THE CHINESE UNIVERSITY OF HONG KONG
Print Course Catalog Details

Academic Org: Dept of Computer Sci & Engg – Subject: AI: Systems & Tech

Course: AIST3020 **Course ID:** 013198 **Eff Date:** 2022-07-01 **Crse Status: Active** **Apprv. Status:** Approved **[**Course Rev**]**

Introduction to Computer Systems **計算機系統導論**

This course aims to provide students the basic knowledge of computer systems through the study of computer organization, assembly language and C programming. The course will mainly have two parts: (1) the structure of a computer that includes topics like data representations, digital logic structures, the Von Neumann model, assembly language, I/O, traps, subroutines and the stack; (2) system programming with C that includes topics like functions, pointers and arrays, file operations, dynamic memory management and data structures.

本科著重通過學習計算器系統組成原理、組合語言和 C 語言系統程式設計，使學生掌握計算器系統的基本知識。本科主要包括二方面的內容：（1）計算器系統結構：包括資料表示、數位邏輯結構、馮·紐曼模型、組合語言基礎、輸入輸出系統、陷阱、過程及棧；（2）基於C 語言的系統程式設計：包括函數、指標及陣列、檔操作、動態記憶體管理及資料結構。

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.

有關等級說明的資料，請參閱英文版本。

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.

有關等級說明的資料，請參閱英文版本。

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.

有關等級說明的資料，請參閱英文版本。

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.

有關等級說明的資料，請參閱英文版本。

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.

有關等級說明的資料，請參閱英文版本。

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

Topics:

COURSE OUTCOMES

Learning Outcomes:

At the end of the course of studies, students will have acquired the ability to
1. understand the underlying structure of a computer, the functions of its components, and the Von Neumann model;
2. write simple assembly programs and understand how assembly programs works;
3. develop system-level software with C.

Course Syllabus:

This course aims to provide students the basic knowledge of computer systems through the study of computer organization, assembly language and C programming. The course will mainly have two parts: (1) the structure of a computer that includes topics like data representations, digital logic structures, the Von Neumann model, assembly language, I/O, traps, subroutines and the stack; (2) system programming with C that includes topics like functions, pointers and arrays, file operations, dynamic memory management and data structures.

Assessment Type:

Essay test or exam	: 40%

Homework or assignment	: 40%
Lab reports	: 10%
Others	: 10%

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. Introduction to Computing Systems: From Bits and Gates to C and Beyond, Yale Patt and Sanjay Patel
2. Computer systems: a programmer's perspective, Randal E. Bryant, David R. O'Hallaron

Recommended Readings:

OFFERINGS

1. AIST3020 — Acad Organization=CSD; Acad Career=UG

COMPONENTS

LAB : Size=50; Final Exam=N; Contact=1
LEC : Size=50; Final Exam=Y; Contact=3

ENROLMENT REQUIREMENTS

1. AIST3020

Enrollment Requirement Group:
Not for students who have taken CSCI3150 or ESTR3102
Prerequisite: (ENGG1110 or ESTR1002) AND (ENGG2440 or ESTR2004)

New Enrollment Requirement(s):
Pre-requisite = no change
Exclusion = no change

CAF

eLearning hrs for blended cls 0
No. of micro-modules 0
Research components (UG) 0%

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