

Multidisciplinary Project Plans

adapted from the

Making Industry Meaningful In College (MIMIC) Model



ILLINOIS VALLEY
COMMUNITY COLLEGE



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adapted from the

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By

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Preface

The multi-disciplinary project plans in this manual were developed at a workshop offered to community college and high school administrators and faculty in May 2008. Twenty participants learned to adapt the Making Industry Meaningful In College (MIMIC) project model to their students and their institutions. The workshop, held at Starved Rock Lodge and Conference Center in Utica, IL, was funded by a National Science Foundation grant and hosted by Illinois Valley Community College, where the MIMIC project originated.

MIMIC-ing Business / Industry

MIMIC is a multi-disciplinary project that teams IVCC students in engineering design, electronics, and business into student “companies” to design, prototype, market, manufacture and sell products. In addition to sharpening the students’ technical skills, the project focuses on teamwork, communication, critical thinking, problem solving and other workplace skills.

Since MIMIC pioneered in 1995, a number of other projects at IVCC have been developed from the MIMIC model:

- Day Care Camp – Students 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.
- Puppet Theater – Students in engineering design, electronics, business, theater and English designed and built a portable puppet theater, designed and constructed puppets, wrote a script, audition for parts, developed and managed a budget, created marketing materials, marketed and presented a production.
- Pet Basket – Students in graphic design, engineering design and ceramics created dog-related products, assembled products into a gift basket, marketed and sold the baskets at a craft fair. Future plans are to include marketing students.
- Faces of the Homeless – In the planning stages is a project for students in graphics design, art, human services, sociology and creative writing to work with a local homeless shelter to raise public awareness about homelessness. Plans are for students to develop posters, brochures, masks, and poems or essays about what it means to be homeless.

MIRROR-ing Industry

Students at the Columbia, MO Area Career Center are participating in a multi-disciplinary project patterned after MIMIC called MIRROR or Making Industry Real – Radically Occupying Reality. High school students in computer aided design, electronics and marketing are selecting, researching, prototyping, field testing, manufacturing, marketing and selling a product. The project focuses on fostering “innovation talent,” or the ability to function in a fast-paced, changing environment and on collaborating in a

multi-disciplinary setting. More information on MIRROR is available at www.career-center.org

Additional Resources

A detailed description of MIMIC, including assistance in developing projects utilizing the MIMIC model, is available free of charge in a Teacher's Resource Manual for Adapting the MIMIC Project Model at

www.ivcc.edu/mimic
www.ivcc.edu/nsf

The resource manual includes sample paperwork for organizing, supervising, and assessing multi-disciplinary teams.

Also available on the web sites:

- MIMIC Student Guidebook, which explains expectations and requirements to students on MIMIC teams.
- Modules for Integrating Workplace Skills, which provides exercises for teaching short lessons on topics such as oral communication and teamwork in various courses and at varying levels.
- Establishing a Leadership Team, which provides guidance on organizing and assessing a leadership team for technical students at the community college and high school levels. The materials in this manual are also included in the Teacher's Resource Manual for Adapting the MIMIC Project Model.

Illinois Valley Community College challenges you to MIMIC

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AIM For Independence (Advocates' Initiative for Meeting Independence)

Heartland Community College

Normal, IL

Project Plan developed by: Sybil Fears, Heartland Community College and Lincoln College; Sue Koos, Heartland Community College; Lisa Sharp, Heartland Community College; Pat Marquis and Tad Smith, Princeton High School, Princeton, IL.

EDUCATIONAL LEVEL: College freshmen and sophomores and senior level in high school.

SUBJECTS TO BE INTEGRATED

Initially:

- Health Services
- Construction
- Business

Eventually:

- Personal Finance
- Computer Software Applications
- Office Administration
- Consumer Economics
- Psychology
- Sociology
- Cosmetology
- Criminal Justice
- Law

INTRODUCTION:

The Baby Boomer generation is now entering their forties, fifties, and sixties. As they advance in age, more and more are developing health and life issues that make living independently more challenging. Yet most of them want to remain in their homes as long as possible. The largest growing age segment of the U.S. population is seniors according to the Administration on Aging, an agency of the US Department of Health and Human Services. This means that nursing homes and assisted living facilities are reaching their capacities. The members of AIM for Independence would like to assist with preventing this future crisis by helping those who want to remain at home, to stay at home.

Concurrently, students in the participating colleges and high schools will learn how to practice their crafts in real-world situations, to work in interdisciplinary teams, and to think about how their work has a real impact on others. It will allow those students to be part of a meaningful project that will help them become better world citizens.

In Normal, IL, there are currently 360 people in nursing homes, and 14 people in homes for the mentally retarded. Over 6% of the households have someone over 65 years old in them. 7.6% of the total population is over 65, and 3.9% of all of those living under the poverty level are over age 65. In Bloomington, IL, there are 330 people in nursing homes, and 7 people in homes for the mentally ill. 9.1% of households have someone over 65 residing there, and 9.9% of the total population is over 65, with 5.8% of the total population living under the poverty level and being over 65 years of age. As these statistics reveal, there is a real need in our area for more help for the elderly in particular to be able to stay in their homes, both from a financial stance as well as from a humanitarian approach (all from U.S. Census Bureau and City-data.com).

PROJECT OBJECTIVES

AIM for Independence will assist and advocate for those who want to continue to live independently, including the mature, those with special needs, and those who have some other handicap that might otherwise prevent them from staying in their homes. AIM will assist students to practice their crafts in an interdisciplinary and real-world teaching and learning environment.

PROJECT PLAN

After consulting legal counsel regarding the plan and any necessary insurance, waivers, and other legal requirements, AIM for Independence will be integrated into the existing curriculum in several disciplines. The organization will be run entirely by students enrolled in effected courses and by volunteers.

Students will work with the appropriate faculty, community resources, and volunteer experts to develop a checklist approach to helping clients of the organization. Students will develop checklists to assess various aspects of the clients' lives, to include transportation, medication scheduling and compliance, dietary needs, financial needs, and safety and security needs to name a few.

After the students have developed the checklists, they will assess clients in their homes. After the initial assessment, students in interdisciplinary groups will prepare a report for clients letting them know their recommendations for continued independent living. Where appropriate, the students will also work with community resources to act as an advocate for services and products for their clients. The students will work to connect their clients to those community resources and organizations that have resources available, but about which the client may be unaware. In appropriate circumstances, students will work to make changes to the home to make living there safer and more appropriate for the resident(s).

Students in affected courses will be assigned clients and the clients will be treated as "projects." Assigned student teams will see each "project" through to completion, at which point they will make a new assessment of the home and living conditions of the client.

STUDENTS IN THE PROJECT

Students will originally be from Heartland Community College, but hopefully the project will expand to include students at Lincoln College, area technical high schools, and perhaps students from Illinois State University and Illinois Wesleyan University.

BENEFITS OF THE PROJECT

Many groups will reap rewards from this project:

Students

Students will benefit in numerous ways. They will learn real-world applications of their fields of study and interest. They will benefit from working on a meaningful project designed to help others, thereby helping them learn how their actions, both personal and professional, can affect others and helping them learn to be good global citizens. They will see how working in an interdisciplinary team can be both rewarding and challenging. They will learn how to work on a team of diverse individuals and how team work can bring about a better result than working alone (gestalt). They will be practicing, applying, and exercising their crafts first-hand, thereby making classroom work more meaningful and engaging.

Programs

The various college programs and disciplines will benefit from the project in several ways, as well. The programs will expand as a result of local attention the project will generate. Enrollments are likely to grow as more people want to be included in such a worthwhile cause. The public relations aspect for this project should generate more local interest in the college and programs. In addition, the programs will be enriched from the active participation of students. The programs will be enriched from increased student interest and involvement in the project.

Institution(s)

Of course, all involved institutions will benefit. Public relations will be good as local news media pick up the story of the institution's involvement with the community. As an incidental benefit, the colleges should have better attendance in classes and at work, since fewer people will end their independent living. Employees and students will be able to continue to attend longer themselves. In addition, family members of those assisted should have better attendance since they will not need to take out as much time to see to their family as they would if they were living in a nursing home or in assisted living facilities.

Community

The community will see some real benefits, as well. The community will benefit from reduced absenteeism as outlined above, as well as having reduced health care costs for the elderly and those who already have a disability as AIM continues to help people stay in their homes and work with them to remain safe. The community will also benefit from improved community morale and a feeling of connectedness because of the students' efforts.

POSSIBLE PARTNERSHIPS

Heartland Community College and community area technical high schools will begin the project, but future involvement could include the Midwest Cosmetology School, Lincoln College, Illinois State University, and Illinois Wesleyan University.

Possible business or corporate partners: State Farm and Country Insurance and Financial Services, for sponsorship; Menards, Home Depot, J.P. Lumber and Lowe's, for raw materials donations; and companies to donate assistive technologies and equipment for clients.

START UP FUNDING

AIM will need office space, equipment and supplies; vehicles and vehicle operating expenses; adaptive technologies and equipment; and construction supplies for adapting homes. AIM will also need in-depth information about community resources, legal advice and services (as a result of doing construction and alterations in people's homes, etc.)

Expenses for a year are estimated to total \$65,000.

POTENTIAL FUNDING SOURCES

Much of the start up funding will be provided as in-kind services and products from participating partners. Heartland Community College as well as other interested colleges, high schools, and universities will be expected to provide in-kind donations for the support of the project. Additionally, AIM will seek private donations, corporate sponsorships, and foundation grant funding. State Farm Insurance and Country Insurance and Financial Services can be approached to assist in making their policy holders safer and more secure in their homes.

Experts in various fields, including faculty members, will be recruited to volunteer their expertise.

PROJECT ASSESSMENT

The project will be assessed from many perspectives. Client assessments will be generated on an ongoing basis. Clients will assess us and their need for the services and products before their individual project begins, and they will continue to assess AIM throughout the project and beyond. Clients' families will also complete evaluations on a regular basis. Students will have a 360-degree evaluation, including input from their teammates, the students themselves (self-assessment), and feedback from clients on their personal performance and attitudes, as well as the more traditional assessment from the involved faculty members. AIM will be assessed by the community as well as by donors to learn if they perceive a good value for their investment. Volunteers and volunteer

experts will also assess the program. The involved institutions will also be surveyed to determine the value of their investment in the project. AIM will also do a cost/benefit analysis of the use of nursing homes and assisted living facilities to see if AIM is, indeed, helping people stay in their homes longer than people could originally do without the project

NEXT STEPS.

The next step is to assess the members in the community and evaluate how this service would be used and by whom. A questionnaire may be the best way to go to determine the need. Another part of this step is to research what services and resources are already available.

After an initial assessment and environmental scan of the area, the next steps include determining services and products that are needed, preparing a detailed plan, setting timelines, seeking support and donations for startup.

CTE 101

Career and Technical Education in Charlotte/Mecklenburg School District

Charlotte, North Carolina

Project Plan developed by: Michael Waskew and Amy Thomas, Charlotte/Mecklenburg School District; and Judy Fightmaster, College of Southern Nevada, North Las Vegas.

EDUCATIONAL LEVEL: High school freshmen

SUBJECT AREAS BEING INTEGRATED: All Career Directed Curriculum

POSSIBLE PARTNERSHIPS WITH BUSINESS/INDUSTRY:

Partnerships are essential since industry should be responsible for providing the critical hard skills appropriate to that industry.

PROJECT OBJECTIVES:

- Integrate comprehensive curriculum delivery consisted with and responsive to the Career Cluster functioning economy initiative. Implement Affinity concept.
- Emphasize soft skills learning through use of the 18 essential workplace skills.
- Create a project-based course, CTE 101, that implements the three affinity areas and provide exposure to the clusters under the affinity areas.

PROJECT PLAN:

- Define a mission, vision and instructional philosophy.
- Identify Sixteen Career Clusters.
- Structure Learning by Career-Profession Affinity.
- Provide an exploratory introduction to the learning process and the affinities.
- Establish curriculum development team.
- Outline particular affinity curriculum structures including defining values, and learning to learn strategies.
- Introduce awareness of project-based learning.
- Gain experience through project-based practices. *Wisdom is survival through a series of non-fatal accidents.*

BENEFITS:

- Students acquire 21st Century soft skills.
- Learning delivery is organized and industry directed.
- Students only pursue coursework in their affinity (predetermined preference)
- Only the most engaging teachers will be marketing a particular affinity.
- Students will play the game.
- Budgetary efficiency resultant from coordinated curriculum delivery.

ESTIMATED START-UP FUNDING NEEDED AND POSSIBLE FUNDING SOURCES

Course will be facilitated in already existing CTE school lab. CTE labs are funded by the Career and Technical Education department which is funded by Federal Perkins III and IV legislation and funding.

Additional funding options for innovation will be attempted through grant applications including sources such as Edutopia and Coalition of Essential Schools as well as conventional sources.

Funding for curriculum resources, paper, printer cartridges, and any supplies needed for the various projects will be also funded by CTE department.

PROJECT ASSESSMENT IDEAS

All project-based activities designed in the curriculum will be evaluated through project juries (both preliminary and final), competitions, AND self assessments, all rubric based. (See sample rubric below.) Juries will be composed of members taken from peers, staff, and industry. The Beaux Arts model of defending a body of work will be utilized.

Evaluation of course will be completed through surveys from the school administrators, teachers, and participating business partners.

NEXT STEPS

Curriculum Team for CTE 101 will need to develop a pacing guides, objectives and curriculum materials.

CTE 101 team will need to finalize a schedule for implementation of course in the school schedule.

Teachers facilitating THE course will need to be identified.

CTE labs in the schools implementing CTE 101 course will need to be identified. Programs to facilitate buy-in by administration, staff, students and community will be established and implemented.

T & I ADVANCED STUDIES DESIGN PROJECT RUBRIC

NAME _____

date _____

TASK					Points
Project Base Information or Drawing Points	Poor or no work Not to scale Messy 1	Scale and neatness issues 2	Good to scale with important data 3	Contours dimensions complete & tidy 4	
Final Design Drawing Points	No work Intent not clear Not to scale 1	Fair Difficult to understand Scale, neatness issues 2	Clear Good & clean To Scale 3	Detail, color & shading present "jumps out" 4	
DESIGN SOLUTION Double points Points	Little or no thought given to solution 1 to 2	Ineffective or frivolous solution 3 to 4	Good and creative solution 5 to 6	Very thoughtful and creative A WINNER! 7 to 8	
Verbal Presentation Points	None or poor and ineffective 1	Adequate but unenthusiastic or poor explanation 2	Effective, clear information easy to follow 3	Engaging thought provoking convincing 4	
Total					

Environmental Education Interactive Project

Hinsdale Central High School

Hinsdale, IL

Project Plan developed by: Kristi Frost, Chemistry Instructor

EDUCATIONAL LEVEL: High School - Sophomores and Juniors

SUBJECTS TO BE INTEGRATED

1. Chemistry for sure
2. Possible partners include
 - Physics
 - Graphic Design
 - CAD
 - Business/accounting/marketing
 - Early Childhood development

POSSIBLE PARTNERSHIPS

- Fullersburg Nature Center
- SCARCE
- Argonne National Laboratory

OBJECTIVES

- Develop an environmental education interactive project
- To be presented as a service to the community, possibilities include
 1. Earth Day at Fullersburg Woods
 2. In Fullersburg Nature Center
 3. In high school, open forum
 4. In feeder schools classroom presentations

PROJECT PLAN

- Chemistry Students research and decide on an environmental issue that they want to educate others about. They would also need to think of how they want this information presented.
- CAD designs the project board / set-up for the interactive experience
- Physics Students develop the electronics for the project.
- Building the set-up could be collaboration between all parts. (check with drama for who builds their sets)
- Graphic Design works with CAD design and Physics building
- Business/Accounting/marketing works with everyone to fund raise and track the money

- Early Childhood Development – to help develop the design and wording that would be most beneficial for informing the younger kids.

BENEFITS TO STUDENTS

- Team working skills
- Communication skills
- Real life working skills

BENEFITS TO PROGRAM

- improve problem solving skills
- give students the real life applications
- motivate and compete the different groups

BENEFITS TO INSTITUTION

- Fosters cooperation and breaks down departmentalization in the building
- Better prepares students for their next step in life

ESTIMATED START-UP FUNDING NEEDED

- Under \$200 per project
- Possible money available in our budgets

POSSIBLE FUNDING SOURCES

- Have students fund raise
- Get local donations

PROJECT ASSESSMENT IDEAS

- Pre-MIMIC and Post MIMIC Assessment
- Teamwork evaluation
- Meeting assessments for every meeting
- Peer Performance review
- MIMIC final teamwork assessment

NEXT STEPS

- Talk to other teachers
- See what classes could really help with the ideas suggested (i.e. physics can do the electrical)
- Get other teachers on board
- Look at logistics of coordinating classes
- Evaluate current curriculum and look for places to add the project while still teaching the necessary content

“Going Green:” College-Wide Open House

South Suburban College

South Holland, IL

Project Plan developed by: Patrice Burton, Associate Dean of Student Services; and Suzanne Kalweit, Nursing Faculty, Program Coordinator, Career Advisor

EDUCATIONAL LEVEL: Freshman, Sophomore Community College Level

ANTICIPATED SUBJECT AREAS FOR INTEGRATION

- Accounting
- Fine Arts
- Biology
- Psychology
- History
- Healthcare and Fitness Professions
- Building, Construction Technology
- Business
- Biomedical & Electronic Engineering
- Computer Aided Design and Computer Information Sciences
- Equine Operations
- Marketing
- Teacher’s Aide/Child Development
- Real Estate
- Legal/Paralegal and Law Enforcement

PARTNERSHIP WITH BUSINESS/INDUSTRY

- Waste Management
- Sand Ridge Nature Center, other centers within district.
- Ingalls Memorial Hospital
- Community Hospital
- Advocate Healthcare System
- St. James Hospital and Healthcare
- Other local industry (TBD)

SOUTH SUBURBAN COLLEGE MISSION STATEMENT

To Serve our Students and the Community through lifelong learning; dedicated to:

- High quality education, training, and services for all individuals who have the ability to benefit from our programs.

- Programs that are accessible and affordable provided to a diverse community of learners.
- Training delivered in collaboration with local businesses.
- A community of staff, faculty and students that create an environment and resources for learning.
- Up-to-date facilities and technology that help prepare students for transfer to baccalaureate programs or the job market.

OBJECTIVES OF THE PROJECT

1. Assess the individual, the college and the community for healthy living opportunities.
2. Provide healthy living resources for students, the community and South Suburban College.
3. Explore and implement “green” initiatives throughout the college.
4. Identify opportunities in the community to maximize energy resources.
5. To make students and the community aware of healthy lifestyle changes and conserving natural resources via mini projects within college disciplines culminating with a “Green Fair” Open House.

THE PROJECT PLAN: Living Healthy in a Green Environment

- This multidisciplinary project will cross all programs and curriculums. The project will be instructor and student driven with administrative support and can be incorporated into coursework or extracurricular activity.
- Student work to be presented at the SSC Spring Open House. Individual team projects must fit one or more of the stated objectives.
- Projects will be facilitated by department instructors and presented to committee for review, input and recommendations.
- Recognition to be provided.
 - Instructor facilitator PGUs
 - Student incentives
 - Consider service and planning awards for outstanding projects

ANTICIPATED BENEFITS TO STUDENTS, PROGRAM, INSTITUTION

- Student leadership, ingenuity and creativity.
- Promotion of multidisciplinary teamwork on all levels throughout the institution.
- Benefits from “green” project implementation for the institution and community.

- Provide community services related to health and wellness and an improved environment.

ESTIMATED START-UP FUNDING NEEDED

Will determine funding availability through the college. Start up funds not essential to develop project start up.

POSSIBLE FUNDING SOURCES

- Local business
- Perkins funding
- Grants, scholarship monies

PROJECT ASSESSMENT IDEAS

- Individual student proposals for submission to the committee
Student work to be evaluated by team leader and instructor facilitator.
- Evaluation of projects by committee based on various criterion inclusive of:
 - Teamwork
 - Creativity
 - Presentation
 - Theme

NEXT STEPS *[Both steps completed before publication of this manual]*

1. Present to Vice-President of Student Development, May 27, 2008
2. Present to Administrative Council, June 3, 2008.

Making Industry Meaningful with Interdisciplinary Curriculum (MIMIC)

Lyons Township High School

LaGrange, IL

Project Plan developed by: Bob Fritch, Applied Arts Division Chair, and Paul Houston, Global Studies Division Chair.

EDUCATIONAL LEVEL: High school juniors and seniors.

BACKGROUND:

Lyons Township is a comprehensive high school in the western Chicago suburbs of LaGrange and Western Springs. The school has approximately 4,000 students, with freshmen and sophomores attending the south campus in Western Springs, and juniors and seniors attending the north campus in LaGrange.

SUBJECT AREAS INTEGRATED

Business Education department - Accounting, Business Principles, and Marketing
Applied Technology department – CAD, Engineering/Invention, and Furniture Making

PROJECT PLAN

The Lyons Township MIMIC project would be available to juniors and seniors who would apply for “accelerated credit,” already available in the curriculum, in the business and technology courses listed above.

To receive accelerated credit (which carries with it a weighted grade), students from these six courses would be required to participate in a program like MIMIC at IVCC. Teams would be created by the teaching staff, assigning students to groups to work with representatives from each of the content areas, with those students responsible for the tasks related to that part of the project. A MIMIC fair would be the culmination of the project, with a product created, produced, marketed and sold.

BENEFITS

Beyond the benefits that at IVCC, this project would bring additional benefits to Lyons Township’s specific situation. First, it would provide some much needed legitimacy and consistency to the accelerated credit option. Rather than relying on teachers to include additional assignments of greater rigor in each of those courses, the MIMIC project would be the consistent expectation and requirement to receive that credit. Additionally, this program would bring the accelerated credit option to some students (non-traditional, often lower GPA) who haven’t usually been achieving accelerated credits. This opportunity would dignify the career paths of some students who aren’t necessarily recognized in the school community and highlight the achievements of students who may

not be bound for traditional four-year colleges. Also, it may bring attention to courses and content that many students often overlook.

Finally, this program may decrease the segregation of our student body by creating teams with students who may not otherwise interact. For example, Lyons Township college bound Marketing and Accounting students will be working intimately with students from the three applied technology courses, many of whom are not college-bound and therefore not in many (or any) classes with the more traditional students.

POTENTIAL FUNDING

Lyons Township High School has the luxury of very stable finances, as it is in a relatively affluent suburban area. Therefore, ample start-up funding should be available.

ASSESSMENTS

Assessments very similar to those used at IVCC, with slight alterations to fit LTHS's curriculum.

Portable Food Cart: ‘Caval Cart’

LaSalle-Peru Area Career Center

LaSalle-Peru High School
LaSalle, IL

Plan developed by: Connie Schwingle, STEP Coordinator; Shawn Schwingle, Graphics Design Instructor; Susan Drew, Food Service Instructor.

EDUCATIONAL LEVEL

This project will be completed by the juniors and seniors in the Area Career Center’s various courses of Engineering Graphics, Graphic Design, Food Service and Construction Trades.

SUBJECT AREAS BEING INTEGRATED

The first project will integrate the Area Career Center’s Introduction to Engineering Design, Food Service, Construction Trades and Graphic Design courses with plans of incorporating the Electronics and Auto Mechanics for future projects.

POSSIBLE PARTNERSHIPS WITH INDUSTRY

The Area Career Center will create partnerships with local businesses and ACC alumni. Debo Ace Hardware, Maze Lumber, Machinery Maintenance, Peru Canvas and Awning, Cosgrove Distributors and Fox River Foods are all area businesses currently interested in the ACC collaboration.

OBJECTIVES

Each instructor will have his or her own objectives for their discipline. The main objective of the project is to design, construct and operate a portable food stand. The proceeds from the food stand will be used for a scholarship for a vocational student to further their career in their vocational area at Illinois Valley Community College. Currently, the ACC gives an ‘Excellence in Industrial Technology’ award to the outstanding senior every year, and the ACC would like to attach a monetary scholarship to the award.

PROJECT PLAN

The Engineering Design class will be divided into teams. Each team is to design a food cart following specifications created by the ACC instructors. The ACC students will vote on the design they want to be constructed. A blueprint will be made for the Construction Trade class to follow when constructing the cart.

The Graphic Design course will create the cart logo; print the menus and napkins that will be available to the public at the food cart. They will also print and publish advertisements to be printed in the school newsletters and on the shirts worn by the student workers.

The Food Service course will be purchasing, preparing and packaging the food to be sold at the food cart. The course will be surveying the students to determine which foods will be sold at the cart.

FUNDING

For the first project, the Area Career Center instructors plan on donating \$250 from their budgets toward the start up cost of \$1000. Future funding may come from feeder schools, school raffles and grants.

BENEFITS

1. Attaching a monetary scholarship to the Area Career Center's 'Excellence in Industrial Technology' award would benefit the center and student(s) selected.
2. This project would be an excellent advertisement for the Area Career Center and a prime opportunity for the Career Center to show off the students' talents and the instructors' programs.

ASSESSMENT

The profit earned by the food cart will be the biggest test. Each instructor will have his or her own rubric to evaluate the students in the designated programs. See attached sheets detailing instructions and grading rubric for engineering design.

FUTURE PLANS

The primary goal is to further expand the project. The ACC hopes that the feeder schools and businesses in the community will be interested in purchasing a cart for their food stands.

Snack Cart: **Instructions for Engineering Design Students:**

Problem Statement:

The Area Career Center is looking to serve refreshment and snack needs for its outdoor activities. Your design team has been asked to develop a design for a snack cart that will be light weight, portable and of an efficient compact design.

Design Statement:

Design a snack cart that can be easily stored with in the Dolan Building. It must be able to display cold items such as water and soda as well as hot items such as hot dogs, popcorn, pretzels and other items that would be purchased at an outdoor sporting event.

Constraints:

1. The snack cart must be easily pushed or pulled by one person.
2. The cart must be no more than 36 inches wide.
3. The car must have a cover for bad weather.
4. The cart must have a non electric heat and cooling system.
5. A complete set of assembly drawings are necessary.
6. A source of all parts and materials must be listed.
7. Your team must present your idea to the Board of Directors which comprises Mr. Schwingle, Mrs. Drew, Mrs. Parisot and Mr. Burr.

Outcomes:

The finished drawing will include orthographic projections, assembly drawings with BOM and a presentation drawing.

Teacher notes:

This project is an open-ended design problem and should be done after the students become comfortable with all the basic design tools (i.e. extrusion, shelling, lofts and sweeps within the software).

Snack Cart Project -- Engineering Design Students -- GRADE RUBRIC

Cat.	Design Criteria	3 Points	2 Points	1 Point	0 Points
1	Creative Thinking	Fully meets problem design requirements.	Meets most problem design requirements.	Meets some problem design requirements.	Does not meet any problem design requirements.
2	Idea Recognition Vertical Thinking/ Horizontal Thinking	Labels all ideas correctly with VT/HT.	Labels most ideas correctly with VT/HT.	Labels some ideas correctly with VT/HT.	Labels no ideas correctly with VT/HT.
3	Number of Alternative Solutions	Generates four alternative solutions to the problem.	Generates three alternative solutions to the problem.	Generates two alternative solutions to the problem.	Generates one alternative solutions to the problem.
4	Sketching	Produces accurate pictorial or orthographic sketches of design concepts. Details sketch for effective communication.	Produces marginally sufficient freehand sketches of design concepts. Detailing is marginal for effective communications.	Produces freehand sketches which are difficult to visualize. Sketches lack details.	Produces incomplete sketches. Sketch does not represent design concept.
5	Content	Thoroughly and clearly states the main points and precise details that are accurately focused on the design project.		Adequately states the main points and details that are accurately focused on the design project.	States most of the main points and details that focus on the design project. May include some unnecessary information. States few main points and details that focus on the design project, or information does not relate to topic.
6	Organization	Clearly organized into a logical sequence. Excellent use of an outline. Excellent introduction and conclusion.	Adequate evidence of a logical sequence of information. Good use of an outline. Satisfactory introduction and conclusion.	Fair evidence of a logical sequence of information. Some use of an outline. Weak introduction and conclusion.	Minimal or no outline followed. No logical organization; some digressions. Unclear, confusing. No introduction nor conclusion.

7	Delivery	Effectively and creatively delivers the information while staying on the topic and considering the audience. Uses voice variation; interesting and vivid to hear.	Adequately delivers the information while staying on the topic and considering the audience. Speaks clearly and confidently.	Delivers the information but does not stay on the topic. Little consideration of audience. Uses incomplete sentences.	Little or no attempt is made to stay on the topic. Does not consider audience. Difficult to understand.
8	Preparation	Presentation shows detailed preparation and practice in delivery including use of voice, posture, eye contact, gestures, and pacing; use of pictures, graphs, computer models, etc. Interesting and vivid.	Presentation shows satisfactory preparation as well as practice in delivery including use of voice, posture, eye contact, gestures, and pacing. Some use of visual aids.	Presentation shows some preparation as well as some practice in the delivery including marginal use of voice, posture, eye contact, gestures, and pacing; and, marginal use of visual aids. Presentation is lacking in preparation and practice of the delivery, including use of voice, posture, eye contact, gestures, and pacing; and, little, or no, use of visual aids. Difficult to hear. Appears tense. Fidgets often.	

Teaching Workplace Skills to High School Seniors

Hall High School

Spring Valley, IL

Project plan developed by: David Lasser, Business and Cooperative Education Instructor

EDUCATION LEVEL: High school seniors

SUBJECT AREAS BEING INTEGRATED

Business—the MIMIC project will become established out of the business department in the Cooperative Occupational Education Class (COE). Other disciplines needed through the curriculum integration include English, Mathematics, Science, Arts, and Vocational.

The classes that might participate.

<u>Department</u>	<u>Course</u>
Business	COE
English	Senior English
English	Speech
Math	Statistics
Science	Environmental Science
Science	Chemistry
Arts	Advanced Art
Vocational	Sewing
Vocational	Foods

OBJECTIVES

The primary goal of the project is for 12th grade high school students to become aware of the relevance of obtaining, utilizing, and improving upon all workplace skills.

Other secondary goals include students:

- Identifying the importance that required and elective curriculum has upon how real business/industry operates.
- Discovering the ‘real world’ use of different disciplines through the practical utilization of specific content.

- Improvement upon student teamwork skills and perceived impacts upon business scenarios.
- Connecting content areas to actual careers or use within a career field.
- Gaining skills outside of their general interest areas.
- Produce a product or service that is realistic within all constraints, that will allow students the opportunity to realize what goes into product development.
- Illustrating the impact of the business curriculum at Hall High School.

PROJECT PLAN

Two project ideas, which would team business students with art and consumer science students, involve creating a product to sell to the students and faculty at Hall High School and both possibly to run concurrently.

The art students would be instructed to use their creativity to design a piece of “practical” art which could be reproducible, marketable, and relatively inexpensive to create. All of the involved MIMIC students could give video input to the artists of attributes which each believes that is necessary for a successful product. These students could then hold an art fair for all of the students involved in the MIMIC project—essentially a prototype fair. From this fair, the business students would begin market research, costing of each product for production and materials, input from science as necessary for any way that they may be able to assist in the choice of materials or reactions of materials, math students would create a survey that could be statistically analyzed, art students could “tweak” their designs with constraints that could be presented by the business students. English students will create the business plan with the assistance of the other students. Speech students will construct the presentation of the project.

An additional project that could be used is substituting the foods class or sewing class with the Art class and have the Family and Consumer Science (FCS) students create items to sell. Food ideas include lunchroom foods, cookies, snacks to sell. One sewing idea is for the sewing students to create beanbags for the currently popular tailgating game—the other students—art business, English—could manufacture the “holes” part of the game.

The number of possible projects created depends on the number of business students and skills which each of the business students possess. For example, since accounting is only offered every other year, there may be years that there are no accounting students enroll in COE and this will require some remedial training time in the COE class. Additionally, the current business department setup does not offer any marketing courses which will also require remedial training of these students.

Remedial training will be completed through the use of Learning Activity Packages (LAP's). Many of the needed LAP's are already owned by Hall High School and are used currently in the COE class.

No new equipment will be necessary to complete the projects. Materials and supplies could include sewing cloth and thread, wood, paint, and advertising media. From the art standpoint, it really depends upon the project(s) that are taken on.

SCHEDULING

Can participating classes meet concurrently? If not, how can the project be coordinated?

There is no guarantee that any of the courses will meet concurrently when needed, and in fact, should not be even thought of as an option. The scheduling process is completely dependent upon the courses that students enroll in.

The easiest way to coordinate activity among the students will be through using the homeroom periods. There are six homeroom periods that meet in the opposite time slot as the lunch period. Students that have certain classes together will have a common homeroom period and actually, students could be grouped by homeroom period.

It may be possible to coordinate with other classes, however, it will have to happen after the master schedule is put together.

If however, that it appears impossible, video would be a good proxy for not being to work side by side. The coordination could begin with the COE course, which has two separate periods during the school day in addition to the homeroom period. Although the second period is available for use, the intention of this period is early release from school to go to work.

Video can be made, using informal discussion about responsibilities and work assignments. Both ends of the communication will have to create brief videos that will include discussion of the other classrooms expectations, etc.

Some face-to-face work could be coordinated throughout the homeroom periods. The videos could also be incorporated into conveying accurate and easily understood communication between the groups.

BENEFITS

The school would benefit through the good publicity, which could be obtained with such a project. The business program would also specifically have the potential to grow due to the positive feedback generated by the students in the class. The other ancillary courses, FCS, Art, etc., will also have some of this benefit as well.

POSSIBLE SOURCES OF FUNDING – START UP FUNDING NEEDED

Possible funding sources include:

- Grants—CTEI and Carl Perkins, other locally provided grants for school improvement.
- Donations—especially of needed materials as required. Dime day at St. Bede Academy could be critical to the project’s success.
- Sales / charges for services—items produced would be sold to the public, especially the students and staff. Online orders could be taken as well.

The business department has about \$500 in savings for discretionary spending. The first year would be limited to this budget. Second year spending could increase dependent upon SRAVTE funding of Carl Perkins and CTEI grants and disbursements. No increased funding would be necessary for instructor/staff to organize/supervise the project since all of the work would be completed within the school day.

The project could be self-sustaining with the requirement of student investment. Just like an ordinary business, investors are needed. As a part of creating an entrepreneurial venture, students would need to find investors of a small amount by each student. At the end of the school year, the company(ies) would be divested and stockholders would receive their share back plus any return on the investment, or less loss on investment.

POTENTIAL BUSINESS/INDUSTRY PARTNERS

Possible business partners include all of the greater Spring Valley businesses. Particular use of the partners would be for speakers to the students to point out real-world applicability of classroom exercises. If a project would require some manufacturing of parts outside of the realm of the school, partners could be identified at that time.

ASSESSMENT

Utilizing community business representatives in the assessment process can provide a real world evaluation of workplace skills. How would an employee be assessed in the completion of a comparative project in the workplace?

Assessment measures could include a checklist of daily activities, including a work log for the group to be completed at least weekly. Beyond this, a number of rubrics could be developed for ensuring that students are meeting the course objectives. Additionally, concrete skills, like accounting, would require students to complete possible simulations.

Communication between the content teachers would be critical to insure that a concise list of learning objectives are created and to insure that the objectives are all assessed in some manner.

NEXT STEPS

The next step is to secure approval from administrative staff and recruit the instructors. Some of the teachers have already been contacted and seemed excited to participate during second semester.

Tech Squad

Ottawa Township High School

Ottawa, IL

Project Plan Developed by: Tracey O'Fallon, Ottawa High School and Art Burton, South Suburban College

EDUCATIONAL LEVEL: High School students

SUBJECT AREAS BEING INTEGRATED:

- Applied Consumer Economics (Junior Achievement)
- Business Law
- Marketing
- Accounting
- Electronics
- All computer classes (MS Intro, Excel, Power Point, Website Design, etc.)
- Art II – V
- Graphic Design

POSSIBLE BUSINESS/INDUSTRY PARTNERS AND POTENTIAL FUNDING SOURCES:

- B & B Electronics
- Wal Mart
- Radio Shack
- Menards
- Clover Technologies
- Ottawa PC Repair
- Easy PC Solutions
- Applebee Computer Services
- New World Systems
- Specialized Data Systems
- D & K Consulting
- Sarver Carter Engineering

Other potential partners include Dell, Toshiba, Gateway, HP, and IBM.

PROJECT OBJECTIVE:

- To develop a service project in which technologically advanced students would help other students and adults with programming, setting up, trouble shooting, and basic repair of electronic equipment.

The Tech Squad project would

- Provide opportunities for students from a variety of subject areas to interact with peers, family, community members, and teachers.
- Provide students with a better understanding of business issues such as customer service, ethics in the workplace, teamwork, communication, maintenance, innovation, planning, accounting, scheduling management, and other workplace skills necessary for a successful business.

PROJECT PLAN

A service business, called Tech Squad, will be established to offer help with computers and electronic equipment, possibly to include IPODS, MP3 players, PCs, Palm Pilots, iPhones, and cell phones.. Students who are technologically advanced will provide the actual assistance. Those students uncomfortable with the actual service part of the project will work behind the scenes in the various areas such as marketing, scheduling, accounting, art and design, and overall management. A nominal fee will be charged with special reduced fees or waived fees for senior citizens, possibly in exchange for business space at their senior center.

PROJECT ACTIVITIES/STEPS:

- Meet with administrators for their support.
- Recruit teachers from the above disciplines
- Provide training about student and job expectations – Use MIMIC concepts and pre-evaluations
- Contact businesses/community (secure senior center site and provide overall open communication with all for commitment and support!)
- Organize teams per project day
- Provide time/day for team meetings
- Schedule students for Tech Squad Days at the senior center
- Students keep logs of work done with prices charges per service provided
- Students return to school – turn in logs and money, turn in repair lists – get help from Electronics students for those repairs

Various Student roles in the project:

- Junior Achievement - runs overall business aspects such as maintenance, customer service, scheduling, team building, business plan, etc
- Marketing – project survey for community, etc. (get results and make report)
- Graphic Design classes make ads and flyers to place around the community

- Graphic Design and Art classes create slogan and design T-Shirts for Tech Squad members
- Computer classes – Create logs
- Accounting – billing and overall finances, report weekly
- Business Law – research possible problems to avoid and provide legal guidelines for Tech Squad.

BENEFITS:

Students will benefit by learning entrepreneurship, innovation and how a service business operates. Students will also benefit from involvement in teamwork and in communicating with various audiences from peers to senior citizens. They also benefit from a greater awareness of community service and ethics in the business community. Students who would not be enrolled in business courses will learn business concepts from their involvement in the project.

This service will enhance life quality for adults and seniors not familiar or comfortable with computers.

Junior Achievement will be enhanced by MIMIC concepts

Ottawa High School will receive excellent publicity for its students’ involvement with the community.

START UP FUNDING NEEDED

• Repair items/electronics	\$250
• Tool kits	\$ 50
• Training (books, guides, etc.)	\$ 50
• Kick-off event	\$100
• Wrap-up event	\$100
• Digital camera	<u>\$800</u>
TOTAL	\$1,200

ASSESSMENT IDEAS:

- Use a pre-assessment to check for prior knowledge and what the students would like to learn in this process.
- Donor assessment – are the donors happy with the results? Was money used appropriately? Are they interested in participating next year?
- Student evaluations – points/sharing the credit/percentage for each student and themselves to establish accountability.
- Customer evaluations – are customers satisfied with the quality of the service provided?

A review of the project should be conducted on an annual basis.

NEXT STEPS:

- Meeting with administrators for their approval.
- Scheduling a MIMIC workshop at the beginning of the 2008-2009 school year to recruit/train teachers.