Teacher's Resource Manual

for

Adapting the

Making Industry Meaningful In College

(MIMIC) Model

MAKING INDUSTRY MEANINGFUL IN COLLEGE
- MIMIC -

Teacher's Resource Manual

by
Dorene Perez
James Gibson
Rose Marie Lynch

Teachers: You can make industry, service businesses and other workplaces meaningful for your students

In 1994, an engineering design instructor and an accounting instructor at Illinois Valley Community College (IVCC) participating in an IVCC Tech Prep Team meeting discussed their students' need for workplace experience. The two began collaborating on a plan to provide that experience within the confines of their classrooms. As members of the Tech Prep Team, they had been working to integrate academic and vocational / technical subject matter, but the instructors wanted to integrate their students as well. The instructors decided to team their students into simulated companies to develop, produce and sell consumer products. The result of that collaboration was the Making Industry Meaningful In College (MIMIC) project, which was offered in spring 1995. MIMIC was an immediate success, winning a Connections Award for Innovative Integrated Curriculum Effort from the Illinois State Board of Education in its first year.

Since its successful debut, electronics students and an electronics instructor have been added to the project, and a MIMIC business course has been developed to allow students from a variety of business fields to benefit from participation. For a few years, while IVCC had a plastics manufacturing program, students enrolled in that program also participated on the teams.

Over the years, MIMIC students have been hesitant about the project during its early stages and praised it at the conclusion. Industry representatives have continued to voice their support for it because it requires students to deal with problems they will face on the job but don't usually face in the classroom. The MIMIC project has been featured at a number of national and international conferences and been the subject of articles published in peer-reviewed journals. In 2005, IVCC received a three-year grant of $229,000 from the National Science Foundation to make the MIMIC project the focal point for the technical programs in engineering design, electronics, and manufacturing.

We have continued our commitment to the MIMIC project because it is successful and simple. We believe that adapting the MIMIC model is limited only by the commitment and imagination of the organizers and support of college or school administrators. The materials in this manual are designed to guide you in adapting the MIMIC model to your school or college, your courses, and your students. MIMIC has made industry meaningful at Illinois Valley Community College; the MIMIC model can make industry, service businesses and other workplaces meaningful at your school or college.

Dorene Perez
Jim Gibson
Rose Marie Lynch

ACKNOWLEDGEMENTS

BELLWETHER AWARD FINALIST

In fall 2010, the MIMC project was nominated for the prestigious Bellwether Award, a national award presented to innovative programs at the Community College Futures Assembly at the University of Florida. In fall 2011, MIMIC was named one of ten finalists for the Bellwether Award.

Table of Contents

Basics of the MIMIC project

Making Industry Meaningful at Illinois Valley Community College

Making Industry Meaningful In College (MIMC) is a multi-disciplinary project that exposes students to simulated business/industry experiences with the goal of preparing them for the workplace. IVCC students in engineering design, electronics and business are placed in teams, called "companies," to design, prototype, manufacture, market and sell a product.
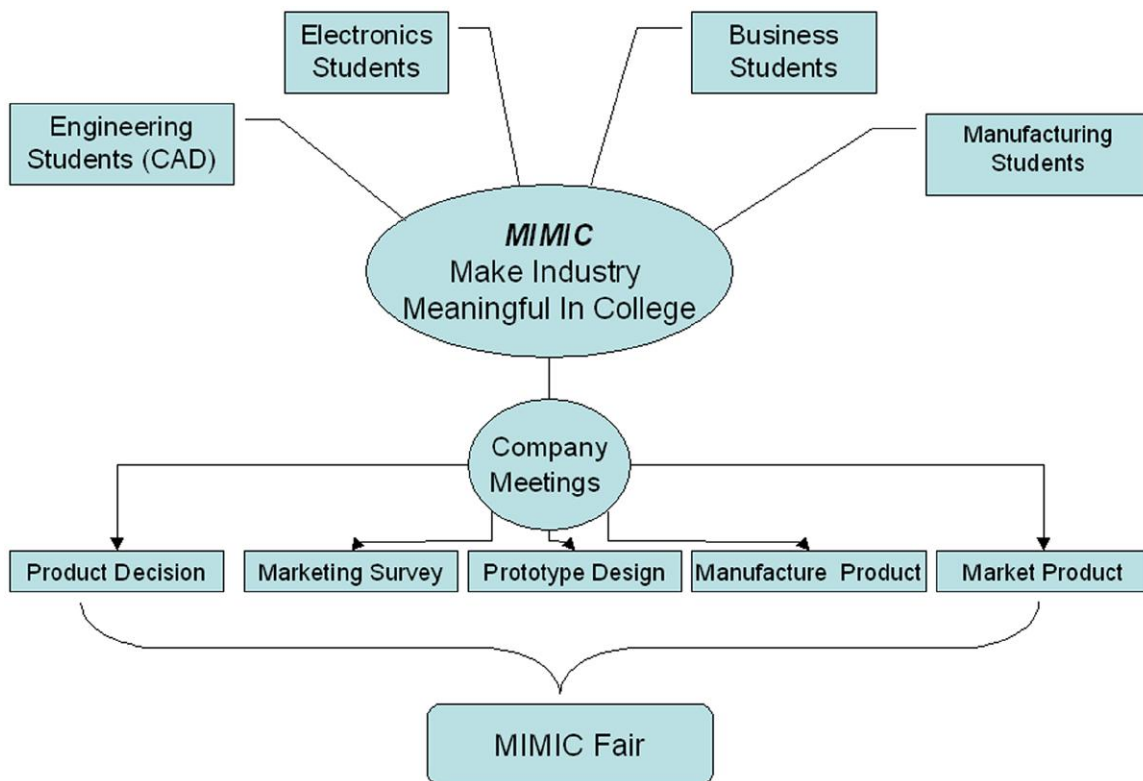
MIMIC is a one-semester project within courses in engineering design, electronics and business that are scheduled to meet at the same time. The common meeting time allows students to have company meetings once a week. Manufacturing courses do not meet at the same time, so manufacturing students work on the production of MIMIC products but do not meet with the student teams.

The MIMIC project stresses teamwork, critical thinking, problem solving and communication as it provides students with opportunities to sharpen their technical skills. The common meeting time allows the MIMIC instructors to schedule training sessions; MIMIC teams receive training in such areas as team building, goal setting, problem solving and communication skills, depending on need. IVCC instructors are invited into team meetings or into the individual courses to teach those skills, just as consultants would be hired to provide training in a business or industrial setting.

In addition to providing students with opportunities to practice their technical and workplace skills, MIMIC is now the nucleus for integrating continuous quality improvement and reengineering throughout the two year programs in engineering design and electronics. When MIMIC was pioneered in 1995, the entire process was completed in one semester, including team assignments, product decisions and designs, training in teamwork and other skills, prototyping, production, marketing and sales. While the project successfully provided teamwork, problem solving and communication experiences, the one-semester time frame limited the design experience of the technical students and the viability of the products. Today, the engineering design and electronics students begin designing original products and reengineering previous MIMIC products before the capstone MIMIC project. When MIMIC companies have their first meetings, they are assigned products, and while those products may still need some refinement and design work, the time-consuming process of deciding on a product and creating preliminary designs has been completed.

Organization and Scheduling of MIMIC

The scheduling of MIMIC begins with MIMIC instructors insuring that the courses that include the project are scheduled to meet at the same time during the spring semester. Students enrolled in the following courses participate in the project:

- Engineering Design Projects (CAD 2208), a capstone course in engineering that enables sophomore CAD/CAE students to use their skills to successfully design a product for production.
- Motors and Controls II (ELE 1203), the last course in the electronics sequence, which focuses on three-phase motors and generators, power and control wiring, forward-reverse and speed-control generators.
- Integrated Business Operations (BUE 2260), a sophomore-level course, required in most Associate in Applied Science degree programs in business and computers. The course offers students credit for the business side of the student companies.
-

Just before the MIMIC semester begins, the instructors evaluate the products that have been redesigned, looking not only for the quality of the design, but also for the cost, ease of production and marketability. As the semester begins, instructors assign students into "companies" and assign each company to a product. Enrollment determines the number of companies and how many students from each discipline are in each. Typically a company includes two engineering design students, two electronics students, and a mix of students from the various business fields. Companies meet immediately for orientation and training. While certain training sessions are routinely provided, others are added based on the needs of students and student companies that semester.

MIMIC instructors invite other instructors to provide training lessons to student teams just as businesses and industries hire consultants or trainers for their employees. The instructors are paid a stipend from funds provided through a Tech Prep grant and supported from 2005 – 2008 by a National Science Foundation grant. Industry representatives are also invited to provide training lessons.

Communication channels, including e-mail, WebBoard and Blackboard, are established to allow students to conduct their company business realistically; students must prepare agendas, act as facilitators, and take and disseminate notes of meetings.

During the weekly meetings that follow, companies decide on a product name and corporate name and training in various workplace skills continues. While the engineering design students act as project managers, students assume responsibility for a portion of the project based on their discipline: marketing students survey potential buyers to gauge product and pricing

preferences and research any competition, accounting students start on production budgets, business students plan the on campus fair where the products will be sold.

The student teams research and purchase materials and determine the final selling price. A minimum of one week is devoted to producing the products with the students in all of the disciplines required to participate. The number of units to be produced is determined by the student teams with approval from the instructors. Marketing students design packaging and prepare the written instructions for assembly and/or operation of the products, sometimes working with students in a technical writing class.

Business students are in charge of scheduling, planning, picking a theme, promoting and setting up an end-of-semester MIMIC Fair where the products are sold.

The design at the left was the MIMIC Fair logo for 2007, created by business students on the MIMIC teams.

All of the students assist in the sale of their company's product at the on-campus fair. The final work on the project is completed by accounting students who prepare a cost analysis of the sales at the fair, which culminates in a recommendation on the commercial viability of each product. The MIMIC project wraps up with a celebration dinner for all participants with awards and certificates presented to the students.

Illinois Valley Community College
Annual **MIMIC** Banquet

MIMIC Trivia
1. What year was MIMIC started?
2. How many companies were there the first year?
3. MIMIC is partially funded by a National Science Foundation grant, how much money was the grant award?
4. What is the name of the Community College that the IVCC MIMIC team has partnered with to test and evaluate our products?
5. What is the name of the IVCC mascot?

Making Industry Meaningful In College

Good Luck in your Future Endeavors from your instructors
Dorene Perez
Susan Koepke
Jim Gibson

MIMIC is partially funded by the National Science Foundation

The placemat design, above, for the MIMIC celebration dinner, includes MIMIC and IVCC trivia questions. In addition to receiving awards for their MIMIC work, students compete for prizes on the quiz..

A Typical MIMIC Schedule

A typical schedule for the MIMIC semester, Spring 2008, is below.

January 9	Classes meet
January 14	Entire MIMIC group meets
January 16	MIMIC companies meet to discuss product
January 21	College closed
January 23	Company meetings
January 30	Company meetings

There are company meetings every Wednesday throughout the semester unless otherwise announced. Once a month, before team meetings, there is a team building activity or quality training activity.

February 18	No classes (Presidents' Day)
February 13	Design prototype
February 27	Engineering design finalized and
February 27	Engineering presentation given to entire MIMIC group
Feb. 27-March 21	Working prototype
March 17 - 21	Spring break

5

March 26	Electronics presentation to entire MIMIC group
April 7 – 11	Production week
April 16	Quality review
April 16	Marketing presentation to entire MIMIC group
April 23	MIMIC Fair
April 30	Accounting presentation to entire MIMIC group
May 5 or 7	Final meeting and celebration

Products Created by Student Teams

Typical MIMIC products include lamps, clocks, electronic games, security devices, lighted fish tanks, desktop water fountains, and lighted picture frames. Because electronics students are on the MIMIC teams, the products include electronic components. Since the products are sold at an on campus fair, the products must be moderately priced and appealing to students, faculty, and staff. Before the MIMIC semester begins, MIMIC instructors evaluate proposed products, which are undergoing reengineering, for feasibility, design intent, functions, specifications, capability for manufacturing and assembly on campus, marketability and cost.

The products illustrated below were produced and sold by MIMIC teams in recent years.

MIMIC team products include a strobe light (left) and desktop organizer (above)

A globe lamp (left), lighted pet pendant (above) and wall mounted and lighted fish tank (right) were MIMIC 2007 products.

Communication Exercises in MIMIC

A number of communication exercises are integrated into MIMIC. In addition to the small group communication skills required for the student companies to function successfully, the students complete other types of communication exercises that would be required of them on the job. All of the students give oral presentations to an audience that includes the student teams and members of the faculty and administration. The presentations are scheduled throughout the semester with students from each discipline explaining their portions of the project: engineering students defend the product designs early in the semester, and accounting students defend their product viability recommendations at the end of the semester.

The types of written materials produced by the students are determined by their discipline: engineering students detail their product designs in formal, technical reports; marketing students write/design advertising materials.

Student Requirements

MIMIC students must meet teamwork requirements, listed below and included in the student guidebook. Students must:

- Attend company meetings.

- Participate in discussions about the best approach to produce the product and to work with team members to solve problems.
- Give an oral presentation to the MIMIC group. Depending on the number of students in the project and in the individual courses, the student might present alone or as part of a team.
- Work in the production of their products. One week in the MIMIC schedule is for production.
- Facilitate at least one company meeting. The facilitator sets the agenda for the meeting and conducts the meeting.
  - Engineering design students conduct the meetings during the design phase of the project.
  - Electronics students conduct the meetings during the prototyping phase.
  - Business students conduct the meetings during the weeks before the Fair.
- Participate in the MIMIC Fair.
- Attend the final meeting and celebration.

In addition to those general requirements, students must meet requirements set by their individual instructors. Students enrolled in Design Projects, for example, must meet dress code requirements for company meetings and presentations. Since MIMIC can be a capstone project or a class project, students must also meet requirements for the course in which they are enrolled, including assignments not directly related to the MIMIC project.

Job descriptions, included in the student guidebook, detail the specific responsibilities of students on their teams. A sample job description, for an accounting student, is included below.

ACCOUNTING POSITION JOB DESCRIPTION

RESPONSIBILITY AND AUTHORITY
The responsibilities of this student within the MIMIC Company are; (1) to prepare the budget for the MIMIC project, (2) to maintain all accounting records of the company, (3) to participate in the weekly reporting requirements for their MIMIC Company, (4) to support production efforts of the company, (5) to account for all cash and inventory transactions at the MIMIC Fair, and (6) to take the leadership position in coordinating the Accounting Presentation to the MIMIC group.
Company Budget – This student is responsible for working with all members of the company to develop the MIMIC Company budget. This student will have the responsibility to gather any data necessary to compile an accurate budget and submit the budget to the MIMIC business instructor in an Excel format.

Maintain Accounting Records – This student will be required to authorize and process all expenditures for all materials for all members of their MIMIC Company. In carrying out this responsibility, this student will need to insure that only authorized expenditures are made. In addition, this student is responsible for insuring that all employees of the company or any instructor that expends funds for the company are properly reimbursed. In carrying out this responsibility, an Excel spreadsheet will be maintained to track all expenditures. Finally, this student is responsible for insuring that all expenditures made through IVCC follow procedures established by the IVCC Controller's Office concerning purchase orders and check disbursements.

Participate in Preparation of Weekly Company Reports – This student will be required to supply the necessary accounting information in order to help complete the weekly Company Report. The student will be required to participate to whatever extent is necessary to complete the requirements of the Weekly Company Report.

Support Company Production – This student will be required to participate in production efforts of the company.

Cash and Inventory Transactions at the MIMIC Fair – This student will need to track and account for all cash and inventory transactions at the MIMIC Fair.

Leadership Position in Accounting Presentation – This student is responsible for coordinating activities of all company employees in preparing the Accounting Presentation to the MIMIC group.

LIMITATIONS ON AUTHORITY
While this student does have input on such items as product design and marketing, ultimate authority for product design rests with the Engineering students, electronic design rest with the Electronic students, and marketing issues relating to the product and the MIMIC fair rest with the Marketing students.

Grading of MIMIC Students

Students are graded by their individual course instructors on the basis of requirements for all MIMIC students (see Student Requirements) and additional requirements for the individual courses in which they are enrolled. Information about assessments of students is included below and samples of assessments utilized by MIMIC instructors are included in Chapter 7.

Assessments of Students and the Project

MIMIC students, student products and the MIMIC project are evaluated by a number of people from a number of perspectives:

- Instructors evaluate product designs, redesigns, working drawings, final drawings, prototypes and products.
- Instructors evaluate marketing surveys, promotional plans, accounting reports, financial plans, oral reports, written reports, e-mail and memos.
- Instructors and students evaluate teamwork

- Consulting instructors assist in evaluating oral reports, written reports, marketing materials, e-mail and memos.
- Manufacturing, business, graphic design, math and science instructors and potential buyers evaluate products.
- Accounting students evaluate the commercial viability of products.
- Students evaluate the training provided by the consulting instructors.
- Students provide feedback on the project.
- Business and industry leaders provide feedback on the products, program and graduates.

Costs for MIMIC

MIMIC is a very cost-effective project. Typically, the MIMIC budget has been between $3,000 and $4,000 a year, allocated as follows:
- $1,000 to $1,500 for product supplies
- $1,500 to $2,000 for three or four MIMIC instructors at a $500 stipend each
- $1,000 for stipends to other IVCC instructors for providing training in teamwork and other workplace skills

The product supply funds are allocated to each student company based on the number of companies formed that semester. A total of 30 to 60 students participate in the MIMIC project, resulting in four to six student companies. MIMIC instructors control product supply costs by adjusting the requirements the student-designed products must meet and evaluating component costs before approving a product for manufacture. MIMIC students control product costs by being enterprising in soliciting donations of supplies from lumberyards and hardware suppliers and in locating low-cost supplies.

The $500 stipend for each MIMIC instructor is for the additional time necessary to coordinate the project, including weekly meetings of the instructors. In addition to the engineering design, electronics and business instructors who supervise MIMIC, a manufacturing instructor is working with the MIMIC teams in the production of products. Fully integrating manufacturing students into the MIMIC project continues to be a goal, but manufacturing courses meet in the evening, making it impossible for manufacturing students to meet with the MIMIC teams.

The stipends to other IVCC instructors are for special training provided to the MIMIC companies or to students in their individual courses to assist them in meeting their team responsibilities. The instructors are paid $75 or $50 for a one-session exercise based on whether the exercise is new or a repeat.

Income from the sale of MIMIC products is utilized for additional supplies and an end-of-project celebration each year.

MIMIC is sponsored by the college's Tech Prep Team, with funding provided through Carl D. Perkins legislation. For 2005 through 2008, a grant from the National Science Foundation provides funds for supplies, the stipend for the manufacturing instructor and stipends to IVCC instructors for providing the training.

Adaptability of the MIMIC Model

MIMIC is a capstone project for four-semester technical programs at a community college, but the concept is adaptable to a varying number of semesters and a variety of college or school settings and programs.

The cost-effectiveness of MIMIC also makes it very adaptable to various school settings. Projects developed from the MIMIC model need start-up funding but can be self-sustaining from the sale of goods or services, especially with the support of industry partners.

Four offshoots of MIMIC, developed at IVCC and described below, illustrate that the adaptability of the model is limited only by the commitment and imagination of organizers and the support of college or school administrators.

Day Care Camp: In 1997, IVCC instructors in business, early childhood education and educational psychology began offering a day care camp project. Students majoring in accounting, computer science, early childhood education, teacher education, marketing, management, and micro-office technology organized and operated a one-week day camp for school-age children. The students worked in committees to plan, market, recruit, organize, implement and evaluate the camp, which was held during the grade schools' spring break. The camp utilized and integrated the expertise of instructors and students in other fields. Science instructors, for example, offered science activities for the children, and student organizations offered

activities related to their areas of interest. The camp project was offered for four years.

Puppet Theater: In 2002, MIMIC instructors worked with theater, art and English instructors on a project entitled Give Us A Hand Puppet Production. Students designed and built a portable puppet theater with a lighting system, designed and constructed puppets, wrote a script, auditioned for parts, developed and managed a budget, created marketing materials, marketed and presented a production. Over the two semesters of the project, engineering design and electronics students worked with theater students to learn about theater materials, design elements, and stage lighting effects and zones. Electronics students consulted with engineering design students to ensure the lighting system fit in the theater. As materials were being selected, the technical and theater students consulted with accounting students about expenditures and learned the impact of finances. Theater students also learned how engineering and electronics students approach a project.

Pet Basket: In spring 2007, a graphics design student created a basket containing dog products as an assignment for a class. Other students decided to develop the gift basket project for another class; the baskets would be designed for people adopting dogs from shelters. In fall 2007, graphics design students worked with engineering design students and ceramics students to create dog-related products, assemble the baskets, and sell them at a campus craft fair under the name of Pawsitively Purrfect. A portion of the proceeds were donated to a local animal shelter. Future plans are to create similar gift baskets for cats and to include marketing students

Faces of the Homeless: A multi-disciplinary project about the homeless is in the planning stages. Students in graphics design, art, human services, sociology and creative writing would work with a local homeless shelter to raise public awareness about homelessness. The project might result in an art show and/or fundraiser, which could include posters, brochures, masks (created by ceramic students), and poems or essays about what it means to be homeless.

Establishing a MIMIC-like project

Steps in Adapting the MIMIC Model

The steps below will guide you in establishing a multi-disciplinary project.

1. Decide the goals for a student teamwork project

2. Determine the disciplines that might be included to accomplish those goals

3. List the classes and/or instructors that might participate.

4. Secure approval from administrative staff and recruit the instructors.

5. Address class scheduling. Can participating classes meet concurrently? If not, how can the project be coordinated?

6. Brainstorm specific project ideas, with participating instructors, and select one (See Brainstorming Prompt below)

7. Determine equipment, materials and supplies needed

8. Set a budget.
    - What funds are necessary for start up?
    - Instructor/staff stipends to organize/supervise the project and to provide students with additional training to be successful in the project?
    - Equipment, materials, and supply costs?
    - Other?

- Can project eventually be self-sustaining or largely self-sustaining?

9. Determine potential funding sources
    - Grants
    - Donations
    - Sales / charges for services

10. Identify potential business/industry partners
    - Could they assist with project ideas?
    - Could they assist with funding or needed equipment/materials?

11. Acquire funding

> **Do you have an upcoming meeting or in-service session
> in which staff members could brainstorm ideas
> for collaborative/teamwork combinations?
> The MIMIC project emerged from just such a session.
> See the Brainstorming Prompt below.**

Once these planning issues are addressed, organization of the project begins:

- Providing participating instructors with planning time together
- Recruiting business/industry partners, as needed
- Scheduling the project, including class scheduling
- Determining project objectives
- Setting student requirements
- Determining potential training needs of participating students.
- Recruiting instructors or business/industry partners to provide the needed training
- Determining and providing communication channels for student teams (e-mail, discussion board?)
- Selecting, adapting, or developing forms for student teams to use for approval at various stages of the project
- Designing assessments of student performance and of the project

Brainstorming Prompt for MIMIC Model Ideas

Review the information about MIMIC-model projects that have been organized at Illinois Valley Community College, then brainstorm on the questions listed below.

MIMIC-model projects at IVCC	Classes Included	Outcome
MIMIC (industry)*	Engineering design Electronics Business (various areas)	Design, prototype, market, produce and sell products.
MIMIC - Theatre	Engineering design Electronics Business Art Theatre English	Design and build a portable puppet theatre and puppets, write, market and present a production.
Day Camp**	Education Psychology Business	Plan and offer a one-week day camp for school-age children.

* Has included plastics and will include manufacturing in the future. Technical writing students have contributed product instructions and graphics and web design students have assisted student teams.
** Involved students from a number of subject areas in delivering lessons/exercises to the children.

Brainstorming questions

1. What programs, disciplines or courses could you adapt to the MIMIC model? What combinations of disciplines could produce a product or provide a service?

2. Could you incorporate business/industry partners?

3. Any ideas for funding sources?

Project organization forms

MIMIC instructors utilize a number of forms to organize and promote the MIMIC project, products and students. At the beginning of the MIMIC project, students sign a Project Agreement, in which they agree to abide by the guidelines of the project; an Intellectual Property Agreement, which allows MIMIC instructors to use MIMIC products for educational purposes; and a Photo/Video/Statement Release, which allows the College to use photos or statements by MIMIC students in promotional materials. Examples of those forms and an alternative project contract follow.

MIMIC Agreement

I have read the MIMIC Guidebook, understand the requirements of the project, agree to be punctual and to attend company meetings and other MIMIC events, and will abide by the other terms and conditions of the project.

Signature _____ Date _____

Intellectual Property Agreement

I hereby give my consent to Illinois Valley Community College to document my MIMIC project work and to utilize that documentation for educational or promotional purposes, without compensation, in perpetuity. Documentation may include photographs, diagrams, or videos in print or electronic format.

I also hereby give my consent to Illinois Valley Community College to retain samples of products and components which I develop or assist in developing for the MIMIC project and to utilize those products or components for educational or promotional purposes, without compensation, in perpetuity.

Signature_____ Date_____

Printed Name_____

Photo/Video Statement Release

ILLINOIS VALLEY COMMUNITY COLLEGE

I hereby release rights to photographs, video and statements taken by Illinois Valley Community College to use in possible promotional or educational materials, including IVCC's Web site.

Signature_____Date_____

Name _____ **Original date** _____
Company name _____

Please **initial** in the left column alongside each of the items in the two tables below. You will complete the columns on the right at the end of the project.

MIMIC Team Project Contract

During this semester, I agree to…		I was fully successful in…	I was partly successful in…
	Participate fully in team meetings		
	Commit to the team's product		
	Respect my team members, all of them		
	Work positively with team members and encourage development of a true team spirit or team identity		
	Do all of the tasks I am assigned to or volunteer for		
	Do my tasks on time (by dates assigned by team or that I volunteer for)		
	Complete my oral presentation assignment on time (by dates assigned by team or that I volunteer for, not just in time for the presentation)		
	Complete my project paperwork assignments on time.		

I agree not to…		I was fully successful in not…	I was partly successful in not…
	Dominate the discussion or "take over" other team members' responsibilities		
	Let (require) other team members assume my responsibilities		

Team meeting forms

MIMIC teams utilize a number of worksheets and forms as they conduct their "company" business. The forms, which they submit to their instructors, simulate the paperwork in business and industry, assist in organizing and providing structure to the teams, and provide the instructors with information that allows them to monitor the progress of the teams, and to evaluate portions of the work of individuals and of the teams.

The meeting form samples that follow include a worksheet for team members to exchange contact information, an agenda form, a worksheet for taking notes during team meetings, and a meeting evaluation form. Team members keep the contact information sheet for use throughout the project. The agenda and meeting evaluation form are submitted to MIMIC instructors. The team member assigned to take notes uses the notetaking worksheet to record potentially useful information, which is then written and organized into a summary and emailed to team members and instructors and/or posted on WebBoard.

TEAM MEMBER CONTACT INFORMATION

Name	Address	Phone Numbers	E-mail (print carefully)	Work days/hours
		Home: Work: (if okay to call) Cell:		
		Home: Work: (if okay to call) Cell:		
		Home: Work: (If okay to call) Cell:		
		Home: Work: (if okay to call) Cell:		

Instructor: Phone: E-mail:

AGENDA

Team name:

Prepared by (facilitator):   Meeting date:

AGENDA ITEM	PERSON	TIME	RESULTS NEEDED
Attendance		Minutes	
		Minutes	
		Minutes	
		Minutes	
		Minutes	
Agenda items for next meeting		Minutes	

WORKSHEET FOR TEAM MEETING NOTES

1. Date_____   Time _____   Place _____

2. Attending:

    Absent:

3. Major decisions group reached:

    a.

    b.

    c.

    d.

4. Major issues discussed with no decision made:

    a.

    b.

    c.

    d.

5. Other topics of discussion:

6. Responsibilities assigned (or reminders announced):

    a.

    b.

    c.

    d.

    e.

7. Deadlines or timelines assigned (or reminders announced):

    a.

    b.

    c.

    d.

    e.

8. News on progress (or lack of it) on project(s) – use person's name and report what progress they have made, or have not made on their responsibilities. Be specific and report what they have or have not done. DO NOT just write that they have (or have not) made progress. What progress have they made?

    _____ reported….
        (person's name)

    _____ reported….
        (person's name)

    _____ reported….
        (person's name)

    _____ reported….
        (person's name)

9. Problems encountered:

10. Next meeting scheduled:

11. Agenda items for that meeting:

Meeting Evaluation

Your name _____
Facilitator's name _____
Meeting Date _____
Company Name _____

Meeting Administration	Not at all		To a great extent		
Was the room adequate?	1	2	3	4	5
Did the meeting start on time?	1	2	3	4	5
Who was late?					
Were the appropriate people present?	1	2	3	4	5
If not, who was absent:					
Was the agenda followed?	1	2	3	4	5
Did the meeting end on time?	1	2	3	4	5

Comments:

Group Spirit

Did everyone participate?	1	2	3	4	5
Was the meeting free from disruptions?	1	2	3	4	5
Was there a healthy group spirit?	1	2	3	4	5

Comments:

Effectiveness

Was the meeting a good use of time?	1	2	3	4	5
Did you accomplish your goals?	1	2	3	4	5

Comments:

Give a brief synopsis of the meeting:

Product-related forms

Design Approval Form

The design approval form on the following page was utilized by MIMIC teams in the past, when the MIMIC project began with each team deciding on and designing a new product. Once a team had determined a product and researched components, they submitted the approval form, which had to be signed by all MIMIC instructors – engineering design, electronics and business.

Today, MIMIC teams are assigned a product when the project begins. Those products have undergone reengineering before being assigned to a team although the products typically need some refinements before going into production.

Design Research Survey

As product designs are being finalized, near the beginning of the MIMIC project, the design research survey included below is administered to students studying design in the graphic arts program.

Marketing Survey

Marketing students in each "company" prepare, distribute and analyze the results of a marketing survey before each MIMIC team makes final decisions on a product's design and price. The surveys, distributed to a sampling of the product's target customers of IVCC students and staff, question potential customers on their preferences for product variables such

as materials, colors, and price. The surveys vary depending on the product and production choices of each team, but an example of a marketing survey is included in this chapter.

Price Approval Form

Each MIMIC "company" submits a price approval form indicating the price range for which a product will be sold at the MIMIC Fair. All MIMIC instructors much approve of that range. Student team members make a final choice of price before the fair.

Product Feedback Form

The Product Feedback form is utilized after product prototypes are available. A product-evaluation session is scheduled with the following people invited:
- Engineering design, electronics and business students not involved in the MIMIC project
- Art/graphic design students
- IVCC instructors and staff, with special invitations sent to manufacturing, marketing, math and science instructors
- Industry representatives

MIMIC Design Approval Form

Product Description

Estimated components

Estimated cost of components (per unit)

Alternate choices

1.

2.

3.

Approved:

_____   _____   _____
MIMIC Instructor Signatures

MIMIC

DESIGN RESEARCH SURVEY

Product:

Product name:

Product Description:

1. What is your overall perception of this product?

    Poor   Fair   Good   Excellent

2. What do you like most about this product?

3. What do you like least about this product?

4. What level of quality best describes this product?

    Low quality   Average quality   Good quality   High quality

5. Select how you feel about this product.

    Not a value   Average value   Good value   Excellent value

6. What features are valuable about this product?

7. What features are not valuable?

8. Would you be interested in buying this product?

9. What would be the main reason you would buy this product?

10. How do you feel about the design of this product?

Poor design   Fair design   Good design   Excellent design

11. How would you improve the design?

a. Proportion

b. Color

c. Style

d. Other

Marketing Survey Example

Are you a   _____ student
                  _____ faculty member
                  _____ staff member

1. Would you purchase a XXXXXXXXXXXXX, pictured at right?

             _____ yes
             _____ no

   If yes, would you purchase it for
             _____ yourself
             _____ a gift
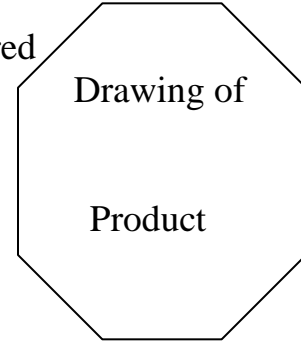
   If no, can you explain briefly why not?

Drawing of

Product

2. What materials would you prefer in the XXXXXXXXXXXXX?

             _____ plastic base and top
             _____ wood base and top
             _____ wood base and plastic top

3. What color combinations would you prefer in the XXXXXXXXXXXXX ?

             _____ black base and white top
             _____ blue base and gray top
             _____ oak stain (if you prefer wood)
             _____ walnut stain (if you prefer wood)

4. What would you be willing to pay for the XXXXXXXXXXXXXXX?
             _____ $6 to $8
             _____ $9 to $11
             _____ $10 to $12

COMMENTS ABOUT THE PRODUCT:

Price Approval Form

Company Name _____

Company Number _____

Description of the Product

Cost to make product (one unit)

Suggested price (top and bottom range)

Signatures of company members

Signatures of MIMIC instructors

MIMIC Product Feedback

Please check whether you are:

_____**Faculty member (field)** _____
_____**Staff member**
_____**Industry representative**
_____**Engineering / engineering design student**
_____**Electronics student**
_____**Manufacturing student**
_____**Art/graphic design student**
_____**Student in another field (list)** _____

PRODUCT NAME _____

1. **Did you feel this product showed good workmanship and was a high quality product?**

| Excellent Quality | Good quality | Average | Fair quality | Poor quality |

2. **What did you think showed good workmanship or high quality?**

3. **What did you think did not show good workmanship / high quality?**

4. **Did you find this design appealing?**

| Very Appealing | Somewhat appealing | Average | Somewhat unappealing | Very unappealing |

5. **What did you find appealing about the design?**

6. **What did you find unappealing about the design?**

7. **Questions or other comments about this product?**

Financial forms

MIMIC teams utilize a number of financial forms as they conduct their "company" business. The samples on the following pages include a production budget, MIMIC Fair budget, and reimbursement form. Budget forms are utilized by business students on the MIMIC teams, but budget information is shared with all members of the team. The reimbursement forms are utilized by all team members purchasing components, marketing or packaging materials, and supplies and materials used in production.

Production Budget

Company Name _____   **Product** _____

Number of products proposed _____

	Item	**Unit cost**	**Number of units for proposed number of products**	**Total $**
Components manufactured (list)				
Components purchased (list)				
Supplies / materials (list)				
Total cost for production of proposed number of products				

Cost for production of one unit _____

Budget for MIMIC Fair

Company name _____

	Item	Estimated $	Actual $
Decorations			
Publicity			
Refreshments			
Giveaways, Prizes			
Miscellaneous			
Total expenses			

Reimbursement Request

RECEIPTS MUST BE ATTACHED

Name _____

Date _____

Address

_____

_____

MIMIC company name

_____

List below the items for which you are requesting reimbursement

ITEM	WHERE PURCHASED	JUSTIFICATION (Reason for purchase)	$$
TOTAL			

Assessment forms

Assessment forms are utilized to evaluate MIMIC students, teams, products and the project itself. A sample of a team meeting evaluation is included in Chapter 4: Team Meeting Forms, and a sample of a product evaluation is in Chapter 5: Product-Related Forms.

Evaluations of MIMIC, Oral Presentations, Written Reports

The forms that immediately follow are
- pre and post assessments of the MIMIC project, its goals and activities
- a brief evaluation of MIMIC teams, products and the fair, assessing what went right and what went wrong
- an oral presentation evaluation form
- a written report evaluation form

Pre-MIMIC Assessment

1. What program/courses are you enrolled in:
   _____ engineering design/CAD
   _____ electronics
   _____ business (accounting, business, computer services, marketing, information   services, etc.)

2. When did you first hear of the MIMIC project?

   Year_____   Or how long ago_____

3. How did you hear about MIMIC?

   _____ Read about it
             _____in a newspaper
             _____catalog/brochure
             _____other (specify) _____

   _____ Heard about it
             _____from friend/acquaintance/fellow student
             _____from a high school teacher
             _____from an IVCC teacher
             _____from a high school counselor
             _____from an IVCC counselor
             _____other (specify) _____

   _____ From the MIMIC Fair on the IVCC campus

   _____ Other (specify) _____

4. What was your first impression of the MIMIC project (when you first learned of it)

   | *very* | *somewhat* | *neutral* | *somewhat* | *very* |
   | *favorable* | *favorable* | | *unfavorable* | *unfavorable* |

   Comments:

5. As you begin the MIMIC project this semester, how comfortable/confident do you feel about your skills/abilities in the following areas: (circle your response)

   a. Working in teams

   very   *somewhat*   *neutral*   *somewhat*   *very*
   comfortable   *comfortable*   *uncomfortable*   *uncomfortable*

   b. Giving oral presentations

   very   *somewhat*   *neutral*   *somewhat*   *very*
   comfortable   *comfortable*   *uncomfortable*   *uncomfortable*

   c. Writing technical reports

   very   *somewhat*   *neutral*   *somewhat*   *very*
   comfortable   *comfortable*   *uncomfortable*   *uncomfortable*

   d. Understanding the entire industry process including:

   - concept/design

   very   *somewhat*   *neutral*   *somewhat*   *very*
   comfortable   *comfortable*   *uncomfortable*   *uncomfortable*

   - prototyping

   very   *somewhat*   *neutral*   *somewhat*   *very*
   comfortable   *comfortable*   *uncomfortable*   *uncomfortable*

   - reengineering

   very   *somewhat*   *neutral*   *somewhat*   *very*
   comfortable   *comfortable*   *uncomfortable*   *uncomfortable*

   - purchasing

   very   *somewhat*   *neutral*   *somewhat*   *very*
   comfortable   *comfortable*   *uncomfortable*   *uncomfortable*

- production

| *very comfortable* | *somewhat comfortable* | *neutral* | *somewhat uncomfortable* | *very uncomfortable* |

- marketing

| *very comfortable* | *somewhat comfortable* | *neutral* | *somewhat uncomfortable* | *very uncomfortable* |

- accounting/budgeting

| *very comfortable* | *somewhat comfortable* | *neutral* | *somewhat uncomfortable* | *very uncomfortable* |

e. Abiding by the rules of the project and set by the instructors (For example: dress code, meeting evaluations etc.)

| *very comfortable* | *somewhat comfortable* | *neutral* | *somewhat uncomfortable* | *very uncomfortable* |

f. Working with new ideas and concepts

| *very comfortable* | *somewhat comfortable* | *neutral* | *somewhat uncomfortable* | *very uncomfortable* |

Comments?

MIMIC – End of Project Assessment

1. What program are you enrolled in:

_____ engineering design/CAD   _____ electronics
_____ business (accounting, business, computer services, marketing, information services, etc.)

2. At this time, how comfortable/confident do you feel about your skills/abilities in the following areas: (circle your response)

a. Working in teams

very comfortable   *somewhat comfortable*   *neutral*   *somewhat uncomfortable*   *very uncomfortable*

b. Giving oral presentations

very comfortable   *somewhat comfortable*   *neutral*   *somewhat uncomfortable*   *very uncomfortable*

c. Writing technical reports

very comfortable   *somewhat comfortable*   *neutral*   *somewhat uncomfortable*   *very uncomfortable*

d. Abiding by the rules of the project and set by the instructors (for example: dress code, meeting evaluations etc.)

very comfortable   *somewhat comfortable*   *neutral*   *somewhat uncomfortable*   *very uncomfortable*

e. Working with new ideas and concept

very comfortable   *somewhat comfortable*   *neutral*   *somewhat uncomfortable*   *very uncomfortable*

f. Understanding the entire industry process including:

(1) concept/design

very comfortable   *somewhat comfortable*   *neutral*   *somewhat uncomfortable*   *very uncomfortable*

(2) prototyping

| *very comfortable* | *somewhat comfortable* | *neutral* | *somewhat uncomfortable* | *very uncomfortable* |

(3) reengineering

| *very comfortable* | *somewhat comfortable* | *neutral* | *somewhat uncomfortable* | *very uncomfortable* |

(4) purchasing

| *very comfortable* | *somewhat comfortable* | *neutral* | *somewhat uncomfortable* | *very uncomfortable* |

(5) production

| *very comfortable* | *somewhat comfortable* | *neutral* | *somewhat uncomfortable* | *very uncomfortable* |

(6) marketing

| *very comfortable* | *somewhat comfortable* | *neutral* | *somewhat uncomfortable* | *very uncomfortable* |

(7) accounting/budgeting

| *very comfortable* | *somewhat comfortable* | *neutral* | *somewhat uncomfortable* | *very uncomfortable* |

g. Please indicate your attitudes toward the following statements (circle your response):

a. My experiences in MIMIC helped me improve my skills/abilities in teamwork.

| *Strongly Agree* | *Agree* | *Neutral* | *Disagree* | *Strongly Disagree* |

b. My experiences in MIMIC helped me improve my skills/abilities in giving oral presentations

| *Strongly Agree* | *Agree* | *Neutral* | *Disagree* | *Strongly Disagree* |

c. My experiences in MIMIC helped me improve my skills/abilities in writing technical reports

Strongly Agree	*Agree*	*Neutral*	*Disagree*	*Strongly Disagree*

d. My experiences in MIMIC helped me improve my skills/abilities in working with new ideas and concepts.

Strongly Agree	*Agree*	*Neutral*	*Disagree*	*Strongly Disagree*

e. My experiences in MIMIC helped me improve my skills/abilities in understanding the entire industry process including:

(1) concept/design

Strongly Agree	*Agree*	*Neutral*	*Disagree*	*Strongly Disagree*

(2) prototyping

Strongly Agree	*Agree*	*Neutral*	*Disagree*	*Strongly Disagree*

(3) reengineering

Strongly Agree	*Agree*	*Neutral*	*Disagree*	*Strongly Disagree*

(4) purchasing

Strongly Agree	*Agree*	*Neutral*	*Disagree*	*Strongly Disagree*

(5) production

Strongly Agree	*Agree*	*Neutral*	*Disagree*	*Strongly Disagree*

(6) marketing

Strongly Agree	*Agree*	*Neutral*	*Disagree*	*Strongly Disagree*

(7) accounting/budgeting

Strongly   *Agree*   *Neutral*   *Disagree*   *Strongly*
Agree   *Disagree*

h. What is your impression of the MIMIC project now?

very   *somewhat*   *neutral*   *somewhat*   *very*
favorable   *favorable*   *unfavorable*   *unfavorable*

Comments:

MIMIC Project: What Went Right and Wrong

Your Company Name _____

YOUR TEAM
1. Rank your team, on a scale of 1 – 10, with 10 being highest rank.

2. Did your team work together well? Explain briefly.

3. Did you participate fully? Explain briefly.

YOUR PRODUCT
4. Rank your product, on a scale of 1 – 10, with 10 being highest rank.

5. What is good, appealing, high quality about your product?

6. What is not good, not appealing, not high quality about your product?

THE MIMIC FAIR
7. Rank the MIMIC Fair, on a scale of 1 – 10, with 10 being highest rank.

8. What went well about the MIMIC Fair?

9. What did not go well?

ANY OTHER COMMENTS:

Oral Report Evaluation - Engineering

Team no: _____ **Company Name** _____

Project _____

	A	B	C	
	Names (N=)	% Contribution (C)	F=NC	Grade (G)

1. _____   _____   _____   _____

2. _____   _____   _____   _____

3. _____   _____   _____   _____

100%

EVALUATION BY INSTRUCTOR	Max. Value	Points Earned
1. Introduction of team members	2	_____
2. Proper dress of team members	2	_____
3. Statement of purpose of presentation	5	_____
4. Use of visuals—point to important point, do not block the screen, do not fumble, etc.	10	_____
5. Adequate number of visual aids	9	_____
6. Quality of visual aids	15	_____
7. Clear presentation of recommended design	10	_____
8. Presentation of alternate solutions considered	2	_____
9. Consideration of human factors	5	_____
10. Coverage of economics (manufacturing, shipping, packing, overhead, mark-up, etc.)	10	_____
11. Presentation of an effective conclusion	5	_____
12. Continuity of presentation	3	_____
13. Poise and professionalism	2	_____
14. Team participation (perfect score if all participate)	10	_____
15. Use of allotted time	10	_____

Comments: 100

Written Report Evaluation - Engineering

Team no: _____ **Company Name** _____

Project _____

A	B	C	
Names (N=)	% Contribution (C)	F=NC	Grade (G)

1. _____   _____   _____   _____

2. _____   _____   _____   _____

3. _____   _____   _____   _____

100%

EVALUATION BY INSTRUCTOR	Max. Value	Points Earned
1. Use of an appropriate cover	2	_____
2. Inclusion of an evaluation sheet	2	_____
3. Inclusion of a proper letter of transmittal	2	_____
4. Correct title page	2	_____
5. Proper table of contents	2	_____
6. Sufficient introduction to the report	5	_____
7. Thoroughness in identifying problem	10	_____
8. Continuity and quality of body of the report	10	_____
9. Collection and presentation of background data	5	_____
10. Justification of major decisions	5	_____
5. Review of costs, overhead, expenses	5	_____
12. Arrival at strong conclusion and recommendation	5	_____
13. Sufficient number of graphs and graphics	10	_____
14. Quality of graphics	10	_____
15. Bibliography	5	_____
16. Extra attention to detail (graphics, covers, etc)	5	_____
17. Appendix – content and form	5	_____
18. Form and appearance of report (spelling, punctuation, neatness)	10	_____
	100	

Comments:

Evaluations of Teamwork

The forms on the following pages are used at various times throughout the MIMIC project to evaluate teamwork. Some of the forms are administered to all MIMIC students and some only to students in one course: Design Projects, Motors and Controls II or Integrated Business Operations. For administration in individual courses, MIMIC instructors are free to select the evaluations they wish to use.

Evaluations are utilized for different purposes throughout the project:

- Self evaluations by a student of his/her performance in that day's meeting, typically submitted anonymously, are used to reinforce their teamwork skills.

- Evaluations by students of their team members (including themselves), everyone in their "company" and/or just the other students in their field, are used to assist instructors in evaluating the performance of individual students and to reinforce the students' teamwork skills.

Some of the evaluations are submitted in hard copy; others are on-line forms, simplifying the tabulation of responses.

Teamwork Evaluation – Form 1

1. How effective was your teamwork today? Use the following scale to rate
   yourself on the items below.

1	2	3
Helped team	OK	Not helpful to team

Involvement in discussion	
Leadership in team	
Cooperation	
Individual effort	
Value as team member	
Overall contribution to the team process	

2. Use the scale below to rate your behavior today on the listed items.

1	2	3
Good/excellent	adequate/OK	need work

Being respectful of all team members	
Looking/sounding interested in the discussion	
Asking all team members for their opinions, Encouraging all team members to participate	
Expressing my disagreement with any ideas	
Expressing my disagreement tactfully	

3. How productive/satisfying was your team meeting today? (circle)

   Very productive   adequate/OK   not very productive

4. What could you have done to improve your team's productivity today?

Team Work Evaluation – Form 2

	Write one or two words to describe your…	**Rate yourself on a scale:** **1 = helped team** **2 = OK** **3 = not helpful to team**
Overall contribution to the team process		
Individual effort		
Involvement in activity		
Cooperation		
Assistance to other team members		
Positive feedback to other team members		

Our team could have used assistance today with …

We (the team) could have fixed this by …

Teamwork Evaluation - Form 3

1. Overall, how effectively did your team work together today? (circle)

   Not at all   poorly   adequately   very well   extremely
   well

2. Use the scale below to rate yourself on each listed item, and provide one
   example of when you used that behavior during your team meeting.

1	2	3	4	5	NA
Needs work	adequate	good	very good	I'm excellent	not
					applicable

How effectively did you contribute to the team discussion by….	Rating	Example
a. Listening without interrupting		
b. Clarifying for understanding		
c. Inviting participation		
d. Offering ideas and suggestions		
e. Seeking out differences of opinion		
f. Accepting feedback from others		
g. Helping the team stay on task		
h. Fulfilling a team role (facilitator, note taker, timekeeper)		
i. Critically evaluating information		
j. Helping to identify the team task		
k. Helping the team reach a consensus		

3. Areas I need to work on to become a better team member are…

TEAMWORK EVALUATION – Form 4

1. Overall, how effectively did your team work together today?

   Poorly   adequately   well   extremely well

   Comment, if you indicated anything other than "extremely well":

2. How many of your team members participated actively most of the time?

   none   some   most   all

3. Did you actively participate

   Nearly all of the time   some of the time   very little

   Comments, if you indicated anything other than "nearly all of the time":

4. How many of your team members were fully prepared for today's meeting

   None   some   most   all

5. Were you prepared?

   Yes, fully   Partly   Not at all

   Comment, if you indicated anything other than "yes, fully":

6. What could you do to improve your performance as a team member?

7. What could your team do to improve its performance?

Peer Performance Review

*Name of team member being reviewed*_____

Your name _____

Date _____

	Exceptional	Exceeds Require.	Meets Require.	Marginal	Unsatisfactory
Demonstrates required skills and knowledge					
Has the ability to learn and use new skills					
Uses resources available in an effective manner					
Meets attendance requirements					
Listens to direction					
Takes responsibility for actions					
Honors commitments					
Demonstrates problem solving skills					
Offers constructive suggestions for improvement					
Generates creative ideas and solutions					
Meets challenges head on					
Demonstrates innovative thinking					
Responds effectively to assigned responsibilities					

Comments:

Ratings and Sharing the Bonus

Please rate your team members and yourself on two bases below.
1. For the first, rate the degree to which each team member, including yourself, fulfilled his/her responsibilities.

    10   Outstanding – Consistently went above and beyond.
    9   Excellent – Sometimes went above and beyond, very cooperative
    8   Very good – Consistently did what he/she was supposed to, cooperative
    7   Satisfactory – Usually did what he/she was supposed to, acceptably prepared
    6   Ordinary – Often did what he/she was supposed to, minimally prepared
    5   Marginal – Sometimes did not complete responsibilities, often not prepared
    4   Deficient – Often failed to complete responsibilities, rarely prepared
    3   Unsatisfactory – Consistently failed to complete responsibilities
    2   Superficial – Practically no participation or visible interest in project
    1   No show – No real participation

2. For the second, assume your team has been awarded $1,000 in bonus money. Distribute the bonus among your team members, and yourself, based on your view of everyone's performance throughout the project.

Your team members	Rating 1 – 10 (see above)	Bonus $ (Distribute $1,000)
Your name:		

MIMIC Final Teamwork Assessment

Company Name _____   ***Company Number***
_____

Which discipline are you in? _____

SHARING THE CREDIT

Assume your company's project is worth 100 points. Split those points among all of the members of your team, including yourself, based on the contribution each provided to the entire project. Your point split will be kept confidential.

	Points
Your name_____	_____
Team member _____	_____
Team member _____	_____
Team member _____	_____
Team member _____	_____
Team member _____	_____
Team member _____	_____
Team member _____	_____
Team member _____	_____
Team member _____	_____

Assume your company's project is worth 100 points in the _____ (engineering, electronics or business) portion alone. Split the points among the member of your _____ (engineering, electronics or business) team including yourself based on the contribution each provided to the entire project. Your point split will be kept confidential.

	Points
Your name_____	_____
Team member _____	_____
Team member _____	_____

Team member _____   _____

YOUR CONTRIBUTIONS TO THE PROJECT

List below exactly what you did throughout the project. Be sure to include what you did during the decision phase, design phase, prototyping phase, production phase and marketing phase.

Task 1 _____

Task 2 _____

Task 3 _____

Task 4 _____

Task 5 _____

Task 6 _____

Task 7 _____

Task 8 _____

Task 9 _____

Task 10 _____

How would you describe yourself during the project? (check all that apply)

_____ Completed all tasks assigned or assumed.

_____ Contributed above and beyond my expectations.

_____ Maintained a good attitude.

_____ Showed enthusiasm for the project and the team.

_____ Participated in tasks in all areas.

Which of these areas do you need to work to improve? (check all that apply)

_____ Completed all tasks assigned or assumed.

_____ Contributed above and beyond my expectations.

_____ Maintained a good attitude.

_____ Showed enthusiasm for the project and the team.

_____ Participated in tasks in all areas.

RATING COOPERATION – PARTICIPATION WITH TEAM:

Rate your level or quality of participation – cooperation through the week of the project on the areas below using the following scale:

> 1 To a high degree or level
> 2 To an above average degree or level
> 3 Average
> 4 To a below average degree or level
> 5 Unsatisfactory

_____ Understand and work within the dynamics of a group
_____ Ensure that teams' purpose and objective are clear
_____ Flexible, respect others, open to an supportive of opinions and contributions of others in team
_____ Recognize and respect people's diversity, individual differences and perspectives.
_____ Accept and provide feedback in a constructive and considerate manner
_____ Contribute to team by sharing information and expertise
_____ Lead or support when appropriate, motivating team for high performance
_____ Manage and resolve conflict when appropriate.
_____ Involve others and keep them informed

Participation in projects and tasks:

_____ Plan, design or carry out a task from start to finish with well-defined objectives and outcomes
_____ Develop a plan, seek feedback, test, revise and implement
_____ Work to agreed quality standards and specifications
_____ Select and use appropriate tools and technology for a task or project
_____ Adapt to changing requirements and information
_____ Continuously monitor the success of a task and identify ways to improve

What grade would you give yourself on MIMIC? _____

What advice would you give to future MIMIC students?

PLEASE RATE EACH OF YOUR TEAM MEMBERS IN THE AREAS LISTED BELOW.

Team member's name _____

Describe your team member during the project? (check all that apply)

_____ Completed all tasks assigned or assumed.
_____ Contributed above and beyond my expectations.
_____ Maintained a good attitude.
_____ Showed enthusiasm for the project and the team.
_____ Participated in tasks in all areas.

Which of these areas does your team member need to work to improve? (check all that apply)

_____ Completed all tasks assigned or assumed.
_____ Contributed above and beyond my expectations.
_____ Maintained a good attitude.
_____ Showed enthusiasm for the project and the team.
_____ Participated in tasks in all areas.

RATING COOPERATION – PARTICIPATION WITH TEAM:

Rate your team member's level or quality of participation – cooperation through the week of the project on the areas below using the following scale:

1 To a high degree or level
2 To an above average degree or level
3 Average
4 To a below average degree or level
5 Unsatisfactory

_____ Understand and work within the dynamics of a group
_____ Ensure that teams' purpose and objective are clear
_____ Flexible, respect others, open to an supportive of opinions and contributions of others in team
_____ Recognize and respect people's diversity, individual differences and perspectives.
_____ Accept and provide feedback in a constructive and considerate manner
_____ Contribute to team by sharing information and expertise
_____ Lead or support when appropriate, motivating team for high performance
_____ Manage and resolve conflict when appropriate.
_____ Involve others and keep them informed

Team member's participation in projects and tasks:

_____ Plan, design or carry out a task from start to finish with well-defined objectives and outcomes
_____ Develop a plan, seek feedback, test, revise and implement
_____ Work to agreed quality standards and specifications
_____ Select and use appropriate tools and technology for a task or project
_____ Adapt to changing requirements and information
_____ Continuously monitor the success of a task and identify ways to improve

What grade would you give your team member on MIMIC? _____

What advice would you give to your team member? Please make this constructive.

Establishing a Leadership Team

A Leadership Team of students in engineering design and electronics programs at Illinois Valley Community College honors students who have demonstrated leadership potential and provides them with opportunities for personal and professional growth.

Criteria for Selection to the Team

Technical instructors nominate students for the team. A committee selects students to be invited on the basis of attitude, commitment and work ethic, willingness to help others and leadership potential; grades are not a determining factor.

Selected students are personally contacted by an instructor and receive a written invitation to join the team. They attend an informational lunch meeting where team activities are explained, and they sign a commitment form indicating the activities they find most interesting.

Leadership Team Training

Leadership Team members receive training through a course in college strategies, networking opportunities with business and industry representatives, attendance and participation in professional conferences, attending an Etiquette Dinner and other team activities, listed below. The skills which are emphasized: communication, teamwork, and the commonly-accepted leadership skills of decision-making, taking initiative, motivating people to accomplish common goals, and mentoring. (Cordova-Wentling *et.al.*2007 and Crawford, 1998)
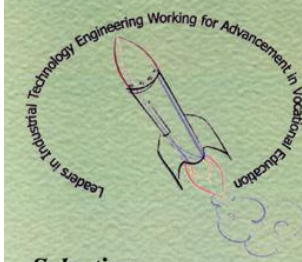
The college strategies course is provided tuition free and is intended to assist team members with their mentoring responsibilities as well as with their own college courses. The interaction and networking opportunities with business and industry representatives occur at various events including meetings of an advisory board for the technical programs, on field trips, and at recruiting activities. Leadership team members are also encouraged to participate in engineering-related conferences by presenting a poster, writing a paper or giving a presentation. That participation is designed to help them sharpen their communication skills, network with university engineering students and professors, and pursue a bachelor's degree. If the Leadership Team students are invited to give a presentation, they receive financial support to attend the conference. Team members who participate in an Etiquette Dinner, where they receive training in proper dining etiquette, attend the dinner free of charge.

Leadership Team Activities

Leadership Team members organize and participate in a variety of recruiting activities for their programs, mentor other technical students, and participate in professional activities, mentioned above. The specific activities vary from year to year, partly because the students are encouraged to define their role as leaders by planning and developing their own activities, but typical activities include:

- Speaking to high school classes or community organizations about IVCC programs
- Assisting with events such as a Career Night, Job Fair and open houses
- Assisting with events for high school or grade school students such as an Edible Car Contest or Inventor's Camp
- Assisting with the MIMIC Fair (freshmen only)
- Mentoring other students pursuing a degree in their field
- Serving as an advisory board member for student input in the development of curriculum
- Participating in a professional conference including preparation of a poster or writing an article. The poster team members presented at the 2008 IL/IN Section of the American Society for Engineering Education Conference is below.

63

Leadership Team members presented a poster, thumbnail copy above,
at the American Society for Engineering Education regional conference
at Rose-Hulman Polytechnic Institute in March 2008.

Leadership Team students agree to participate in a certain number of
activities each semester.

Leadership Team Costs

Costs for the Leadership Team include small stipends to team members,
tuition waivers for a course designed to improve their success in college,
meal costs for an informational lunch and Etiquette Dinner, and travel
expenses to attend a conference.

Leadership Team members are paid a stipend each semester, based on their
participation in a certain number of approved activities each semester.
Students who participate in the minimum number earn $50 and those who
participate in the maximum number earn $100.

All of the leadership students are eligible to enroll in a Strategies For College course tuition free. They also attend an informational lunch and Etiquette Dinner free of charge.

Members of the Leadership Team are encouraged to apply to give a poster presentation at the Ill/Ind Section Conference of the American Society for Engineering Education. If they are selected to present, their travel expenses are covered.

For 2007, team expenses were under $2,400.

Stipends	$800
Tuition waiver*	120
Conference	1,200
Informational Lunch	200
Etiquette Dinner	75
TOTAL	$2,395

*One student enrolled in the Strategies For College course

The Leadership Team was established in 2006, with support from a National Science Foundation grant. The grant is covering Leadership Team expenses through 2008. The stipends and tuition waivers are minimal expenses and sustainable beyond the grant period. For conference travel expenses, the technical instructors will likely seek alternate funding sources, potentially by developing industry partnerships.

Success of IVCCs Team

Technical instructors have been successful in recruiting more than twice as many students for the team as they planned, and the students have taken ownership of the team, developing and participating in more activities than the organizers envisioned. In 2006, one member of the Leadership Team received a scholarship to attend and participate in the Advanced Technological Education Principal Investigators Conference, sponsored by the National Science Foundation and American Association of Community Colleges, in Washington D.C. In 2007, two team members received awards to attend and participate in the conference.

The 2006 Leadership Team members decided to develop their team identity by adopting the name of LITE WAVE, an acronym for Leaders in Industrial

Technology Engineering Working for Advancement in Vocational Education. A member of the team developed the team logo below.
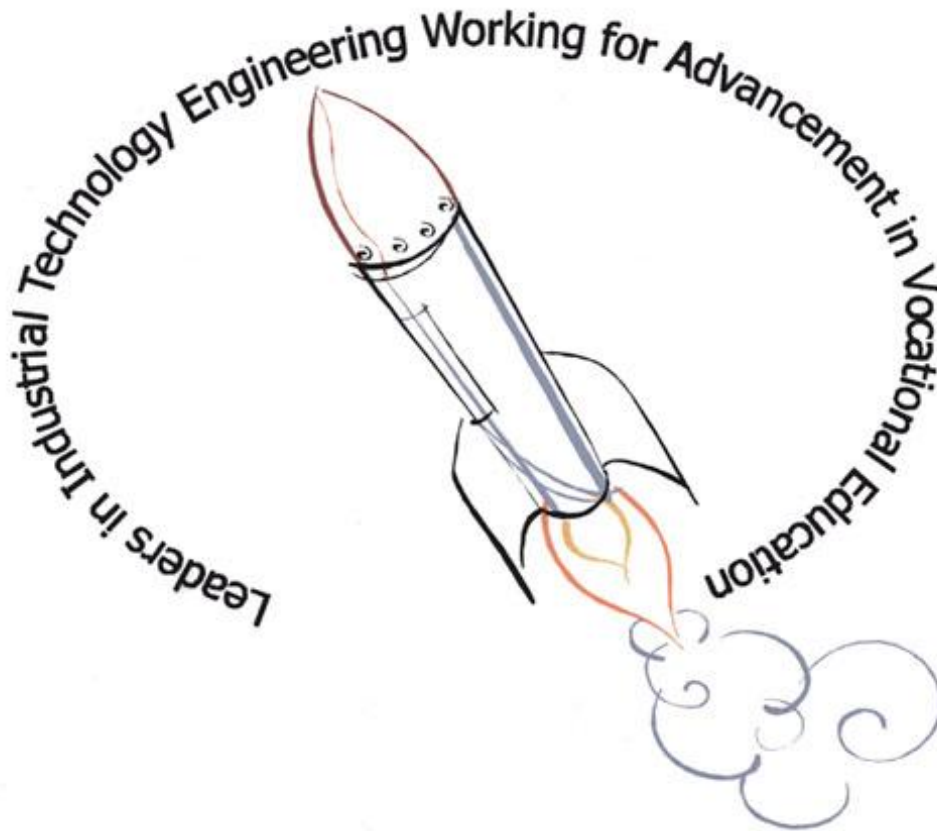
LITE WAVE

Leadership Team Publicity

Team members and team activities are widely publicized on the college web site and in newspaper throughout the college district. The publicity honors teams members for their accomplishments and assists in recruiting efforts for the technical programs. New team members sign a release allowing the college to use their names and photographs in promotional materials, and team members are asked to provide potential press release information.

Team Information and Forms for Organizing a Team

A variety of informational materials and forms utilized to organize, publicize and assess the IVCC Leadership Team are included in the following pages.

YOU HAVE BEEN RECOMMENDED AND
SELECTED AS A POTENTIAL MEMBER FOR A

LEADERSHIP TEAM
AT IVCC

We are looking for students who are pursuing a degree related to engineering technology (CAD, Electronics/Electricity, and Manufacturing) at IVCC to assist us in mentoring and advising during the development and implementation of an IVCC curriculum project related to MIMIC and a National Science Foundation grant that will impact the CAD, electronics/electricity, and manufacturing programs.

If you join this *Leadership Team*, you can receive:

* Free Class – Strategies for College: SFC 1000

* Stipend ($) pay

As a member of this *Leadership Team*, you will be asked to participate in some of the following ways:
* Speak to a high school class about IVCC programs
*Assist with Edible Car Contest
*Participate in Career Nights and/or Job Fair
*Speak to a community organization
*Assist with MIMIC Fair (freshmen only)
*Participate in a conference including preparation of a poster
*Mentor IVCC Freshmen who are pursuing a degree in your field
*Serve as an Advisory Board member for student input in the development of curriculum
*Work on other promotional/recruiting activities

If you are interested in joining this *Leadership Team,* please contact: Dorene_Perez@ivcc.edu (815) 224-0221 or Jim_Gibson@ivcc.edu (815) 224-0453

PLEASE RESPOND TO JIM OR DORENE BY <u>THURS. DEC. 1</u>, IF YOU WANT TO JOIN THE TEAM.

67

MIMIC/NSF Leadership Team Commitment

I am interested in participating in the following Leadership Team activities:

_____ Speaking to a high school class about IVCC programs.

_____ Assisting with the Edible Car contest

_____ Participating in Career Nights and/or Job Fair

_____ Speaking to a community organization

_____ Assisting with the MIMIC Fair (freshmen only)

_____ Participating in a conference, March 30-31, at Indianapolis, Ind. including preparation of a poster. The conference is the 2007 Annual American Society for Engineering Education Illinois/Indiana conference.

_____ Mentoring IVCC Freshmen who are pursuing a degree in your field

_____ Serving as an Advisory Board member for student input in the development of curriculum

_____ Working on other promotional/recruiting activities

_____ Starting a student chapter of a technical organization

_____ Developing a student-initiated activity

I understand that I must participate in a minimum of five Leadership Team activities in order to earn the full stipend for the semester.

_____   _____
                    (signature)   (date)

Selection for the MIMIC/NSF Leadership Team is intended to honor students who have demonstrated leadership potential. The Leadership Team recognizes deserving students by providing additional opportunities for personal and professional growth.

LEADERSHIP TEAM PUBLICITY RELEASE & INFORMATION

Photo/Video/Statement Release

I hereby release rights to photographs, video and statements taken by Illinois Valley Community College to use in possible promotional or educational materials, including IVCC's Web site.

Signature_____Date_____

ILLINOIS VALLEY COMMUNITY COLLEGE

1. Your name, as you would like to see it in news releases:

_____
    (please print)

2. Current address: _____

3. Phone numbers - Home: Work:
                                                        (If okay to call)
                          Cell:

4. Email address: (print carefully) _____

5. Date of birth: _____/_____/_____   _____ Freshman   _____ Sophomore

6. High School: _____ Year graduated: _____

7. Have you already taken Strategies For College (SFC 1000) ____ yes   ____ no

    If not, do you think you will enroll in the future (tuition reimbursed) ___ yes   ___ no

8. Current major:_____

9. Career plans:_____

10. Current job: _____

11. Comments about leadership team (benefits, what you hope to gain from it, why you joined, etc.) Continue on back if you wish.

Leadership Team Early Survey

Name _____

Have you taken Strategies For College? ____ yes   _____ currently enrolled   _____no

   If YES, Strategies For College has been beneficial.
1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

   PLEASE EXPLAIN: (continue on back of page if needed)

As you begin your Leadership Team experiences, how comfortable/confident do you feel about your communication skills.
1	2	3	4	5
Very Comfortable	Somewhat Comfortable	Neutral	Somewhat Uncomfortable	Very Uncomfortable

I hope my leadership team experiences will help me to improve my communication skills.
1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

How comfortable/confident do you feel about your teamwork skills.
1	2	3	4	5
Very Comfortable	Somewhat Comfortable	Neutral	Somewhat Uncomfortable	Very Uncomfortable

I hope my leadership team experiences will help me to improve my teamwork skills.
1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

How comfortable/confident do you feel about your decision-making skills
1	2	3	4	5
Very Comfortable	Somewhat Comfortable	Neutral	Somewhat Uncomfortable	Very Uncomfortable

I hope my leadership team experiences will help me to improve my decision-making skills.
1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

How comfortable/confident do you feel about your ability to take initiative.
1	2	3	4	5
Very Comfortable	Somewhat Comfortable	Neutral	Somewhat Uncomfortable	Very Uncomfortable

I hope my leadership team experiences will help me to improve my ability to take initiative.
1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

How comfortable/confident do you feel about your ability to motive people to accomplish a common goal

1	2	3	4	5
Very Comfortable	Somewhat Comfortable	Neutral	Somewhat Uncomfortable	Very Uncomfortable

I hope my leadership team experiences will help me to improve my ability to motivate people to accomplish a common goal.

1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

Please explain

How comfortable/confident do you feel about your ability to mentor other students in your field

1	2	3	4	5
Very Comfortable	Somewhat Comfortable	Neutral	Somewhat Uncomfortable	Very Uncomfortable

I hope my leadership team experiences will help me to improve my ability to mentor other students in my field.

1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

Any comments?

Leadership Team Followup

Name _____

1. Did you take Strategies For College? _____ yes   _____no

       If YES, Strategies For College helped me with my other courses.

1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

       If YES, Strategies For College helped me in my work on the leadership track.

1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

       PLEASE EXPLAIN: (continue on back of page if needed)

2. Did you attend the Etiquette Dinner? _____ yes   _____ no

       If YES, the Etiquette Dinner was beneficial to me

1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

       PLEASE EXPLAIN: (continue on back of page if needed)

3. Did you participate in one or more professional conferences as a Leadership Team member?
         _____ yes   _____ no

       If YES, participation in the conference(s) was beneficial to me.

1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

       PLEASE EXPLAIN: (continue on back of page if needed

4. Please check any activities you participated in or organized:

_____ Speaking to a high school class about IVCC (what school/class?) _____

_____ Assisting with the Edible Car Contest for IVCC students

_____ Assisting with the Edible Car Contest for kids

_____ Participating in Career Night and/or Job Fair (which?) _____

_____ Speaking to a community organization (what organization?) _____

_____ Assisting with the MIMIC Fair (only if you were not on a MIMIC team)

_____ Participating in the ASEE Illinois/Indiana Conference poster session

_____ Working on other promotional/recruiting activities (please explain) _____

_____ Assisting / Mentoring IVCC students who are pursuing a degree in your field

_____ Other (please explain) _____

5. How comfortable/confident do you feel about your communication skills at this point.

1	2	3	4	5
Very Comfortable	Somewhat Comfortable	Neutral	Somewhat Uncomfortable	Very Uncomfortable

6. My leadership team experiences helped me to improve my communication skills.

1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

7. How comfortable/confident do you feel about your teamwork skills.

1	2	3	4	5
Very Comfortable	Somewhat Comfortable	Neutral	Somewhat Uncomfortable	Very Uncomfortable

8. My leadership team experiences helped me to improve my teamwork skills.

1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

9. How comfortable/confident do you feel about your decision-making skills

1	2	3	4	5
Very Comfortable	Somewhat Comfortable	Neutral	Somewhat Uncomfortable	Very Uncomfortable

10. My leadership team experiences helped me to improve my decision-making skills.

1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

11. How comfortable/confident do you feel about your ability to take initiative.

1	2	3	4	5
Very Comfortable	Somewhat Comfortable	Neutral	Somewhat Uncomfortable	Very Uncomfortable

12. My leadership team experiences helped me to improve my ability to take initiative.

1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

13. How comfortable/confident do you feel about your ability to motive people to accomplish a common goal

1	2	3	4	5
Very Comfortable	Somewhat Comfortable	Neutral	Somewhat Uncomfortable	Very Uncomfortable

14. My leadership team experiences helped me to improve my ability to motivate people to accomplish a common goal.

1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

15. How comfortable/confident do you feel about your ability to mentor other students in your field

1	2	3	4	5
Very Comfortable	Somewhat Comfortable	Neutral	Somewhat Uncomfortable	Very Uncomfortable

16. My leadership team experiences helped me to improve my ability to mentor other students in my field.

1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

17. My experiences as a leadership student have been beneficial to me.

1	2	3	4	5
Strongly agree	Agree	Neutral	Disagree	Strongly disagree

18. What activities do you suggest for future leadership students?

19. Any other suggestions or comments?

Survey of Academic Assistance (given to students in classes with Leadership Team members)

1. Your program: _____ engineering, CAD   _____ electronics

2. Are you currently
      _____ a freshman   _____ a sophomore

3. In the past year, did you ask for any help with the classes or labs in your field from any of the following students, who are members of the Leadership Team:

      Engineering/ engineering design   Electronics
          (list them)

      (See list in #4 below for examples of some of the type of help you might have requested)

      _____ yes   (If yes, please continue)   _____ no   (If no, skip to question #7)

4. If yes, what types of help did you request?

      _____ questions about class content, assignments or the textbook

      _____ help with computer programs/software in your field (such as Auto CAD, Solid Works, Multi Sim, Rockwell Automated Challenge, etc.)

      _____ help with general purpose computer programs (such as Word, Power Point or Internet searches)

      _____ help with equipment/technology specific to your field (such as rapid prototyping, component identification, PLC, oscilloscopes, meters, bread boarding, etc.

      _____ help in preparing working drawings, assemblies, or detail drawings

      _____ help with communication assignments (such as oral

presentations or written reports)

_____ help with course material outside of your field

_____ other (please explain) _____

5. How often did you receive the help you needed from any of those students?

Every time	Most of the time	Some of the time	Seldom	Never
10 9	8 7	6 5	4 3	2 1

   Comments:

6. Please rate the attitude of the leadership team students from whom you requested help:

Very positive & tried to help	Somewhat positive & somewhat tried	Somewhat Negative & not especially helpful	Very negative & not at all helpful

   Comments:

7. If you did NOT request help from any of the listed students, please indicate why you didn't:

_____ did not need help

_____ did not know those students were supposed to provide help

_____ other (please explain)_____

_____

8. Suggestions for future leadership teams:

Leadership Team Member Survey – Academic Assistance

1. Your program: _____ engineering, CAD   _____ electronics

2. In the past year, did you provide any assistance to other students in your classes or while you were working on your projects in the lab? (See list in #3 below for examples of some of the types of assistance you might have provided)

   _____ yes   _____ no

3. If yes, please indicate the types of assistance you have provided:

   _____ answering questions about class content, general questions about assignments or the textbook

   _____ help with computer programs/software in your field (such as Auto CAD, Solid Works, Multi Sim, Rockwell Automated Challenge, etc.)

   _____ help with general purpose computer programs (such as Word, Power Point or Internet searches)

   _____ help with equipment/technology specific to your field (such as rapid prototyping, component identification, PLC oscilloscopes, meters, bread boarding, etc.)

   _____ help in preparing working drawings, assemblies, or detail drawings

   _____ help with communication assignments (such as oral presentations or written reports)

   _____ help with course material outside of your field

   _____ other (please explain) _____

4. How often were you able to provide the help the student(s) needed?

    Every time   Most of the time   Some of the time Seldom   Never
  10   9   8   7   6   5   4   3   2   1

    Comments:

5. How comfortable were you in providing that help?

    Very   Somewhat   Somewhat   Very
 Comfortable   Comfortable   Uncomfortable   Uncomfortable

    Comments:

6. My leadership team experiences provided me with the guidance/training I needed to provide assistance to other students.

    Strongly   Strongly
   Agree   Agree   Disagree   Disagree

    Comments:

7. Suggestions for future leadership teams:

Steps in a Establishing a Team

The steps below will guide you in establishing a leadership team

1. Decide the goals for a student leadership team.

2. List the instructors and areas or disciplines that might participate.

3. Secure approval from administrative staff and recruit the instructors.

4. Determine types of activities.

5. Set a budget.
    - What funds are necessary for start up?
    - Instructor/staff stipends to organize/supervise the team and to provide students with additional training to be successful on the team?
    - Student stipends?
    - Training activities?
    - Cost for team activities (conferences etc.)
    - Other?

6. Determine potential funding sources
    - Grants
    - Donations
    - Fundraising

7. Acquire or plan for funding

> **Do you have an upcoming meeting or in-service session
> in which staff members could brainstorm ideas
> for a leadership team?**

Once these planning issues are addressed, organization begins:

- Providing participating instructors with planning time together
- Determining criteria for picking team members and deciding who will participate in the selection process
- Setting student requirements
    - Role they will play at your college/school
    - Responsibilities they can reasonably assume
    - Who they will serve
    - Time commitment the team might demand
    - How many you hope to recruit
- Deciding how to invite students to the team
- Planning and scheduling a kickoff event for team members Determining potential training needs of participating students
- Organizing and scheduling those trainings
- Determining and providing communication channels for the student team (e-mail, discussion board?)
- Selecting, adapting, or developing forms for the team to use for approval at various stages
- Designing assessments of student performance
- Planning recognition events

Once a team is organized, Leadership Team members should participate in reviewing and revising the team organization and in deciding, organizing and planning their training and activities.

Brainstorming Prompt for Leadership Team Ideas

Review the information about the Leadership Team (LITE WAVE) at Illinois Valley Community College, then brainstorm on the questions listed below.

Brainstorming questions

1. Who might be on your student team?

2. What would the goal(s) or purpose(s) of your team be?

3. What activities would be useful to the team members?

4. What activities would be useful to other students, your college/school or your department?

5. What responsibilities would a leadership student have?

6. What might your kickoff event be?

7. Any ideas for funding sources?

Additional Information and Resources

Similar Multi-Disciplinary College Projects

At community colleges, projects similar to MIMIC (multi-disciplinary, entrepreneurial projects that include engineering and business students) are either uncommon or not well publicized. Some community college students do participate in a university project. (Liou, *et al*., 2003)

At universities, entrepreneurial engineering team projects are relatively common, but they do not quite match the MIMIC model. Few of the projects include business students on the teams, and for some that do, the business members are MBA students. The list below references a number of universities with multi-disciplinary engineering projects, identifies some significant characteristics of those projects, and provides sources for further information.

- Florida Institute of Technology: Projects include facilitating start-up ventures (Ports, *et al*., 2005)
- Lehigh University: Projects include industry partners and undergraduate business students (Ochs, *et al*., 2001)
- Massachusetts Institute of Technology: Projects culminate with a business plan competition (MIT $50k Entrepreneurship Competition, n.d.)
- Michigan Technological University: Projects include industry partners (Raber and Moore, 2005) and teams work together longer than one year (The Enterprise Program, n.d.)
- Pennsylvania State University: Projects are part of an engineering entrepreneurship program (Bilen *et al.,* 2005)
- Rowan University: Teams work together longer than one year (Engineering Clinics, n.d.)
- Stanford University: Projects include facilitating start-up ventures (Stanford Technology Ventures Program, n.d.)
- University of Florida: Teams include MBA students (Stanfill, *et al.,* 2004)
- University of Maryland: Prospective entrepreneurs live together in an incubator environment (Barbe, *et al*., 2001)
- University of Missouri-Columbia: Teams include undergraduate business students and a high tech manufacturing facility is available for production (Zayas-Castro, *et al*., 2002)
- University of Nevada-Reno: Teams include MBA students (Wang and Kleppe, 2001)

Further Information About the MIMIC Project

For further information on the MIMIC project…

See the MIMIC web site at http://www.ivcc.edu/mimic

See the MIMIC Student Guidebook:

- <u>MIMIC Student Guide Book</u>, Illinois Valley Community College.. Available from the MIMIC web site at http://www.ivcc.edu/mimic.

See the following peer-reviewed journal articles about the MIMIC project:

- Gibson, Jim. (2006). Making Industry Meaningful In College for Technical Students, <u>Proceedings of the National Association of Industrial Technology Convention</u>. Nov. 2006. Winner of Best Paper Award at national convention.
- Perez, Dorene, Gibson, Jim, and Lynch, Rose Marie (2006). A Model Program for Making Industry Meaningful In College, <u>Proceedings of the American Society for Engineering Education Conference</u>. 2006.
- Perez, Dorene, Gibson, Jim, and Lynch, Rose Marie (2006). A Multi-Disciplinary Entrepreneurial Project for Teaching Reengineering, <u>Proceedings of the American Society for Engineering Education Conference</u>. 2006. Nominated for Best Paper Award at national convention.
- Perez, Dorene, Gibson, Jim and Lynch, Rose Marie (2006). Utilizing a Capstone Project as a Catalyst for Reengineering, Recruitment, and Retention, <u>Proceedings of the American Society for Engineering Education Conference.</u> 2006.
- Perez, Dorene, Gibson, Jim and Lynch, Rose Marie (2004). Making Industry Meaningful In College, <u>Proceedings of the American Society for Engineering Education Conference.</u> 2004.

See the National Science Foundation web site for the NSF grant award abstract: Embedding CQI Methodology in Two-Year College Technical Curricula. Award #0501885 for 2005 – 2008. Principal Investigator Dorene Perez. Co-Principal Investigators Jim Gibson and Rose Marie Lynch. http://www.nsf.gov

Contact:

- Dorene Perez, Program Coordinator of Computer Aided Design/Computer Aided Engineering, originator of MIMIC, and PI of NSF grant #0501885: dorene_perez@ivcc.edu
- Jim Gibson, Program Coordinator of Electronics, MIMIC instructor and co-PI of NSF grant #0501885: jim_gibson@ivcc.edu
- Rose Marie Lynch, Communications Instructor and co-PI of NSF grant #0501885: rosemarie_lynch@ivcc.edu

Further Information About the Leadership Team

For further information on the Leadership Team

See the MIMIC/NSF grant web site at http://www.ivcc.edu/mimic/nsf/leadership

References

Barbe, D.F., Baum, J.R. and Thornton, K.S. (2001). Campus Entrepreneurship Opportunities, Proceedings of the 2001 American Society for Engineering Education Annual Conference & Exposition. Session 3454.

Bilen, S. G., et al. (2005). Developing and Assessing Students' Entrepreneurial Skills and Mind-Set, Journal of Engineering Education, April 2005, pp. 233 – 243.

Cordova-Wentling, Rose Mary and Raymond Price. Human Behavior Skills in Engineering Education, Proceedings of the American Society for Engineering Education Annual Conference, 2007.

Crawford, Andrew S. Leadership Education at the University of Michigan. Proceedings of the American Society for Engineering Education Annual Conference, 1998.

Engineering Clinics. (n.d.) Retrieved Jan. 20, 2006, from Rowan University Web site: http://www.rowan.edu/colleges/ engineering/clinics

The Enterprise Program. (n.d.) Retrieved Jan. 20, 2006, from Michigan Technological University Web site: http://www.enterprise.mtu.edu

Liou, F., et al. (2003). An Integrated and Distributed Environment for a Manufacturing Capstone Course, Proceedings of the 2003 American Society for Engineering Education Annual Conference & Exposition. Session 2563.

MIT $50k Entrepreneurship Competition. (n.d.) Retrieved Feb. 25, 2006 from Massachusetts Institute of Technology Web site: http://www.mit50k.net

Ochs, J.B., Watkins, T.A., and Boothe, B.W. (2001). Creating a Truly Multidisciplinary Entrepreneurial Educational Environment, Journal of Engineering Education, Oct. 2001, pp. 577 – 583.

Ports, K., et al. (2005). Senior Design Project Commercialization and Entrepreneurship, Proceedings of the 2005 American Society for Engineering Education Annual Conference & Exposition.

Raber, M., and Moore, M. (2005). The Enterprise Program at Michigan Technological University: A Professional Development Curriculum in Action, Proceedings of the 2005 American Society for Engineering Education Annual Conference & Exposition.

Stanfill, R. K., et al. (2004). Integrating Entrepreneurial Projects into a Successful Multidisciplinary Capstone Design Program at the University of Florida, Proceedings of the 2004 American Society for Engineering Education Annual Conference & Exposition. Session 1693.

Stanford Technology Ventures Program. (n.d.) Retrieved Feb. 25, 2006 from Stanford
 University Web site: http://www.stanford.edu/ group/stvp

Wang, E. L., and Kleppe, J.A. (2001). Teaching Invention, Innovation, and
 Entrepreneurship in Engineering, Journal of Engineering Education, Oct. 2001,
 pp. 565-570.

Zayas-Castro, J.L., et al. (2002). EMILE: A Concerted Tech-Based Entrepreneurship
 Effort Between Engineering and Business, Proceedings of the 2002 American
 Society for Engineering Education Annual Conference & Exposition. Session
 3454.

Illinois Valley Community College

challenges

YOU

to

Make **I**ndustry **M**eaningful **I**n **C**ollege