

School of Engineering & Technology

Industrial Advisory Board Spring 2014 Meeting

May 1, 2014





In Memory of Adil Shafi

August 29, 1962 – April 4, 2014



• **WELCOME!** IAB Members, Faculty & Guests

New Family Addition Sierra Avery Roselie Kars March 12, 2014

Agenda Review





Secretary's Report

Review Fall Meeting Minutes

Lynnette Eding

10/30/13





Steven Kars

Secretary Election





Need the membership to vote for a Secretary to serve for the next two years at Spring Meeting



IAB Officer Responsibilities and Term Limits

TERM LIMITS

- The term of each office shall be two calendar years.
- The terms of Chairman and Secretary shall expire on alternate years.
- No more than 2 consecutive terms are allowed.
- There is no limit to the number of non-consecutive terms.
- Election shall be by a majority of the members present at the spring meeting.
- The term shall pass to the successors at the end of the spring meeting.
- Communication of all necessary information is the responsibility of the exiting officer.

Comments:

- The smooth operation of this small organization will depend on communication.
- Forms of correspondence:
 - Phone
 - Fax
 - E-mail
 - Letters
- To facilitate hand-offs, a format should be consented upon for electronic applications.



Nomination Process

- Any existing IAB members are eligible
- Self nominations are acceptable
- If you are nominating another member please be sure that they are willing to participate
- All nominations will be accepted and presented at the spring IAB meeting
- Any Questions: you can contact the existing IAB officers.





Spring 2014 Engineering Recruiting Update

May 2nd, 2014 LSSU IAB Meeting

Over the REALLY LONG Winter

- Regular meetings with subcommittee members
- Regular meetings with Admissions
- National Engineering Month (March)
- FIRST Robotics Events
- MACRAO Events



Local Events

- National Engineering Month (March)
 - Station Mall, Ontario
- Student Competitions
- Handouts / Buttons
- Sault College partnership
- White Pines
 - -VEX
 - Engineering high school of Sault, Ontario



FIRST Robotics Event Participation

- Michigan FRC State Championship
- Event held April 10-12, 2013 in Ypsilanti, Mich. (Eastern Michigan University)
- Lack of IAB presence again this year
- LSSU staff Jim Devaprasad volunteered to support the event.





Local FIRST Robotics Teams

- FIRST US Team 1596: The Instigators
 - Sault Michigan
- FIRST Canada Team 1535: The Knights of Alloy
 - No longer has a FRC team
 VEX Robotics
- Great Potential to be Future LSSU students
- Ideas to help and contribute, looking for equipment/sponsors and mentors





MACRAO Highlights

- Targeted list of "tech" schools
- Lower than normal representation from IAB this Spring
- Follow up with interested students from Engineering department?
- > AI (admissions) to provide further update



Thoughts/Sharing

- Ontario stats healthy positive trend
- MACRAO event IAB representation?
- FRC event IAB representation?
- More onsite school visits
- Sault College Bridge Program
- Engineering Newsletter
- Focus on Exit Strategy?
 - 100% placement rate?



Future improvements

- 5 minute short videos summarizing each Senior Project?
- Improve process to follow up with students at MACRAO events
- > 3D printed robots from Engineering House?
- Webinars / Prep Talk?
- Regional Centers (Dearborn, Escanaba, Gaylord, Petosky, others??)





Admissions Update

Al Case

By The Numbers

Engineering and Technology	134	145	-7.6%	(11)
Engineering & Technology	134	145	-7.6%	(11)
Computer Engineering	12	9	33.3%	3
Electrical Engineering	16	18	-11.1%	(2)
Electrical Eng Technology	4	6	-33.3%	(2)
Engineering Management	1	7	-85.7%	(6)
Industrial Technology		4		(3)
Manufacturing Eng Technology	9	6	50.0%	3
Mechanical Engineering	71	72	-1.4%	(1)
General Engineering	15	20	-25.0%	(5)
General Engineering Technology	5	3		2



D

More Numbers

- Orientation 2013 377
- Orientation 2014 430
- Engineering 2013 40
- Engineering 2014 39



Where We've Been

MACRAO, WEF, IACAC, NACAC, HSVisits FRC: 3 in 2013 vs 8 in 2014





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Analytic Solutions for Higher Education

Use your data to drive decisions across the entire student lifecycle. Predict which inquiries and prospects are likely to apply, which applicants are likely to enroll, which students are at risk of attrition, and which alumni are likely to donate. Find out why hundreds of colleges and universities from across the country have turned to Rapid Insight for their predictive analytics, data analysis and reporting needs.

Enrollment Modeling Student Retention Modeling Prospect/Inquiry Modeling Institutional Research Community Colleges Law Schools and Graduate Schools



Campaign Report 🥥

F14 NU	Last	Shot	Show Details
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verview Click-Thrus Soc	ial Shar	ing He	eat Map	Email Clients	Geolocation
Opens Clicks					
Email client	Total	Total %	Unique	Unique %	Most Popular Clients
Android	15	3.46%	11	3.08%	
Android 2.3.x Gingerbread / Gmail	1	0.23%	1	0.28%	15.45%
Android 4.0.x Ice Cream Sandwich	2	0.46%	1	0.28%	
Android 4.1.x Jelly Bean	6	1.39%	5	1.4%	2 1794 -
Android 4.1.x Jelly Bean / comcast.net	2	0.46%	1	0.28%	2.44%
Android 4.1.x Jelly Bean / Gmail	1	0.23%	1	0.28%	2.44%
Android 4.3 Jelly Bean	1	0.23%	1	0.28%	2.98%
Android 4.4 KitKat	2	0.46%	1	0.28%	
AOL Mail	6	1.38%	6	1.68%	5.15%
AOL Mail / Apple Mail	5	1.15%	5	1.4%	
AOL Mail / IE 10.0	1	0.23%	1	0.28%	11 1196
Apple Mail	17	3.92%	12	3.37%	11.1170
Apple Mail	5	1.15%	3	0.84%	19.24%
Apple Mail / Apple Mail	12	2.77%	9	2.53%	
Chrome	6	1.39%	5	1.4%	



Combined Staff Experience: 4.5 Years. Senior Advisor: 3 years. Remaining Staff: 0 months, 8 months, and 3 months. Vacancies: 4



Other Ways to Help

- Continued Event Participation
- Stationary Notes
- Phone Calls





College of Business & Engineering Updates

David Roland Finley, Ph.D., P.E. Dean

Agenda

- Placement of May 2014 Graduates
- Fall 2014 Recruiting Status
- List of "Good Things"
- Lambda Epsilon Eta/Order of the Engineer inductions
- PDC Search—Asst. Engineering Projects Mgr. (ME)
- South Hall Renovation Project
- Robotics Lab Expansion Plans



Placement of May 2014 Graduates

- 26 of 29 May 2014 engineering and engineering technology graduates placed in jobs/graduate school prior to Commencement--several with 3, 4, even 7 job offers
- JR Automation (3), Gentex (3), Tenaris Algoma Tubes (2), Dematic (2), Patti Engineering (2), Ford, Proctor & Gamble, AMT, Pre-Tec, Oak River Tech, Cadillac Products, Innnova-Tech Solutions, Cemsensor, Hydro Tech
- UMich, Dunkerque Hockey and grad school



School of Engineering & Technology Enrollment History 2006-2013

			Fall 2006	Fall 2007	Fall 2008	Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013
CENG	Computer Engineering	BS	38	28	32	18	22	18	26	18
EGEE	Electrical Engineering	BS	36	41	40	30	38	36	37	30
EGET	Electrical Eng Technology	A					1		1	1
		BS				1	3	4	5	13
EGNR	General Engineering	A	17	14	15	22	17	13	10	18
EGNT	General Engineering Technology	A	1			1	1	1		1
EMGT	Engineering Management	BS	7	6	7	9	8	4	4	1
EGME	Mechanical Engineering	BS	62	59	59	67	79	85	85	93
EGMT	Manufacturing Eng Technology	A	1	4	3	4	5	2	3	2
		BS	27	25	19	18	12	9	14	21
INDU	Industrial Technology	BS	1			1	1		1	2
Totals			190	177	175	171	187	172	186	200

1.081 1.075



Term code key

Fall 2014 Recruiting Status

SET Admits as of April 2014

- Last year: 171
- This year: 146 (21-YES, 29-Maybe, 7-no)
- ME 75, MfgET 8
- ▶ EE 17, EET 4, CPE 16
- GEN 20, GENT 4, INDT 1, EGMT 1



Fall 2014 Recruiting Status

Summer Orientation Registrants

	16-May	17-May	13-Jun	27-Jun	17-Jul	18-Jul	Totals
ME	2	11	6	2		2	23
Mfgt	1	1	2			1	5
GEN		2	1				3
GENT			1				1
EET							0
EE	1	4		1			6
CE		1					1
Totals	4	19	10	3	0	3	39

List of "Good Things"

- Thomas Pleger, Ph.D. selected as LSSU's 8th President
- Engineering Prof. Dev./Summer Research Fund established
- Gift for PLC trainers upgrade--\$10K
- Gift for Robotics Summer Camp/FR Scholarships--\$10K
- Hosted First Robotics Competition Kickoff
- Michigan Works Training again this year
- Sustainable Energy Concentration approved
- HAAS CNC acquisition pending--\$65K
- Seven Externally-Sponsored Senior Design Projects



LSSU's 8th President – July 1, 2014



Thomas Pleger, Ph.D.

- campus executive officer and dean of the University of Wisconsin-Baraboo/Sauk County
- MA and Ph.D., anthropology/ archaeology, UW-Madison;
- BS, political science, UW-LaCrosse
- > grew up on the shores of Lake Michigan in Marinette, Wisc.





University teams up with Michigan Works! for workforce retraining



2013-14 Engineering Senior Design Projects

ABI: Automated Braking Innovations, Continental, Auburn Hills, MI A-VIS: Adexobot-Vision Integration Solution, Advenovation, Rochester Hills, MI LCS: Laser Control Solutions, Mactech, Red Wing, MN LOCI: Locomotive Onsite Communication Initiative, Essar, Sault Ste Marie, Ontario MRC: Marine Refueling Concepts, Moran Iron Works, Onaway, MI RAS: Railway Automation Solutions, Pre-tec (Willamette Valley), Eugene, OR SFI: Solar Film Innovations, 3M, Maplewood, MN

Lambda Epsilon Eta Induction


Order of the Engineer Induction



PDC Search—Asst. Projects Mgt. (ME)



www.lssu.edu 5/5/2014

SOUTH HALL RENOVATION—from SE



SOUTH HALL RENOVATION—from North





LAKE SUPERIOR STATE UNIVERSITY

SAULT STE, MARIE, MICHIGAN

(PROPOSED CASET ROBOTICS LAB BUILDING ADDITION)



LAKE SUPERIOR STATE UNIVERSITY

SAULT STE. MARIE, MICHIGAN (PROPOSED CASET ROBOTICS LAB BUILDING ADDITION)



EAST EXTERIOR ELEVATION



чиканти сира; стата, каколичика чиканта, 4 чест нистра рассликата под расслика нараговотора илга, слика трака, ката на объетска фекранска под рассност тока, рассласт под рассност тока, рассласт под рассност

LAKE SUPERIOR STATE UNIVERSITY

SAULT STE. MARIE, MICHIGAN (PROPOSED CASET ROBOTICS LAB BUILDING ADDITION)



EAST ELEVATION



ADDITIONAL FOCUS FORWARD TOPICS

- LSSU Presidential Search status
- Engineering Economics into curricula
- Proposed Sustainable Energy concentration
- LEH Engineering Honorary launch
- Outstanding SET Alumnus Award
- Proposed Civil Engineering major





School Updates

Dr. David Baumann, School Chair

Engineering Technology Enrollment



Proposed Admission Standards (1 of 3)



Proposed Admission Standards (2 of 3)

Math for Engineering Tech

- MATH-087 6th-7th Grade
 MATH-088 8th-9th Grade
- ► MATH-102 10th Grade
- MATH-III Algebra
- MATH-131 Trig
- MATH-112 Tech Calc I
- EGNR-245 Tech Calc II
- MATH-207 Tech Stats

Math for Engineering

- MATH-087 6th-7th Grade
- MATH-088-8th-9th Grade
- ► MATH-102 10th Grade
- MATH-III Algebra

MATH-131 Trig

- MATH-151 Calc I
- MATH-152 Calc II
- MATH-251 Calc III
- MATH-310 Diff Eq
- MATH-308 Prob & Stats

Proposed Admission Standards (3 of 3)

First Time In College

Transfer





Electrical and Computer Engineering Updates

Dr. Andrew Jones, ECE Coordinator

Changes

• Sustainable Energy Concentration Approved!

- 10-12 credit hours:
 - Energy Systems and Sustainability (new)
 - EGNR261 (3,0) open to all majors!
 - EGNR361 (0,3) lab focus on engineering
 - Power Distribution and Transmission (new) EGEE411
 - Vehicle Energy Systems (revise current) EGNR362
 - Contains other classes
 - Thermodynamics, Electro-Mechanical systems, Power Electronics
- Concentration for EE or CE (future for ME)
- Feedback





Concentrations

- Four course (13-15 credit hours) model
 - One class is a Technical Elective
 - Three classes satisfy the specific concentration
- EE: Digital, Robotics, Sustainable Energy
- CE: Robotics, Sustainable Energy
- Provides flexibility for scheduling and student interests



Changes in progress

• CE specific

- Curriculum changes
 - Computer science merged two classes
 - Reduced credit hours in degree (126)

ECE common

- Electric Motors lab repaired
- Added I hour to Electronic Circuit Laboratory
 - Provide additional debugging and soldering topics



ECE Focus

How to grow ECE enrollment?

- Recruit more students
 - I. Promote Sustainable Energies Concentration
 - Need your help
 - 2. Offer mobile robot courses
 - 3. Develop Podcasts of successful projects to post
 - 4. Create 2-2 with community colleges
- Build relationship with teachers/counselors
- Feedback





Mechanical Engineering Updates

Dr. Robert Hildebrand, ME Coordinator

ME Search for Spring 2014

"Introducing" David Leach!

(alright – pardon the drama – you may know him already!)



David will be teaching CNC/CAM, solid modeling, Statics/Strength of Materials, manufacturing processes, eventually Quality, and other things.



ME Search for Fall 2014

- Faculty member for Thermal-Fluids courses (mainly)
- 3 candidates to visit in May:
 - seem to have good <u>lab</u> credentials, especially
 - well-spoken
 - balanced w.r.t. lab, theory, simulation (CFD)



Updates

Curriculum Work

Fluid Mechanics

- combined 2 partial semester courses into 1 for full semester
 Statics and full Math prereqs: differential equations, Calc III
- Incorporate some of new energy courses as electives

Haas CNC Mill

- 4-axis mill
- several times the horsepower, larger table than current
- modern control, training & support included
- arrives May, for use in Fall instruction





South Hall Renovation Ground Breaking & Reception

Dr. David R. Finley



2013-14 Senior Project Evaluations

Prof. Jim Devaprasad

13-YEAR SENIOR PROJECTS HISTORY IAB Connection

Year	EG495 Projects (Total)		EG495 Projects (IAB)		EG461 Projects	
1999-2002	15 projects	\$427,334	11 projects	\$364,645		
2002-2003	6 projects	\$89,129	4 projects	\$62,032	2 projects	\$27,500
2003-2004	5 projects	\$153,000	3 projects	\$77,000	3 projects	\$32,000
2004-2005	4 projects	\$146,000	2 projects	\$21,000	4 projects	\$19,500
2005-2006	4 projects	\$54,000	2 projects	\$44,000		
2006-2007	6 projects	\$68,700	3 projects	\$51,500		
2007-2008	5 Projects	\$53,000	2 Projects	\$28,000		
2008-2009	7 Projects	\$41,000	1 Project	\$11,000		
2009-2010	6 Projects	\$109,000	1 Project	\$20,000		
2010-2011	5 Projects	\$28,000	1 Project	\$10,000		
2011-2012	5 Projects	\$24,500	N/A	\$ 0		
2012-2013	4 Projects	\$35,000	N/A	\$ 0		
2013-2014	7 Projects	\$48,200	2 Projects	\$11,600		
TOTAL	79	~\$1,276,000	32	~\$701,000	9	\$79,000

2013-14 Senior Year Projects

CURRENT PROJECTS

- Total 7 Team Projects 33 Students
- Industry Sponsored Projects (7)
- I Co-op Student and I Industrial Tech Student





Company......Continental, Auburn Hills, Mich.

Advisors......Dave McDonald and David Leach

- Team..... I CE, 2 EE, I ME
- Budget\$7,600 (\$15,000 materials cost for duplication)

Description:

Automation of brake testing process by controlling the position of the pedal and how much force is applied.



CURRENT PROJECTS Robotics Grocery Bagging System

Company......Advenovation, Rochester Hills, Mich.

Contact.....Adil Shafi

Advisors......Paul Weber and Jim Devaprasad

- Team...... 2 EE, 2 ME, I MfgET
- Budget\$4,000 (\$43,000 materials cost for duplication)

Description:

Proof of concept system to mimic an automated grocery bagger using a robot, a machine vision system, and a versatile gripping device.

Status: Completed

ADVENOVATION, Inc.

Advancing Innovation



CURRENT PROJECTS Self-Leveling Mill Head

Company......Mactech, Red Wing, MN

- Contacts......Sam Schammel, Paul Rulach, Joel Wittenbraker
- Advisor......David Baumann
- Team...... 2 CE, I EE, 2 ME
- Budget\$24,000

Description:

Development of a self-leveling system to decrease the machining tolerance of a large facing machine from 0.015" to 0.005" using a laser measurement system.





CURRENT PROJECTS Locomotive Onsite Communication Initiative

Company......Essar, Sault Ste. Marie, Ontario

Contacts......Dennis Cesarin, David Clingen

Advisor.....Joe Moening

Team...... 2 EE, 2 ME

Budget\$1,600 (\$25,000 – materials cost for duplication) Description:

55A

Testing of a position sensor system to serve as a proximity warning system for locomotives operating in harsh environmental conditions during the coke making process.



CURRENT PROJECTS

Liquefied Natural Gas Bunkering Barge

Company......Moran Iron Works, Onaway, MI

Contacts.....Victor Ruppert

Advisor.....Robert Hildebrand

- Team...... 4 ME, I MfgET
- Budget\$3,500

Description:

Feasibility study and conceptual design of a bunkering barge that would refuel Great Lakes vessels. Study included simulation and wave tank experiments.





CURRENT PROJECTS Robotics Fluid Dispensing with Machine Vision

Company.....Pre-tec, Eugene, OR

Contact..... Jeff Johnston

Advisor.....Jon Coullard

Team...... 1 CE, I EE, I EET, 2 ME

Budget\$1,500 (\$120,000 – materials cost for duplication)

Description:

Design and implementation of a robotics system to simulate the dispensing of a wood filler product into railroad ties. System uses machine vision and custom end-of-arm tooling.





CURRENT PROJECTS Window-Based Photovoltaic

Innovations Systems

Company......3M, Maplewood, MN Little Traverse Conservancy, MI

Contacts......Tim Hebrink and Charles Dawley

Advisor.....Jaskirat Sodhi and Paul Weber

Team...... 2 EE, 2 ME, I MfgET

Budget\$6,000 (\$12,000 – materials cost for duplication)

Description:

Design and build of a two window-based solar systems using 3M window film to reflect near infrared light onto photo-voltaic cells for increased power output and windowshading.

Status: To Be Completed in 1 Week





PRESENTATIONS AND DEMONSTRATIONS

Presentation Schedule

Presentations

I:30, 2:00, 2:30, 3:00, and 3:30 in CAS212 & CAS123

Demonstrations

- 2:00, 2:30, 3:00, 3:30, and 4:00 in CAS, and 3:30 in the SmartZone Building
- LSSU Engineering Faculty solicits, values, and utilizes IAB evaluations of the presentations



PRESENTATIONS AND DEMONSTRATIONS IAB Evaluations

- Evaluation forms
- Provides "external evaluation" (ABET)
- Guidelines:
 - Look for ownership, professionalism
 - Technical competence via questions
 - Target audience is "grandmother"!
- Turn in at Video Camera or faculty member Please don't leave evaluations with the students.





2014-15 Senior Project Proposals

Prof. Jim Devaprasad
REQUEST FOR 2014-2015 PROJECTS Course Status

~18 Students Expected For EGNR491 (Fall 2014) ~ 2 CE, 2 EE, 3 EET, 7 ME, and 4 MfgET

- Looking for Project Proposals
- Invitation from IAB to Submit Projects



REQUEST FOR 2014-2015 PROJECTS

Sponsor's Commitment

- Past Project Fee: \$2500 + 5% of Budget (\$3500 maximum)
- Provide Industrial Contact

Responsibilities

- Sponsor to provide funding and special supplies
- LSSU to provide facilities and faculty advisor
- Students to design, construct, and manufacture (or research and prototype)
- Sponsor owns product & intellectual rights



REQUEST FOR 2014-2015 PROJECTS Project Selection Criteria

- Match Between Students and Projects
- Match Between LSSU Resources and Projects
- Project Scope and Timeframe
- Clarity in Project Definition and Outcomes
- Evidence of Engineering and Financial Support



REQUEST FOR 2014-2015 PROJECTS Submission of Proposals

- Send by July 15, 2014, to Jim Devaprasad
- Project Proposal Form Available
- Please Submit Proposals!



Senior Projects Fee

Proposal to Make Fee = \$4,000

- Cumbersome To Calculate Current Project Fee
- **25% of Faculty Load Per Project**
- Software and Equipment Costs
- Less Than Other Engineering Schools
- □ IAB Input?







Closing Remarks Next Meeting

Steven Kars