

Memorandum

To: ABET

From: IIT Computer Science Department

Subject: Update to Response to “Draft Statement for Review and Comment”

Date: June 1, 2009

We have updated our direct assessment results with additional data from the Spring 2009 semester. Here are the results and some observations

Measurement Tool #5: Program Outcomes using Direct Assessment of Five Courses

We continued our new measurement tool to our assessment process that ties student performance on specific course assignment/exam components (direct assessments) to program outcomes. Our Committee chooses five courses each semester whose assignments “cover” all of our program outcomes.

The five courses chosen for Spring 2009 are:

- CS201 Accelerated Introduction to Computer Science (required course)
- CS331 Data Structures and Algorithms (required course)
- CS485 Computers and Society (required course)
- CS425 Database Organization (elective course)
- CS422 Introduction to Data Mining (elective course)

The CS Undergraduate Studies Committee will evaluate how well the process is working at the end of each academic year. The set of courses to evaluate will be reconsidered for the 2010-11 academic year after the evaluation procedure has stabilized. Although evaluation procedures may be refined with experience, the underlying process and purpose stay the same - to measure directly student success on our program outcomes via fine-grained performance analysis.

Our current direct assessment methodology contains the following:

- For all CS 1xx and 2xx courses, assessments will have a goal of an A, B, or C for at least 80% of the students.
- For all CS 3xx courses, assessments will have a goal of an A, B, or C for at least 75% of the students.
- For all CS 4xx courses, assessments will have a goal of an A, B or C for at least 70% of the students.

The following Direct Assessments Results tables average the responses for all of the questions that pertain to each outcome.

Table 5A: CS201 - Accelerated Introduction to Computer Science (required course)

Program Outcome	%A	%B	%C	%D	%E
a.	47%	25%	24%	2%	2%
b.	50%	25%	25%	0%	0%
c.	47%	28%	25%	0%	0%
i.	51%	26%	23%	0%	0%
j.	46%	31%	21%	2%	0%
k.	64%	28%	8%	0%	0%
l.	33%	47%	20%	0%	0%

www.iit.edu

Department of
Computer Science
10 West 31st Street
Chicago, Illinois 60616

312.567.5150
312.567.5067 Fax

Table 5B: CS331 - Data Structures and Algorithms (required course)

Program Outcome	%A	%B	%C	%D	%E
b.	83%	1%	4%	0%	13%
c.	64%	3%	7%	2%	24%
i.	48%	9%	8%	14%	21%
j.	78%	1%	11%	0%	10%
k.	50%	8%	13%	3%	28%
l.	26%	34%	24%	8%	8%

Table 5C: CS485 - Computers in Society (required course)

Program Outcome	%A	%B	%C	%D	%E
d.	84%	5%	0%	7%	3%
e.	81%	9%	3%	4%	3%
f.	79%	8%	1%	6%	8%
g.	79%	9%	1%	5%	5%
h.	54%	18%	10%	5%	14%
l.	89%	11%	0%	0%	0%

The two elective courses are reported on a mean/median percent scale instead of an A-E percent. These courses have been collecting data in this format to show support for course outcomes for two years due to an NSF grant to develop the courses, so we continued that collection method. Our goal is for both mean and median above 75%. We are still deciding which collection method is best, considering that different instructor grading scales may skew the above results.

Table 5D: CS425 - Database Organization (elective course)

Program Outcome	Median	Mean
a.	83%	80%
c.	86%	81%
d.	89%	86%
i.	84%	80%
j.	83%	80%
k.	85%	71%
l. A=47% B=35% C=8% D=6% E=4%		

Table 5E: CS422 - Introduction to Data Mining (elective course)

Program Outcome	Median	Mean
a.	83%	75%
c.	88%	76%
d.	83%	80%
f.	84%	83%
i.	83%	75%
j.	83%	75%
k.	88%	76%
l. A=29% B=47% C=24% D=0% E=0%		

The following table contains results rolled up from this initial semester for all program outcomes.

Table 5F: Summary of Direct Assessment of Program Outcomes

Program Outcome	Courses at or above goal	Courses below goal	Courses NA to outcome
a	3	0	2
b	2	0	3
c	4	0	1
d	3	0	2
e	1	0	4
f	2	0	2
g	1	0	4
h	1	0	4
i	3	1	1
j	4	0	1
k	3	1	1
l	5	0	0

This table shows that we are able to measure “the extent to which [our outcomes] are being met.” We now have two semesters of direct assessment measurements to review, along with our indirect measurement tools (Instructor and Student Course Assessments, Alumni Surveys, Graduating Senior Surveys, and Employer Surveys). We will be concentrating on if A-E percentages or mean/median percentages are appropriate ways of measuring success in an outcome, and if our goals are appropriate, and we will also consider a different subset of courses in the future to ensure more data points for each outcome. (We have fixed a set of courses to stabilize the process of evaluation design and refinement.). In the Fall we will concentrate our improvement efforts on the areas of our program that our Measurement Tools seem to indicate, mainly problem solving, software engineering, and utilizing current technologies

Now that we have a more objective assessment process in place, assessment findings will now directly drive future course and program changes. Our new system of mapping courses to their objectives and outcomes and our new system of measuring performance for each of these objectives and outcomes gives us a straightforward way to identify the specific components of the Curriculum that require remediation.

Summary

We have articulated that we measure the extent to which we meet our objectives and outcomes. With the new requirements in the self-study document and with the observations from our evaluation team it has been made clear to us that we needed to more tightly map our measurement tools to our objectives and outcomes. We defined a process to do this last summer and we have applied that process over two semesters as a demonstration of its effectiveness. The results in this letter simply show that the process, as defined, is in place and is being executed. Detailed appendices of assessment results are available on <http://www.cs.iit.edu/~abet/>. Should you have any questions, please do not hesitate to contact Matthew Bauer, the CS Undergraduate Program Director by e-mail at bauerm@iit.edu. Additionally, Dr. Bogdan Korel, the acting department chair can be contacted as well at his e-mail at korel@iit.edu or 312-567-5145.