

INTRODUCTION TO COMPUTER PROGRAMMING - SYLLABUS

COURSE DESCRIPTION

This course is an introduction to computer programming in Python. Although primarily a programming course, it also explores the basics of algorithmic problem solving by computer, software engineering methodology, data structures, and the use of Application Programmer Interfaces (APIs).

RECOMMENDED BOOK

Lutz, M.. Learning Python. 5th Edition. O'Reilly. 2013. ISBN-13: 978-1449355739. ISBN-10: 1449355730.

ASSESSMENT

Homework and Participation, Daily	10%
Quizzes, Weekly	15%
Programming Assignments, Weekly	25%
Term project (2-3 person teams)	20%
Exams	30% (15%, each)

TENTATIVE OUTLINE

Week 1

Introduction, Overview, "Hello World" in Python

Python Basics

If, Elif, Else, While, Break, Continue

Functions, arguments, call stack, recursion

Lambdas, Formatting Strings, Exceptions

Week 2

Lists, List Comprehensions

Command-line arguments, tuples, sets, dictionaries

File I/O, String methods, Nested Collections, Inverted-List example

Exam 1

Generators, Co-routines, Pipelines thereof

Week 3

Decorators

Pickling

Tkinter

Recursion, Flood-fill and Backtracking

Memoization, Dynamic Programming

Week 4

Python and Databases

Python and Network Programming

OO Python 1

OO Python 2

Exam 2

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