding content to support your learning. Our academic week starts on Monday and ends on Sunday; Assignments are due on the Sunday ending the academic week, unless otherwise noted. **If you are given an assignment in week 3, it will be due on Sunday of week 4.** Your submitted assignment, quiz, test, and forum are graded within five days after submission or five days from the submission due date.

Each week in addition to the Required Reading, additional resources may be provided to offer you background information or further understanding the terminology as well as the material for the week. Each week you will be expected to read the Required Reading and review the additional resources. Students are expected to remain current with their reading assignments in order to complete the Forums, assignments, and exams. Weekly reading assignments are included in this syllabus.

Library: Please take a moment to explore the Course Guide in the online library. Here you will find helpful information specifically for this field of study.

Websites: Feel free to explore other websites that may be helpful to getting your point across in the forums. However, please remember to properly cite each source per APA. See the section on Citation and Reference Style below.

Documents/Files: Download your files and required course content available in the classroom.

PowerPoints: When available, download PowerPoint Slides to support your learning.

Media: Explore available video files on YouTube to support your learning.

Resources: Explore additional resources to extend and expand your learning.

Please join the forums each week. Students must post a reply to weekly forums and reply to at least 2 other students for each Forum. Replies must be posted in the week due to receive full credit. The Forums are for student interaction and input should be submitted before the week ends in order to fully participate in the discussions. Students should demonstrate their own knowledge in the forums and avoid copying and pasting from websites.

Guidelines:

- Post the initial response to each forum by 11:55 pm, ET, Thursday, except for the first week, which will be due by 11:55 pm, ET, Sunday.
- Initial responses should be substantive.
- Initial responses are to be original in content and demonstrate a thorough analysis of the topic.
- Reply to at least 2 of your classmates in each forum by 11:55 pm, ET, Sunday.
- Replies to classmates should be substantive.
- Responses to classmates are significant to advance the forum.
- All forums can be accessed in the Forums section of the course.

Weekly assignments are included in Announcements, Lessons, and syllabus. Review and complete your assignments by Sunday of each week.

There will be no test or quiz in this class!

All work should be submitted using the APA writing format, which includes in-text documentation and a Works Cited page. No exceptions. Review the APA format See the Online Library link or the Purdue Online Writing Lab: http://owl.english.purdue.edu/owl/resource/560/01/

Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. As adults, students, and working professionals, I understand you must

manage competing demands on your time. If you find that you need additional time to complete an assignment, please contact me before the due date so we can discuss the situation and determine an acceptable resolution. Routine submission of late assignments is unacceptable and may result in points deducted from your final course grade.
Students are encouraged to email dsa@apus.edu to discuss potential academic accommodations and begin the review process.

Grade Instruments	Points
Forums	15
Assignments	65
Final Project	20
Total	100

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.