Virginia Western Community College
ITP100
Software Design

Prerequisites
none

Course Description
Introduces principles and practices of software development. Includes instruction in critical thinking, problem solving skills, and essential programming logic in structured and object-oriented design using contemporary tools.

Semester Credits: 3   Lecture Hours: 0   Lab/Clinical/Internship Hours: 0

Required Materials

Textbook:
No textbook required

Other Required Materials:
Python 3.x (downloadable from the web)

Course Outcomes

At the completion of this course, the student should be able to:

- Write an algorithm to solve a programming problem given as a story problem.
- Using an algorithm draw basic flowcharts using the following symbols: start, stop/return, decision, process, and input/output.
- Analyze an algorithm and determine the input, output, and processing requirements.
- Determine the proper data type for each variable used within a program.
- Design sequential structures to control program flow.
- Design conditional structures to control program flow.
- Design repetitive structures to control program flow or calculate summary data.
- Utilize lists for data storage within a program.
- Consider usability when designing user interaction.
- Use file input and output within a program
- Distinguish between object-oriented and procedural design

Topical Description

Week 1	Intro, installing Python / Idle
Week 2	Chapter 1 - Intro to Computers, programs, Python and flow charts
Week 3	Chapter 2 – Variables, expressions, and statements
Week 4	Chapter 3 –Boolean expressions, logical operators
Week 5	Chapter 3 - Conditional execution
Week 6	Chapter 4 - Functions
Week 7	Chapter 4 - Functions
Week 8	Midterm and Chapter 5 - Iteration
Week 9	Chapter 5 - Iteration
Week 10	Chapter 6 - Strings
Week 11	Chapter 6 - Strings
Week 12	Chapter 7 - Files
Week 13	Chapter 8 - Lists
Week 14	Chapter 8 - Lists
Week 14	Chapter 8 and Review

Notes to Instructors

- Final exam part I is same for all sections. Part II is at the discretion of the instructor.