

California State University, Fresno

Jordan College of Agricultural Sciences and Technology

Department of Industrial Technology (Bachelor of Science)

Department/Program Assessment Coordinator: Daming Zhang

Student Outcomes Assessment Plan (SOAP)

I. Mission Statement

The department's mission is "to prepare individuals for technical, management, and educational careers in agriculture, business, industry and government for the advancement of regional and global economy". The department's mission aligns with the University's mission "to boldly educate and empower students for success".

II. Institutional Learning Outcomes, Program Learning Outcomes/Goals, and SLOs [a,b,c]

Institutional Learning Outcomes. Fresno State SLOs are posted on the following webpage:

<http://fresnostate.edu/academics/oie/assessment/fresno-state-assessment.html>

Program Learning Outcomes (Also known as Goals) and related SLOs

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

A.1 Be able to demonstrate knowledge of electricity and electronics and apply them to automated control.

A.2 Be able to operate industrial machinery and select the appropriate process for industrial materials.

A.3 Be able to choose and apply appropriate computer software and hardware used in industrial settings.

A.4 Be able to apply scientific and mathematical principles and practices to industrial applications.

A.5 Be able to design industrial processes, systems, and products.

A.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.

B.1 Be able to manage projects from planning to completion.

B.2 Be able to appraise and manage quality systems, including the development and analysis of standard quality data.

- B.3 Be able to manage the entire production process from a systems approach, including change management.
- B.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.**
- C.1 Be able to communicate orally and in writing, including using appropriate software.
- C.2 Be able to organize and manage team-oriented activities.
- C.3 Be able to develop leadership skills through joining extra-curricular programs sponsored by the department, college, and university, including field trips and clubs.
- C.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.**
- D.1 Be able to develop research and problem-solving skills.
- D.2 Be able to propose, plan, and execute independent projects incorporating various technical and managerial components.
- D.3 Be able to present findings from technical and scientific research.
- D.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 to be successful in their future endeavors.**
- E.1 Be able to develop interpersonal communication skills.
- E.2 Be able to develop skills to train others in technical areas.
- E.3 Be able to obtain the Industrial and Technology single-subject teaching credential for public school teaching if desired.

III. Curriculum Map [d]: Courses in which SLOs are addressed and evaluated

See Appendix B.

IV. SLOs Mapped to Assessment Measures and Methods [e]

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

V. Assessment Measures: Description of Assignment and Method (rubric, criteria, etc.) used to evaluate the assignment [f]

- A. **Direct Measures** (Department/Program must use a minimum of three different 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. BSIT graduates are arranged to take the CTM exam. Our goal 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 provides a senior project report manual to every student as guidelines. The senior project reports will be rated using 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** (Department/Program must use a minimum of one indirect measure)
1. Alumni Survey: The BSIT alumni survey has been created and used for many years. From past experiences, the response rate was very low. 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 conduct 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 agencies and companies in the local area for a long time. The purpose is to know the employer's needs and requirements. Our goal is to achieve 60% response rate.

VI. Assessment Schedule/Timeline [g]

	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030
Standard Exam		X			
Exams	X		X	X	X
Papers	X		X		X
Alumni survey		X			
Exit survey	X	X	X	X	X
Employer survey				X	

VII. Closing the Loop [h,j,k]

Fresno State Closing the Loop process is described immediately below.

A major assessment report, which focuses on assessment activities carried out the previous academic year, is submitted in September of each academic year and evaluated by the Learning Assessment Team and Director of Assessment at Fresno State.

Program/Department Closing the Loop process:

Standard exam (CTM) is conducted for graduating Seniors. The department assessment coordinator will conduct the test 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 most of IT major courses. The results will also be discussed at the department meetings to identify courses that need to be improved.

Exams and Papers will be assessed for selective courses in different semesters. Rubric 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 regarding possible curriculum changes and quality improvements.

Appendix A – Paper and Report Rubric

Senior Report or Paper				Rating
	Rating (1-5 scale), 5 is highest			
	High (5) Low (4)	High (3) Low (2)	1	
	Exceeds standards	Meets standards	Doesn't meet standards	
Research principles	Direct and immediate application.	A feasible application, Student gained knowledge.	Cannot see any application.	
Objective description	Motivated objective written clearly and precisely.	Long paragraph without any focus.	Not clearly written.	
Problem solving	Implementation strategy, cost-performance study.	Only implementation strategy.	Problems are not solved.	
Independent thinking	Did the survey, research, etc. alone.	Took help of the technicians, assistants in getting the results.	Did not do project independently.	
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 6 or 5 separate chapters with Introduction, Literature review, Methodology, Results, Conclusion and Future work.	Complete with at least 4 separate chapters. Some chapters are missing but included in other parts of the report.	Complete with less than 3 separate chapters. Some chapters are missing.	

Appendix B - BSIT Core Courses and Outcome Matrix

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

“D” indicates that this outcome is developed in the course.

“M” indicates that this outcome is mastered in the course.

Course	Outcome	Technical Goals						Management Goals				Leadership Goals				Research Goals				Lifelong Goals		
		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 30	Exploring Industrial Technology			I	I	I			I		I	I			I					I		
DS 73	Statistical Analysis			I	I											I		I				
Chem 3A	Intro General Chemistry				D						I		I		D	I		I				
Phys 2A	General Physics	I		I	D		I				I				D	I		I				
IT 52	Electricity and Electronics	D		I	D	D					I		I		I	I	I			I		
IT 74	Manufacturing Processes	I	M		I	D				D	D		I				I					
IT 92	Safety Management					I		I	I		D	I						I	I	I	D	
IT 104	Product Design		I	I	I	M		I	I	D			D		I	D	I	D		D		
IT106	Energy Conversion & Utilization	D			D	I	M						I		D	D		I	I			
IT 114	Industrial Materials		D		D	M			I		I	I			I	I	I	I				
IT 115	Design and Documentation Sys			D	D	M		D	I	I		M			I	D	I	D		D		
IT 117	Quality Assurance			I	D	D		M	M	I	I	I	D			I		D		I		
IT 118	Production Operations		D		D	D		M		M	D	I			I	I		D		D		
IT 133	Ind Process Control Sys II	M		M	D	D		D		D	I	I			D	M		D		D		
IT 137	Industrial Quality Standards			D	D	M		D	M	D	D	I	D			D		D	I	D		
IT 148	Project Mgt and Control			D	D	M		M	D	M	D	D	D					D	D	D	D	
IT 156	Automated Systems II	M		M		M		D				D			D	D		D	D	D		
IT 184	Advanced Manufacturing Tech		M	M		M		D	D	M	D	D				D		D				
IT 194I	Cooperative Edu in Ind Tech	D	M	D	M	M		M	D	M	D	M	D			M		D	M			
IT 196	Senior Seminar											M					D	D	M	M		
IT198W	Technical Writing											M				D		M		M		
IT 199	Senior Problems in Ind Tech	D	D	D	M	M	D	M	D	M	D	M			D	M	M	M	M	M		