



**School of Engineering and Technology Industrial Advisory Board
Minutes for Fall Meeting Lake Superior State University
Friday, October 14, 2016**

Members Present:

Ray Adams, Bob Andersen, Fred Berg, Ted Clark, Dave Clingen, Paul Duesing, Lynnette Eding, Todd Fewins, Dan Goodrich, Steven Kars, Jim Keighley, James Kucher, Trevor Swenson, Jerry Timm, Marty Zoerner

LSSU Staff Present:

Laura Bofinger, John Coullard, David Leech, Eric Becks, Paul Webber, David Finley

Guests Present:

Karl Hansen
Allan Frappier

This year, we started the meeting at 12:00pm and had a combined lunch with the Business Advisory board. We had some social and professional interactions during lunch time.

Then our group broke out to start our own meeting. We started with Senior Projects presentations of each group. One person from each group was present for a 4-6 minute introduction of the project.

Meeting Minutes – action items from last meeting.

1. The minutes and action items from the last meeting (April 2016) were reviewed:
 - Make it a recruitment subcommittee task to develop that vehicle that can make job shadowing for new engineers happen.
 - Any volunteers for a new Recruitment Sub Committee Chairperson?
 - Who do we ask, what the fees being collected from Engineering students are used for? Dr. Baumann, can you find this out?
 - Suggested that Jim work with Dr. Finley to see what we can do to get the release time back to administer programs.
 - Lynnette to work with Jim to set up Blogging with students.

New Candidates

1. We had a review of 2 new candidates to the Industrial Advisory Board: Todd Fewins and Allan Frappier. After self-introductions and discussions, the candidate were approved:
 - Todd Fewins: Approved by Fred Berg and 2nd - Ray Adams
 - Allan Frappier: Approved - Bob Anderson and 2nd – Paul Duesing

Chairman's Report

1. Chairman Election – **Lynnette will volunteer for Chair position, but need someone to take over the Secretary position.**
2. Future Candidates –
 - The IAB has a good mix of engineering disciplines. Future candidates – we are seeking Educational Professionals to bring the following mix to our team:
 - What future students are looking for, “real-time”
 - Targeting educational professionals who can impact students for future admission to LSSU engineering
 - Associations with VEX, LL background
 - Encourage/Coordinate LSSU site visits with prospective students
 - IAB appointment fosters attachment to LSSU & LSSU engineering
 - Recruiting tool for IAB – Recruitment committee member(s)

The Role statement will need to be updated to include Management and Educational along with the engineering positions, as called out below:

The Industrial Advisory Board (IAB) is comprised of professional men and women in engineering, **management & educational** positions who actively participate in the development of and the promotion of Lake Superior State University engineering and engineer technology programs, faculty members and students.

IAB members guide, nurture and assure that the School of Engineering and Technology produces engineers with skills that will not only fulfill today's industrial needs, but will foresee the requirements of tomorrow in a global economy. IAB members provide "real time" interface with both faculty members and students bringing today's industrial technology to LSSU "today".

Action is to change the role statement of the board to add management and educational to the list of responsibilities. This would help target the education and management professionals who aren't engineers.

This action was put into Motion by Paul Duesing and 2nd by Ray Adams. All approved.

- Recognize IAB members who have given to the IAB and LSSU School of Engineering & Technology
 - Status for recognition for serving on the board – new title... IAB Member Emeritus
 - No rights or responsibilities that would go along with the title.
 - Emeritus – is someone who has served and led.
 - Sort of an "official" thank you.
 - Suggest that we nominate the people that have been retired from the board
 - Voted by board to achieve this title
 - Nomination process would be nominated by a member of the board – discussions about it at a meeting.
 - Should there be something on display here at LSSU? Potential to make something?
 - Up to the person who nominates the person to "sell" the candidate up for this position to the board.
- Paul Duesing motioned to create a wood plaque to list any of the IAB Emeritus members and send participant a certificate of appreciation for someone that has made a significant impact to the board/school and/or long serving acting members that affected the board and made the board more successful.
This will be voted on once a year by the board. The only benefits for this person will be an invite to the meeting and stay on the mail list, if they want to stay in the know of what is going on with the board.
This motion was 2nd by Dan Goodrich.
 - 1 nay – MOTION PASSES

- **Steve will create a certificate and to Jeanne for all her dedication and hard work. – Steve Kars**
- **Need to decide who will create the plaque for the Emeritus members of the IAB. - Unassigned**

3. Report out from meeting with President Pleger

- Members Attending – Ray Adams, John Truckey, Steven Kars, Bob Andersen & Jim Keighley
- Bob Anderson led discussion on minutes from the meeting. It was a very eye opening discussion!
 - When Dr. Pleger arrived, LSSU could not tell him how many students we had from 2002 forward.
 - No one could predict the finances
 - Income is \$35.5M, spending is \$37/38M
 - Need aggressive campaign to reach ALL of Michigan
 - Did not market to charter schools
 - Charters are a recruiting opportunity
 - Effort to push down responsibility to chairs
 - Business school building contractor is in default – LSSU solved problem
 - Capacity to increase – summer camps, robotics competition, IAB support
 - 86% LSSU, 60% national average tenured professors teaching class size under xx?? vs adjunct (have not ban inclusive) (not sure about this point, my notes seem incomplete)
 - "Old Timers" did not have to recruit students

- Natural Science is only dep't to bring in \$3M. They are doing it with grants, consulting, program development, professional development to outside companies/institutions.
 - Admissions and athletic coaches did not talk to each other
 - Admissions only focused on new HS students, not on retention
 - 50% of faculty is LSSU alum (many universities do not allow alums on faculty). We need to have some new/outside influence.
 - SSM should be a destination, should be attracting more. We should be tops in customer service.
 - Chairs do not need to do everything themselves, delegate
 - 90% of LSSU students are in 50 of the 120 degree programs. How can a recruiter describe/sell 120 programs?
 - Performance metrics
 - Key performance indicators – Jim can fill in (not sure what this is about, I didn't write enough and I cannot remember)
 - We give away \$8M in financial awards, "Laker Bucks." Different rates for students.
 - Diversifying revenue – continuing education
 - Illinois is in big trouble – Alaska merged 2 universities.
 - Professors grow revenue through consulting.
 - LSSU has been very silo'd (?), micro vision
 - Student gov't has been a help – what nee fixed: housing, etc
 - Digital marketing – update, target demographics
 - What can the IAB do?
 1. Political support – contact lawmakers about state support
 2. Encourage faculty to think about solutions outside the box
 3. Recruiting – faculty outreach
 - Marketing to convert admitted to enrolled
 1. Snow sports (literature and website photos are summer/non snow)
 2. Highlight hunting & fishing
 3. Other outdoors activities
 - Loss Elimination is key! Instead of cost cutting, work toward increasing efficiencies
 - Financial Aid is a HUGE loss. Need to do more efficiently.
 - Check the charter schools on the website – recruiting opportunity
 - Signed contract with military for STEM with DOD (Department of Defense) – national security U.S. students
- Outcome? Write a letter back to them and possibly a letter to SET staff about the same thing.
 - Notes from discussion on things to ask the President:
 - Political support – contact state rep and communicate with them about state university spending and the need for more money!!
 - Seek remedy for Native American students can go to school for free – State mandate granted this, but never put a set aside budget for these students. This was derived when state acquired the land to build CMU.
 - Native American population is really high in the Soo (over 100 Native American students on campus).
 - Encourage the faculty to think out of the box for solutions
 - Engineering faculty does a great job at reaching out to students.
 - Bob sat next to Jay Brogan – Vice Chair of Business school - thought we should have some working relationship between the 2 boards.
 - Department of Natural Science brought in money 3 Million through grants, ect (bulk of it is brought in for projects)
 - Engineering brought in some money – but not zero.
 - Professional advisory board from LSSU – do we want to have a committee? Bob will volunteer – anyone else?
 - Paul made a motion to create a subcommittee to establish link between 2 boards – Steve and Paul will be on it.
- 2nd- Jerry Timm – All approved.

Report out from meeting with President Pleger, cont.

- **New subcommittee will start out with Bob, Paul, and Steve - to connect to Business IAB.**
- Engineering has funds – why are they not in control of these funds?
 - WHY? Engineering funds – Administration will not let us.
 - What is it used for?
- Unique here at LSSU because of Nursing and Engineering – additional fees could be used to cover various things that are not being received right now.
- Course fees were put in to help with equipment, software, labs – not for professors salaries
- Appropriate for board to say : funds were collected for benefit of students
- Jim K – talked to Morrie and he said that the board thinks that they have no control.

- **Motion for Steve to summarize letter to provost on outcome of above notes and included information on engineering funds.**
2nd - Paul – All approved.
- **Letter goes to President, provost, board of trustees - etc**
 - Trustee Board decision on what to do with the fees – IAB could recommend to use these fees for the school year.

Recruiting Subcommittee Report

1. General Discussion

- Bay college has pre engineering degree
- How do we get an “articulation agreement” for kids to come to LSSU?
- Northcentral?, Northwestern?, and Charlevoix area colleges? for articulation agreement.
- Next week 12 coming up Dr. Finley is staying in area and going to sit in some of the classes.
- Thought about dual degree on ENG and Business.
 - Working on last step of approval for Business degree after engineering degree
 - We used to have an Engineering Technology and Business degree – in hay day had 20 student in Escanaba. To get to management, you needed a management degree, so LSSU created this ENG/Man degree because of this.
 - If you do a combined degree you sort change the student. Need engineering degree to be engineer for engineering skills
 - Comments from a larger company (Jim K) – look for engineering student, they can teach the business side
- Trying to grow VEX program FLL – 6 teams VEX – 21 teams
 - This year 32 teams - at Elementary school
- One of the new member we want to add to the board – has all kind of VEX kits and brings kids onboard with VEX.
- Last meeting we talked about – Civil Engineering – proposing to put out a poll to see if kids are interested in?
- **Any Ideas for an Action item? Create Poll on website?**
- How many faculty does it take? To add the Civil Engineering?

Dr. Findley update

1. Jean is back at LSSU 30 hours in Marketing – hours come from the general fund. 1/3 of time is for FIRST ROBOTICS !! 😊
2. New Charter school students is now 8!!
3. 90% of the students are in 50 of 98 programs. We need to be more efficient. It will be a real push this fall.
4. Abet Audit - We had a couple of concerns - Phenomenal visit with ABET!!
 - Faculty professional development
 - Asking board subgroups to look closer at the curriculums of LSSU Engineering
 - **As a result of this and an action item, we decided to review one Engineering group each meeting.**
 - **The next agenda topic for IAB to think about can be Future of Academics:**
 - Civil Eng
 - Engineering Masters
 - MBA proposal – working in earnest to make that happen
5. HLC (higher learning commission) Nov 7-8 coming for accreditation audit

6. DR Findley's presentation: **Mission**

Our mission at Lake Superior State University is to help students develop their full potential. We launch students on paths to rewarding careers and productive, satisfying lives. We serve the regional, state, national and global communities by contributing to the growth, dissemination, and application of knowledge.

- Reorganization - Reorganize for synergism and collaboration
 - Fletcher Building will be the first stop – go one place to meet with different people
- Reaccreditation
 - Institution: HLC – November 7-8, 2016
 - Programmatic: ABET ETAC, Practical Nursing, EMS
- Renovation
 - Considine Hall
 - Center for Freshwater Resources and Education
 - Nursing Simulation
- Investments
 - Master of Business Administration
 - ARTS Center
 - Ellucian Degree Works
- Opportunities
 - Michigan Transfer Agreement
 - Meijer Corporation
 - \$1.3M Grants and Contracts
- Initiatives for Growth
 - One-Rate tuition
 - Scholarships and Financial Aid
 - Leveraging Retention
 - Institutional Research
- Finances and Planning
 - Balanced 2016-2017 Budget
 - MPSERS
 - 20-year Master Plan
- Communication / Culture
 - 8:00 Common hour – no classes ,but free hour for Professors, Teachers and Staff to be available
 - Tobacco Free Campus – Effective August 22, 2016
 - LSSU Foundation – Over \$3M raised in FY16
- Enrollment and Housing

	2016	2015	2014
Enrollment	2012*	2141	2260
Housing	827	830	822

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PDC and School Updates

1. Presence downtown -
 - Working with Cloverland and Core to move some things to west side of building downtown
 - Working with WAR Memorial Hospital to house nursing lab
 - Art Center stepped it up with external performances visiting campus
2. Michigan transfer agreement – we will accept MTA in a whole and get new transfer students.
3. Meijer coming to town – everyone excited about it
4. One rate tuition - brought good things to state of MI and hopefully to LSSU!

5. Study abroad visit by David Finley to Scotland (Edinburgh)
 - Saw the Edinburgh Castle – some of walls are 1000yrs old – very cool!
 - Went “Nesse” hunting in Lockness
 - Hopes to get back there to teach for a month during the summer.
 - 6-10 students that will participate in this program -
 - This is funded externally –
 - This will showcase to us what is in Scotland
 - Hard for engineering students to study abroad.
6. SmartZone –
 - Working on/received Gatekeeper Grant – business development program – LSSU as requesting institution 85-87K for 2 years
 - Equipment at LSSU – all equipment came over when the smart zone building was taken over
 - 3 projects – all funded through SMIPxxxx
 - Always looking for projects - they like the funded ones.
7. Curriculum reviews for the Fall meeting
 - Break into subgroups and take minutes for EET and MfgET
 - Idea to do a review of curriculum of 1 program for whole school and in-depth for 1 department
 - Add agenda item in fall to do this.
8. Jeanne is gone!
 - Rehired for FIRST Robotics, Integrated with Marketing
 - Coordinators and Jeanne – has always been a problem with the rest of the university.
9. 3 articulation agreements –
 - Bay College - 5-10 will visit campus
 - Northwestern Michigan College (40 / year) 11 coming in 2 weeks for visit
 - Lansing Community College
 - Alpena CC – work on getting back with them
10. LSSU SAE Mini-Baja
 - Handed out flier for the Society of Automotive Engineers – LSSU Chapter, Superior Racing
 - 20,000 budget needed
 - Need 15,000 more from Sponsors – working hard to get outside sponsors
 - Donations accepted and needed
 - Air gas is going to donate gas and welding equipment
 - Sears – going to give some tools
 - If there is a list of materials the club needs, we can get that out to the IAB and see if there is any donations that members can help with.
11. PLC trainers and pumping station and sprinkler – great addition to school.
12. Enrollment
 - LSSU
 - 2100 students
 - Down from 2150 last year
 - SET
 - 205 students
 - Down from 219 last year
 - Up from 175 four years ago

13. – Continues to be strong

- Career Fair at the time of our meeting
 - 40 Employers
 1. 27 hiring E's and ET's
 2. 13 hiring only E's and ET's
 3. Employers Have both Permanent and Internships available

14. Turnover has been a huge issue in the department.

- On the Positive side: Look at how we can leverage the new ideas
- On the Negative side: Always on a search committee looking for new folks.

S'05	Duesing	He	Schwideron	Carroll	Barakat	New Faculty Enrollment Labs Curriculum
F'05		Hildebrand			Mokhtar	
S'06						
F'06						
S'07			Vacant			
F'07						
S'08						
F'08						
S'09				Janjua		
F'09					Nudurupati	Our little history of turnover in 5 (now 4?) positions.
S'10						
F'10						
S'11						
F'11					Vacant	
S'12					Sodhi	
F'12						
S'13						
F'13				Herescu		
S'14	Leach					
F'14				Mahmud	Vacant	
S'15					Sinha	
F'15						
S'16						
F'16					Zarepoor	

- History:

15. ABET-ETAC Visit Summary

- Seeking
 - Re-Accreditation for MfgET
 - Initial Accreditation for EET
- Outcome was EXCELLENT
 - 0 deficiencies
 - 0 weaknesses
 - 2 concerns (same for EET and MfgET)

16. ABET Concerns

- Concern #1
 - Due to insufficient professional development, it is difficult for faculty to maintain professional currency in their fields
- Recommendation
 - Develop effective professional development plan for the faculty.
- Concern #2
 - The IAB has no has no subcommittees or dedicated times to discuss and provide support or feedback to the individual EET and MfgET programs.
- Recommendation
 - Institute separate EET and MfgET subcommittees and/or meetings for the IAB to better support the EET and MfgET curricula (as mentioned previously and is now an action item and will be agenda for Fall IAB meeting).

17. New Faculty – Masoud Aarepoor – WELCOME!

- PhD, Mech. Engrg, 2016, Old Dominion University, Norfolk, VA
- MS, Mech. Engrg, 2013, Wright State Univ., Dayton, OH
- BSc, Mech. Engrg, 2010, Shiraz University, Shiraz, Iran
- Extensive Background in Non-Linear Vibrations, Piezo-Electrics, Solid Mechanics
- Currently instructing Statics (both), FEA in Machine Design, Vehicle Development (a lab section)


Next meeting – Friday, April 28, 2017 at LSSU

Fred – motion to end the meeting and Trevor – 2nd All in favor!! Meeting Adjourned.


Summary of **ACTION ITEMS** from the meeting:

1. Lynnette will volunteer for chair, but someone will need to take over the Secretary position done - Jim K
2. Change the role statement of the board to add management and educational to the list of responsibilities. – Lynnette – done by Steve
3. Steve will create a certificate and to Jeanne for all her dedication and hard work. – Steve Kars no action
4. Need to decide who will create the plaque for the Emeritus members of the IAB. – Unassigned Finley handling it.
5. Create NEW subcommittee - will start out with Bob, Paul, Steve - to connect to Business IAB. Nothing done yet
6. Steve to summarize letter to provost on outcome of above notes and included information on Engineering funds. Done
7. Need to create an Action item to understand interest in Civil Engineering. Create Poll on website? - Unassigned no action
8. As a result of ABET concerns, we decided to review one Engineering group each meeting. Doing Mfg at this meeting
9. Another agenda topic for IAB to think about can be Future of Academics: Finley handling – not IAB issue
 - Civil Eng
 - Engineering Masters
 - MBA proposal – working in earnest to make that happen
10. Is there is a list of materials the club needs, we can get that out to the IAB and see if there is any donations that members can help with. – Robert Hildebrand to provide – donation letter sent out. Continental and Precision Edge donated.

2016-2017 Senior Projects:



Team Wheel Inspection Systems




Purpose: Develop prototype machine vision system that can detect flaws in the rims of automotive tires

Customer: Esys Automation

Product requested by Esys customers

Budget: \$10,000



Deliverables	Acceptance Criteria
<ul style="list-style-type: none">• Detection algorithm• Vision shroud• Prototype user interface• Documentation	<ul style="list-style-type: none">• Flaw detection runtime of 3.5 seconds• Algorithm finds scratches, dings, & flaws in casting• Report of findings• Document all attempted lighting configurations and algorithms

Goal: Design and build a Baja Kart capable of placing in the top ten at the national competition in May 2017



- **Individual Design Areas:** Chassis, Suspension, Steering, Safety & Accessories
- **Design Areas of Focus:** Data Acquisition & Vehicle Simulation, Weight Reduction, Suspension Geometry

***Customer:** Dr. Zakaria Mahmud, SAE Baja Club Advisor, Professor of Mechanical Engineering.
Faculty Advisor: Robert Hildebrand



2016-2017 Senior Projects:

Drivetrain Objectives:

- Deliver maximum power and torque to the wheels
- Include Reverse
- Minimize Weight and maximize adjustability


System Design Groups: Drivetrain—Brakes
Hubs/Spindles—Wheels

Budget: Currently \$5,000 (Shared with Chassis Division)
Anticipating \$20,000 Total


FA: Professor David Leach



Conveying Automation Solutions



- Design and implement new robotic training cell using 2 donated KUKA KR 5 robots
- Focus on mechanical and manufacturing aspects
 - Conveyor, end of arm tooling, pallets, fixtures, & safety features
- Develop labs & demo
- Total budget: \$35,000
- Benefits to SET, future students, & summer camps



Automation Controls ENGINEERING

Integrate a unique and advanced learning experience for the engineering curriculum. We will be creating, in collaboration with team CAS, a robotics cell that will implement features of technology & safety standards being used in industry today.

- Program robots, vision system, safety system, and PLC
- Implement sensors & safety features throughout the workspace
- Create labs and demonstration





Lake State Automation MACTECH

Budget: \$20,000

Portable Gantry Mill
1000 X 2000 mm
680 kg (1,500 Lbs.)



Team Members:

Kyle McKeachnie	Daniel Baker	Phillip Couillard	FA: Jon Couillard
Matthew Simon	Grace More	Justin Lugergrun	IC: Chad Peterson

Controls and Vision Systems

- Phase 1
 - Budget: \$60,000
- Phase 2
 - Budget: \$15,000
- Acceptance Criteria
 - Cost
 - Vibrations
 - Noise
 - Sanitation
 - Speed
 - Reliability
 - Security





Respectfully Submitted Meeting Minutes,

Lynnette Eding