
# *Programming Languages*

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Computer Science and Engineering
Sejong University

# Self-Introduction

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**Education**

- Post Doctoral, Computer Engineering, Kyung Hee University
- PhD in Electronics and Radio Engineering, Kyung Hee University

- **Teaching:**
  - Undergraduate: DM, PS, DB, AI
  - Graduate: Machine Learning, Deep Learning
- **Research:**
  - Machine Learning,
  - Data Science,
  - Mobile and Wireless Communication; 5G/6G,
  - Internet of Things (IoT),
  - Security.

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# Self-Introduction

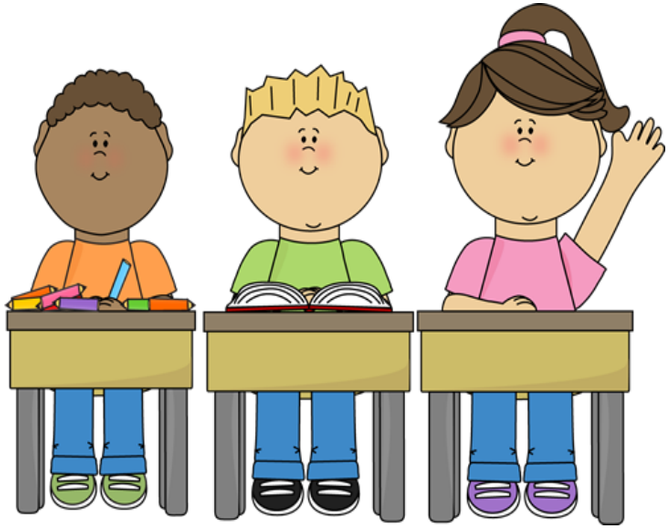
- IEEE Senior Member,
- ACM Member,
- Asst. Professor, Dept. of Computer Sci. and Eng.
- Sejong University, Seoul, South Korea
- Editor of IEEE Transactions on Intelligent Transportation Systems
- Editor of Engineering Applications of Artificial Intelligence
- Editor of Physical Communications
- Editor of Computer Communications
- Technical Committee Member of IEEE Consumer Technology Society
- Secretary of the IEEE Consumer Technology Society on Machine learning, Deep learning and AI.

# Introduction

- Please answer the following questions.

1. What is your name?
2. Why did you select Concept of Programming Languages course?
3. What is your favorite course among CSE courses?
4. What is your future plan; e.g., engineering or research?
5. What programming language do you know?
6. How experienced are you in Python programming?

Zero Weak Moderate Strong



# Teaching Vision

- Teaching is an opportunity to **interact** with young and bright students.

- It is a privilege to **take part** in the initial stage of students' journey.

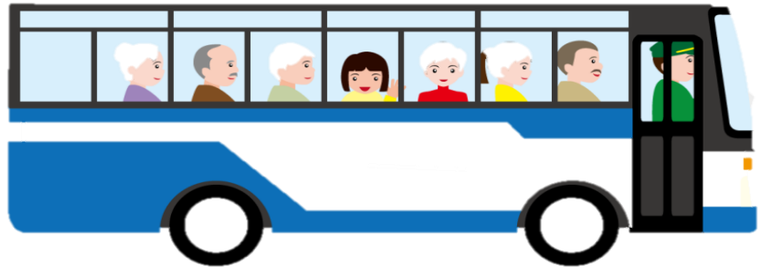
- It is a platform for **improving** my own skills in terms of expressing myself and great source of research ideas.

*"A teacher who is attempting to teach without inspiring the pupil with a desire to learn is hammering on cold iron"*

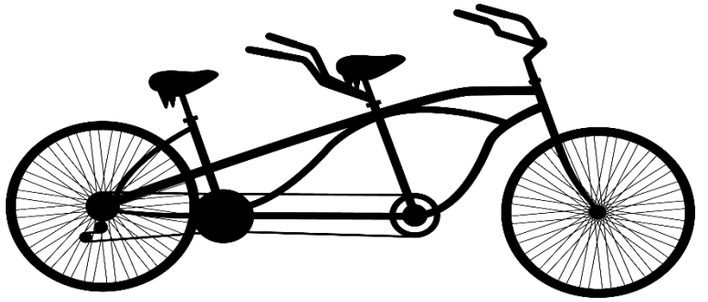
*- Horace Mann*

# Teaching Philosophy

- Teaching is **not** an information transferring process.
- A class is a place where students are free to **try and fail**.
- Students are free to "**re-invent a wheel**".
- **Skill-set** Development
  - Help to create critical thinker.
  - Interactive lectures are the main goal.
  - Inquiry-based classes are to make theory become alive.

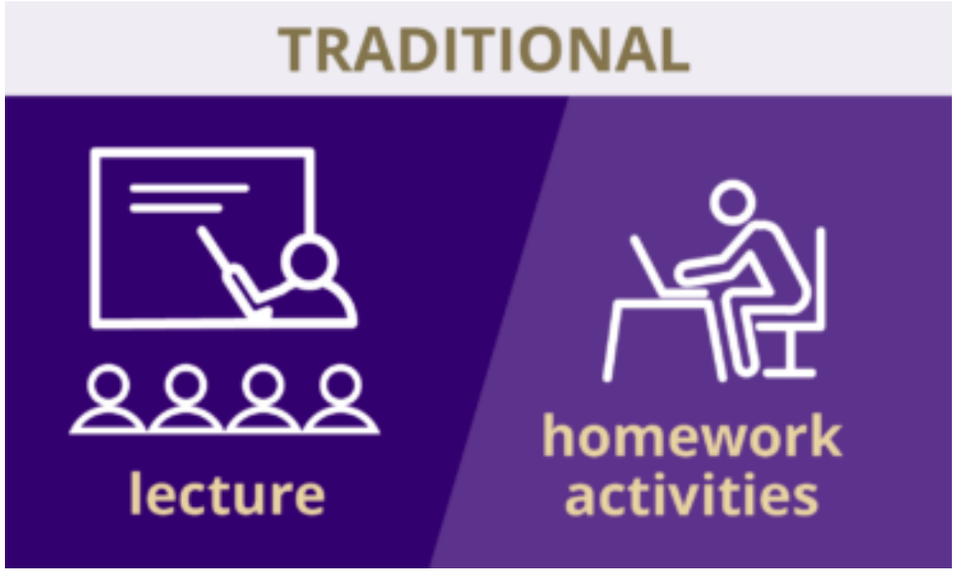


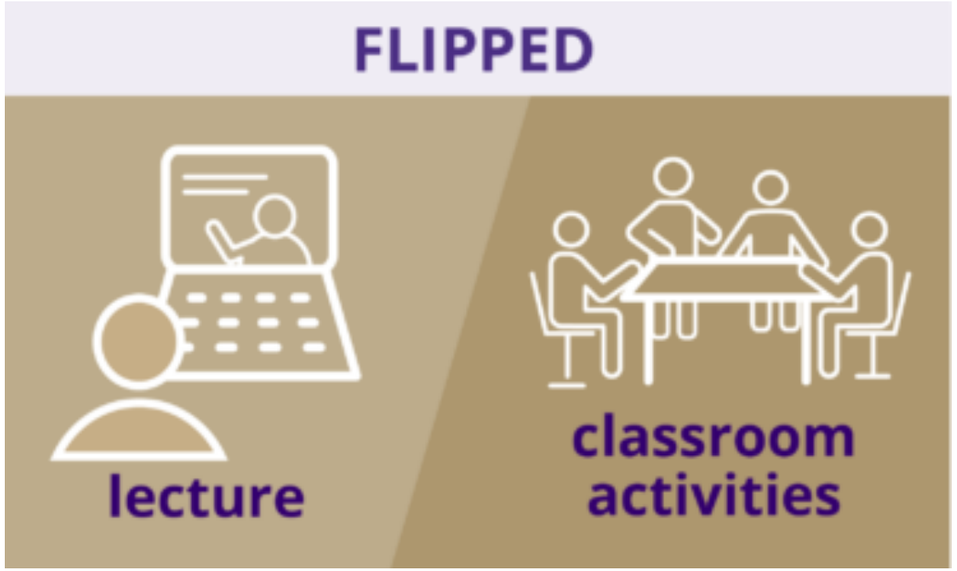
- Towards **Globalization**
  - As an interface between students and world
    (help to improve English, engineering, research, …)



- **Interactive abilities**
  - Soft-skills, motivation, psychological aspects

# Flipped Learning




- Benefits:
  - Flexibility
  - Active Learning
  - Personalized Learning
  - Improved Learning Outcome
  - Increased Engagement
  - Enhanced Technology Skills

# Objectives

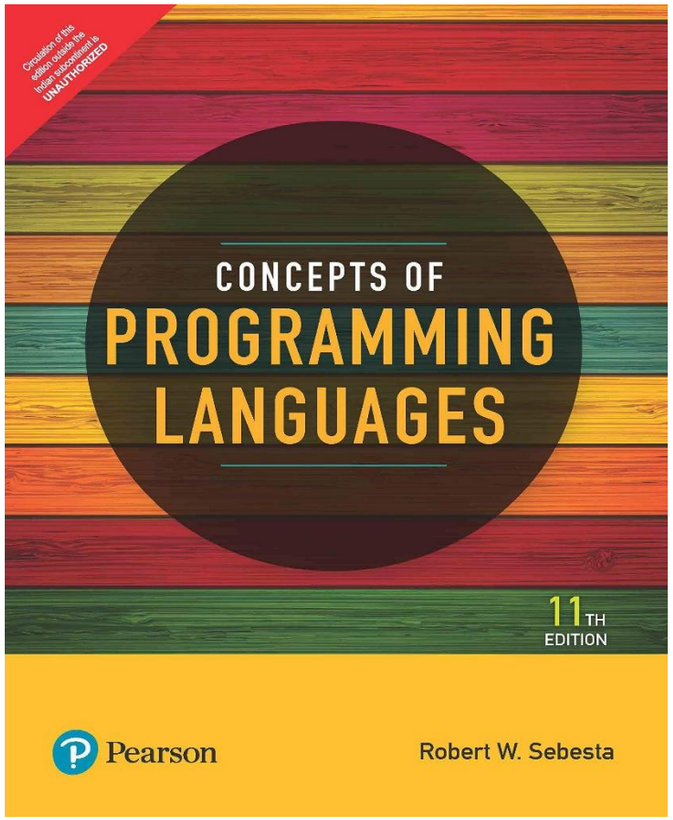
- The necessity of using high-level programming languages,
- Application of programming to real world situations.
- Learn new programming languages (or related techniques used in the programming context) faster, and make more informed decisions about what to use when.
- Focus on Python programming language.

# Outcome

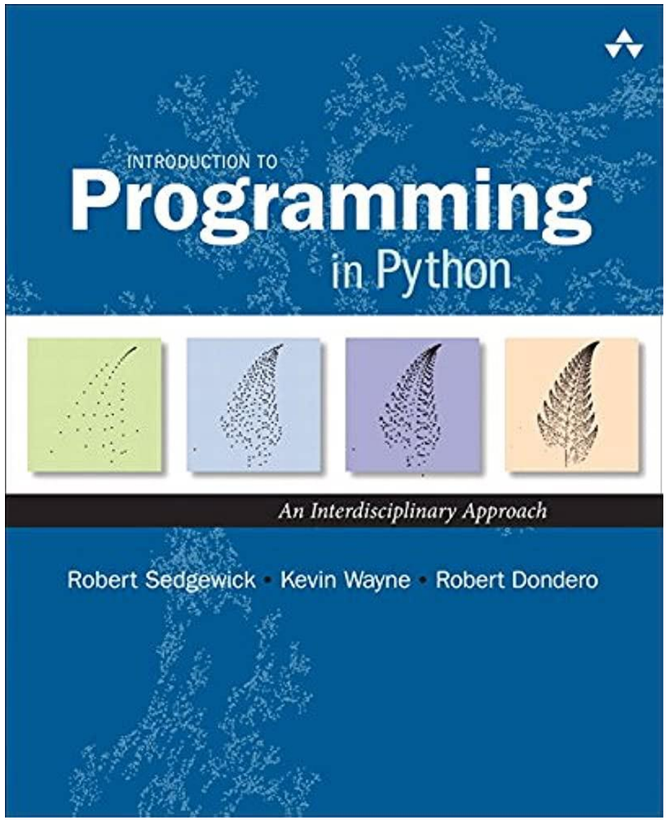
- On successful completion of the course students will know:
  - A basic understanding of programming languages
  - A practical understanding of advanced imperative and object-oriented programming features (such as class hierarchies and abstract data types).
  - An understanding of basic functional programming concepts (such as algebraic data types and recursion)
  - Understanding of operational and denotational programming language semantics (necessary for advanced courses in program correctness and computational models)
  - An advanced course in type theory requires practical experience implementing the (simply typed) lambda calculus, type checking, and type inference.
  - An understanding of distributed and concurrent programming (needed for an advanced course in concurrency and computer networks)
  - Knowledge of automated and interactive theorem proving (needed for an advanced course in logical verification)

# References


R. Sebesta, “Concepts of Programming Languages,” Pearson.




R. Sedgwick, K. Wayne, R. Dondero, “Introduction to Programming in Python, An Interdisciplinary Approach”.



# Contents

- Introduction to the Course
- Introduction to Programming Languages
- Basics of Python
- Program Flow
- Functions and Modules
- Exception Handling
- File Handling
- Object Oriented Programming (OOP)
- Generators and Iterators
- Data Structures
- Collections
- GUIs
- TensorFlow
- Numpy, Panda, Scipy

# Grading

- Attendance 10%
- Homework and quiz 30%
- Mid-term exam 30%
- Final exam 30%



**Assignment**

- Python Coding
- Final Project

# Attendance Policy

- **Attendance**: 10 marks
- Based on the university regulations:
  - One session absent = -2
  - One session late = -1
  - 6 sessions absent = “F”

- My **incentive** for “active students”:
  - If only one session absent = 10
  - If only one session late = 10
  - If no absent at all = 10 + 5 incentive

# Better to do…

- Watch all **video lectures** and read and use lectures notes.
- Do the **coursework** well: Straightforward, schedule smartly.
- The exams will be online and **multiple-choice questions** (MCQs).
- For any **interaction** there will be extra marks.

# Better to do…

- There will good mark for students who **helps** the others.
- In any case, if you don’t understand please ask, there is good marks for **question**.
- Anyone who **present** something related to the subject will have extra marks.

# E-mail Format

**To**: piran@sejong.ac.kr

**Subject**: *P23_STID_Asgmt<no> / <query subject>*

- e.g., **P23_2018133_Asgmt#1 / Attendance**

*Dear Professor*

*I am writing regarding …*

*…*

*Best Regards*

**Attachment**: *P23_STID_Asgmt<no>*

- e.g., **P23-2018133-Asgmt#1.zip**

# Lecture Materials

- Fair use: A statute under copyright law that allows for the use of **limited portions** of a work that has copyright ***without*** having to have permission from the original author.
- Defined under the Copyright protection provided by the laws of the United States (title 17, U.S. code).
- Created for the purposes of **education** and **research**.

**Note**) most of resources are free for the "**Educational Purposes**!"

# Contact me…

- Always welcome to contact me any time!
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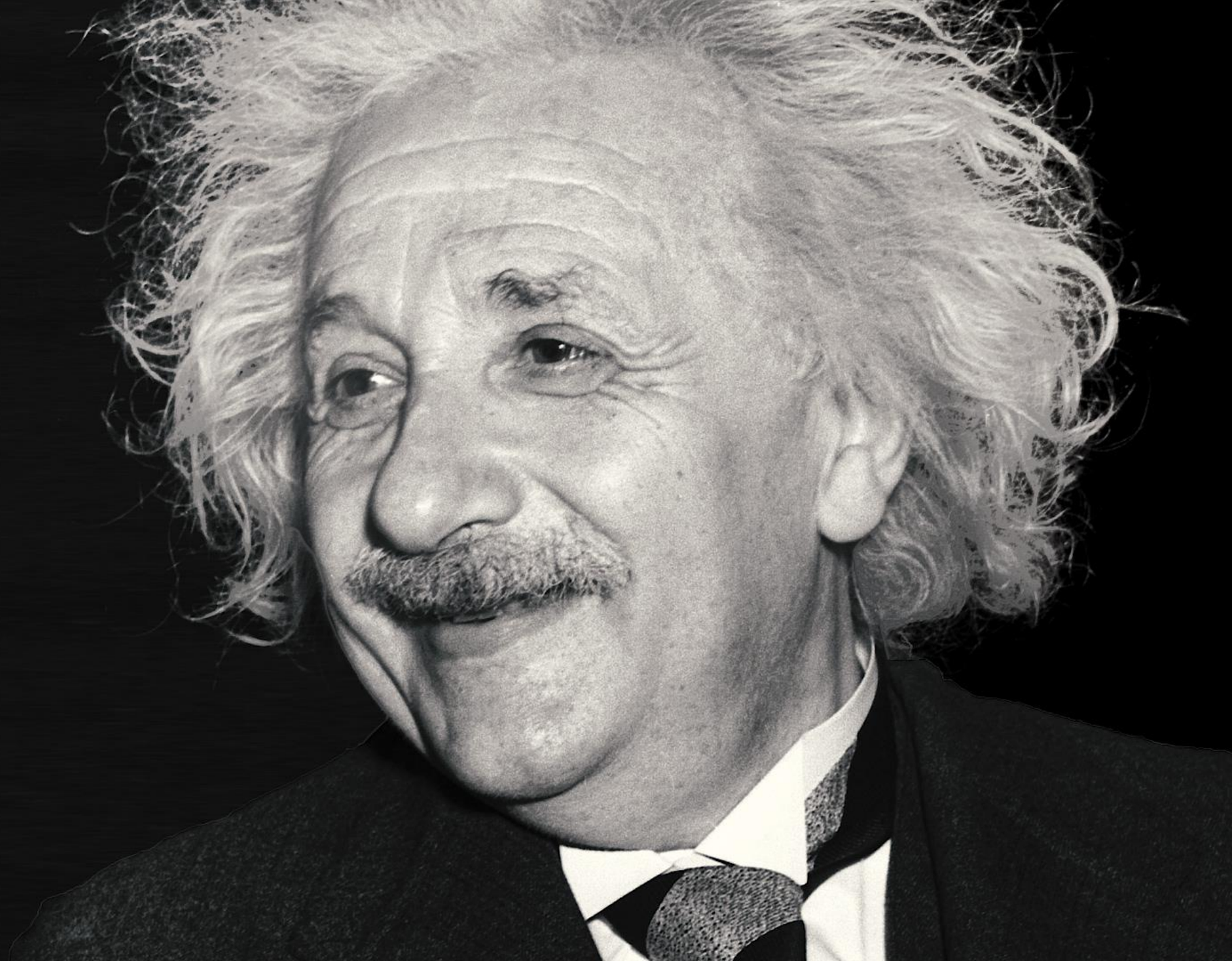
*“I never teach my pupils, I only attempt to provide the conditions in which they can learn.”*

*-Albert Einstein*

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