THE CHINESE UNIVERSITY OF HONG KONG
Print Course Catalog Details

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

Course: CSCI5210 **Course ID:** 002625 **Eff Date:** 2022-07-01 **Crse Status: Active** **Apprv. Status:** Approved **[**Course Rev**]**

Advanced Computer Graphics and Visualization **高級計算機圖形學及可視化**

This course provide in-depth treatment of the following advanced computer graphics and visualization topics: radiosity rendering and global illumination, procedure texturing and modeling, image-based rendering, stereo imaging, real-time volume graphics and interactive visualization.
Advisory: Students are expected to have taken CSCI3260 or its equivalent.

本科提供一個關於電腦圖形學及視覺化之較深入論述。專題包括：輻射度運算、基於物理模型的光照系統、程式紋理設計及造型、基於圖像渲染、立體成像、即時體圖像繪製及交互視覺化。
建議：學生應曾修讀CSCI3260或同等學歷。

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: MSc Computer Science
MPhil-PhD Computer Sci & Erg

Topics:

COURSE OUTCOMES

Learning Outcomes:

At the end of this course, students will have acquired the ability to
1. design, implement and evaluate customized graphics and visualization applications.
2. process and analyze data for scientific visualization applications.
3. carry out research in global illumination, image-based rendering and modeling.
4. carry out research in GPU-based volume visualization and large data visualization.

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Course Syllabus:

This course provide in-depth treatment of the following advanced computer graphics and visualization topics: radiosity rendering and global illumination, procedure texturing and modeling, image- based rendering, stereo imaging, real-time volume graphics and interactive visualization.

Assessment Type: Others : 100%

Feedback for Evaluation:

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

Required Readings:

To be provided by course teacher.

Recommended Readings:

1. Radiosity and Global Illumination, By Francois X. Sillion and Claude Puech, Morgan Kaufmann, 1994.
2. Realistic Ray Tracing, By Peter Shirley, A K Peters, 2000.

OFFERINGS

1. CSCI5210 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. CSCI5210 **Enrollment Requirement Group:**
   For students in MSc Computer Science; or
   For students in MPhil-PhD Computer Science & Engineering; or
   For students in UG Computer Science; or
   For students in UG Computer Engineering

CAF

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