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

KNOWLEDGE

I. **INTENDED OBJECTIVE AND ASSESSMENT TECHNIQUES**
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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 modern physics, and should have some knowledge of the landmarks in the development of classical and modern 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 improve by 25 percentile points between the first semester and the semester in which they complete their physics course work. As a supplement to the 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

Since we did not have any first-year physics majors since 1993, we did not administer the MFAT during this period.

B. RESULTS OBTAINED

Since no MFAT was given, no results are available.

C. CHANGES IN THE PROGRAM

Since no MFAT results were available, there have been no assessment driven curricular changes; no changes are planned at this time.

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

Since 1993, we have not been teaching any first year physics majors, and therefore we have not administered the MFAT during the past four years. Thus, there has been no assessment driven curricular changes, and none 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.

C. CHANGES IN THE PROGRAM

At this time, no changes are planned. With the hiring of new tenure-track faculty members in Fall 1994, additional research opportunities for physics majors were made available. With the on-going externally funded research activities, students are now able to obtain first-hand experience in research. Presently, students are also in a position to participate in research projects during summer.

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. If a new course is suggested, the request will be submitted to the College of Arts and Sciences Curriculum Committee by Fall 1998.

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 physicist 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 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

The departmental instrument -- a questionnaire -- has been mailed to all three physics majors who graduated during the past four years.

B. RESULTS OBTAINED

As of this time, no responses have been received from students who graduated.

C. CHANGES IN THE PROGRAM

No significant changes have yet been made.

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

When responses from graduating students are received and evaluated, additional changes will be considered; the date is contingent upon obtaining student responses. At this time, no changes are planned.