Basic Course Information CS 5100

Course Title: Computer-assisted instruction

Units: 3

C/S Classification #: C-2

Component (select one): Lecture

Instructional Mode (select all appropriate choices): Face-to-Face and web-assisted

Grading Basis (select one): Graded only

Repeat Basis (select one): May be taken only once

Cross listed Course (if offered with another department):

Dual-listed Course (if offered as lower/upper division or undergraduate/graduate):

Major course/Service course/GE course (select all appropriate choices): Major course

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I Catalog Description

General techniques for designing computer systems to provide individualized instruction. Program structure, instruction layout, scoring systems and data organization methods. Existing CAI packages and development of new packages. Hardware requirements for audio-visual effects.

II Required Coursework and Background

Pre-requisite(s): CS 4200 or consent of instructor

III Expected Outcomes

On successful completion of this course, students will be able to:

1 Gain general concepts of individualized instruction and cognitive science

2 Investigate instructional model building techniques

3 Learn system components necessary for creating CAI courseware

4 Build a simplified CAI authoring language

Outcomes of this course will build student capacity in each of the following areas as defined by programmatic objectives for the computer science major.

P-SLO 4. A breadth of advanced knowledge and skills in applied areas of computer science.

IV Instructional Materials

Texts may vary with instructor and over time. Examples of possible texts include:

Computer Based Instruction, Alessi, S.M. and S.R. Trollip, 1988.

Instructional Software – Principles and Perspectifve for Design and Use, Walker, D.F. and R.D. Hess, 1984.

Artificial Intelligence and Instruction, Kearsley, G.P., 1987

V Minimum Student Material

Course textbooks

VI Minimum College Facilities

Computer, library, authoring language software, classroom with a projection system

VII Course Outline

CAI classifications

History

System components

Learning models

Psychology / cognitive science

Intrinsic motivation

Interaction / dialogue

Frame design / implementations

CAI modes

Dialogue / human factors

Evaluation

CAI paradigms

Tutoring / coaching systems

VIII Instructional Methods

Lecture

Problem-solving

Discussion

Project-based learning

Programming projects

IX Evaluation of Outcomes

A. Student Assessment

i written homework

ii programming projects

iii midterm

iv final

B. Meaningful Writing Assignment

* Students shall produce written solutions or proofs or programs to problems that are assigned as homework and/or programming projects and explain their reasoning.
* Short answer essay questions on exams will require students to explain and justify their response in writing.

C. A Matrix of Course Student Learning Outcomes vs Methods of Assessment

If the course is being evaluated for accreditation purposes, approved department accreditation assessment tools will additionally be utilized.

|  |  |  |  |
| --- | --- | --- | --- |
| Course Learning Outcomes | Methods of Assessment | | |
| Written homework | Programming Projects | Exams |
| Gain general concepts of individualized instruction and cognitive science | x | x | x |
| Investigate instructional model building techniques | x | x | X |
| Learn system components necessary for creating CAI courseware | x | x | x |
| Build a simplified CAI authoring language | x | x | x |