Course: AIST1110  
Course ID: 013180  
Eff Date: 2024-07-01  
Crse Status: Active  
Apprv. Status: Approved  

Introduction to Computing using Python 計算導論(Python)

This course aims to provide an intensive hands-on introduction to the Python programming language. Topics include Python programming language syntax, basic data types, operators for various data types, function definition and usage, file and operating system support, object-oriented programming, functional programming, module creation, visualization, multi-threaded programming, networking, cryptography, web/database access. The course will go through some important Python packages for artificial intelligence and machine learning applications, e.g., NumPy and SciPy, and use these packages to accomplish some simple artificial intelligence and machine learning tasks.

Grade Descriptor:

A
EXCELLENT – exceptionally good performance and far exceeding expectation in all or most of the course learning outcomes; demonstration of superior understanding of the subject matter, the ability to analyze problems and apply extensive knowledge, and skillful use of concepts and materials to derive proper solutions.

B
GOOD – good performance in all course learning outcomes and exceeding expectation in some of them; demonstration of good understanding of the subject matter and the ability to use proper concepts and materials to solve most of the problems encountered.

C
FAIR – adequate performance and meeting expectation in all course learning outcomes; demonstration of adequate understanding of the subject matter and the ability to solve simple problems.
D
MARGINAL – performance barely meets the expectation in the essential course learning outcomes; demonstration of partial understanding of the subject matter and the ability to solve simple problems.

F
FAILURE – performance does not meet the expectation in the essential course learning outcomes; demonstration of serious deficiencies and the need to retake the course.

Equivalent Offering:
Units: 3 (Min) / 3 (Max) / 3 (Acad Progress)
Grading Basis: Graded
Repeat for Credit: N
Multiple Enroll: N
Course Attributes:

COURSE OUTCOMES
Learning Outcomes:
At the end of the course of studies, students will have acquired the ability to
1. write, compile and execute Python programs;
2. make use of Python's object-oriented programming methodology;
3. make use of Python's functional programming methodology;
4. design and create applications using Python modules;
5. include other programming languages (e.g., C programming language) into Python;
6. use Python for database and web access;
7. use Python for 2D and 3D visualization.

Course Syllabus:

This course aims to provide an intensive hands-on introduction to the Python programming language. Topics include Python programming language syntax, basic data types, operators for various data types, function definition and usage, file and operating system support, object-oriented programming, functional programming, module creation, visualization, multi-threaded programming, networking, cryptography, web/database access. The course will go through some important Python packages for artificial intelligence and machine learning applications, e.g., NumPy and SciPy, and use these packages to accomplish some simple artificial intelligence and machine learning tasks.

Assessment Type:

| Essay test or exam | : 60% |
| Lab reports | : 40% |

Feedback for Evaluation:

1. Quiz and examinations
2. Course evaluation and questionnaire
3. Question-and-answer sessions during class
4. Student consultation during office hours or online

Required Readings:

1. Exploring Python by Timothy A. Budd
2. Think Python: How to Think Like a Computer Scientist, by Allen B. Downey
3. Python for Informatics: Exploring Information, by Chuck Severance
4. Artificial Intelligence: Foundations of Computational Agents, by David Poole, Alan Mackworth

Recommended Readings:
ENROLMENT REQUIREMENTS

1. AIST1110

   Enrollment Requirement Group:
   Pre-requisite: ENGG1110 or ESTR1002
   Not for students who have taken CSCI1040 or CSCI1120 or CSCI1130 or CSCI1510 or CSCI1520 or CSCI1530 or CSCI1540 or CSCI1550 or CSCI2040 or ESTR1100 or ESTR1102

   New Enrollment Requirement(s):
   Pre-requisite = no change
   Exclusion = Change from "CSCI1040 or CSCI1110 or CSCI1120 or CSCI1130 or CSCI1510 or CSCI1520 or CSCI1530 or CSCI1540 or CSCI2040 or ESTR1100 or ESTR1102" to "CSCI1040 or CSCI1120 or CSCI1130 or CSCI1510 or CSCI1520 or CSCI1530 or CSCI1540 or CSCI1550 or CSCI2040 or ESTR1100 or ESTR1102"

Additional Information

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