

## Department of Industrial Technology

### Jordan College of Agricultural Sciences and Technology

#### Student Outcomes Assessment Plan (Soap)

##### I. Mission Statement

The mission of the department is to prepare individuals for technical and management careers in business, industry, agriculture and government for the improvement of regional and global economy.

##### II. Goals and Student Learning Outcomes

*Note: There are no set number of goals and outcomes. You may indicate as little or as many goals and outcomes as needed. The outline below only serves as a formatting guide.*

##### **A. Technical Goal: Student will be able to demonstrate knowledge, skills and technical competencies for employment advancement within technology related careers.**

1. Be able to demonstrate knowledge of electricity and electronics and apply them to automated control.
2. Be able to operate industrial machinery and select the appropriate process for industrial materials.
3. Be able to choose and apply appropriate computer software and hardware used in industrial settings.
4. Be able to apply scientific and mathematical principles and practices to industrial applications.
5. Be able to design industrial processes, systems and products.
6. Be able to identify elements of various energy production and transmission systems.

##### **B. Management Goal: Students will be able to develop management competency based on their career objectives.**

1. Be able to manage projects from planning to completion.
2. Be able to appraise and manage quality systems, including development and analysis of standard quality data.

3. Be able to manage the entire production process from a systems approach including change management.

4. Be able to manage and develop safety programs, including knowledge of the safe operation of modern machinery.

**C. Leadership Goal: Students will be able to develop leadership skills through practice in organization, planning, execution and assessment of projects and activities.**

1. Be able to communicate orally and in writing, including using appropriate software.

2. Be able to organize and manage team oriented activities.

3. Be able to develop leadership skills through joining extra-curricular programs sponsored by the department, college and university, including field trips and clubs.

4. Be able to understand the relationship of technology with modern societal issues.

**D. Research Goal: Students will be able to apply research principles and methodologies appropriate to his/her career objectives.**

1. Be able to develop research and problem solving skills.

2. Be able to propose, plan and execute independent projects incorporating various technical and managerial components.

3. Be able to present findings from technical and scientific research.

4. Be able to discover the professional opportunities of technical, governmental and educational organizations.

**E. Lifelong Goal: Students will be able to develop communication and interpersonal skills so to be successful in their future endeavors.**

1. Be able to develop interpersonal communication skills.

2. Be able to develop skills to train others in technical areas.

3. Be able to obtain the Industrial and Technology single subject teaching credential for public school teaching if desired.

**III. Curriculum Map (Matrix of Courses X Learning Outcomes)**

See Appendix B.

## IV. Assessment Methods

### A. Direct Measures

1. Standard Exam: “The Association of Technology, Management, and Applied Engineering (ATMAE)” is the professional society for Industrial Technology major. ATMAE administers several professional exams which are partial requirements for different levels of professional certificates. Among those standard exams, CTM (Certified Technology Manager) exam is the most appropriate for BSIT major. All BSIT graduates are required to take the CTM exam. It is part of the IT 196 class requirements. The acceptable standard is that the average score of our BSIT students will be above the national average score.
2. Exams: One class from either technical core or management core courses will be selected as the measurement class. The exams and/or quizzes will be looked at in this class. Our goal is that all students will get a score of 70% or above.
3. Papers: All BSIT graduates are required to take IT 199 Senior Project and write project reports. Department provide a senior project report manual to every student as the guidelines. The senior project reports will be rated using the rubrics in Appendix A. The acceptable score will be 3.5 out of 5. And our goal is that all students will get above 3.5.

### B. Indirect Measures

1. Alumni Survey: The BSIT alumni survey has been created and used for many years. It has also modified recently to reflect our latest concerns. From the past experiences, the response rate was very low. In order to increase the response rate, the length of the survey has been reduced to 2 pages from 5. Our intent is to concentrate on the program quality and improvement directions. Our goal is to achieve 50% response rate.
2. Exit Survey: All graduating BSIT seniors are required to take the exit survey. It is part of the IT 196 class requirements. There are 13 questions to cover the academic standards, quality of faculty, quality of students, appropriate of BSIT courses, advising, financial assistance, internship, and career services, etc. And 6 questions to ask about what level of knowledge students gain in technical, management, research, leadership, and communication knowledge. Our goal is to get average score above 3.5 (out of 5).
3. Employer Survey: We have used employer survey to interview the agencies and companies in the local area for a long time. The purpose is to know the employer

needs and requirements. Our goal is to achieve 60% response rate.

**V. Student Learning Outcomes X Assessment Methods Matrix**

	Goal 1: Technical	Goal 2: Management	Goal 3: Leadership	Goal 4: Research	Goal 5: Lifelong
Standard Exam	X	X		X	
Exam	X			X	
Papers		X	X	X	
Alumni Survey			X		X
Exit Survey	X				X
Employer Survey	X	X	X	X	X

**VI. Timeline for Implementation of Assessment Methods and Summary Evaluations**

	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Standard Exam	X	X	X	X	X
Exams			X		
Papers		X			
Alumni survey	X				X
Exit survey	X	X	X	X	X
Employer survey				X	

## VII. Closing the Loop - Summary Evaluation, Curriculum Adjustment, and Reporting

Standard exam (CTM) is now mandatory for all graduating Seniors. The department assessment coordinator will conduct the test each semester in the IT 196 class, analyze the results and report to all faculty members. It will reflect the program standing nationwide and provide details which can be traced to all of IT major courses. The results will also be discussed in the department meetings to identify courses that need to be improved.

Exams and Papers will be assessed for selective courses in different semesters. Rubrics will be used to discover deficiencies and then to improve teaching.

The results from Alumni survey, Exit survey and Employer survey will be discussed in the department meeting for possible curriculum changes.

## Appendix A – Paper and Report Rubric

Senior Report or Paper				Student Rating
Rating (1-5 scale), 5 is high				
High (5)	Low (4)	High (3)	Low (2)	
	Exceeds standards	Meets standards	Does not meet standards	
Research principles	Direct and immediate application	A feasible application, Student gained knowledge	Cannot see any application	
Hypothesis	Written clearly with assumption	Clearly written, no assumption	No hypothesis	
Objective description	Motivated objective written clearly and precisely	Long paragraph without any focus	Not clearly written	
Support	Literature review Chapter	Written somewhere in the report	Does not have any text	
Argument	There must be a chapter on Methodology	Written somewhere in the report	Does not have any text	
Formulation	Tables, Figures, Charts, etc. are appropriately cited and placed	Only text without supporting evidences	No attention	
Problem solving	Implementation strategy, cost-performance study	Only implementation strategy		
Independent thinking	Did the survey, research, etc. alone	Took help of the technicians, assistants in getting the results	Did not do independently	
Respect, Value, Integrity	Citations are properly mentioned, permissions on tables, figures, etc., have been properly obtained	Permissions on tables, figures, charts, etc. have been obtained.	Citations are not properly mentioned, permissions on tables, figures, etc, have not been properly obtained	
Conclusion	The report has a separate chapter and concluding remarks are appropriate	The report has concluding remarks	Concluding remarks are not made	
Reporting	Complete with at least 4 separate chapters with Introduction, Literature review, Methodology, Results, Conclusion and Future work	Some chapters are missing and included in other parts of the report	One chapter reporting	

**Appendix B - BSIT Core Courses and Outcome Matrix 2010 (curriculum to be submitted)**

“E” indicates that this outcome is emphasized in the course.

“I” indicates that this outcome is introduced in this course.

Course	Outcome	Technical Goals						Management Goals				Leadership				Research				Lifelong		
		A.1	A.2	A.3	A.4	A.5	A.6	B.1	B.2	B.3	B.4	C.1	C.2	C.3	C.4	D.1	D.2	D.3	D.4	E.1	E.2	E.3
IT 52	Electricity and Electronics	E	i	i	E	E	i	E	i	i	i		i		i	i	E		E	i	i	x
IT 74	Manufacturing Processes	i	E	i	i	i				E	i		i		i	i	i					x
Chem 3A	Intro to General Chemistry	i		i	E	i	i		i	i	i				i	i	i					x
Phy 2A	Intro to Physics	i			E	i	i		i	i	i				i	i						x
IT 20	Society and Technology				i							E	E		E	E	i	E	i	i	E	x
IT 92	Industrial Safety Management	i	i		i	i		i	i		E	i	i		i		i	i	i	i	E	x
IT101	Industrial Statistics			i		E									E							i
IT 104	Product Design		i		i	E	i	i	i	i	i	i	E		i	E	i	E	i	i		x
IT106	Power and Energy	E	i		E	i	E						i		E			i	E		i	x
IT112	Ind Process Ctrl Sys I	E	i	E	E	E		E	i	E	i		i					E				x
IT 114	Industrial Materials		i	i	i	E	i	i	i	i				i	i	i	i	i	i	i		x
IT 115	Design and Documentation		i	i	i	E						E			i			i	i		i	x
IT 117	Quality Assurance				i	i		E	E	i	E	i	i		i			E	E	i	i	i
IT 118	Production Operations		i		i	i		i		E		i	i		i			i			i	i
IT 137	Quality Management Sys			i	i	i			E			i	i	i	i			i	i	i		i
IT 148	Project Mgt and Control				i	i		E	i			i	i					i	i	i	i	x
IT 196	Senior Seminar											E	i					i	E	E		
IT198W	Technical Writing											E						E				x
IT 199	Senior Problems	i	i	i	i	i	i	E	i	i	i	i	i	i	i	i	i	i	i	i		
	Extra-Curricular Clubs												E	E					E			