MECHANICAL ENGINEERING
PROGRAM EDUCATIONAL OBJECTIVES (PEO's)
EVALUATION RESULTS FROM

1. Kettering University Alumni Survey

For end of Calendar Year 2002

KETTERING FIVE COLUMN ASSESSMENT FORM

Academic Program Mission and Educational Objectives	Program Educational Objective	Assessment Methods and Performance Standards	Assessment Results	Use of Assessment Results
Mission Statement: The academic mission of Mechanical Engineering is to develop and prepare applied mechanical engineers, multi-discipline leaders, and technical managers for a global and diverse market. This mission is accomplished in an academic and cooperative environment that promotes scholastic performance, sound engineering fundamentals, strong design experiences, and personal professional integrity. The Department of Mechanical Engineering encourages and fosters team participation, creative thinking, a competitive spirit, and professional activities. *Program Educational Objectives:* The Department of Mechanical Engineering strives to produce graduates who: 1. Are knowledgeable in the effective use of modern problem solving and design methodologies. 2. Understand the implications of design decisions in the engineering marketplace. 3. Are effective engineers, i.e. ones who are able to formulate and analyze problems, think creatively, communicate effectively, synthesize information, and work collaboratively. 4. Have an appreciation and an enthusiasm for life-long learning. 5. Perform effectively on teams engaged in continuous improvement activities in engineering and business processes. 6. Practice professionally and ethically in the field of Mechanical Engineering. 7. Are prepared for positions of Leadership in business and industry.	1. Are knowledgeable in the effective use of modern problem solving and design methodologies.	1a. 80% of the Mechanical Engineering alumni responding to the Kettering University Alumni Survey indicate medium increase or above to the statement "Indicate the degree to which your Kettering/GMI education increased your knowledge/skills in the following areas: Computer-aided design." 1b. 80% of the Mechanical Engineering alumni responding to the Kettering University Alumni Survey indicate medium increase or above to the statement "Indicate the degree to which your Kettering/GMI education increased your knowledge/skills in the following areas: Design of experiments." 1c. 80% of the Mechanical Engineering alumni responding to the Kettering University Alumni Survey indicate medium increase or above to the statement "Indicate the degree to which your Kettering/GMI education and Co-op experience increased your abilities in the following areas: Education: Solve open-ended problems." 1d. 80% of the Mechanical Engineering alumni responding to the Kettering University Alumni Survey indicate medium increase or above to the statement "Indicate the degree to which your Kettering/GMI education and Co-op experience increased your abilities in the following areas: CO-OP: Solve open-ended problems."	1a. 84.7% of the Mechanical Engineering alumni responding to the Kettering University Alumni Survey indicate medium increase or above. 1b. 56.5% of the Mechanical Engineering alumni responding to the Kettering University Alumni Survey indicate medium increase or above. 1c. 88.3% of the Mechanical Engineering alumni responding to the Kettering University Alumni Survey indicate medium increase or above. 1d. 73.3% of the Mechanical Engineering alumni responding to the Kettering University Alumni Survey indicate medium increase or above.	No Action Required, Continue to Monitor Possible misinterpretation of what Design of Experiments means

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		3b. 80% of the Mechanical Engineering alumni responding to the Kettering University Alumni Survey indicate medium increase or above to the statement "Indicate the degree to which your Kettering/GMI education increased your knowledge/skills in the following areas: Oral communications skills"	3b. 60.8% of the Mechanical Engineering alumni responding to the Kettering University Alumni Survey indicate medium increase or above.	Continue to Monitor in light of new curriculum
		3c. 80% of the Mechanical Engineering alumni responding to the Kettering University Alumni Survey indicate medium increase or above to the statement "Indicate the degree to which your Kettering/GMI education and Co-op experience increased your abilities in the following areas: Education: Function on multi-disciplinary teams"	3c. 95.4% of the Mechanical Engineering alumni responding to the Kettering University Alumni Survey indicate medium increase or above.	No Action Required
		3d. 80% of the Mechanical Engineering alumni responding to the Kettering University Alumni Survey indicate medium increase or above to the statement "Indicate the degree to which your Kettering/GMI education and Co-op experience increased your abilities in the following areas: CO-OP: Function on multi-disciplinary teams"	3d. 70.5% of the Mechanical Engineering alumni responding to the Kettering University Alumni Survey indicate medium increase or above.	Continue to Monitor
		3e. 80% of the Mechanical Engineering alumni responding to the Kettering University Alumni Survey indicate medium increase or above to the statement "Indicate the degree to which your Kettering/GMI education and Co-op experience increased your abilities in the following areas: Education: Analyze components, processes, or systems"	3e. 95.3 % of the Mechanical Engineering alumni responding to the Kettering University Alumni Survey indicate medium increase or above.	No Action Required

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MECHANICAL ENGINEERING
PROGRAM EDUCATIONAL OUTCOMES (PO's)
ASSESSMENT RESULTS FROM

1. **Student's Evaluation of Co-op Term**
2. **Supervisor's Evaluation of Co-op Experience**
3. **National College Student Report**
4. **Senior Design Course Portfolio**
5. **Education Benchmarking Inc. (EBI) Survey**
6. **Program Exit Survey**
7. **Senior Thesis Project (Employer's Evaluation)**

For end of Calendar Year 2002

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		B4. 80% of the mechanical engineering students responding to the EBI Engineering Student Survey indicate “moderately” and above on the question “To what degree did your engineering education enhance your ability to conduct experiments.”	95.7% of the Faculty Advisors responding to the Kettering University Senior Thesis Project: Faculty Advisor’s Evaluation indicated “Strongly Agree” or “Agree” to the statement “Demonstrated the ability to conduct experiments, analyze and interpret data.”	
		B5. 80% of the mechanical engineering students responding to the EBI Engineering Student Survey indicate “moderately” and above on the question “To what degree did your engineering education enhance your ability to analyze and interpret data.”	97.1% of the Employer Advisors responding to the Kettering University Senior Thesis Project: Employer Advisor’s Evaluation indicated “Strongly Agree” or “Agree” to the statement “Demonstrated the ability to conduct experiments, analyze and interpret data.”	

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		needs." C5. 80% of the Employers Advisors responding to the Kettering University Senior Thesis Project: Employer Advisor's Evaluation indicate "Strongly Agree" or "Agree" to the statement "Demonstrated the ability to design a system, component, or process to meet desired needs."	a system, component, or process to meet desired needs." 100% of the Employers Advisors responding to the Kettering University Senior Thesis Project: Employer Advisor's Evaluation indicated "Strongly Agree" or "Agree" to the statement "Demonstrated the ability to design a system, component, or process to meet desired needs".	

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		multi-disciplinary teams."	Employer Advisor's Evaluation indicated "Strongly Agree" or "Agree" to the statement "Demonstrated the ability to function on multi-disciplinary teams."	

KETTERING FIVE COLUMN ASSESSMENT FORM

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Mission Statement: The academic mission of Mechanical Engineering is to develop and prepare applied mechanical engineers, multi-discipline leaders, and technical managers for a global and diverse market. This mission is accomplished in an academic and cooperative environment that promotes scholastic performance, sound engineering fundamentals, strong design experiences, and personal professional integrity. The Department of Mechanical Engineering encourages and fosters team participation, creative thinking, a competitive spirit, and professional activities. *Program Educational Objectives:* The Department of Mechanical Engineering strives to produce graduates who: 1. Are knowledgeable in the effective use of modern problem solving and design methodologies. 2. Understand the implications of design decisions in the engineering marketplace. 1. Are effective engineers, i.e. ones who are able to formulate and analyze problems, think creatively, communicate effectively, synthesize information, and work collaboratively. 2. Have an appreciation and an enthusiasm for life-long learning. 3. Perform effectively on teams engaged in continuous improvement activities in engineering and business processes. 4. Practice professionally and ethically in the field of Mechanical Engineering. 5. Are prepared for positions of Leadership in business and industry.	B. An ability to function in multidisciplinary teams.	E1. 80% of the mechanical engineering students responding to the Kettering University Supervisor's Evaluation of CO-OP Work Experience survey indicate "Very Satisfied" or "Satisfied" to work assignment attribute "Problem Solving: Thinks through problems, evaluates relevant facts, generates alternatives, makes sound conclusions and timely decisions. E2. 80% of the supervisors of mechanical engineering students responding to the EBI Engineering Student Survey indicate "moderately" and above on the questions "To what degree did your engineering education enhance your ability to identify or formulate engineering problems" and "To what degree did your engineering education enhance you to solve engineering problems." E3 80% of the mechanical engineering students responding to the Mechanical Engineering Program Exit Survey indicate "Average" or above to the statement "Reflecting on the ME as a whole, please rate the contribution the WHLE Educational Experience in helping you achieve the following ME Program education outcome: Ability to identify, formulate and solve engineering problems."	95.9% of those responding to the Kettering University Supervisor's Evaluation of CO-OP Work Experience Survey indicated 'Very Satisfied" or "Satisfied" to the work assignment attribute "Problem Solving: Thinks through problems, evaluates relevant facts, generates alternatives, makes sound conclusions and timely decisions." 95.2% of those responding to the EBI Engineering Student Survey indicated "moderately" and above on the questions "To what degree did your engineering education enhance your ability to identify or formulate our to solve engineering problems." 97.4% of those responding to the EBI Engineering Student Survey indicated "moderately" and above on the questions "To what degree did your engineering education enhance you to solve engineering problems." 100% of those responding to the Mechanical Engineering Program Exit Survey indicated "Average" or above to the statement "Reflecting on the ME as a whole, please rate the contribution the WHOLE Educational Experience in helping you achieve the following ME Program education outcome: Ability to identify formulate and solve engineering problems."	No Action Required, Continue to Monitor

		E4. 80% of the Faculty Advisors responding to the Kettering University Senior Thesis Project: Faculty Advisor's Evaluation indicate "Strongly Agree" or "Agree" to the statement "Demonstrated the ability to identify, formulate and solve engineering problems."	98.0% of the Faculty Advisors responding to the Kettering University Senior Thesis Project: Faculty Advisor's Evaluation indicated "Strongly Agree" or "Agree" to the statement "Demonstrated the ability to identify, formulate and solve engineering problems."	
		E5. 80% of the Employer Advisors responding to the Kettering University Senior Thesis Project: Employer Advisor's Evaluation indicate "Strongly" Agree" or "Agree" to the statement "Demonstrated the ability to identify, formulate and solve engineering problems."	100% of the Employer Advisors responding to the Kettering University Senior Thesis Project: Employer Advisor's Evaluation indicated "Strongly Agree" or "Agree" to the statement "Demonstrated the ability to identify, formulate and solve engineering problems."	

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		understanding of professional and ethical responsibility."	"Agree" to the statement "Demonstrated understanding of professional and ethical responsibility."	

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			Education outcome: Ability to communicate effectively.	
		G4. 80% of the Faculty Advisors responding to the Kettering University Senior Thesis Project: Faculty Advisor's Evaluation indicate: "Strongly Agree" or "Agree" to the statement "Demonstrated the ability to communicate effectively: through interpersonal skills."	96.9% of the Faculty Advisors responding to the Kettering University Senior Thesis Project: Faculty Advisor's Evaluation indicated "Strongly Agree' or "Agree" to the statement "Demonstrated the ability to communicate effectively: through interpersonal skills."	
		G5. 80% of the Faculty Advisors responding to the Kettering University Senior Thesis Project: Faculty Advisor's Evaluation indicate "Strongly Agree" or "Agree" to the statement "Demonstrated the ability to communicate effectively: through formal presentations."	92.8% of the Faculty Advisors responding to the Kettering University Senior Thesis Project: Faculty Advisor's Evaluation indicated "Strongly Agree" or :Agree" to the Statement "Demonstrated the ability to communicate effectively: through formal presentations."	
		G6. 80% of the Employer Advisors responding to the Kettering University Senior Thesis Project: Employer Advisor's Evaluation indicate "Strongly Agree" or "Agree" to the statement "Demonstrated the ability to communicate effectively: through interpersonal skills."	97.2% of the Employer Advisors responding to the Kettering University Senior Thesis Project: Employer Advisor's Evaluation indicated "Strongly Agree" or "Agree" to the statement "Demonstrated the ability to communicate effectively: through interpersonal skills."	
		G7. 80% of the Employer Advisors responding to the Kettering University Senior Thesis Project: Employer Advisor's Evaluation indicate "Strongly Agree" or "Agree" to the statement "Demonstrated the ability to communicate effectively: through formal presentations.	96.6% of the Employer Advisors responding to the Kettering University Senior Thesis Project: Employer Advisor's Evaluation indicated "Strongly Agree" or "Agree" to the statement "Demonstrated the ability to communicate effectively: through formal presentations.	

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		Advisor's Evaluation indicate Strongly Agree" or "Agree" to the statement "Recognized the need for and demonstrated the ability to engage in life-long learning.	statement "Recognized the need for and demonstrated the ability to engage in life-long learning."	

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KETTERING FIVE COLUMN ASSESSMENT FORM

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Mission Statement: The academic mission of Mechanical Engineering is to develop and prepare applied mechanical engineers, multi-discipline leaders, and technical managers for a global and diverse market. This mission is accomplished in an academic and cooperative environment that promotes scholastic performance, sound engineering fundamentals, strong design experiences, and personal professional integrity. The Department of Mechanical Engineering encourages and fosters team participation, creative thinking, a competitive spirit, and professional activities. *Program Educational Objectives**:*** The Department of Mechanical Engineering strives to produce graduates who: 1. Are knowledgeable in the effective use of modern problem solving and design methodologies. 2. Understand the implications of design decisions in the engineering marketplace. 3. Are effective engineers, i.e. ones who are able to formulate and analyze problems, think creatively, communicate effectively, synthesize information, and work collaboratively. 4. Have an appreciation and an enthusiasm for life-long learning. 5. Perform effectively on teams engaged in continuous improvement activities in engineering and business processes. 6. Practice professionally and ethically in the field of Mechanical Engineering. 7. Are prepared for positions of Leadership in business and industry.	O. A competence in the use of computer graphics for design communication and visualization.	O1. 80% of the mechanical engineering students responding to the Mechanical Engineering Program Exit Survey indicate "Average" or above to the statement "Reflecting on the ME as a whole, please rate the contribution the WHOLE Educational Experience in helping you achieve the following ME Program education outcome: Competence in the use of computer graphics for design communication and visualization."	95% of those responding to the Mechanical Engineering Program Exit Survey indicated "Average" or above to the statement "Reflecting on the ME as a whole, please rate the contribution the WHOLE Educational Experience in helping you achieve the following ME Program education outcome: Competence in the use of computer graphics for design communication and visualization."	No Action Required, Continue to Monitor

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