

**ANNUAL ASSESSMENT REPORT FOR 2009-10**  
**Due October 1, 2010**

**Department/Program: Computer Science & Software Engineering/Computer Science**

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<b>Student Learning Outcome (SLO)</b>	<b>For each SLO, list two methodologies and the criteria for successful performance (such as a measurement, rubric or scale that indicates a baseline for competency).</b>				<b>Term Assessed (F09 or S10)</b>
	<i><b>Methodology 1</b></i>	<i><b>Criteria for Success</b></i>	<i><b>Methodology 2</b></i>	<i><b>Criteria for Success</b></i>	
1. Analyze and solve mathematics-based problems.	Selected final exam questions for CS252 (embedded)	Students score 70% or higher on the designated questions (we use 10)	Senior exit survey	On survey questions addressing this SLO, seniors answer at 4.0 or higher on average on a 5-point scale.	S10
2. Understand and explain the main concepts, principles, algorithms, data structures, and theories of computer science.	Major Field Achievement Test	Students score at or above the mean overall on the MFAT	Senior exit survey	On survey questions addressing this SLO, seniors answer at 4.0 or higher on average on a 5-point scale.	S10
3. Write programs and develop software to solve problems.	Score on designated programming project from CS248 (embedded)	Students score 90% or higher on the Camp Posanivee Project	Senior exit survey	On survey questions addressing this SLO, seniors answer at 4.0 or higher on average on a 5-point scale.	S10
4. Communicate and work effectively in teams.	EPICS peer team evaluations (embedded)	Students score 3.5 or higher on 5.0 scale.	Senior exit survey	On survey questions addressing this SLO, seniors answer at 4.0 or higher on average on a 5-point scale.	S10
5. Articulate their role in society as computing professionals, including their ethical, legal, and social obligations.	Score on final case analysis paper from CS485 (embedded)	Students score 80% or higher.	Senior exit Survey	On survey questions addressing this SLO, seniors answer at 4.0 or higher on average on a 5-point scale.	S10

1. **Findings**—*Summarize the findings from the assessment activities for each SLO that was assessed. Identify the SLO # and append supporting documentation such as rubrics, scales, pass rates, test scores, or other measurements used to assess each SLO.*

- SLO#1: CS252 Foundations of Computing II: 9 students took the final exam in the Spring 2010 semester. On the 10 designated assessment questions, their average score was 73.1%, just above our goal for this SLO. Professors Chen and Gupta designed new questions this year; they are more comprehensive, but use a 10-point scale on each question. This is a nice improvement over previous years. So this meets our goal for SLO #1.
- SLO#2: MFAT: Four graduating seniors took the Major Field Achievement Test (ETS), and their average score was 155.25, placing our department in the 65<sup>th</sup> percentile among departments using this exam, up slightly from last year. This meets our goal for SLO#2.
- SLO#3: CS248 Object Oriented Programming and Data Structures: project scores: 12 major and minor students completed the designated project (Camp Posanivee) in the Spring 2010 semester with an average score of 47.0 out of 50 points, or 94%, up slightly from last year. This meets our goal for SLO#3.
- SLO#4: EPICS: Six students rated their experiences working on a team using three questions on a 5.0 scale (1=poor, 5=excellent). The questions were “did your team work effectively and communicate well as a unit”, “did you actively participate on your team” and “did you benefit from working on a team”. The results were 4.0, 4.0, and 4.67 respectively. This meets our goal for SLO#4.
- SLO#5: Ethics Case Study Paper #2: Six computer science junior and senior majors and minors completed the assignment in the Fall 2009 semester. These students averaged a score of 16.83 out of 20, for a total of 84.2%, above our goal of 80% for SLO#5.
- Senior Exit Survey Results: Six students took the online survey. SLO#1: 4.8, SLO#2: 4.8, SLO#3: 4.8, SLO#4: 4.6, SLO#5: 4.8. All scores met our goal of 4.0.

2. **Use of Results**—*What programmatic changes, if any, were made in response to the findings? Reference the SLO #.*

We just updated our major curriculum, so it is too early to act to make changes. Our results were good this year, so waiting to see how this works over the next few years seems reasonable to do.

3. What **support services or resources** for faculty would help your department assess its SLOs better?

We believe we now have a handle on how to measure our SLOs.

4. What **revisions**, if any, to current SLOs did you make or are under consideration?

No revisions this year.

5. Map each of your program's SLOs to the University Learning Outcomes. Make annual updates only if your SLOs changed.

**Butler University students will:**

1. Explore various ways of knowing in the humanities, social and natural sciences, quantitative and analytic reasoning, and creative arts. *(Know)*
2. Articulate and apply required content knowledge within their area(s) of study. *(Know)*
3. Find, understand, analyze, synthesize, evaluate and use information, employing technology as appropriate. *(Know)*
4. Explore a variety of cultures. *(Know)*
5. Recognize the relationship between the natural world and broader societal issues. *(Know)*
6. Communicate clearly and effectively. *(Do)*
7. Demonstrate collaborative behavior with others. *(Do)*
8. Practice ways and means of physical well-being. *(Do)*
9. Acquire the skills to make informed, rational and ethical choices. *(Do)*
10. Experience diverse cultures, ethnicities, religions and sexual orientations. *(Value)*
11. Share their talents with Butler and the greater community at large. *(Value)*
12. Be exposed to the value of lifelong learning. *(Value)*

Computer Science Student Learning Outcomes:	Butler University Learning Outcomes											
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	1	2	3	4	5	6	7	8	9	10	11	12
1. Analyze and solve mathematics-based problems.	X	X	X									
2. Understand and the main concepts of computer science.	X	X			X							X
3. Write programs and develop software to solve problems.		X	X		X				X		X	X
4. Communicate and work effectively in teams.		X	X			X	X					X
5. Articulate their role in society as computing professionals, including their ethical, legal, and social obligations.					X				X		X	X

6a. List all courses in the program and map each of your SLOs to the **curriculum** in which the learning occurs, indicating the extent to which the outcome is introduced (I) or refined (R). [Make annual updates only if your SLOs or curriculum changed.]

	SLO 1	SLO 2	SLO 3	SLO 4	SLO 5
CS151-Found1	I				
CS252-Found2	R				
CS248-OOP	R	I	I	I	I
CS321-Org		R	R		
CS351-Algs	R	R	R	R	
SE361-OOD		R	R	R	R
CS485-Ethics				R	R
CS431-OS	R	R	R	R	
CS441-PL	R	R	R	R	
CS451-TOC	R	R			
EPICS			R	R	R
CS411-Internship			R	R	R
CS473-Topics	R	R	R	R	R
CS490-Resrch meth.	R	R	R	R	R

EPICS and CS411 are optional/elective courses in our old/current program; our major revision requires the EPICS course, and most of our students do an internship, whether formally through CS411 or not. This was not updated to reflect our new curriculum, as this year's incoming Freshmen are the only ones using it so far.

6b. **Learning/developmental opportunities for students outside the classroom**—*If any SLO was addressed outside the classroom, explain where and how the learning/developmental opportunities were provided to students in your program? (i.e., internships, field experiences, visiting lectures, collaborative projects, and other creative ideas you may have employed.)*

SLOs 3-5 are refined through internship experiences outside the classroom. The EPICS course is similar, though only a portion of that course takes place outside the classroom. SLO5 is also addressed through our First Monday Lunch program. Students who elect to do research or a thesis normally take CS490 and all the SLOs may be addressed through this experience.