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THE CHINESE UNIVERSITY OF HONG KONG
Print Course Catalog Details

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 Academic Org: Div of Computer Science & Engg – Subject: Computer Engineering

Course: CENG5270   **Course ID:** 001794   **Eff Date:** 2022-07-01   **Crse Status: Active**   **Apprv. Status:** Approved   【Course Rev】

EDA for Physical Design of Digital Systems 數字系統的輔助設計

This course aims to present the fundamental concepts and algorithms applied in Design Automation (CAD) of VLSI circuits. The scope will include various areas in Physical Design of digital systems, including circuit partitioning, FPGA technology mapping, floorplanning, placement, routing, compaction and interconnect optimization.

本科旨在講解應用在超大規模集成電路(VLSI)的自動化輔助設計(CAD)基本概念及算法，內容將涉及數字系統物理設計的諸多領域，包括電路劃分、現場可編程門陣列(FPGA)技術映照、電路板規劃、佈局、佈綫、精簡和互連優化。

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.

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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: MSc Computer Science
                         MPhil-PhD Computer Sci & Erg

Topics:

COURSE OUTCOMES

Learning Outcomes:

At the end of the course of studies, students will have acquired the ability to understand the concepts, previous research and future trends of:
1. floorplanning and placement
2. circuit partitioning
3. routing
4. technology mapping

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5. interconnect optimization
6. design for manufacturability

Course Syllabus:

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Assessment Type:

Essay test or exam	:	15%
Others	:	45%
Presentation	:	40%

Feedback for Evaluation:

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

Required Readings:

To be provided by course teacher.

Recommended Readings:

1. Algorithms for VLSI Physical Design Automation, 3rd edition. Nareed Sherwani. Kluwer Academic Publishers, 1999.

OFFERINGS

1. CENG5270   Acad Organization=CSEGV; Acad Career=RPG

COMPONENTS

LEC : Size=30; Final Exam=Y; Contact=3
TUT : Size=30; Final Exam=N; Contact=1

ENROLMENT REQUIREMENTS

1. CENG5270   **Enrollment Requirement Group:**
For students in MSc Computer Science; or MPhil-PhD Computer Science & Engineering; or For undergraduate students in Computer Science (CSCIU & CSCIN) or Computer Engineering;(CENGU & CENGN)
Prerequisite: CSCI2100 or ENGG2020 or ESTR2102 or ESTR2104

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