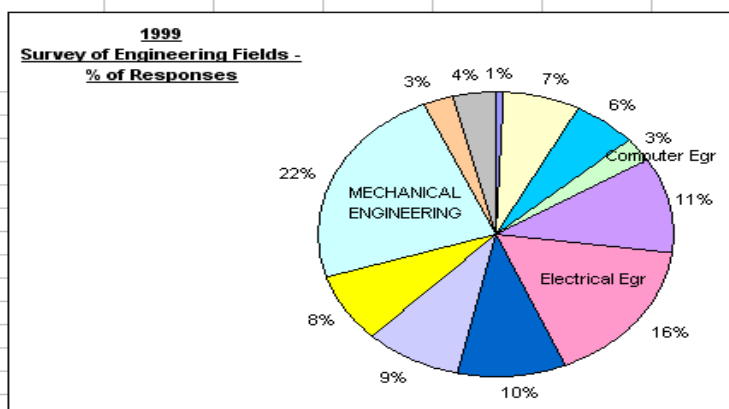


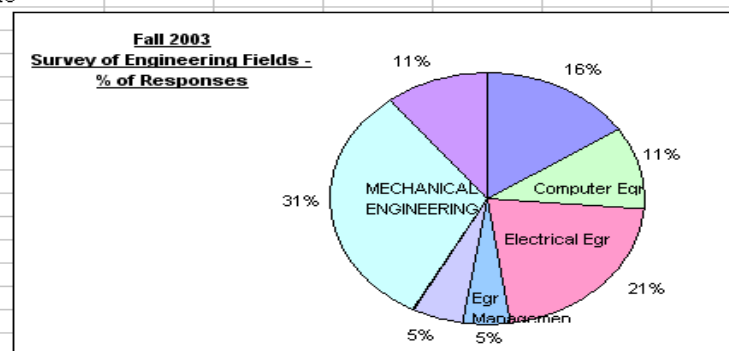
# APPENDIX A

## Survey of Need for Mechanical Engineering Program at UM-Flint

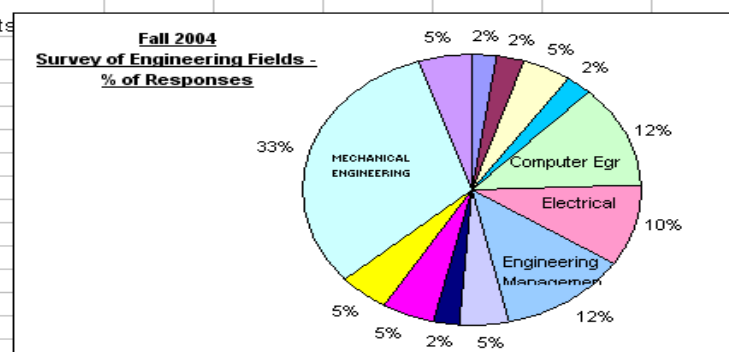
<b>EGR 102 - 1999 Survey "What Fields of Engineering Are You Interested In"</b>	# of Responses	% of Responses	% of Students
Aerospace	1	1.0%	2%
Chemical	7	6.8%	17%
Civil	6	5.8%	15%
Computer	3	2.9%	7%
Controls and Robotics	11	10.7%	27%
Electrical	17	16.5%	41%
Engineering Systems	10	9.7%	24%
Industrial	9	8.7%	22%
Manufacturing and Materials	8	7.8%	20%
Mechanical	24	23.3%	59%
Quality Control and Measure	3	2.9%	7%
Other	4	3.9%	10%
<b>Total Responses</b>	<b>103</b>		
<b># of Surveys Completed</b>	<b>41</b>		



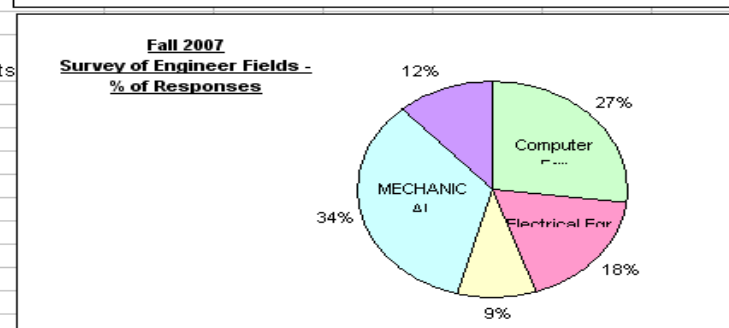
<b>EGR 102 - Fall 2003 Survey</b>	of Response	of Response	of Students
Aerospace Engineering	3	16%	33%
Biomedical Engineering	0	0%	0%
Chemical Engineering	0	0%	0%
Civil Engineering	0	0%	0%
Computer (hardware) Engineer	2	11%	22%
Electrical Engineering	4	21%	44%
Engineering Management	1	5%	11%
Engineering Physics	1	5%	11%
Environmental Engineering	0	0%	0%
Industrial Engineering	0	0%	0%
Manufacturing and Materials	0	0%	0%
Mechanical Engineering	6	32%	67%
Other	2	11%	22%
<b>Total Responses</b>	<b>19</b>		
<b># of Surveys Completed</b>	<b>9</b>		



<b>EGR 102 - Fall 2004 Survey</b>	of Response	of Response	of Students
Aerospace Engineering	1	2.4%	5%
Biomedical Engineering	1	2.4%	5%
Chemical Engineering	2	4.9%	10%
Civil Engineering	1	2.4%	5%
Computer (hardware) Engineer	5	12.2%	25%
Electrical Engineering	4	9.8%	20%
Engineering Management	5	12.2%	25%
Engineering Physics	2	4.9%	10%
Environmental Engineering	1	2.4%	5%
Industrial Engineering	2	4.9%	10%
Manufacturing and Materials	2	4.9%	10%
Mechanical Engineering	13	31.7%	65%
Other	2	4.9%	10%
<b>Total Responses</b>	<b>41</b>		
<b># of Surveys Completed</b>	<b>20</b>		



<b>Fall 2007 Survey</b>	of Response	of Response	of Students
Computer Engineering	23	27%	34%
Electrical Engineering	15	18%	22%
Environmental Engineering	8	9%	12%
Mechanical Engineering	29	34%	43%
No opinion	10	12%	15%
<b>Total Responses</b>	<b>85</b>		
<b># of Surveys Completed</b>	<b>68</b>		



## APPENDIX B

### Proposed Bachelor of Science in Mechanical Engineering (BSME) Curriculum

#### Comp Science & Chemistry (11 Cr.)

CSC 175 Programming C++	(4)
CHM 260 Principles of Chemistry I	(3)
CHM 261 General Chemistry Lab	(1)
CHM 262 Principles of Chemistry II	(3)

#### Math & Physics (28 credits)

(All apply toward General Ed.)

MTH 121 Calc I	(4)
MTH 122 Calc II	(4)
MTH 220 Elem Linear Algebra	(3)
MTH 222 Multivariate Calc	(4)
MTH 305 Diff Equations	(3)
PHY 243 Principles of Physics I	(5)
PHY 245 Principles of Physics II	(5)

#### General Education –

**(50 credits minimum required,  
30 credits below plus 28 MTH & PHY  
credits above = 58)**

ENG 111 College Rhetoric	(3)
ENG 112 Writing & Reading	(3)
Fine Art	(3)
Humanities	(3)
Humanities	(3)
Humanities	(3)
Social Science	(3)
Social Science	(3)
Social Science	(3)
Natural Science - (see above PHY 243)	
Natural Science – (see above PHY 245)	

#### Engineering Core courses (35 credits)

EGR 102 Intro to Engineering	(3)
EGR 165 CAD (ProE)	(2)
EGR 230 Statics	(3)
EGR 260 Mechanics of Solids	(3)
EGR 280 Engineering Materials	(3)
EGR 310 Engineering Economics	(3)
EGR 350 Fluid Mechanics	(3)
EGR 321 Analog & digital Elect	(3)
EGR 330 Engg. Circuit Analysis	(3)
EGR 370 Dynamics	(3)
EGR 353 Thermodynamics	(3)
EGR 466 Engg. Design II (capstone)	(3)

#### Three EGR Lab Courses (3+ credits)

EGR 281 Engg. Materials Lab	(1)
EGR 322 Analog/Digital Elec Lab	(1)
EGR 351 Thermofluids Lab	(1)
Other	

#### Mechanical Engg. Elective (24 cr.)

##### Possibilities listed below:

EGR 265 Computer Aided Design	(3)
EGR 291 Supervised Study	(1-4)
EGR 315 Machine Design	(3)
EGR 380 System Dyn & control	(3)
EGR 354 Optics	(3)
EGR 356 Heat Transfer	(3)
EGR 365 Engg. Design	(3)
EGR 367 Elect & Mag	(3)
EGR 397 Robotics Lab	(1)
EGR 410 Vibrations	(3)
EGR 395 Coop Practice in Engg.	(3)
EGR 312 Kinematics & Mechanism	(3)

**CSC & CHM (11 Credits)**

**MTH & PHY (28 Credits)**

**General Ed (50 credits minimum required; need up to 30 in addition to 28 MTH/PHY credits above)**

**EGR Core courses (35 Credits)**

**EGR Lab (3 Credits)**

**Mechanical Engg. Elective Courses (24 Credits)**

**Total: Other, to bring total to  $\geq 129$**

## APPENDIX C

### Proposed Bachelor of Science in Mechanical Engineering (BSME) Course Descriptions

#### **EGR 102. Introduction to Engineering and Engineering Problem Solving. (3).**

Introduction to engineering practices, various engineering disciplines, common engineering science foundations of all branches, teaming, ethics, and communication, including CAD.  
*Graded ABC>N.*

#### **EGR 165. Computer-Aided Design (2).**

Review of basic drafting principles, orthographic projection, line and plane relationships, dimensioning, and conventional representations. Introduction to the operation of a computer graphics system. System orientation; graphics generation, editing, and manipulation; basic detailing, dimensions, library development; database management.

#### **EGR 230. Statics.**

*PHY 243 with a grade C (2.0) or better. (3).*

Understanding of the principles of mechanics and their application to the solution of engineering problems, especially in equilibrium state. Free-body diagrams introduced; equilibrium problems and resultants of general force systems stressed.

#### **EGR 260. Mechanics of Deformable Solids.**

*EGR 230 and MTH 220, each with a grade of C (2.0) or better. (3).*

Deformable solids, stress and strain, principal axes, material behavior (elastic, plastic, viscoelastic, temperature dependent). Boundary value problems, torsion, beams. Instability, columns.

#### **EGR 265. Computer Aided Engineering Analysis.**

*EGR 165 with a grade of C (2.0) or better. (3).*

Introduction to geometric element analysis, deformation, stresses, strains, buckling, von Mises stresses, steady state and transient thermal analysis, and design optimization using Pro/Mechanica, ANSYS Finite Element Analysis, Fluent CFD.

#### **EGR 280. Science of Engineering Materials.**

*MTH 122, PHY 245, each with a grade of C (2.0) or better. CHM 262 with a grade of C (2.0) or better or concurrent election Concurrent election of EGR 281 recommended. (3).*

Introduction to the science of engineering materials. Emphasis on the correlation between material properties and internal structure; examination of metals, alloys, ceramics, polymers, and composite materials for engineering applications.

**EGR 281. (305). Engineering Materials Laboratory.**

*Prior election with a grade of C (2.0) or better, or concurrent election, of EGR 280. (1).*

Laboratory practice in fabrication, preparation, testing and evaluation of materials, including metals, alloys, ceramics, glasses, polymers and composites. *Concurrent election of EGR 280 recommended.*

**EGR 291. Supervised Study in Engineering.**

*Consent of instructor. (1-4).*

Laboratory work or study of the literature on designated problems chosen by the student in consultation with a faculty supervisor. *May be reelected to a total of four credits. Graded ABCDE/Y.*

**EGR 310. Engineering Economics.**

*EGR 102; prior or concurrent election of MTH 121; or consent of instructor. (3).*

Decision-making process in engineering with economic analysis; the role of quality and cost considerations in manufacturing; economies of scale; cash flow analysis; decisions involving capital expenditures, incremental analysis of multiple options, make or buy, rate of return, and present/future value analysis; income tax and interest considerations.

**EGR 312. Kinematics and Mechanisms.**

*MTH 220 and EGR 230, each with a grade of C (2.0) or better. (3).*

Introduction to the relationships between geometry and motions of a machine or mechanism and the forces which produce these motions. Emphasis on graphical, analytical methods of analysis and synthesis.

**EGR 315. Machine Element Design.**

*EGR 260 and CSC 175 or 271, each with a grade of C (2.0) or better; or consent of instructor. (3).*

Applications of the principles of mechanics of materials and other engineering sciences to the design of such machine elements as fasteners, gears, springs, bearings, clutches, chain and belt drives; analysis of functional and performance requirements; failure theories and their design criteria. Impact loading, stress concentration, and fatigue. ANSYS Finite Element analysis software will be used for analysis and optimization of design.

**EGR 321. Analog and Digital Electronics.**

*PHY 145 or 245 with a grade of C (2.0) or better; or consent of instructor. (3).*

Properties of semiconductors; diodes, transistors, and other devices and their characteristics; amplifiers, oscillators, filters, and regulators; logic gates, combinational and sequential circuits; analog and digital ICs. *Also listed as PHY 321.*

**EGR 322. Analog and Digital Electronics Laboratory.**

*Prior election of EGR/PHY 321 with a grade of C (2.0) or better; or concurrent election of EGR/PHY 321; or consent of instructor. (1).*

Semiconductor device characteristics; rectifiers and amplifiers; logic circuit analysis and design; operational amplifiers and active filters; power supplies; memories, A/D and D/A. *Also listed as PHY 322.*

**EGR 330. Engineering Circuit Analysis.**

*PHY 245 and MTH 222, each with a grade of C (2.0) or better. (3).*

Introduction to linear electric circuit analysis, including dc, ac, transient, delta, and wye circuits; active and passive elements. *Concurrent election of EGR 335 expected.*

**EGR 335. Engineering Circuit Analysis Laboratory.**

*Prior election with a grade of C (2.0) or better, or concurrent election, of EGR 330. (1).*

Laboratory experiments in circuit analysis. One three hour laboratory period weekly.

**EGR 350. Fluid Mechanics.**

*CHM 260, MTH 220, PHY 245, each with a grade of C (2.0) or better. (3).*

Introduction to the mechanics of fluids. Fluid properties, kinematics, fluid statics, Bernoulli equation, control volume; differential forms of the fundamental laws, dimensional analysis, similitude and fluid/flow phenomena. FLUENT Computational fluid dynamics will be used for fluid flow analysis throughout the course.

**EGR 353. Thermodynamics.**

*CHM 262, MTH 220, and PHY 245, each with a grade of C (2.0) or better. (3).*

Study of the first and second laws of thermodynamics and their applications to the analysis of processes involving the control and utilization of energy. Properties and behavior of pure substances, ideal gases, and mixtures; heat engine and refrigeration cycles.

**EGR 355. Thermofluids Engineering Laboratory.**

*Prior election with a grade of C (2.0) or better in each, or concurrent election, of EGR 340 and 353. (1).*

Laboratory experiments in the thermal properties of matter, including thermodynamic states, transport and transfer of thermal energy, momentum and mass, with and without internal thermal sources, and the transient and steady-state thermal properties of matter.

**EGR 356. Heat Transfer.**

*EGR 353, MTH 222, each with a grade of C(2.0) or better; or consent of instructor. (3).*

Conductive, convective, and radiative heat transfer in steady state and transient conditions. Convection in external and internal flow, and free convection.

**EGR 367. Intermediate Electricity and Magnetism.**

*PHY 245, MTH 220, 222, 305 each with a grade of C (2.0) or better; or consent of instructor. (3).*

Electrostatics, behavior of dielectrics, electric currents and magnetism, electromagnetic induction, alternating current circuits, Maxwell's equations. *Also listed as PHY 367.*

**EGR 370. Dynamics.**

*EGR 230, MTH 305, CSC 175 each with a grade of C (2.0) or better; or consent of instructor. (3).*

Application of principles of mechanics and other engineering science to analysis of force systems in motion, including kinematics of particles and rigid bodies; kinetics of particles and rigid bodies by Newton's laws; work and energy methods; impulse and momentum.

**EGR 376. Solid State Physics.**

*PHY 343; MTH 220, 222, 305 each with a grade of C (2.0) or better; or consent of instructor. (3).*

Crystal structure, diffraction by crystals, thermal properties, dielectric properties; free electron theory of metals, band theory, semi-conductors, magnetism, magnetic resonances, defects, superconductivity. *Also listed as PHY 375.*

**EGR 380. System Dynamics and Control.**

*Prior election with a grade of C (2.0) or better, or concurrent election, of EGR 370; or consent of instructor. (3).*

Modeling and analysis of such dynamic systems as electrical, fluid and thermal. Laplace transforms and solution techniques for first and second order linear differential equations. Introduction to linear feedback control theory, block diagrams, transient and frequency responses, stability, system compensation and design.

**EGR 391. Independent Study.**

*Consent of instructor. (1-4).*

Laboratory study or study of current literature on a selected topic. *May be reelected to a total of six credits. Graded ABCDE/Y.*

**EGR 395. Cooperative Practice in Engineering.**

*EGR 280 and 301, each with a grade of C (2.0) or better; consent of Industrial Engineering Program Supervisor. (3).*

Industrial and engineering job planned jointly by the student, the Industrial Supervisor, and the Engineering Cooperative Coordinator. Project report and oral presentation required. Student's work evaluated by the Industrial Supervisor and the Engineering Cooperative Coordinator. *May be reelected. Graded Pass/Fail/Y.*

**EGR 410. Vibrations.**

*EGR 370 with a grade of C (2.0) or better; or consent of instructor. (3).*

Free and forced vibrations of systems with one degree of freedom; rotating and reciprocating unbalance, critical speeds, vibration isolation and transmissibility, vibrating measuring instruments, support motion, frequency motion. Linear multiple-degree systems; analysis by matrix and approximation methods, modal analysis and mode summation.

**EGR 433. Advanced Physics Laboratory II/III.**

*Consent of instructor. (1-3).*

Original problems selected and pursued in consultation with the instructor. For two credits, one four-hour laboratory weekly. *May be reelected once, to a maximum of five credits. Also listed as PHY 433. Graded ABCDE/Y.*

**EGR 466. Engineering Design II.**

*EGR 280, EGR 315 or 365, two additional 300-level EGR courses, all with a grade of C (2.0) or better; senior standing; consent of instructor. (3).*

Advanced design concepts including feedback, process and product improvement, computer aided design. Team projects and exercises in design improvement. Students will be required to design, develop and manufacture a functional part or system as a capstone design project.

*Graded ABCDE/Y.*

**EGR 470. Product Development.**

*MTH 122 and at least junior standing; or bachelor's degree in appropriate field; or consent of instructor. (3).*

Properties of the product/technology development process, issues of product strategy, R&D management and implementation of new processes, including analysis of the process of product development; quality control, development and application of control charts. Theory of constraint and its application in manufacturing and engineering.

**EGR 476. Engineering Design of Experiments.**

*EGR 305, 340 and BUS 211, each with a grade of C (2.0) or better. (3).*

Methods of design of experiments (DOE) developed and

**495. Honors Thesis I.**

*Consent of the Department Chair. Open only to Honors Program students in engineering. (4).*

*Credit and grade for EGR 495 is not given until successful completion of EGR 496. Also listed as HON 495. Graded ABC>N/Y.*

**496. Honors Thesis II.**

*Prior or concurrent election of EGR 495 and consent of Department Chair. Open only to Honors Program students in engineering. (4). Also listed as HON 496. Graded ABC>N/Y.*

## APPENDIX D

### Planned 4 Year Course Schedule for B.S. in Mechanical Engineering

#### 1<sup>st</sup> YEAR

Fall Term	Winter Term	Spring Term	Summer Term	NOTE: GEN ED humanities, social science, fine art = 7 courses
EGR 102 (3)	ENG 111/112 (3)			
EGR 165 (2)	PHY 243 (5)			
MTH 120 or 121 (4)	MTH 121 or 122 (4)			
CHM 260 (3)	CHM 262 (3)			
CHM 261 (1)	CSC 122 or 175 (2-4)			
CSC 121 or 122 (1-2)				
14-15 total	17-18 total			

#### 2<sup>nd</sup> YEAR

Fall Term	Winter Term	Spring Term	Summer Term	NOTE: PROGRAM ELECTIVES 24 credits of program electives = 8 courses
EGR 230 (3)	EGR 280 (3)			
PHY 245 (5)	EGR Lab/281 (1)			
MTH 122 or 220 or 222 (3-4)	EGR 310 (3)			
ENG 112 and/or CSC 175 (3-4)	MTH 220 or 222 (3-4)			
Program Elec (3)	Program Elec (3)			
	GEN ED (3)			
17-18 total	16-17 total			

#### 3<sup>rd</sup> YEAR

Fall Term	Winter Term	Spring Term	Summer Term
EGR 330 (3)	EGR 260 (3)		
Program Elec (3)	EGR 350 (3)		
Program Elec (3)	EGR Lab/351 (1)		
MTH 222 and/or 305 (3-7)	MTH 305 and/or Program Elec and/or GEN ED (3-6)		
	Program Elec (3)		
12-16 total	13-16 total		

#### 4<sup>th</sup> YEAR

Fall Term	Winter Term	Spring Term	Summer Term
EGR 321 (3)	EGR 466 (3)		
EGR 353 (3)	Program Elec (3)		
EGR 370 (3)	Program Elec (bal)		
EGR 322 (1)	GEN ED (3)		
GEN ED (3)	GEN ED (3)		
GEN ED (3)	GEN ED (bal)		
16 total	12+ total		

Typically offered spring/summer in addition to during major terms.

## APPENDIX E

### **Mechanical Engineering Assessment Plan**

Programs:

#### **B.S. in Mechanical Engineering**

##### **Mission Statement:**

The B.S. program in Mechanical Engineering will produce engineers who are technically competent, creative, literate, globally and socially aware to be successful in globally competitive environments. The program vision is to be one of the best engineering education programs in Michigan while providing students, staff and faculty with rewarding and satisfying experiences. The mission is to provide our customers with total confidence in our educational and professional expertise and to treat everyone with fairness and dignity.

The program in Mechanical Engineering provides the course-work and industrial experience for students wishing to enter industry as a mechanical engineer. In addition to technical content, these courses provide practice in forming and working in teams, preparing and presenting oral and written technical reports, and developing advanced computer skills. Engineering design caps the program with students designing and constructing engineering projects.

##### **Educational Outcomes:**

In Engineering Criteria 2008-2009, ABET Criteria for Accrediting Engineering Programs, Criterion 3 includes the following statement: "Engineering programs must demonstrate that their graduates have:

- (a) an ability to apply knowledge of mathematics, science, and engineering
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data
- (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (d) an ability to function on multidisciplinary teams
- (e) an ability to identify, formulate, and solve engineering problems
- (f) an understanding of professional and ethical responsibility
- (g) an ability to communicate effectively
- (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- (i) a recognition of the need for, and an ability to engage in life-long learning
- (j) a knowledge of contemporary issues
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

The following table shows individual courses in the program that meets ABET criterion

<b>ABET Criteria/ Courses</b>	<b>a</b>	<b>b</b>	<b>c</b>	<b>d</b>	<b>e</b>	<b>f</b>	<b>g</b>	<b>h</b>	<b>i</b>	<b>j</b>	<b>k</b>
EGR 102: Intro to Engg.	X									X	
EGR165 :CAD	X										
EGR230: Statics	X				X						
EGR260: Mechanics	X				X						
EGR280: Engg. Materials	X		X								
EGR281: Materials Lab	X	X		X							
EGR310: Engg. Economics	X		X		X		X	X			X
EGR315: Mach. Element Design	X										
EGR322: A & D circuits lab	X	X		X							
EGR 330: Circuit Analysis	X										
EGR 350: Fluid Mechanics	X		X		X		X				X
EGR353: Thermofluids Lab	X	X		X							
EGR 353: Thermodynamics	X										
EGR 370: Dynamics	X		X		X						X
EGR 466: Design II (Capstone)	X		X	X	X	X	X	X		X	

### Assessments:

- 1) Three sample examinations and final papers along with the grades of all students of EGR 310 will be used to assess ABET criteria a, c, e, h.
- 2) Three sample lab reports and grades of all students will be collected from EGR 281 and/or EGR 353 will be used to assess ABET criteria b.
- 3) Three sample examinations, homework, final paper and presentations of EGR 350 will be used to assess ABET criteria d, g and k
- 4) EGR 466 final project report will be used to assess criteria c, g, h, j, and k
- 5) Peer evaluation of oral presentation will be used to assess item g using the enclosed "Oral Presentation Evaluation" form in EGR 466 or EGR 350 or EGR 315.
- 6) Alumni survey will be conducted to assess ABET criteria i

### Goal:

- 1) 80% or more students in EGR 310, EGR 353/281, EGR 350, and EGR 466 will meet the expectations of ABET criteria that will be evaluated by faculty.
- 2) 80% or more of the students will meet the expectations of team performance (score 3) when evaluated by peer students.

### Feedback:

- 1) Full-time, tenure track faculty will determine the level of performance by the extent to which the criterion for each item is met.

ABET CRITERIA	Exceeds Requirement	Meets Requirement	Partially meets requirement	Does not meet requirement
(a) an ability to apply knowledge of mathematics, science, and engineering				
(b) an ability to design and conduct experiments, as well as to analyze and interpret data				
(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability				
(d) an ability to function on multidisciplinary teams				
(e) an ability to identify, formulate, and solve engineering problems				
(f) an understanding of professional and ethical responsibility				
(g) an ability to communicate effectively				
(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context				
(i) a recognition of the need for, and an ability to engage in life-long learning				
(j) a knowledge of contemporary issues				
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.				

Goals:

- 1) 80% or more of students in EGR 466 feel comfortable working in teams and are able to do so efficiently.

Feedback:

- 1) Review of surveys in the winter term by all full-time, tenure-track engineering faculty will identify areas of concern expressed by students. Discussions will focus on these areas, and remedial action(s) will be evaluated for implementation during the subsequent academic year.
- 2) All final written report from EGR 466 will be evaluated by full-time, tenure-track engineering faculty. Discussions in the winter term will focus on common areas of concern, and remedial action(s) will be evaluated for implementation during the subsequent academic year.

**The University of Michigan-Flint**  
**Department of Computer Science, Engineering Science and Physics**

As part of an ongoing process, the faculty in the UM-Flint engineering program seeks to assess the effectiveness of various components of our programs. These components are program wide and relate to the attributes of becoming an engineer. At this time, we are addressing the components related to teaming, such as leading, building, and working in teams.

Please complete the following survey, and return it to the CSESP department. You should complete this by yourself (not working in a team). The results of this survey will be used by the program faculty to improve those aspects of teaming that need work, and to leave in place those aspects that seem to be working successfully.

We thank you for your thoughtful comments and suggestions.

Engineering 466  
Assessment of Teaming

Describe your first engineering team experience at UM-Flint.

Describe your most recent engineering team experience at UM-Flint.

For these descriptions consider

Was it associated with a course? If so, which one?

Were you assigned to this team or did you form it among yourselves?

What was the purpose of the team? [Homework, presentation, project, other]

How comfortable were you working in the team?

How has your definition of teamwork changed since your experiences?

Describe the specific engineering team skills have you mastered.

You may wish to consider such items as building a team, identifying others with complementary skills, dealing with problems within the team, setting team goals, meeting deadlines, sharing work, etc.

Describe your current comfort level in working with an engineering team.

If you have any specific suggestions or comments regarding teaming in the engineering programs at UM-F, please describe them.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## EGR 466 Scoring Rubric

Student(s): \_\_\_\_\_ Term: \_\_\_\_\_

Title: \_\_\_\_\_

Instructions: Determine the level of performance by the extent to which the criterion for each item is met. All faculty doing an evaluation of a written paper will reach a consensus rating for each item.

	4(A)	3(B)	2(C)	1(D)
<b>WRITTEN PRESENTATION EVALUATION</b>	<b>Exceeds Expectations</b>	<b>Meets Expectations</b>	<b>Partially meets expectations</b>	<b>Does not meet expectations</b>
1. Presents ideas in a logical and organized sequence.				
2. Demonstrates a solid grasp of the topic.				
3. Provides a sense of the context of the topic.				
4. Writes clearly and correctly.				

## Oral Presentation Evaluation

Name of the presenter:	Course name/no:	Date:
------------------------	-----------------	-------

1. Subject. Was the presentation informative? Did it have a clear focus? Was it well researched?

1 . . . 2 . . . 3 . . . 4 . . . 5 . . . 6 . . . 7  
poor . . . . . outstanding

2. Organization/Clarity. Was it easy to follow? Was there a clear introduction and conclusion?

1 . . . 2 . . . 3 . . . 4 . . . 5 . . . 6 . . . 7  
poor . . . . . outstanding

3. Preparation. Had the speaker rehearsed? Was s/he in control of the sequence, pacing and flow of the presentation? Did s/he make effective use of notes, without relying on them too heavily?

1 . . . 2 . . . 3 . . . 4 . . . 5 . . . 6 . . . 7  
poor . . . . . outstanding

4. Sensitivity to audience. Did the speaker maintain eye contact with all members of the class? Did s/he give you time to take notes as needed? Did s/he repeat the main ideas more than once? Did s/he make effective use of pauses, gestures, change in pace and pitch?

1 . . . 2 . . . 3 . . . 4 . . . 5 . . . 6 . . . 7  
poor . . . . . outstanding

5. Visual aids. Did the speaker make effective use of handouts, overheads and/or the blackboard? Were overheads or board writing large enough to see easily?

1 . . . 2 . . . 3 . . . 4 . . . 5 . . . 6 . . . 7  
poor . . . . . outstanding

## APPENDIX F

### Letter of Support

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Dr. Quamrul Mazumder  
Chairman, Engineering Department  
University of Michigan – Flint  
213E Murchie Science Building

Dear Dr. Mazumder,

This letter is written to enthusiastically support your proposal for a Bachelor of Science program in Mechanical Engineering. There is a compelling case to be made for such a program at the University of Michigan – Flint. I have worked in the automotive industry for 26 years at what is now called Delphi Automotive Systems. I and my colleagues can attest to a growing need for qualified engineers. Because technology changes rapidly and increases in complexity almost daily, employers rely on well-trained graduates with up-to-date experience. Certainly in the automotive field, mechanical engineers make up a large proportion of the engineering talent we hire. Developing this program at UM-F is a very good opportunity for the university to contribute to the field.

It will also contribute to the economic growth and development of Flint and the surrounding area. With the downsizing of General Motors and Delphi, there is a large pool potential students available who may be interested in training for a second career. Most forecasts show that a shortage of technical personnel is on the horizon. It's a match made in heaven. If UM-F begins offering a second degree program in engineering, this will begin to supply the looming shortage as well as helping people who have lost steady employment. There will also be jobs created at the university itself, so there are winners all around.

In short, with this program I believe UM-Flint can take a leadership role in developing the economy of Flint as well as all of Michigan. I wish you the best of luck in developing the new degree program, as do several of my co-workers. I'm sure it will be an outstanding success.

Sincerely yours,

Marsha Nottingham  
Senior Project Engineer

