Washtenaw Community College Comprehensive Report

CPS 141 Introduction to Programming Using Python
Effective Term: Spring/Summer 2019

Course Cover
Division: Business and Computer Technologies
Department: Computer Instruction
 Discipline: Computer Science
 Course Number: 141
 Org Number: 13400
 Full Course Title: Introduction to Programming Using Python
 Transcript Title: Intro Programming Using Python
 Is Consultation with other department(s) required: No
 Publish in the Following:
 Reason for Submission: Course Change
 Change Information:
 Consultation with all departments affected by this course is required.
 Outcomes/Assessment
 Objectives/Evaluation
 Rationale: Full course approval
 Proposed Start Semester: Winter 2019
 Course Description: In this course, students are introduced to programming using Python. Topics include applications in informatics, accessing data on the Internet and human-computer interactions.

Course Credit Hours
 Variable hours: No
 Credits: 4
 Lecture Hours: Instructor: 60 Student: 60
 Lab: Instructor: 0 Student: 0
 Clinical: Instructor: 0 Student: 0

Total Contact Hours: Instructor: 60 Student: 60
Repeatable for Credit: NO
Grading Methods: Letter Grades
Audit
Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing
College-level Reading & Writing

College-Level Math
Level 3

Requisites
Level II Prerequisite
Basic skills using computers including, but not limited to, using a web browser; creating, saving, and finding files on a computer.

General Education
Request Course Transfer

Proposed For:
University of Michigan

Student Learning Outcomes

1. Identify and use simple programming control structures including selection and iteration.
   
   **Assessment 1**
   
   Assessment Tool: Departmentally-developed final exam
   Assessment Date: Winter 2020
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: At least 70% of students must score 75% or higher
   Who will score and analyze the data: Department faculty and external sources (if available)

2. Identify and use intrinsic data structures and objects using custom classes.

   **Assessment 1**
   
   Assessment Tool: Departmentally-developed final exam
   Assessment Date: Winter 2020
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: At least 70% of students must score 75% or higher
   Who will score and analyze the data: Department faculty and external sources (if available)

3. Identify the appropriate use of simple design patterns in programming.

   **Assessment 1**
   
   Assessment Tool: Departmentally-developed final exam
   Assessment Date: Winter 2020
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: At least 70% of students must score 75% or higher
   Who will score and analyze the data: Department faculty and external sources (if available)

4. Use built-in and library functions and write basic functions.

   **Assessment 1**
   
   Assessment Tool: Departmentally-developed final exam
   Assessment Date: Winter 2020
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: At least 70% of students must score 75% or higher
   Who will score and analyze the data: Department faculty and external sources (if available)
5. Derive meaning from economic, climatic, medical, and other types of data sets that impact society.

**Assessment 1**
Assessment Tool: Project portfolio including source code, reports and charts  
Assessment Date: Winter 2020  
Assessment Cycle: Every Three Years  
Course section(s)/other population: All sections  
Number students to be assessed: All students  
How the assessment will be scored: Departmentally-developed rubric  
Standard of success to be used for this assessment: 70% of students will score 75% or higher  
Who will score and analyze the data: Departmental faculty

**Course Objectives**
1. Write basic programs using the FOR or WHILE statement with different object sets.  
2. Write programs that use the various forms of the IF statement.  
3. Write programs that use strings and string functions.  
4. Write programs that use lists and list functions.  
5. Write programs that use dictionaries and dictionary functions.  
6. Develop a class and use the derived objects in a basic program.  
7. Write programs that accumulate and count.  
8. Use list comprehensions, MAP, FILTER, and REDUCE to process lists and dictionaries.  
10. Write and use functions in basic programs.  
11. Develop basic programs that access web services using REST APIs.  
12. Parse JSON data returned from a web service.  
13. Write programs that produce basic statistics.  
14. Write programs that visualize information in a manner supportive of human perceptual strengths.  
15. Use python libraries to process and visualize data.

**New Resources for Course**
None.

**Course Textbooks/Resources**
Textbooks  
Manuals  
Periodicals  
Software

**Equipment/Facilities**
Level III classroom  
Computer workstations/lab  
Data projector/computer

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<thead>
<tr>
<th>Reviewer</th>
<th>Action</th>
<th>Date</th>
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<tbody>
<tr>
<td>Faculty Preparer:</td>
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<tr>
<td>Michael Galea</td>
<td>Faculty Preparer</td>
<td>Sep 11, 2018</td>
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<td>Department Chair/Area Director:</td>
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<tr>
<td>Philip Geyer</td>
<td>Recommend Approval</td>
<td>Sep 12, 2018</td>
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<td>Dean:</td>
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<tr>
<td>Eva Samulski</td>
<td>Recommend Approval</td>
<td>Sep 13, 2018</td>
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<td>Curriculum Committee Chair:</td>
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<tr>
<td>Lisa Veasey</td>
<td>Recommend Approval</td>
<td>Oct 18, 2018</td>
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Assessment Committee Chair:

Shawn Deron  Recommend Approval  Oct 22, 2018

Vice President for Instruction:

Kimberly Hurns  Approve  Nov 02, 2018