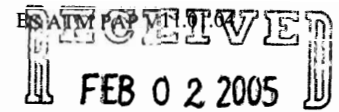


**B.S. in Agricultural Technology Management (ATM)
Assessment of Student Learning Plan
Kansas State University**



BY:.....

A. College, Department, and Date

College: Agriculture
Department: Biological and Agricultural Engineering
Date: November 1, 2004

B. Contact Person(s) for the Assessment Plans

John W. Slocombe, ATM Teaching Coordinator
Kyle R. Mankin
Ronaldo G. Maghirang

C. Degree Program

B.S. in Agricultural Technology Management

D. Assessment Plans for the Student Learning Outcome(s) that will be addressed in the Next Three Years

1. Student Learning Outcomes (SLOs)

Of the 9 student learning outcomes approved by our faculty, the BAE department will focus on the following 3 outcomes in our three-year assessment plan:

Graduates of the B.S. degree program in ATM will demonstrate the following:

- Ability to apply basic principles of mathematics, science, technology, management, and economics to agricultural systems.
- Ability to plan and conduct experiments, and to analyze and interpret data.
- Ability to identify agricultural system problems, locate relevant information, develop and analyze possible alternatives, and formulate and implement solutions.

Table 1 summarizes the relationship of the above outcomes to the KSU student learning outcomes.

Table 1. Relationship to KSU student learning outcomes.

Program SLOs	KSU Undergraduate SLOs					Conceptually different from KSU SLOs
	Knowledge	Critical Thinking	Communication	Diversity	Academic & Professional Integrity	
Ability to apply basic principles of mathematics, science, technology, management, and economics to agricultural systems	X					
Ability to plan and conduct experiments, and to analyze and interpret data.	X	X				
Ability to identify agricultural system problems, locate relevant information, develop and analyze possible alternatives, and formulate and implement solutions.	X	X				

2. How will the learning outcome(s) be assessed? What groups will be included in the assessment?

Outcome assessment will involve student work as the primary means of assessment. Table 2 lists the courses where the three SLOs are learned by the students in the program. The list is considered dynamic and is anticipated to change as the assessment process is conducted. A collection of student work in these courses will be used as evidence of the SLOs. Examples of the student work include course assignments, problem sets, laboratory notebooks and/or reports, technical reports, presentations, specific exam questions, and in-class exercises. The instructor of each course will select at least one activity and consider all ATM students in the course in the assessment.

Table 2. Assessment measures.

Program SLOs	Measures			Who will be assessed?
	Direct ¹	Indirect	Not Sure	
Ability to apply basic principles of mathematics, science, technology, management, and economics to agricultural systems.	BAE 350			The instructor of each required course will select at least one assignment or activity (e.g., laboratory report, project report, etc.) and consider all ATM students in the assessment. However, only a few samples of student work will be presented as evidence, as indicated in item 3 below.
Ability to plan and conduct experiments, and to analyze and interpret data.	ATM 450			
Ability to identify agricultural system problems, locate relevant information, develop and analyze possible alternatives, and formulate and implement solutions.	ATM 558 ATM 511			

¹Course descriptions are presented in Appendix 1.

3. When will these outcomes be assessed? When and in what format will the results of the assessment be discussed?

The Undergraduate Programs Assessment Committee, in cooperation with course instructors, will collect annually assessment data starting in Fall 2005, and summarize and analyze the data in Fall 2007. Table 3 summarizes the timeline for the assessment. The assessment process will involve the following activities: (a) preparation of notebooks for selected required courses, (b) preparation of outcome notebooks, (c) assessment of outcomes by the Assessment Committee, (d) action by the Course and Curriculum Committee, and (e) action by the BAE Faculty and Department Head. The first three activities are described briefly below; the last two are described in item 4. Assessment results will be applied to continuously develop and improve the undergraduate ATM program.

Preparation of notebook for each required BAE/ATM course. At the conclusion of each semester starting in Fall 2005, the instructors of the courses listed in Table 2 (i.e., BAE 350, ATM 450, ATM 558, ATM 511) will submit to the Undergraduate Programs Assessment Committee a notebook for the course. The course notebook will contain the following information:

- Catalog course description
- A list of the specific SLOs that the course addresses and the assessment tools that are used to assess whether or not each of the listed SLOs is met
- Course syllabus
- List and/or summary of course handouts and/or supplementary materials
- Representative examples of student work (exams, assignments and/or problem sets, technical reports and/or laboratory reports, students' presentation materials, etc.)

Preparation of SLO notebook. Each instructor will select representative samples from the course notebook to document how the course or class experience addresses and meets each of the applicable SLO. These samples will be compiled into the appropriate SLO Notebook. For each material that is selected for the SLO Notebook, the instructor will fill out a SLO Assessment sheet, which will identify the applicable SLO and include a statement on how the material meets the applicable SLO.

Assessment by the Undergraduate Programs Assessment Committee. The Undergraduate Programs Assessment Committee will review the materials in the SLO notebook, present the findings to the Course and

Curriculum Committee in Fall 2007, and recommend changes that may be needed to improve student learning. Recommendations may deal with changes in curriculum, pedagogies, and advising strategy; refinement of the assessment tools, assessment process, and SLOs; among others.

Table 3. Timetable for assessment of student learning outcomes.

Program SLOs	Year						Baseline created?
	2005		2006		2007		
	Spring	Fall	Spring	Fall	Spring	Fall	
Ability to apply basic principles of mathematics, science, technology, management, and economics to agricultural systems.		BAE 350		BAE 350		BAE 350	Baseline data created in Fall 2007
Ability to plan and conduct experiments, and to analyze and interpret data.			ATM 450		ATM450		
Ability to identify agricultural system problems, locate relevant information, develop and analyze possible alternatives, and formulate and implement solutions.			ATM558 ATM 511		ATM 558 ATM 511		

4. What is the unit's process for using assessment results to improve student learning?

The assessment process will involve the Undergraduate Programs Assessment Committee, Course and Curriculum Committee, faculty, and Department Head. As mentioned in item 3, the Undergraduate Programs Assessment Committee will present the findings to the BAE Course and Curriculum Committee in Fall 2007, and recommend changes that may be needed to improve student learning. The Course and Curriculum Committee will review the Assessment Committee's findings and recommendations in terms of overall curriculum impacts, formulate a report and recommendations, and present the recommendations to the BAE Faculty regarding implementation of program and/or curriculum changes. The Faculty will consider each of the Course and Curriculum Committee's recommendations and decide on the appropriate action. The Department Head will implement the improvement decisions by the Faculty, in accordance with University guidelines.

Appendix 1 – Course Descriptions

ATM 450. Sensors and Controls for Agricultural and Biological Systems. (3). II. Applications of instrumentation. Sensors used in agricultural machines and processes for measurement of voltage, force, torque, pressure, displacement, velocity, acceleration, flow, temperature, humidity, etc. Analog and digital signal conditioning and processing. Feedback controls concept. Computer interface. Two hours lecture and three hours lab per week. Pr.: PHYS 113 or PHYS 115, ATM 160 or MATH 100.

ATM 511. Agricultural Building Systems. (3) II. Concepts and fundamentals related to agricultural building systems including structural materials, beam and column strength, environmental control for plants and animals, farmstead layouts, crop storage, and livestock and plant production facilities. Three hours rec. a week. Pr.: ATM 160 or PHYS 113 or 115.

ATM 558. Soil Erosion and Sediment Pollution Control. (3) II. Planning and analysis of production systems with respect to regulatory, environmental, and resource management. Water and wind erosion; estimating soil loss; estimating runoff rate and volume; laying out and checking terraces, waterways and farm ponds; agricultural surveying; and conservation planning. Two hours rec. and three hours lab a week. Pr.: AGRON 305.

BAE 350. Agricultural Machinery Systems. (2) I. Basic power and energy concepts. Machinery systems for tillage, planting, and harvesting crops. Impact of these systems on the environment and natural resources. Two hours rec. a week. Pr.: ATM 160 or PHYS 113 or one year of high school physics.