MAJOR FIELD ASSESSMENT:
EVALUATION AND USE OF DATA
B.S. IN PHYSICS

Rev'd Feb. 29, 2000

KNOWLEDGE

I. INTENDED OBJECTIVE AND ASSESSMENT TECHNIQUES
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- B. ASSESSMENT CRITERION

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- B. RESULTS OBTAINED
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- D. PLANNED CHANGES IN THE PROGRAM AND PROJECTED DATE FOR ACCOMPLISHING THEM

SKILLS

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KNOWLEDGE

I. INTENDED OBJECTIVE AND ASSESSMENT TECHNIQUES

A. OBJECTIVE

Graduating seniors should have an adequate knowledge of the various subfields of classical and modem physics, and should have some knowledge of the landmarks in the development of classical and modem physics.

B. ASSESSMENT CRITERION

The ETS's Major Field Assessment Test (MFAT) in physics will be given each year. Physics majors will take the MFAT in their first year in the department and then again in their senior year. 75% of physics majors should have a "gain" of better than 25% between the first semester and the semester in which they complete their physics course work, where "gain" is the increase in their percentile ranking divided by the maximum possible increase. As a supplement to this assessment, there will be pre- and post- tests given to majors in the calculus-based introductory physics course to measure their "gain" in learning and understanding of concepts in mechanics. Results will be compared to the scores obtained at other schools.

II. SUMMARY OF ASSESSMENT METHOD

A. METHOD OF ASSESSMENT

Pre- and post- tests were given to these students in the calculus-based introductory physics course. Since no physics majors have graduated since 1996, we have not administered the MFAT.

B. RESULTS OBTAINED

The results of the pre- and post- tests were lost when the faculty member previously responsible for assessment resigned from the University. Therefore, no results are available.

C. CHANGES IN THE PROGRAM

Since no results were available, there have been no assessment driven curricular changes.

D. PLANNED CHANGES IN THE PROGRAM AND PROJECTED DATE FOR ACCOMPLISHING THEM

Because the results of the tests are unavailable, no assessment driven curricular changes are planned at this time.

SKILLS

I. INTENDED OBJECTIVE AND ASSESSMENT TECHNIQUES

A. OBJECTIVE

Graduating Seniors should:

1. have problem solving skills,
2. be competent in laboratory methods,
3. be competent in mathematics and the use of computers, and
4. have an appreciation for the collaborative nature of scientific research and learning.

B. ASSESSMENT CRITERION

Although the MFAT and Southeastern's Mathematics Proficiency Exam will be taken into account as indicators of competency in mathematics, the primary measure of competency in both mathematics and use of computers (Skills A.3) will be the expectation that the student maintains a 2.0 grade point average in their mathematics and computer science course work. Skills A. 1, 2 and 4 will be evaluated by a faculty committee and student's satisfactory performance will be an indication of proficiency in these skills.

II. SUMMARY OF ASSESSMENT METHOD

A. METHOD OF ASSESSMENT

The grade point average of physics majors in their mathematics and computer science courses was evaluated.

B. RESULTS OBTAINED

All physics majors at the Junior or Senior level maintained a grade point average in their mathematics and computer science course in excess of 2.0. Faculty committee assessment of student's proficiency in Skills A. 1, 2 and 4 were lost in the transition from the previous assessor.

C. CHANGES IN THE PROGRAM

With the hiring of new tenure-track faculty members, additional research opportunities for physics majors were made available. With the on-going externally funded research activities, all physics students are now able to obtain first-hand experience in research.

D. PLANNED CHANGES IN THE PROGRAM AND PROJECTED DATE FOR ACCOMPLISHING THEM

We are exploring the possibility of requiring a senior project of all physics majors to assess the skills listed in the Objectives.

ATTITUDES

I. INTENDED OBJECTIVE AND ASSESSMENT TECHNIQUES

A. OBJECTIVE

Majors should feel that

1. they have been given every reasonable opportunity to learn and grow as a physics teacher and
2. the physics faculty were concerned about their progress and performance and made themselves available to offer assistance.

B. ASSESSMENT CRITERION

A departmental instrument has been developed to assess the attitudes of physics education majors toward the physics faculty and curriculum. At least 60% of the graduating seniors should respond favorably to 50% of the indicator questions.

II. SUMMARY OF ASSESSMENT METHOD

A. METHOD OF ASSESSMENT

None used -- no physics majors have graduated since 1996.

B. RESULTS OBTAINED

None available -- no physics majors have graduated since 1996.

C. CHANGES IN THE PROGRAM

No significant changes have yet been made.

D. PLANNED CHANGES IN THE PROGRAM AND PROJECTED DATE FOR ACCOMPLISHING THEM

At this time, no changes are planned.