

## ABET Criterion 3: Student Outcomes

**Program:** Bachelor of Science in Computer Science

**Course:** CS 441G - Compilers for Algorithmic Languages

**Term:** Fall 2015

**Student Learning Outcome:** SO (b)

(b) An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution

**Methods:** Student Learning Outcome SO (b) in CS441-001 has been evaluated with Rubric applied to a randomly selected sample of students using the instruments (a list and synopsis of the assignments/instruments is provided below.) The sample of students has been selected randomly and the number of samples follows the rule: *accessing 20% of the students but no less than 10. (when the class is smaller than 50 students, a sample includes  $\min(\text{sizeClass}, 10)$  students).*

### Instruments:

1. (ex1-q11) Exam 1, Question 11
2. (pa5) Programming Assignment # 5
3. (exf-q11) Exam Final, Question 11

### Discussion of the results:

The percentage of the assessed work that *Exceeds Standards*, *Meets Standards*, *Partially Meets Standards* or is *Does not Meet Standards*, respectively, is listed in Table 1.

CS-441	Sec-001	Assessment results			Class size=58
		Fall 2015	SO(b)	JWJ	
Instrument	Exceeds Standards	Meets Standards	Partially Meets Standards	Does not Meet Standards	sample size
ex1-q11	5	17	8	1	31
pa5	2	22	6	1	31
exf-q11	3	6	2	1	12
#samples	10	45	16	3	74
%samples	13%	60%	21%	4%	

Table 1: SO (b) CS441-001 Fall 2015

The number of selected students that exceed or meet standard is 73%. This number meets the target benchmark of 70% for the Student Outcome

(b): this target has been discussed and approved by the College and the Department.

Although the target has been met, the following *Improvements* for the future instances of this course are suggested: (**note:** if the target is not met, *Improvement Actions* are essential and critical part of the assessment)

- Improvement Action #1: (formulate the suggested improvement and the rationale based on the results of the assessment.)
- etc.

SO (B) (JWJ): \_\_\_\_\_

**ABET assessment rubric: Computer Science**

ABET SO (B) (AN ABILITY TO ANALYZE A PROBLEM, AND IDENTIFY AND DEFINE THE COMPUTING REQUIREMENTS APPROPRIATE TO ITS SOLUTION)

	<b>Exceeds Standards (4)</b>	<b>Meets Standards (3)</b>	<b>Partially meets standards (2)</b>	<b>Does not meet standards (1)</b>
<b>Problem understanding and analysis</b>	Evidence of full understanding and clear analysis.	Good understanding, well analyzed,	Some lacking in understanding and incomplete analysis.	Misunderstanding of the problem. Mistakes in analysis.
<b>Identification and definition of the requirements</b>	Requirements fully identified and discussed. Clear, full understanding of design context	Requirements identified and defined. Good design context understanding	Not all requirements identified. Some but not complete understanding of the requirements.	Incomplete or incorrect requirements. Inadequate design context understanding.

**Synopsis of the selected instruments**

1. (ex1-q11) Exam 1, Question 11

This question is about designing a Context Free Grammar for... Specifically, the students were asked to...

2. (pa5) Programming Assignment #5

This programming project, is the last milestone in development of a compiler from a subset of a C language to P-code for a P-stack machine. The development uses multiple compiler-compiler tools for available in Unix environment. Students are asked to implement a number of features related to programming construct, semantic analysis, and optimization.

3. (exf-q11) Exam Final, Question 11

This question is about designing semantic analysis for a compiler for the language that uses labels and jumps, to ensure that all jumps correspond to existing labels. Specifically, the students are asked to...