

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. Goal The outline below only serves as a formatting guide.

Goal #1 (G1): Students will gain knowledge, skills and technical competency for employment and advancement within technology related 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 develop technical management skills based on 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 learn and apply research principles and methodology based on their career objectives.

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

VI. Timeline for Implementation of Assessment Methods and Summary Evaluations

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	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Exam and Homework	X	X	X	X	X
Papers		X		X	
Culminating experience	X	X	X	X	X
Presentation	X	X	X	X	X
Exit survey	X	X	X	X	X
Employer survey			X		X
Alumni survey		X		X	

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

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Enter Process for Closing the Loop

1. There is no test is available for MSIT program assessment at the state or national level. Therefore, the Final Exam and Homework is mandatory in every 200 level course (excluding IT 290, 298, 298) for every graduate student. The class evaluation 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. Employer survey will be evaluated using Rubric 6.
7. Alumni Survey will be evaluated using Rubric 7.

The department MSIT program assessment coordinator will conduct analysis on the results and write a report which will be discussed in the department for improvement and adjustment, etc.

Rubric 1 (Exam and Homework – Class Evaluation)

Goals and learning outcomes	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. (IT 283)						
G1/LO2: Learn principles and successfully practice design problem solving methods intended for hardware and software industries. (IT 285)						
G1/LO3: Develop technical competencies in the operation and integration of interfacing systems including sensory systems, actuating systems, and machinery systems. (IT 286)						
G1/LO4: Learn interdisciplinary entities to help develop competencies in computer systems for the design and production environment. (IT 285)						
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. (IT 285)						
G2/LO1: Learn basic management principles as applied to business and production systems. (IT 223)						
G2/LO2: Learn technology management skill to develop competencies in quality management and systems to ensure product and service quality. (IT 223)						
G3/LO1: Learn the principle of research through selected core courses such as research methodology and advanced communication concepts. (IT 280)						
G4/LO2: Opt for opportunity to lead an independent study. (IT 290)						
G5/LO1: Formulate and develop business etiquette needed to be successful in coordinating with stakeholders, section managers, and staffs. (IT 282)						
G5/LO2: Participate in writing and editing activities through assigned work to foster advanced technical communication. (IT 282)						
G5/LO3: Successfully prepare the task for technical presentation. (IT 282)						
G5/LO4: Participate and interact with community, business and management professionals by attending the annual events, expos, seminars, workshops, and/or training. (IT 286)						

Rubric 2 (Paper evaluation)

Student Name: _____ Instructor's Name: _____

Basic requirement (Please put X)

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 presentation covers general explanation along with advanced topics and is balanced in nature.	The paper only covers traditional terminology and description. No advanced research topics are discussed.	Very narrative but does not have coherence between the existing and new methods. At least 2 sources were used in paper.	Topics incorporated in paper from some different kinds. Internet based graphics and texts are copied at several places.	A puzzled paper with so many questions.
Organization	Sub-topics are properly titled and logically organized and developed.	Sub-topics are titled and organized and developed.	The paper proceeds logically with headings	The paper proceeds without headings.	The organization of the paper seems aimless. Ideas are unorganized and

	Transitions from headings take the reader toward conversion and conclusion.	Transitions from headings are not so smooth to take the reader toward conversion and conclusion.	however, some transition or organization problems impede flow in some sections.	However, the logic flow seems appropriate and haphazard.	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.

Rubric 3a (Culminating Experience)

Goals and learning outcomes	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. (IT 285)						
G3/LO2: Successfully practice the application of research principles through the development of proposals, execution of research, analysis, conclusions, and recommendations. (IT 280, IT 298/299)						
G3/LO3: Develop data oriented research outcome and/or hands-on research activities through projects, thesis and independent study. (IT 290/298/299)						
G3/LO4: Conduct research findings based on individual participation. (IT 290, IT 298/299)						
G3/LO5: Study basic copyright issues for effective presentation and documentation. (IT 282, IT 280)						
G4/LO2: Opt for opportunity to lead an independent study and effectively completed the work as planned. (IT 290)						
G5/LO5: Students will be encouraged to obtain employment experience relating to their specialty through internships, part-time jobs, and other service learning activities. (CPT/OPT)						

Rubric 3b (Culminating Experience) - assessing the research activities (IT 298, IT 299, IT 290)

IT 282, IT 290, IT298/299			
	Rating (1-5 scale), 5 is high		
	High (5)	Low (4)	1
	Exceeds standards	Meets standards	Does not meet standards
Research principles	Direct and immediate application	A feasible application, Student gained knowledge	Can not 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 journal	Researched and documented	Documentation does not look like a project 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 6

MSIT Alumni Survey (Incomplete*)
Department of Industrial Technology
California State University, Fresno, M/S IT09, Fresno, CA 93740

Name: _____
(Last) (First) (Middle)

Gender: Male Female

Home Town: _____

Graduation Date (mm/yr) _____ / _____

Current employment status:
Full time Part time Self employed Not employed

What is your area of work/industry?
Industry Software Service Education Other

Are you in job selection process?
Yes No

Do you have plans for further education?
Yes No

Are you involved with any research projects?
Yes No

Would you recommend the IT program to friends, family and others?
Yes No

Any additional comments:

**To be revised in fall 2011.*

Appendix A

Subjects vs. Goal and Learning Outcome Matrix

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

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

LO : Learning Outcomes

		Technical Goals					Management Goals			Research				Leadership			Lifelong				
		Material properties and Practice	Design and problem solving	Technical competency	Interdisciplinary entities	Selection of tools and systems	Management principle	Technology management skills	Technology systems and planning	Principle of research	Application of research	Data oriented research	Research based on individual participations	Leadership through student organization	Independent study achievement	Group activity	Business etiquette	Writing and editing	Presentation	Participation in EXPO, seminar, etc.	Community service
Outcome		LO1	LO2	LO3	LO4	LO5	LO1	LO2	LO3	LO1	LO2	LO3	LO4	LO1	LO2	LO3	LO1	LO2	LO3	LO4	LO5
Course																					
IT 223	Management of New Technology	I	I	I	I	I	E	E	E	I	I	I	I	I	E	I		I	I	E	I
IT 280	Research Methodology									E	E	E	E				I	E	E		
IT 282	Advanced Communication Concepts and Visual Presentation						I								I	I	E	E	E	I	I
IT 283	Advanced Materials and Processes	I									E							E	E		
IT 285	Advanced Manufacturing Systems	I	E	I	I	I	E	E	E	I	I	I	I	I	I	I	I	I	I	E	
IT 286	Applied Spatial Technology		E	E	E	E	E	E	I	E	E	E	I					E	E		
IT 290	Independent Study	I	E	E	I	E				I	I	I	E		E			I	E		
IT298/299	MSIT Project/Thesis	I	E	E	I	E				E	E	E	E		E			I	E		