

IAB / CISE curriculum discussion items

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We will be holding an informal discussion on the CISE curriculum during and after lunch (about 1 to 2pm, Friday, Oct. 26, 2001). Here are some items we'd like IAB feedback on, with details in the sections below and in the attachments.

1. draft of new Computer Engineering (CE) program objectives (based on IAB feedback)
2. College core for CE program
3. Digital Arts and Sciences program
4. Computer and Information Sciences (CIS) Program (College of Business).

1 Proposed Computer Engineering Objectives

New wording is marked **like this**.

The objective of the program leading to the degree of Bachelor of Science in Computer Engineering is to provide students with a strong theoretical and practical background in computer hardware and software, along with the engineering analysis, design, and implementation skills necessary to work between the two. A computer engineer is someone with the ability to design a complete computer system – from its circuits to its operating system to the algorithms that run on it. Although it is valid to look at software and hardware separately, a computer engineer must take a more holistic approach. If an electronic device is to be called a computer, it must produce mathematically meaningful results. Similarly, any useful theory of computing must be physically realizable. The synthesis of theory and algorithms which must take place before any useful computing can be achieved is the job of the computer engineer, and to produce such engineers is the mission of this program.

Here is the breakdown of the above stated objectives, along with a fifth objective regarding ethical, legal, and social issues:

A computer engineer will:

1. be adept at the fundamental theory and practice of computer science and electrical engineering, as it applies to computer hardware and software.

2. understand all the elements required to design a complete computer system (hardware and software).
3. understand the interaction between hardware and software.
4. have the analysis, design, and implementation **and communication** skills necessary to **identify, understand, and** solve problems using computer engineering principles and techniques.
5. understand the ethical, legal, and social issues in the computing discipline, and in engineering discipline in general.

Questions: any comments? changes? These will be considered for approval by the IAB later in the afternoon.

2 College Core for Computer Engineering Program

The new College-wide core has been relaxed, but we haven't taken advantage of the new changes yet. We can drop Chemistry 2, and change from:

- Take 2 of 3: thermodynamics, statics/dynamics, materials.

to

- Take 1 of 6: thermodynamics, statics/dynamics, materials, engineering economy, environmental/biological engineering.

Questions: Do they need engineering breadth (and so should the core be kept)? Or can we reduce the core? (the freed up credits could be used as technical electives).

3 Digital Arts and Sciences Program

Topics and current issues in this program will be discussed.

Background: The BS DAS student has a background in core computer science (similar to CE and CS degrees), but with a strong focus in media (2D,3D,sound,virtual reality).

Goal: To help us better advise our DAS students, can you answer the following questions:

1. What areas within your company might employ a Digital Arts and Science (DAS) student graduating with a BS in DAS?
2. What is approximate pay range for students graduating with a BS DAS degree if you answered positively to question 1?
3. Would you employ a DAS student for an internship in your company either in their Junior or Senior Year, or during a summer?

4 Computer and Information Sciences (Business) Program

Following is an overview of recent changes in the CIS program (BS in Business Administration). The purpose of the change were to (1) make a clear statement of objectives to better define the program, and (2) equip the CIS student to better handle the computer sciences courses in the program. Much of these changes were due to prior IAB feedback.

Questions: Any comments? Does this now meet industry needs better? Can we tune the program to better prepare our students?

Computer and Information Sciences (BSBA) Program Objectives

The advent of computing and the use of information systems has had a profound impact on business processes in almost every industry in our economy. The objective of the CIS program is to equip a student with the ability to apply the techniques and strategies from computer science to solve problems in business. To achieve this objective, the curriculum includes the fundamentals of both computer science and business.

An ability to communicate with people in both domains is also essential. The CIS student is equipped with with the “language” of both the technical aspects of computer science, and the problem domain of business, and can thus bridge the gap between practitioners in each discipline and work effectively on multi-disciplinary teams. He or she can understand the business process at hand, can consider what type of computing strategies can be brought to bear on the business problem, and can then use those strategies to solve the problem. Similarly, a graduate of the program can consider the business implications of alternative methods from computer science, and can apply decision-making techniques for the efficient and effective use of computing resources.

Ample free electives are included in the program, the purpose of which is to allow a student to increase his or her depth and breadth of knowledge, to be better equipped to solve problems in a wide range of domains.

Recent changes to CIS Business degree:

1. defined objectives (above)
2. added CGS 2414 Java
3. added CEN 3031 Software Engineering
4. delete 6 credits CISE electives
5. allow CISE courses in free electives
6. survey calculus 1 and 2 replaced with regular calculus 1 and 2
7. overall changes, in credits:

	old	new	comments
general education	21	21	no change
math	9	11	replace survey calculus 1,2 with regular
social and behav. sciences	6	6	no change
other	30	28	free electives now 19 credits
CISE core	28	28	deleted 6 cr. CISE electives, added Java, Software Engineering
business core	26	26	no change
total	120	120	

Recent comments from the College of Business regarding this program: For the general objectives of the BSBA-CIS program, recruiters need to be informed of the distinctions among the programs (CE, BA, LAS). It is observed the CS knowledge and skill of the BA students in the CIS program may be less adequate than what can be expected from students trained under a normal computer science program. The problem surfaces during the vis-a-vis interview with the recruiters.