ASSESSMENT REPORT
FOR

Bachelor of Arts with a major in Mathematics with Grades 8th -12th Certification (BA)
Instructional Degree Program

Spring 2003
Assessment Period Covered

July 14, 2003
Date Submitted

Expanded Statement of Institutional Purpose Linkage:

Institutional Mission Reference:

Texas A&M International University, a Member of The Texas A&M University System, is committed to the preparation of students for leadership roles in their chosen profession and in increasingly complex, culturally diverse state, national, and global society … Through instruction, faculty and student research, and public service, Texas A&M International University is a strategic point of delivery for well-defined programs and services that improve the quality of life for citizens of the border region, the State of Texas, and national and international communities.

College/University Goal(s) Supported:

The faculty and administrators of the College of Science and Technology are committed to providing a scholarly changing global and technologically advancing environment. To this end faculty encourage students to: Develop the ability to think critically and communicate effectively. Pursue a broad base of knowledge through course offering in other departments. Collaborate with faculty through research, scholarship, and professional endeavors to expand the knowledge base of a specialized discipline. Contribute to appropriate community-based activities as beginning professionals. To assist in meeting these goals, faculty recognize the need for, and are committed to, on-going professional development through education, practice, community service, research, and scholarly publications.

Intended Educational (Student) Outcomes:

1. Students will demonstrate mastery in formulating and solving problems in various areas of mathematics as related to the program of study.

2. Students will be able to communicate mathematics in well-written sentences as related to the program of study.

3. Students will be able to illustrate applications of mathematical ideas to real situations as related to the program of study.

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Intended Educational (Student) Outcome:

NOTE: There should be one form for each intended outcome listed. The intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

1. Students will demonstrate mastery in formulating and solving problems in various areas of mathematics as related to the program of study.

First Means of Assessment for Outcome Identified Above:

1a. Means of Program Assessment & Criteria for Success:

Two content-specific questions will be designed by the course instructor and reviewed jointly by the mathematics faculty and included in an examination (more suitably the final exam) for each senior (4000 level) mathematics course every semester. The mathematics faculty will review jointly the data and comments received from the course instructor for answers to the problems so collected from the above examination in accordance with a course specific rubric to determine the degree to which the stipulated criteria for success are met. An average of 2.5 on a 4-point scale will be considered satisfactory. A guideline for development of the course rubric is: 1) understanding of the questions –25%; 2) right approach to the solutions – 25%; 3) presentation of the solutions – 25%; and 4) accuracy of the reasoning and solutions – 25%.

1a. Summary of Assessment Data Collected:

The average for data collected from three courses is 2.5 on a 4-point scale. The benchmark has been achieved.

1a. Use of Results to Improve Instructional Program:

The following will be discussed through departmental meetings to be considered for implementation: Students' grasp of the concept of mappings (functions, transformations, correspondences, operators) is very weak at this point. As a tool for understanding and solving problems, the mapping concept should be emphasized more throughout the curriculum. In fact, since "mapping" is such a central in mathematics and it is so ubiquitous, it can be used both as a guideline for instruction as well as a benchmark for assessment: by incorporating the mapping concept as much as possible in the instruction, we can improve students' overall proficiency in mathematics, and by measuring how well students can use the mapping concept, we can assess partially how well we are doing as a program.

Second Means of Assessment for Outcome Identified Above:

1b. Means of Program Assessment & Criteria for Success:

Students in junior and senior (3000 & 4000) level courses will be required to keep a portfolio and turn it into their course instructors. The mathematics faculty will review jointly the collected data and comments received from the course instructors for the portfolios in accordance with a course specific rubric to determine the degree to which the stipulated criteria for success are met. An average of 2.5 on a 4-point scale will be considered satisfactory. A guideline for development of the course rubric for Portfolio Review is: 1) organization of the portfolio – 25%; 2) understanding of problem statements – 25%; 3) presentation of solutions – 25%; and 4) approach to and accuracy of reasoning and solutions – 25%.

1b. Summary of Assessment Data Collected:

Data collection was implemented partially this semester. One course used a collection of ten homework problems for this purpose. The average score for the semester is 3.2. The benchmark is achieved.

1b. Use of Results to Improve Instructional Program:

Take a more systematic approach to implementing this instrument.

Third Means of Assessment for Outcome Identified Above:

1c. Means of Program Assessment & Criteria for Success:

Graduating students will be required to take part in a pilot study program towards the end of their final semester of studies by taking the Major Field Test in mathematics by ETS; 70% of the students taking the standardized examination will score at or above the National 50^{th} percentile.

1c. Summary of Assessment Data Collected:

Results pending.

1c. Use of Results to Improve Instructional Program:

Results pending.

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2. Students will be able to communicate mathematics in well-written sentences as related to the program of study.

First Means of Assessment for Outcome Identified Above:

2a. Means of Program Assessment & Criteria for Success:

Two content-specific questions will be designed by the course instructor and reviewed jointly by the mathematics faculty and included in an examination (more suitably the final exam) for each senior (4000 level) mathematics course every semester. The mathematics faculty will review jointly the data and comments received from the course instructor for answers to the problems so collected from the above examination in accordance with a course specific rubric to determine the degree to which the stipulated criteria for success are met. An average of 2.5 on a 4-point scale will be considered satisfactory.
A guideline for development of the course rubric is: 1) understanding of the questions – 25%; 2) right approach to the solutions – 25%; 3) presentation of the solutions – 25%; and 4) accuracy of the reasoning and solutions – 25%.

2a. Summary of Assessment Data Collected:

The average for data collected from three courses is 2.5 on a 4-point scale. The benchmark has been achieved.

2a. Use of Results to Improve Instructional Program:

No recommendation is provided at this time.

Second Means of Assessment for Outcome Identified Above:

2b. Means of Program Assessment & Criteria for Success:

Students in junior and senior (3000 & 4000) level courses will be required to keep a portfolio and turn it into their course instructors. The mathematics faculty will review jointly the collected data and comments received from the course instructors for the portfolios in accordance with a course specific rubric to determine the degree to which the stipulated criteria for success are met. An average of 2.5 on a 4-point scale will be

considered satisfactory. A guideline for development of the course rubric for Portfolio Review is: 1) organization of portfolio – 25%; 2) understanding of problem statements – 25%; 3) presentation of solutions – 25%; and 4) approach to accuracy of reasoning and solutions – 25%.

2b. Summary of Assessment Data Collected:
This was partially implemented this semester. One course used a collection of ten homework problems for this purpose. The average score for this semester is 3.2. The benchmark is achieved.

2b. Use of Results to Improve Instructional Program:
Take a more systematic approach to implementing this instrument.

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3. Students will be able to illustrate applications of mathematical ideas to real situations as related to the program of study.

First Means of Assessment for Outcome Identified Above:

3a. Means of Program Assessment & Criteria for Success:

Pre-service teachers (students) will take the Texas Examinations of Educator Standards (TExES) in mathematics for grades 8-12. The average score of at least 70% for a cohort of students in a particular semester on TExES Mathematics 8-12 (test 135) will be considered satisfactory.

3a. Summary of Assessment Data Collected:

Results pending.

3a. Use of Results to Improve Instructional Program:

Results pending.

Second Means of Assessment for Outcome Identified Above:

3b. Means of Program Assessment & Criteria for Success:

The students will be required to complete the mathematics capstone course (MATH 4390) in the final year of their program of study. The mathematics faculty will review jointly the collected data and comments received from the course instructor of the student performance, to include the final classroom presentation, in accordance with a course specific rubric to determine the degree to which the stipulated criteria for success are met. An average of 2.5 on a 4-point scale will be considered satisfactory.

3b. Summary of Assessment Data Collected:
Data collection was implemented partially this semester. Two questions on the final exam and a portfolio are used for this assessment. The average score for the semester is 3.2. The benchmark is achieved.

3b. Use of Results to Improve Instructional Program:
Take a more systematic approach to implementing this instrument.

Third Means of Assessment for Outcome Identified Above:

3c. Means of Program Assessment & Criteria for Success:
Graduating students will be required to take part in a pilot study program towards the end of their final semester of studies by taking the Major Field Test in mathematics by ETS; 70% of the students taking the standardized examination will score at or above the National 50^{th} percentile.

3c. Summary of Assessment Data Collected:
Results pending.

3c. Use of Results to Improve Instructional Program:
Results pending.

SUPPORT DOCUMENTATION

SOURCE	LOCATION/Special Instructions
Two content-specific questions	
rubric (need proper name)	
Major Field Test in Mathematics	
Texas Examinations of Educator Standards (Mathematics 8-12)	