

**Department of Industrial Technology**  
**JORDAN COLLEGE OF AGRICULTURAL SCIENCES AND TECHNOLOGY**

**Student Outcomes Assessment Plan (Soap) for MSIT Program**

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**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**

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*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.*

The five specific goals of the MSIT program are given below.

Goal #1 (G1): Develop expertise and skills in advancing the knowledge and technical competency within industrial technology career.

Goal #2 (G2): Prepare technology management skills based on students' career objectives.

Goal #3 (G3): Provide students advanced level of inquiry, research principles and methodology during their study.

Goal #4 (G4): Prepare technology professionals and resource specialties for in academic institutions, and industry, federal and state agencies, and develop leadership skills through practice in organization, planning and executions of activities.

Goal #5 (G5): Develop student communication and interpersonal skills to be successful in their future endeavor.

**Goal #1 (G1): Students will be able to gain knowledge, skills and technical competency advancement within industrial technology career.**

***Learning Outcomes (LO)***

1. G1/LO1: Compare material properties and practice the selection and application of materials in product development and production systems in industrial sectors.
2. G1/LO2: Learn principles and successfully practice design problem solving methods intended for hardware and software industries.
3. G1/LO3: Develop technical competencies in the operation and integration of interfacing systems including sensory systems, actuating systems, and machinery systems.
4. G1/LO4: Learn interdisciplinary entities to help develop competencies in computer systems for the design and production environment.
5. G1/LO5: Learn selection of the tools and systems to develop competency in the analysis, justification, and implementation of computer-aided systems used in the product design, packaging, lean support systems such as material handling systems and cell related platforms.

**Goal #2 (G2): Students will be able to develop technology management skills based on their career objectives.**

***Learning Outcomes (LO)***

1. G2/LO1: Learn basic management principles as applied to business and production systems.
2. G2/LO2: Learn technology management skill to develop competencies in quality management and systems to ensure product and service quality.
3. G2/LO3: Selection of technology management will develop competencies in planning, supervising, and evaluating real-time supply chain management systems.

**Goal #3 (G3): Students will be able to learn and apply research principles and methodology based during their study.**

***Learning Outcomes (LO)***

1. G3/LO1: Learn the principle of research through selected core courses such as research methodology and advanced communication concepts.
2. G3/LO2: Successfully practice the application of research principles through the development of proposals, execution of research, analysis, conclusions, and recommendations.
3. G3/LO3: Develop data oriented research outcome and/or hands-on research activities through projects, thesis and independent study.
4. G3/LO4: Conduct research findings based on individual participation.
5. G3/LO5: Study basic copyright issues for effective presentation and documentation.

**Goal #4 (G4): Student will be able to develop leadership skills through practice in organization, planning and executions and assessment of activities.**

***Learning Outcomes (LO)***

1. G4/LO1: Access to get opportunities to practice leadership roles through student organizations
2. G4/LO2: Opt for opportunity to lead an independent study and effectively completed the work as planned.
3. G4/LO3: Participate in technically related group activities.

**Goal #5 (G5): Students will be able to develop communication and interpersonal skills to be successful in their future endeavor.**

***Learning Outcomes (LO)***

1. G5/LO1: Formulate and develop business etiquette needed to be successful in coordinating with stakeholders, section managers, and staffs.
2. G5/LO2: Participate in writing and editing activities through assigned work to foster advanced technical communication.
3. G5/LO3: Successfully prepare the task for technical presentation.
4. G5/LO4: Participate and interact with community, business and management professionals by attending the annual events, expos, seminars, workshops, and/or training.
5. G5/LO5: Students will be encouraged to obtain employment experience relating to their specialty through internships, part-time jobs, and other service learning activities.

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

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See Appendix A

### IV. Assessment Methods

#### A. Direct Measures (at least three)

1. Exam and Homework
2. Papers
3. Culminating experience
4. Graduate oral presentation

#### B. Indirect Measures (*Alumni Survey is required*)

1. Exit survey
2. Employer survey
3. Alumni survey

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

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Assessment Methods Matrix/Table

	Goal1 Technical	Goal2 Management	Goal3 Research	Goal4 Leadership	Goal5 Lifelong
<b>Exam and Homework</b>	X	X			
<b>Papers</b>	X	X	X		
<b>Culminating experience</b>		X	X	X	
<b>Presentation</b>			X		X
<b>Exit survey</b>			X		X
<b>Employer survey</b>	X	X			X
<b>Alumni survey</b>	X				X

### VI. Timeline for Implementation of Assessment Methods and Summary Evaluation

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	2011-2012	2012-2013	2013-2014	2014-2015
<b>Exam and Homework</b>	X	X		X
<b>Papers</b>	X		X	
<b>Culminating experience</b>	X	X		X
<b>Presentation</b>	X		X	X
<b>Exit survey</b>	X		X	
<b>Employer survey</b>		X		X
<b>Alumni survey</b>		X	X	

1. As there is no test available for MSIT program assessment at the state or national level, the Final Exam and Homework has been mandatory in every 200 level course (excluding IT 290, 298, 298) for each student. The assessment will be done using Rubric 1.
2. Papers will be evaluated using two core courses (Emphasis - IT 223 and IT 280) and one elective using Rubric 2 (Emphasis - IT 286 or IT 290).
3. Culminating experience will be evaluated (Emphasis - IT 298/299) using Rubric 3.

4. Presentation will be evaluated using Rubric 4 (Emphasis - IT 282 and IT 298/299).
5. Exit survey will be evaluated using Rubric 5.
6. Alumni Survey will be evaluated using Rubric 7.
7. Employer survey will be evaluated using Rubric 6.

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

### **Enter Process for Closing the Loop**

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The department MSIT program assessment coordinator will conduct analysis on the data and show the results to the graduate faculty group for discussion. The discussion will reflect the program standing and analyze details which can be traced to the program courses. The discussion will include to identify courses that need to be improved. As mentioned in the previous section, the Exam & Homework, Papers, and Presentations will be assessed for selective courses in different semesters. Cross grading, group evaluation, and seminars 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 for possible curriculum changes. The department assessment coordinator will write a report based on the discussion.

**Rubric 1 (Program assessment using Final Exam and Homework)**

Goals (G) and Learning Outcomes (LO)	Rating (5 is high)					Avg.
	5	4	3	2	1	
	# of students participated					
G1/LO1: Compare material properties and practice the selection and application of materials in product development and production systems in industrial sectors. <b>(IT 283)</b>						
G1/LO2: Learn principles and successfully practice design problem solving methods intended for hardware and software industries. <b>(IT 285)</b>						
G1/LO3: Develop technical competencies in the operation and integration of interfacing systems including sensory systems, actuating systems, and machinery systems. <b>(IT 286)</b>						
G1/LO4: Learn interdisciplinary entities to help develop competencies in computer systems for the design and production environment. <b>(IT 285)</b>						
G1/LO5: Learn selection of the tools and systems to develop competency in the analysis, justification, and implementation of computer-aided systems used in the product design, packaging, lean support systems such as material handling systems and cell related platforms. <b>(IT 285)</b>						
G2/LO1: Learn basic management principles as applied to business and production systems. <b>(IT 223)</b>						
G2/LO2: Learn technology management skill to develop competencies in quality management and systems to ensure product and service quality. <b>(IT 223)</b>						
G3/LO1: Learn the principle of research through selected core courses such as research methodology and advanced communication concepts. <b>(IT 280)</b>						
G4/LO2: Opt for opportunity to lead an independent study. <b>(IT 290)</b>						
G5/LO1: Formulate and develop business etiquette needed to be successful in coordinating with stakeholders, section managers, and staffs. <b>(IT 282)</b>						
G5/LO2: Participate in writing and editing activities through assigned work to foster advanced technical communication. <b>(IT 282)</b>						
G5/LO3: Successfully prepare the task for technical presentation. <b>(IT 282)</b>						
G5/LO4: Participate and interact with community, business and management professionals by attending the annual events, expos, seminars, workshops, and/or training. <b>(IT 286)</b>						

## Rubric 2 (Program assessment using Paper)

Basic requirement (Please put X for Yes)

1. Computer written (either hardcopy or softcopy)	
2. Includes name of the student, Class #, instructor's name, date	
3. Format followed	
4. Title of the paper is written	

	Excellent (5)	Very Good (4)	Good (3)	Satisfactory (2)	Needs Improvement (1)
Form/Format	Followed all the guidelines	A minor error in the format	Few errors in format.	Format difficulties.	Many format errors.
Introduction	The paper statement makes the topic clear and background information is provided to establish the importance.	There is no paper statement, however background information is provided to establish the importance.	Directly pulls the reader into the piece. That is the logic of the problem that motivates writing has gaps but acceptable.	Introduces the text but there may be too little or too much without explanation	No new information is introduced. It is too short or nonexistent.
Content	The paper is embedded with logical, thorough, and discipline based flow. The introductory plan is extended in a specific ways to address relevant topic and sub topics.	The paper is embedded with discipline based flow. The introductory plan has been extended but in a random manner. The most important research findings are restated.	The content described under appropriate sections with references. The narration is acceptable.	The paper is missing significant information. Needs further writing and improvement.	The paper narration focuses mostly on something other than the assigned topic. It lacks contents adversely.
Research	The paper shows serious involvement. Wide research, uses available primary sources, topic	The paper only covers traditional terminology and description. No advanced	Very narrative but does not have coherence between the existing and	Topics incorporated in paper from some different kinds. Internet based	A puzzled paper with so many questions.

	presentation covers general explanation along with advanced topics and is balanced in nature.	research topics are discussed.	new methods. At least 2 sources were used in paper.	graphics and texts are copied at several places.	
Organization	Sub-topics are properly titled and logically organized and developed. Transitions from headings take the reader toward conversion and conclusion.	Sub-topics are titled and organized and developed. Transitions from headings are not so smooth to take the reader toward conversion and conclusion.	The paper proceeds logically with headings however, some transition or organization problems impede flow in some sections.	The paper proceeds without headings. However, the logic flow seems appropriate and haphazard.	The organization of the paper seems aimless. Ideas are unorganized and transitions are absent.
Readability	The style and structure of the text provide information in comparing appropriateness of text content. Writing is well organized into an introduction, a body, and a conclusion. Writing is fluid and free from spelling and grammatical errors.	The text is readable only by someone who knows what it is supposed to be doing. Writing also uses appropriate voice for the assignment. Some minor errors in writing.	Presents information in a style that is often inappropriate for the intended audience. Makes no use of headings, fonts, bullet points or white space to enhance visual appeal and readability.	Numerous errors in usage, spelling, capitalization, and punctuation repeatedly distract the reader and make the text difficult to read.	There are lots of historical inaccuracies and severe writing errors. The writing errors degrade effectiveness.

**Summary Table for Rubric 2 (Assessment from Paper): Summary**

	# of students scored Excellent (5)	# of students scored Very Good (4)	# of students scored Good (3)	# of students scored Satisfactory (2)	# of students scored Needs Improvement (1)
Form/Format					
Introduction					
Content					
Research					
Organization					
Readability					
SUM					

**Rubric 3a (Program assessment from Culminating Experience)**

Goals (G) and Learning Outcomes (LO)	Rating					Avg.
	5	4	3	2	1	
	# of students participated					
G2/LO3: Selection of technology management will develop competencies in planning, supervising, and evaluating real-time supply chain management systems. <b>(IT 285)</b>						
G3/LO2: Successfully practice the application of research principles through the development of proposals, execution of research, analysis, conclusions, and recommendations. <b>(IT 280, IT 298/299)</b>						
G3/LO3: Develop data oriented research outcome and/or hands-on research activities through projects, thesis and independent study. <b>(IT 290/298/299)</b>						
G3/LO4: Conduct research findings based on individual participation. <b>(IT 290, IT 298/299)</b>						
G3/LO5: Study basic copyright issues for effective presentation and documentation. <b>(IT 282, IT 280)</b>						
G4/LO2: Opt for opportunity to lead an independent study and effectively completed the work as planned. <b>(IT 290)</b>						
G5/LO5: Students will be encouraged to obtain employment experience relating to their specialty through internships, part-time jobs, and other service learning activities. <b>(CPT/OPT)</b>						



**Rubric 3b (Program assessment from Culminating Experience) - assessing the research activities**

<b>IT 298/299</b>			
	Rating (1-5 scale), 5 is high		
	High (5)    Low (4)	High (3)    Low (2)	1
	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
Analysis	Clearly defined end users, Technology feasibility, and societal need is strong	Technology feasibility is addressed	Analysis part is missing
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
Future work	The strength of this work is properly cited, The usefulness of this study and its continuity is well documented.	The usefulness of this study and its continuity is well documented.	Future work is not documented
Overall originality	Paper presentation, Paper submission to	Researched and documented	Documentation does not look like a project

	journal		or thesis
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

#### Rubric 4 (Presentation and Communication)

IT 282, IT 290, IT298/299					
Rating (1-5 scale), 5 is high					
		Exceeds standards		Meets standards	Does not meet standards
		High (5)	Low (4)	High (3)	Low (2)
				1	
Organization	The presentation is clearly organized with an effective introduction and conclusion. The parts relate to each other	Only complete with supporting details.		Information are placed haphazardly	
Topic Introduction	The student effectively introduces the topic with eye contact	Does not engage eye to the audience		Does not introduce the topic.	
Preview	Clear narration of each point and indication of the following theme	Clear narration of each point and no indication of the following theme		Does not coordinate the talk with the slides/printed materials	
Gestures, Posture & Movement	Appreciable Gestures, Posture & Movement	Only on certain points		Stand still	
Attending the audience	Who are the beneficiary of the talk	The student connects the topic only		Neglects the audience	
Important information	Relevant data oriented information with confidence	Referring someone's talk to provide examples on important information		Important information are skipped	
Summarizing	Summary of the key points.	Some key points are missing.		No summary	
Presentation delivery	Grammar, language	Mistakes, spelling, Notes and visuals used as needed.		Student appears unpracticed, more visual aids.	
Volume	Constant tone and voice	Up and down, unnecessary force laugh		Rude, unaccepted non-verbal	
Pronunciation	Normal pronunciation	Occasional errors.		Too much botheration to peculiar wordings	
Eye contact	Appropriate eye contact to the entire audience	Eye contact to a portion		Inconsistent eye contact, eye contact with roof	
Visual aids	Topic related, short, very informative, summary at the end.	Topic related, immediate switch over to next topic		No visual, or too much visual aids, far from the topic	
Closing	The student closes presentation in professional manner.	Closes all of a sudden		Could not be understood whether the presentation is coming to the end	





**Rubric 7**  
**MSIT Employer Survey**  
Department of Industrial Technology  
California State University, Fresno, M/S IT09, Fresno, CA 93740

Address of the employer

Name of the employee (graduate of Industrial Technology MSIT program):

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(Last) (First) (Middle)

Gender:      Male      Female

Current employment status:  
Full time      Part time

What is the type of industry?

Industry      Software      Service      Education      Other

What is your view on the level of knowledge and skill, in 1 to 5 scale, this employee possesses?

How positive, in 1 to 5 scale, is this employee's interaction with your other employees?

How effective, in 1 to 5 scale, is the leadership of this employee?

We pay fairly for the work this employee does.

Extremely fair      Very fair      Moderately fair      Don't know

Senior management is genuinely interested in this employee's opinions and ideas.

All the time      most of the time      Rarely      Not at all

Any additional comments:

