

KOCW Content Development

Application

1. Outline

가. Name of a Class

Class Name	Python Programming		
Semester	Second semester of 2023	Division	Major (Y) Liberal Art ()

나. Goal of a Class

(1) Goal of a Class : To provide comprehensive and indepth knowledge of Python programs. Understand the fundamental elements of python programming, object-oriented programming concepts, terminology, and syntax, and the steps required to create basic python programs. Identify business application that needs design and program based on presenting data charts using matplotlib – a package used with python.

(2) Introduction : Python is a high-level, general-purpose programming language. Its design philosophy emphasizes code readability with the use of significant indentation. Python is dynamically typed and garbage-collected. It supports multiple programming paradigms, including structured, object-oriented and functional programming. The aim of Python programs are to apply computer algorithms which are related to human knowledge, for example, logical reasoning, learning by experience, and problem-solving.

2. Weekly Plan

Week	Content(Topic)	Learning Objective	How to Operate		
			Methodology	Material	Reference
1	Introduction to Programming	Introduction Basics of Programming and history	online / Video	PPT	
2	Basic Python	About the Python Program and Data types. Identifiers, Strings and Keywords.	Online / Video	PPT	
3	Flow Control	Branching and Looping constructs. If Else, Elif conditions.	Online/ Video	PPT	
4	Flow Control II	While Loop and For Loop, Example programs	Online /Video	PPT	
5	Lists and Dictionaries	List Index, Slice Operations, Key value pairs in dictionaries.	Online /Video	PPT	
6	Tuple	Tuple index and slice. Associated functions for Tuples.	Online /Video	PPT	
7	Functions	Usage of Def keyword, Nested functions, Anonymous functions.	Online/ Video	PPT	
8	Numpy	Data science libraries, arrange, full functions,	Online /Video	PPT	
9	Matplotlib	Visualization of data points, Built in functions in python	Online/ Video	PPT	
10	Strings, Regular Expressions	String functions for manipulation of texts, Regular expressions for processing numbers and letters.	Online /Video	PPT	

※ You can freely complete the content sections based on the feature of the class.

3. How are you going to use your class?

For a credit class (Y), For a non-credit class (), For a public view (Y)

4. Expected Outcome:

- Describe the basics of the Python programming language
- Install Python and create user applications
- Use variables to store, retrieve and calculate information
- Utilize core programming tools such as functions and loops
- Create simple projects such as face recognition, object recognition.
- Apply machine learning algorithms for applications etc.