

**Lake Superior State University's  
School of Engineering & Technology Industrial Advisory Board  
Meeting Minutes from November 3, 2006  
Johnson Controls - Holland, Michigan**

**Members present**

Ray Adams, Bob Andersen, Fred Berg, Chris Conklin, Diane Haig, Adam Lyon, Don Stephanic, Lynnette Utecht, Marty Zoerner, George Bielius – on conference phone

**Guests present**

None at this meeting

**LSSU Staff / Faculty present**

Morrie Walworth, Paul Duesing, Dave Baumann, Jim Devaprasad

**Opening**

Fred Berg welcomed everyone to the Fall IAB meeting at Lake Superior State University. Thanked Lynnette for hosting the meeting at Johnson Controls.

**Presentation, Video and Tour of Johnson Controls (JCI) Facility**

Lynnette showed a presentation giving some examples of products and services that JCI has to offer. A tour of the facility commenced to show everyone the JCI Technical Center where the meeting was held.

**Previous Meeting Minutes**

A review of the previous action items from last months meeting was briefly addressed.

**Review of action items from Spring 2006 meeting:**

- Control charts – need some data and examples for the proposed new class EG346  
This was determined to be closed since enough charts and data have been obtained for now.
- Recruitment activities – MACRO nights coming up this fall.  
Check out the LSSU website to see when one is located in your
- IAB members to be involved in evaluating of the senior project presentations
- Senior Project ideas for 2006-2007 send to David Baumann

**Additional Notes:**

Please keep LSSU in mind:

- When your company is getting rid of old equipment. LSSU can use it for students' classes, sale for parts, or other various items.
- When your company is looking to hire new people.

**All action items from the current meeting will be listed in RED in the meeting minutes below.**

**Officer Responsibilities:**

Fred reviewed the requirements for the Chair position. This position is supposed to be a 2 year position with no more than 2 consecutive terms allowed. Last time, the board voted to keep him on as Chair person for another 2 years. This spring, his term is up and the position is open for re-election.

**The Board must make another decision on the Chair position in Spring 2007.**

## Membership survey

The membership survey has been set for 2006. There was discussion on how often the survey should be sent out. It was a round the table group decision that it will be sent out every 2 years instead of every year. **The survey will be sent out via email by the secretary every 2 years – starting again in Fall 2007**

**An action item that comes as a result of the survey is to begin to get some new folks that would like to be a part of the LSSU Industrial Advisory Board.**

## Committee Reports

### Recruitment Sub-committee

- Chris C thanked everyone who participated in the Fall MACRO recruitment nights in their local areas. Some IAB members were: Bob Andersen, Don Stephanic, Chris Conklin, Fred Berg, Dan Goodrich, Jim Gibbs, Dave Allison, Adam Lyon, and Ralph Larsen
- Discussion was had about the lack of contact and help from the Alumni Association. Chris has been in contact with Susan many times, but they seem to take no interest in helping get other LSSU alumni involved with recruiting.
- **This is an item on Morrie's list of things to do is to get a list of Alumni and send them an email about recruiting.**
- Bill Eilola is the new Vice President for Enrolment Services at LSSU, so there are hopes that he can help us and realize how committed the IAB is in doing recruitment for LSSU. Morrie is currently meeting with him to discuss various items. He will be invited to the Spring IAB meeting at LSSU.
- **Morrie will also send a list of names of prospective students to Chris.**
- **Morrie will host a conference call between Bill, Chris, Fred, and himself to further discuss recruiting.**

### Scholarship Sub-committee

#### *Charlie Snyder Scholarship* –

- \$27,000 fund balance
- 2x \$500 awards in Fall 2006
- 2x \$500 planned for Fall 2007

**Robotics Scholarships** – this was supposed to be an endowed scholarship, but it has been supported by the School of Engineering. This was initially set up as an industrial type with hopes of pursuing money from corporations. Due to all the recent budget cuts the corporations that were contacted have declined the opportunity to donate.

- An on going action item for all IAB members is to continue to pursue donations from your corporation or other corporations for this scholarship.
- Incentives can be given if decided upon by the committee

Discussion was had on whether to keep the Scholarship committee or disband it until a later date. After a round the table discussion, it was decided upon the keep the committee and try to come up with new ideas.

- **Morrie to work with Don Stephanic on items to do to create new ideas and keep the scholarship committee going.**

## School updates

### *Enrollment*

- In general, across the state, enrollment in Engineering and Technology are down.
- LSSU enrollment is down 20% over the last 5 years.

- LSSU School of Engineering and Technology is down about 35% over the same time period.
- There been no Director of Enrollment at LSSU for the last 3 years.

### ***Recruitment***

- There is a new Director of Recruitment Services – Bill Eilola
- Some activities going on for recruitment are:
  - Recruiters are covering new regions for recruitment
  - New Web presence on the WWW
  - School is buying more names from various places
  - More High school visits taking place
- As a result of this increased activity, admits for 2007 are already up 150% from last year (over 50 admits)
- Engineering admits are 15% higher than they have ever been
- Things are much more positive with Bill in this position
- Morrie is working with Bill to look specifically at prospective engineering students
- Faculty are calling students
- Students are calling students
- New articulations are being looked at with other colleges, community colleges, and high school skill centers
- More scholarships being used to create a “carrot” for prospective students.

### ***Scholarships***

- Charlie Snyder scholarship belongs to the university. It will be awarded on an as need basis with recommendations from the Engineering School. There are 2 of them at \$500.
- MSPE – Michigan Society of Professional Engineers – 3 scholarships awarded at \$2,000
- SAME (Society of Military Engineers) – 1 scholarship awarded at \$500
- Huizenga Scholarships – 4 awarded at \$1,500 each to help recruit highly qualified engineering students
- Robotics Scholarship – 3 awarded at \$2,000 renewable for a second year

### ***Grants***

- Youth International – approved 40 Jr High and High School students form across the ocean
- Continental Automotive Systems – Summer robotics camp sponsorships (Sven Hakenin)
- 21<sup>st</sup> Century Jobs Fund
  - Michigan Economic Development Corporation (MEDC)
  - American Association for the Advancement of Science (AAAS)
  - Strategic Economic Investment and Commercialization (SEIC) Board
  - Over \$580,000 in grants
  - Prototype Development Center (PDC)

### ***Prototype Development Center (PDC)***

- Michigan Small Business Development Center (MSBDC) will play a role to connect small businesses with this PDC facility for services to industry.
- They will specialize in:
  - Design
  - Prototype Development
  - Testing
  - Consulting
- New Equipment for prototype parts
- New Staff - 2 people 75% dedicated to center and 25% dedicated to classroom activities

## ***ABET activities***

### **Positive Comments**

- Assessment Process went well
- IAB – feedback very positive from ABET, involvement was very evident
- Quality of Senior Projects was considered positive
- Happy Graduates – there was a variety of job opportunities, good salaries, happy people, and senior projects were good
- Faculty – good range of skills and technical ability

### **General Items – all degrees**

- Concern about student knowledge of life long learning. This is stated in a document describing LSSU, and students did not know how to respond to the question when asked about life long learning.
- Concern about enrollment
- Concern about time spent in Senior Projects – the seniors spoke of it a 40 hour a week job
- Concern about budgets – the program budgets were much better this year. The Program Fee paid by all Engineering students for technical classes helped a lot.
- Must publish objectives in the catalog – state missions and goals

### **Electrical Engineering- NOTHING from ABET!!**

### **Mechanical Engineering**

- Need to increase realization of design the thermal fluids area

### **Computer Engineering**

- Concern about lack of CE faculty members
- Need to ensure all graduates meet the minimum math/science and discrete math requirements – there was a change in the rule in 2003 for CE courses.
  - If students started before 2004, they may need to take one additional math class – it was determined that possibly one student may need this additional class.

### ***Program Updates***

CS341 – New course in CE degree

EG346 – Control Charts

MA310 – Team teaching with mathematics, focus on applications

RS460 – “New” Lab format

### **Relationship between Mathematics and Engineering departments are improving.**

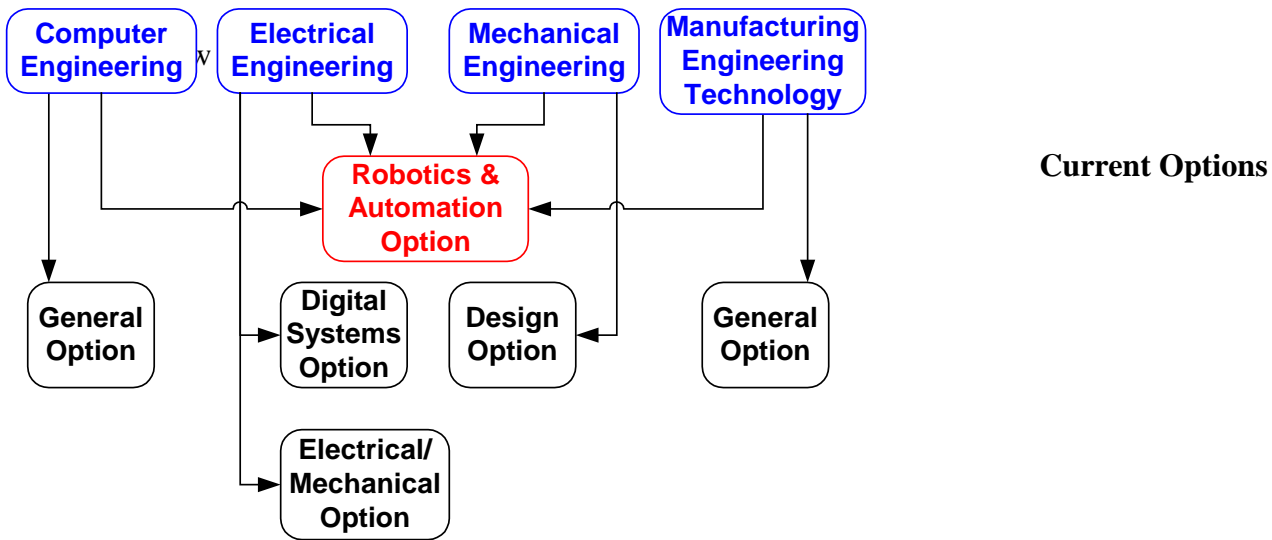
- There has been a dark past relationship between the mathematics dept and engineering department.
- Faculty members from Math and Computer Science are now working much closer with Engineering Professors.
- MA310 Diff Eq is co taught by Engineering and Math departments.
- SET faculty will be teaching some math classes, for example Calc 2.
- Students are switching from CE to CS due to less math requirements.

### **New Engineering degree options**

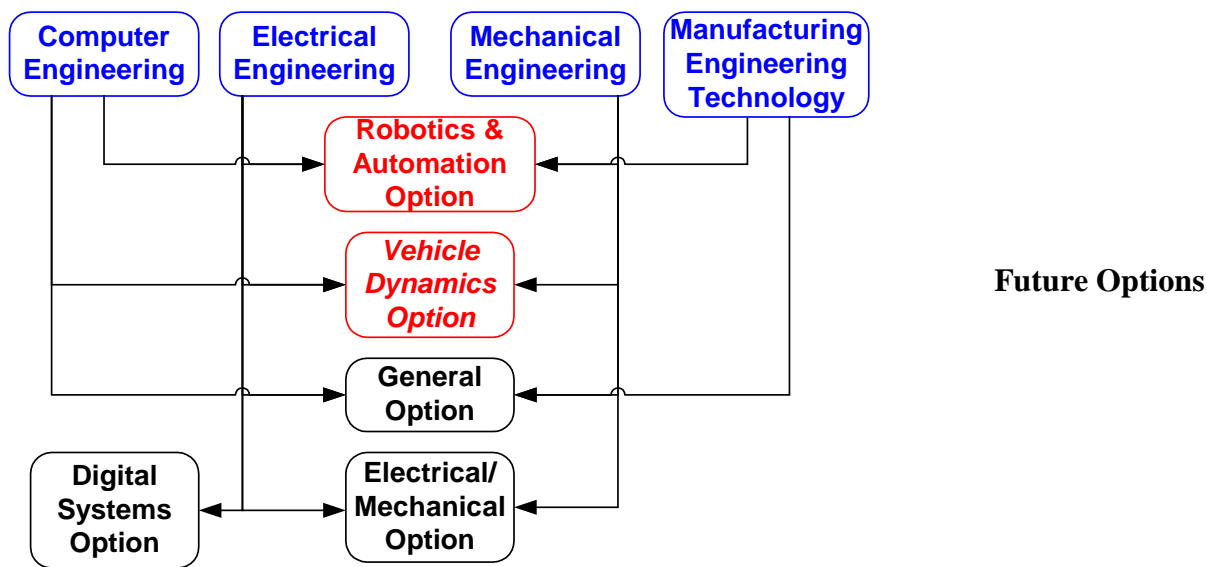
- Will attract additional students
- Provide upper level courses
- Provide path for graduate students

*Current:* Robotics option open to all degrees

*Future:* Robotics & Automation and Vehicle Dynamics and General option open to all Engineering degrees.



**Current Options**



**Future Options**

A long discussion of the pros and cons of each method had taken place during the meeting.

### Related Changes

- Four Courses for options:
  - PLC course for Robotics and Automation Option
  - Assembly Modeling/GD&T for Vehicle Dynamics Option
  - Dynamics now in Electrical core – so students can now take vehicle dynamics classes
  - Other: New Gen Ed Class – this class is a combination of ethics and economy in society. This will allow these topics to be taken out the senior project class. Other universities are doing it this way.

### Faculty Activity Highlights

Matthew Carroll

- **Co-authored paper** presented by Prof. Hildebrand at the 2006 International Conference on Dynamics, Instrumentation and Control in Querataro, Mexico
- **EGNR245:** developing and expanding course – a synthesis of all mathematical techniques beyond basic calculus needed by MfgET majors.

Paul Duesing

- **Attended the National Assessment Institute in Indianapolis, IN – Oct. 2005**  
**Presented paper** entitled *Quantitative and Qualitative Assessment to Accomplish Continuous Improvement*
- **Attended training session** on coordinate measuring machines
- **ABET:** guru for ME reports and materials
- **Continues to coordinate** Cooperative Education experiences for SET

Robert Hildebrand

- **Attended the 2006 International Conference on Dynamics, Instrumentation and Control in Querataro, Mexico – August 2006** and presented two papers.
- **Attended workshop in Kourou, French Guiana – May 2006** as external advisor to group of Finnish grad students: reviewed work progress, toured ESA Ariane launch site and tropical wood research station
- **Translated Swedish textbook *Sound & Vibration*** to English. Will be used at universities in Egypt, Sweden and at LSSU.
- **Attended seminar of Vehicle Dynamics simulation software package** for Fall 2006 courses.

Dave McDonald

- **Attended the 2006 ASEE Annual Conference, Chicago – June 2006** and presented paper entitled *Simulation Learning Experiences in Energy Conservation with Simulink and SimPowerSystems*.
- **Worked with WaveCrestLabs in Rochester, MI during summer** – responsible for integration of instrumentation and control features of dynamometer test stand operation using LabVIEW and INERTIA software.
- **Course development of EGEE300** Instrumentation and Control with Real Time Applications using LabVIEW, CAN-LabVIEW Channel & Frame API and synchronous DAQ & CAN, and MATLAB-Simulink (**input on applications is welcome!**)

Wael Mokhtar

- **Received Ph.D. in Aerospace Engineering** from Aerospace Engineering Department – May 2006 from Old Dominion University, Norfolk, VA
- **Attended 2006 ASME Midwest Student Leader Conference** in April (Wael serves as ASME advisor)
- **Attended January AIAA 44th Aerospace Science Meeting and Exhibit** in Reno, NV

Taskin Padir

- **Attended 2006 IEEE International Conference on Systems, Man and Cybernetics** in Hawaii and presented a paper entitled *Kinematic Redundancy Resolution for Two Cooperating Underwater Vehicles with Manipulators on Board*
- **Attended Michigan Consortium of Universities** for the Saudi Arabian Students Initiative, Arab-American Museum in Dearborn
- **Attended First-Year Engineering summer workshop** at Notre Dame

- **Consulting with Precision Edge** - product modeling for CNC machines for precision surface grinding
- **Co-Director of SET summer camps**
- **Active in Cultural Diversity** activities and presentations

**Senior Projects – 2005-2006 Projects**

Dura Automotive

- Automotive Pedal Assembly Tester

LSSU

- Mobile Robotics System

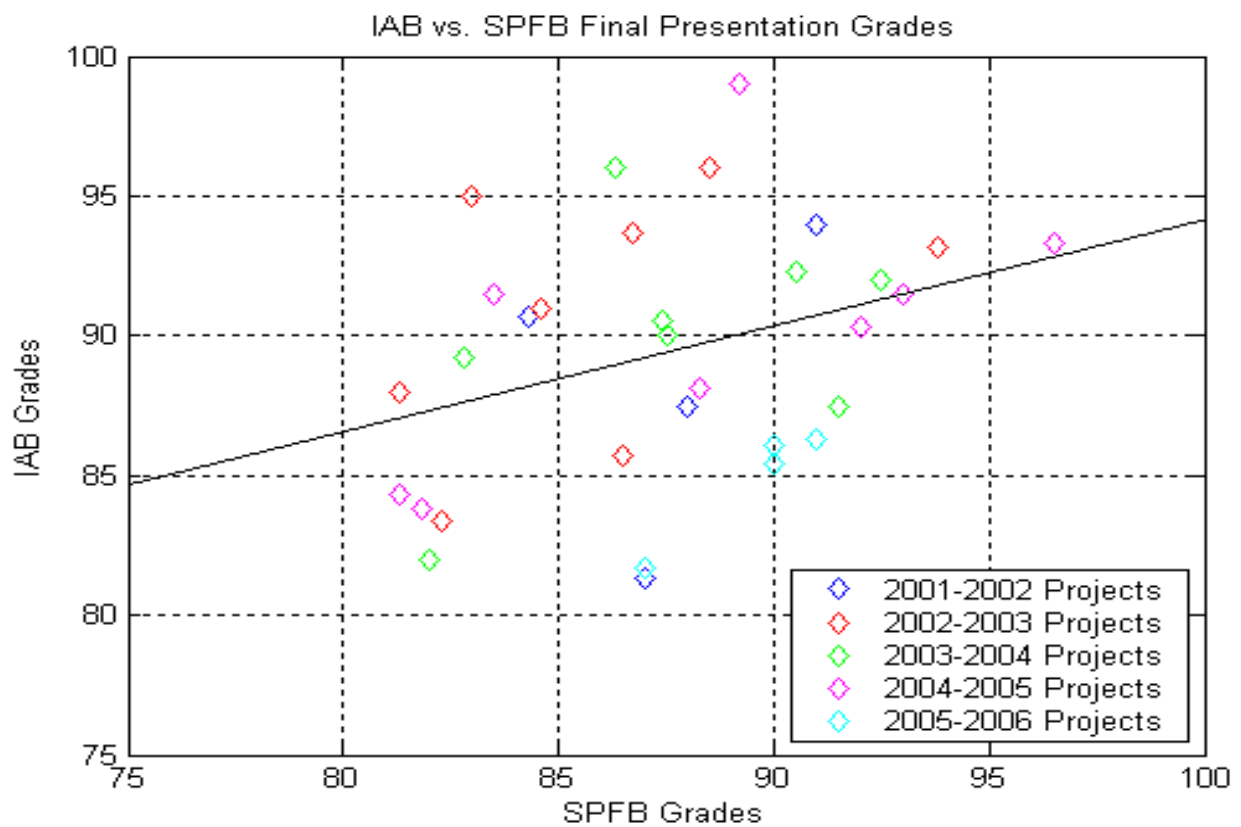
Continental-Teves

- Frequency Input Modules for the SDAS

LSSU

- CNC Plasma Cutter

**Grading of Senior Projects:**



**LSSU’s Mobile Robotics System - International Design Competitions winnings**

- ASME Manufacturing Science and Engineering Conference (Ypsilanti, MI – October 2006)

- 2<sup>nd</sup> place (1<sup>st</sup> place – U of Florida, 3<sup>rd</sup> place – U of Michigan)
- UPADI Pan American Conference (Atlanta, GA – September 2006)
  - Honorable Mention Award

### **2006-2007 Senior Projects**

Industry Sponsored - 3 projects

LSSU sponsored – 3 projects

### **2006-2007 Senior Projects continued**

- Continental Teves – Steering machine Calibration and Test Stand
- Delphi Steering Systems- Universal Steering Column Validator
- Algoma Steel – Trailer Beam Tester
- LSSU Engineering – 2D Plasma Cutter (Phase III)
- LSSU Engineering – Mini Baja – Drivetrain Design and Build

### **Request for Feedback on Senior Projects**

- Presentations held same day as IAB meeting
- SPFB considers IAB evaluations of the Final Presentations
- This is our best opportunity to give feedback on the quality of the projects
- **The SET faculty and staff requests the attendance and evaluation from the IAB of the Final Presentations.**

### **Senior Projects – Other Key Elements**

- Working with a budget
- Interaction with practicing engineers – experience with real industry people
- Results are based on outcomes – customer expectations must be met
- Academic Elements
  - Ethics
  - Writing project plans and acceptance criteria
  - Formal presentations
  - Design reviews

### **Senior Projects – Enhancements Being Implemented**

- Development of a General Education Course
  - Ethics
  - Engineering Economics – these two topics will relieve the amount of information taught in Senior project class
- Project Definition and Plan - Replaced Senior Project proposal with this class
- Purchasing Plan
  - Order parts by the End of Fall Semester
- Track Hours being spent in Senior Projects – to allow students and professors to get a handle of what is really going on in this class and where all the time is spent.

The following is a review of the Senior Project solicitation and selection process:

### **Senior Projects – Solicitation and Selection Process**

- Solicitation occurs late Spring and Summer
  - IAB Spring meeting
  - Alumni and Employers of Alumni
  - Regional Industries and Small Businesses
  - Development Companies



- Project Submittal Form is Sent out
  - Company Background
  - Project Description
  - Budget
  - Technical Content and Required Expertise
- Proposals Reviewed for selection by new SPFB
  - Mid August
- Criteria Used in the Selection Process
  - Project well defined?
  - Can it be Completed in 2 semesters?
  - Budget and Support Clearly Defined?
  - Faculty and Student Expertise Available?
  - Laboratory and Other Resources Available?
  - Projects Selected
  - Student Members Assigned
  - Faculty Members Assigned
  - Industries Contacted
  - Kick off Meeting Planned (Late August or Early September)

### ***LSSU Engineering and Technology Events***

- Engineering Banquet set for March 2007 – check the LSSU School of Engineering & Technology Website
  - Stay tuned for news about this spring's engineering banquet. Last year's Big Nut & Tool recipient was electrical engineering Prof. Dave McDonald. Will the electricals take the BN&T again? Our dean, Morrie Walworth, received his second Little Screw Award...what will he sing this year?
- Engineering Day – March 20, 2007
  - This year's challenge: Teams are to take a whole orange, juice it, and pour the juice from a pitcher into a cup.
  - Once again, we will be hosting Engineering Day including spontaneous design activities, mouse trap car races and a machine design competition. There will be two levels of machine competition: Senior for high schools and Junior for 8th grade classes.
  - **Senior teams** are limited to three per school and six "official" members per team, of which only two may come into contact with the machine during competition. Medals and certificates are awarded to first through third place, ribbons for first through fourth, and a traveling trophy for first.
  - **Junior teams** are also limited to three per school with ribbons and certificates for first through fourth place and a trophy for first.
  - **Mouse trap car teams** are limited to two members. At this time, there is no limit to the number of teams. Ribbons are awarded to first through fourth for speed and distance, and a trophy to the combined first place winner.
  - We have set the date a month later than usual to encourage participation in events such as FIRST and still have the opportunity to attend Engineering Day. To register your team, please send an e-mail to: [jmshibly@lssu.edu](mailto:jmshibly@lssu.edu). For more information and downloadable registration forms, click here to visit the [2007 Engineering Day](#) site.
  - **Please note:** *The Rube Goldberg organization has made several changes this year, and there will not be a national competition until spring 2008 at Purdue University. The organization is focusing on increasing competitions at the local and regional levels. In addition, the organization has introduced a \$300 per team fee, of which we were able to get the organization to waive \$200. Therefore, this year we are holding our event "independent" of the official Rube Goldberg organization at no cost to our participants. We believe it is in the best interest of our participating schools and the current economic climate of most Michigan school districts to encourage a competition based on creativity, developing teamwork and a positive experience versus fund-raising and potentially-increased levels of competition intensity. However, we will use the challenge and rules devised by Rube Goldberg, Inc. in order to continue the consistency of past competitions.*
  - **Rube Goldberg is the ® and © of Rube Goldberg Inc.**  
**The Rube Goldberg Machine Contest is the (SM) of Rube Goldberg Inc.**
- Order of the Engineer Ring Ceremony – Thursday, April 12, 2007 at 7:00 pm

**Additional Notes:**

Please keep LSSU in mind:

- When your company is looking to hire new people.
- When your company is getting rid of old equipment. LSSU can use it for students' classes, sale for parts, or other various items.
- LSSU labs have always relied on donations for the robotics lab, machine shop and micro lab.
- If the equipment is not needed, it can be fixed, cleaned and resold as a fundraiser for needed equipment.
- Call Morrie Walworth (906-635-2206 or mwalworth@lssu.edu) or John Coullard (906-635-2595 or jcoullard@lssu.edu) for help with donations.

Closing remarks: Next meeting – **Friday, May 4, 2007 at LSSU Campus**

Respectfully Submitted,

*Lynnette Utecht*

IAB Secretary

Attachments below:

- Action items list
- Agenda from meeting

Action items from April 28, 2006 meeting:

**ACTION ITEMS**

**Responsible**

- The Board must make another decision on the Chair position in Spring 2007. IAB members
- Recruitment activities – MACRO nights coming up this fall. Check out the LSSU website to see when one is located in your area IAB members
- The survey will be sent out via email by the secretary every 2 years – starting again in Fall 2007 Lynnette Utecht
- Begin to get some new folks that would like to be a part of the LSSU Industrial Advisory Board. IAB members
- Obtain a list of Alumni and send them an email about recruiting. Morrie Walworth
- Morrie will host a conference call between Bill, Chris, Fred, and himself to further discuss recruiting. Fred Berg/Morrie Walworth
- Morrie will also send a list of names of prospective students to Chris Chris Conklin/Morrie Walworth
- Morrie to work with Don Stephanic on items to do to create new ideas and keep the scholarship committee going. Don Stephanic/Morrie Walworth
- Attendance and evaluation from the IAB of the Final Presentations IAB members
- Senior Project ideas for 2006-2007 send to David Baumann All



**LSSU INDUSTRIAL ADVISORY BOARD**  
**Fall 2006 MEETING AGENDA**  
**Johnson Controls - ASG Holland, Michigan**  
**Conference Room A-8**  
**FRIDAY, November 3, 2006**

- 8:30 – 9:00 am**      **Informal Discussion - All Welcome**
- 9:00 – 9:10 am      **Meeting Call to Order**– Fred Berg  
- Introduce new member Elio Principe
- 9:10 - 9:40 am      **Action Item Review/Minutes Approval** – Lynnette Utecht  
- Approve minutes from November Meeting  
- Review Action Items from April 2006 meeting  
- Introduction to Johnson Controls  
- Tour of Engineering facility
- 9:40 – 10:00 am      **Chair's Report** – Fred Berg  
- Chairman Responsibilities/nomination  
- Spring nomination  
- IAB survey - April 2007
- Committee Reports**
- 10:00 – 10:15 am      **Recruitment Subcommittee Report** - Chris Conklin  
- MACRO Events Fall 2006 update
- 10:15 – 10:30 am      **Scholarship Report** – Dan Goodrich
- 10:30 – 10:40 am      **Break**
- Lake Superior State University Updates**
- 10:40 - 11:20am      **School Updates** – Morrie Walworth  
- Enrollments,  
- Recruitment  
- Scholarships  
- ABET visit
- 11:20 - 12:00      **Program Updates** – David Baumann, Paul Duesing, Jim Devaprasad  
- MA/CS relationships  
- New option  
- Faculty activities
- 12:00 – 12:30 pm      **Lunch**
- Senior Projects**
- 12:30 – 2:00 pm      **Senior Projects** – Jim Devaprasad  
- Last year's results  
- This year's projects  
- Course Enhancements  
- Overview of Senior Project process  
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- 2:00 pm      **Closing Remarks/** Next Meeting Friday, May 4, 2007 at LSSU Campus