B3.7 Summary of the Program Enhancements Due to Assessment

1. Our rubric assessment of the 4XXX level classes pointed to some areas that we would like to improve. We have developed an error tally sheet for use with our rubrics that allows us to track certain kinds of errors in mathematics and engineering science. We studied the results of the error tally sheets and found that there were certain things that a significant number of our students were getting wrong in the graded material in upper division classes that were supposed to have been learned in lower division classes. That is, it was more likely that a student would make an error in algebra or circuit analysis than they were to make a mistake in the more advanced material related to semiconductor physics that they were learning in the class at the time. We think the problem is a knowledge retention issue. It seems that our students will cram for a test and then forget what they have learned before the next semester. This is a learned behavior. We are trying to get them to modify their behavior so that they learn and understand at a deeper level so that retention is more likely from semester to semester.

We have added a test on prerequisite material in most of our lower division courses. For example EE 1210 Circuit Modeling I has Math 2640 Calc I as its only prerequisite. In every Circuit Modeling I class we give a test the first or second week that covers prerequisite material from calculus and from other earlier math classes. In EE 2210 Circuit Modeling II the test covers material from Calc II and from Circuit Modeling I. We are still waiting for the first cohort of students to get to the 4XXX classes so that we can see whether these tests on prerequisite materials have had an impact.

2. We have also noted that there are certain types of errors that students make when they take the prerequisite material tests. As a result we have been assigning extra practice in these areas in the form of extra HW problems related to the material with which the students have trouble.

B3.8 Summary of the Modifications Made in the Assessment Process

1. As I stated above, we have added an error tally sheet for math and engineering science to the rubric assessment that we have been doing.

As a side note to the AOC I would like to point out that our students have access to pirated electronic copies of the solution manuals for almost every textbook that we use. It is becoming increasingly difficult to assign practice problems for students who will simply copy the answers from a solution manual and hand them in. Inventing our own HW problems and solutions is incredibly time consuming and has to be redone every year or so because the students compile what they call “bibles” for each professor and hand them down to younger students when they leave. As we move to more and more online interactions with our students (e.g. D2L dropboxes) the amount of easily transferable information increases and what used to be the three-inch thick “Sealy bible” for my electromagnetics class is now just a few clicks away from being distributed to an entire class email list.