

# American Society for Engineering Education

## First-year Programs Division

### Newsletter

Fall 2008

Editors: Sue Freeman, Rich Whalen, Beverly Jaeger - Northeastern University

#### **ASEE Vision**

##### **Statement**

*ASEE will serve as the premier multidisciplinary society for individuals and organizations committed to advancing excellence in all aspects of engineering and engineering technology*

##### **Inside this issue:**

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## A Message from the Chair

What an exciting time it is for engineering education and what better place is there to impact our future generation than in the **First-Year Programs Division!** Inclusiveness and acclimation of new freshmen from high school and transfers from junior and community college plays an important role in student success and there is increased focus on programs and curriculum designed to bridge this gap. Our new division name is the result of the dedicated work of several individuals over a 2 year span to get our By-Laws approved by the 2008 ASEE Board in Pittsburgh. The change from Freshman Programs Division to **First-Year Programs Division** allows us to retain our well established FPD branding and signature while also recognizing the different paths that students may take before arriving in engineering at a four year institution.

Another exciting change for 2009 will be the inclusion of a formal FPD poster session. FPD is a highly competitive and quality oriented division. With ASEE adopting an across the board "Publish to Present" pol-



icy, all authors will be able to elect to present their work either as an oral presentation or as a poster. In either instance, abstracts must still be accepted and final papers must be written and accepted. However, the more informal nature of the FPD poster session will allow for the inclusion of additional quality papers that may have had to have been excluded previously due to the lack of FPD presentation sessions.

With growth and success comes change - and food and fun. The new FPD By-Laws included a membership dues increase to \$4 in order to accommodate requests to continue to serve and supplement food costs at the division breakfast meeting, to increase the monetary amount of the annual FPD awards, and to provide a social

*(Continued on page 4)*

## Call for Papers – Austin 2009

In this newsletter is the official First-Year Programs Division (FPD) "Call for papers" for the 2009 Annual Conference in Austin, Texas.

*(Continued on next page)*

# Call for Papers – Austin 2009

(continued from previous page)

Abstract submission, the initial step in getting a paper accepted for the conference, has already begun and **abstract submission will close on October 10<sup>th</sup>**. Please see the details on the page below that outline the requirements for abstracts and papers.

Abstracts and papers will be submitted via the **improved** ASEE SmoothPaper system: (<http://www.asee.org/smoothpaper>) according to ASEE deadlines which will soon be published on the website. Please view the link below for an update.

**<http://www.asee.org/conferences/annual/2009/Call-for-Papers.cfm>**

Since the system is new, it is important to have abstracts ready somewhat before the deadline, and submit them at least a couple of days early, just to be safe. Leave the last-minute crisis management to others!

## **General Author Deadlines**

Abstract Submission	October 10, 2008
Abstract Status Notifications	January 9, 2009
Draft Paper Submission	January 9, 2009 – February 6, 2009
Draft Paper Status Notifications	February 27, 2009
Final Paper Submission	February 27 – March 13, 2009
"Accepted Pending Changes"	March 27, 2009
Proceedings/Copyright Transfers	April 3, 2009
Author Registration Deadline	April 3, 2009
Housing Opens	January 21, 2009

Note that the FPD has a Publish-to-Present requirement. What this means to authors is that if your abstract is accepted, you are **not** guaranteed a spot in a technical session to present your work. To be assured of a place on the program, you must write, submit, and re-submit, if required, a paper deemed acceptable by the reviewers assigned to your paper topic.

All abstracts and papers will be peer-reviewed. The reviewers will include members of the FPD Executive Board, session chairs for the conference, and volunteer reviewers.

**It is not too late to volunteer to be a reviewer or session moderator. Please contact Kris Craven at [kcraven@tntech.edu](mailto:kcraven@tntech.edu) if you are interested in serving in either or both of these capacities.**

The First-Year Programs Division is proud to encourage quality papers and presentations: in addition to first and second place best paper awards *with new increased \$cash awards\$,* there are awards for the best presentation and for the best STUDENT presentation. The authors and presenters will receive a check and a suitable award at the FPD business meeting in Austin. We look forward to seeing you there!

## **FIRST-YEAR PROGRAMS DIVISION 2009 CALL FOR PAPERS**

The First-Year Programs Division (FPD) seeks papers relating to educational activities associated with first-year engineering students, including freshman and transfer students. Topics under consideration include those below, and papers on other pertinent topics are very welcome.

### **Topic Suggestions:**

- Innovative approaches to first-year engineering education,
- Insights into teaming, group work, and team/member assessment,
- Creative problem-solving courses and/or related teaching activities,
- Project-based and hands-on courses and/or related teaching activities,
- Instructional use of computers and computer software,
- Integrating engineering design into the freshman year,
- Integrated curricula for the freshman year,
- Advising, student services, and orientation programs,
- Retention strategies and programs,
- Pre-college programs and experiences,
- Linkages with 2-year and junior college institutions, and
- Linkages with K-12 education

Due to the competitiveness of publication in the First-Year Programs Division, the quality of abstracts submitted is of utmost importance. As the reviewers are required to evaluate numerous submissions in a short time frame, below are some guidelines and features authors may want to incorporate in order to help the reviewers gain a better understanding of the nature of the work submitted. As each author's potential for contribution to ASEE through the FPD is unique, all of the additional guidelines do not have to be met.

### **Minimum Requirements:**

- Extended abstracts of up to one full page of text are customary (750-800 words).
- This is a blind submission and blind review. Do not include the names of institutions or authors anywhere in the abstract.

### **Additional Guidelines and Suggestions:**

- As appropriate, include the pedagogical theory or approach being used;
- Indicate the form that your outcome(s) will take as appropriate;
- As applicable, methods of assessment should be made clear;
- A second page may be used to include a graph or image to clarify the nature of your work or to include limited references to indicate a basis for the work undertaken.

Peer review occurs for both abstracts and papers. Abstract acceptance does not guarantee acceptance of the paper. The First-Year Programs Division has a Publish-to-Present requirement and final papers must be written and accepted in order for the work to be presented at the 2009 ASEE Annual Conference in Austin. Submission of abstracts and final papers will be via the SmoothPaper system and in accordance with ASEE published deadlines. See section on Presentation guidelines, page 8.

### **For more information, contact:**

Kris Craven  
Basic Engineering Program  
Tennessee Technological University  
email: [kcraven@tntech.edu](mailto:kcraven@tntech.edu)

## Message from the Chair (continued from page 1)

event for FPD members for Austin and beyond.

I've had the pleasure of working with productive and energetic FPD Boards for the past several years and now here's *your* chance to get involved –the new By-Laws procedures allow for the selection of an FPD Program Chair separate from a position as a member of the Executive Board. Want to do a little less? Volunteer to work behind the scenes as a reviewer for abstracts and papers.

I'm really looking forward to serving with the new FPD Board members as Chair for the Inaugural Year of the First-Year Program Division – see ya'll in Austin!

Sandy Wood, University of Alabama  
First-Year Programs Division Chair  
[swood@eng.ua.edu](mailto:swood@eng.ua.edu)

## Attendees at FPD Sessions 2008



## FUTURE CONFERENCES:

**FIE: 2008 Frontiers in Education Conference:**  
*"Racing toward Innovation in Engineering Education"*  
October 22 – 25, 2008  
Saratoga Springs, NY

**7<sup>th</sup> Annual ASEE Global Colloquium on Engineering Education:**  
October 19-24, 2008  
Sponsored by Autodesk  
Hosted by the University of Cape Town  
Cape Town, South Africa

**Conference for Industry and Education Collaboration (CIEC):**  
*"Engineering Magic: Partnership for the 21<sup>st</sup> Century"*  
February 4-6, 2009  
Orlando, FL

## Upcoming Annual ASEE Conferences!:

2009 ASEE Annual Conference & Exposition  
June 14 - 17, 2009 - Austin, TX  
Austin Convention Center

2010 ASEE Annual Conference & Exposition  
June 20 - 23, 2010 - Louisville, KY  
Kentucky International Convention Center

2011 ASEE Annual Conference & Exposition  
June 26 - 29, 2011 - Vancouver, BC, Canada

It is not too early to put Louisville on your calendar ;-)





Members of the 2008-2009 Executive Committee are (left to right) Gunter Georgi (Past Chair), Chris Rowe, Beverly Jaeger, Scott Moor (Secretary/Treasurer), Rick Freuler, Sandy Wood (Chair), Kris Craven (Program Chair), Jean Kampe.

## Meet the Board

The First-Year Programs Division By-laws provide for an Executive Committee to administer the affairs of the division and to formulate policy. This committee has eight members elected by the FPD membership for terms of four years each, with the terms staggered so that two members are elected each year. Elections are held each year at the Division Business Meeting during the Annual Conference. Officers for the division are selected by the Executive Committee from its eight members at the Annual Conference prior to the business meeting. The officers include the Chair, Program Chair, Program Chair-Elect, Secretary and Treasurer. In recent years the positions of Secretary and Treasurer have been combined into a single position. The By-Laws provide for a succession from Program Chair-Elect to Program Chair and then to Division Chair over a three-year period. Following a term as Chair, the past chair remains on the Executive Committee for an additional year and becomes the ninth member of the committee unless his/her term on the committee has not yet expired.

We welcomed Jean Kampe to the FPD Executive Committee at the Division Meeting in Pittsburgh. The entire 2008-2009 Executive Committee is pictured in the photo above which was taken following the Division Business Meeting. Contact information for each member of the executive committee is provided here. The number in parentheses indicates the year each member is scheduled to rotate off the board. Keep in mind that

at the 2009 Annual Meeting in Austin we will be electing two persons to serve a four-year term on the board. If you are interested in being nominated please let the current past chair Gunter Georgi know.

### Chair

Sandy Wood (2012)  
Freshman Engineering Program  
University of Alabama  
[swood@coe.eng.ua.edu](mailto:swood@coe.eng.ua.edu)

### Program Chair, Vice-Chair, Chair-Elect

Kristine Craven (2009)  
Basic Engineering Program  
Tennessee Technological University  
[kcraven@tntech.edu](mailto:kcraven@tntech.edu)

### Program Chair-Elect

Christopher Rowe (2009)  
Engineering Science  
Vanderbilt University  
[chris.rowe@vanderbilt.edu](mailto:chris.rowe@vanderbilt.edu)

### Secretary/Treasurer

Scott Moor (2010)  
Mechanical Engineering  
IU Purdue Fort Wayne  
[moors@ipfw.edu](mailto:moors@ipfw.edu)

### Past Chair

Gunter Georgi (2008)  
General Engineering  
Polytechnic University of NYU  
[georgi@poly.edu](mailto:georgi@poly.edu)

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## Meet the Board (continued from previous page)

### "Members at Large":

Jean Kampe (2012)  
Chair, Engineering Fundamentals  
Michigan Technological University  
[kampej@mtu.edu](mailto:kampej@mtu.edu)

Richard Freuler (2011)  
First Year Engineering Program  
Ohio State  
[Freuler.I@osu.edu](mailto:Freuler.I@osu.edu)

Beverly Jaeger (2011)  
Mechanical and Industrial Engineering,  
Northeastern University  
[bkjaeger@coe.neu.edu](mailto:bkjaeger@coe.neu.edu)

Attendees at the FPD Business meeting 2008 were: Sandy Wood, Gunter Georgi, William Koffke, Nancy Lamm, Arlisa Richardson, Stan Crouk, David Hall, Eric W Johnson, Brian Krikmeyer, Paul Johnson, Jackie Mobley, Robin Hensel, Cindy Veenstra, John Merrill, Christopher Rowe, Jim Morgan, Kris Craven, Rick Freuler, John Demel, John Estell, Keith Mazachek, J-D Yoder, Laurie Laird, Charlie Pierce, Richard Whalen, Beverly K Jaeger, Susan Freeman, Mara Knott, Jean Kampe, Ken Brannan

FPD Business Meeting 2008  
Pittsburgh, PA



## American Society for Engineering Education - First-Year Programs Division

### Minutes of the Division Business Meeting at the ASEE 2008 Annual Conference in Pittsburgh, PA

**June 22, 2008**

1. Division Chair, Gunter Georgi called the meeting to order at 7:15 AM. Attendees were introduced. Thanks was expressed to Sandy Wood, Program Chair, for doing a super job with this year's session! Thanks also to reviewers and moderators.
2. Minutes from the 2007 FPD Business Meeting were distributed in the 2007 newsletter. Minutes were **APPROVED**.
3. Treasurer's Report (distributed to group): A 7.8 % increase in dues income, reflects an equivalent increase in membership. Current balance in operating account is \$790. However, known commitments will spend this amount out by the end of the fiscal year. Current balance in BASS account is just over \$10,000. Increased number of awards and a newly implemented policy of providing plaques to all award authors will increase the division's expenditures in the future. Treasurers report was **APPROVED**.
4. Program Chair Report: Sandy Wood reported that 106 abstracts were submitted, 68 accepted, 46 papers submitted, 45 accepted distributed over 10 sessions. New this year: an entire section on sustainability and global warming (indicative of keeping up with trends) The 2008 First-Year Programs Division Best Paper Awards were named: **see Page 10**
5. Division Nominations & Elections: Division Secretary/Treasurer: S. Scott Moor was re-appointed unanimously. Two Executive Board vacancies exist. Gunter Georgi and Sandy Wood's terms are finished. Due to current By-Laws, Sandy needs to re-run in order to be Division Chair for next years meeting. Other nominations: Rich Whalen, Northeastern U., Jean Kampe, Michigan Tech. Sandy Wood was

## FPD 2008 Business Meeting Minutes *(continued from previous page)*

reinstated on the Executive Board. There was a tie between Jean Kampe and Rich Whalen. Each party made a short statement about what they've done and how they can best contribute to the Division. Jean Kampe was elected to the Board (by one vote).

6. ASEE Management Liaison Visit: PIC III Chair Jennifer Kadlowec was introduced to the FPD members. She asked for questions on how the ASEE Board could help more? No questions were asked. She pointed out that the best FPD Paper for 2008 was also the PIC III Best Paper. The same was true in 2007 (last year's paper by Nancy Lamm, IUPUI)
7. Report by Program Chair for 2009 (Austin) by Kris Craven: Next year's conference will have fewer sessions. A poster session per division will be offered next year...if more papers are accepted than space available the poster session is an option. Authors can also select whether they prefer a session or a poster.
8. Newsletter Committee: Keep submitting news items and respond to requests for items. Also, please take notice of deadlines...they are important! It is also important to have the newsletter go out before the abstract deadline in order to include the CFP (Call for Papers) and act as a reminder for the abstract deadline.
9. Old Business  
None.
10. New Business
  - a) (Gunter) 2008 Presentations: About one-third of the presentations have poor visuals. Too much info on each slide. Some are unclear, especially graph axes. Are basic presentation rules needed? Some other conferences offer guidelines for presentations. Should we include them in the Author's Kit from ASEE? In the short term, we can create our own rules to improve quality. Guidelines can be included in an unofficial CFP or the newsletter and reminders sent out.
  - B) By-Laws Report: Bill Koffke presented the new By-Laws. The By-Laws shown to the membership is an update of the new By-Laws including some suggested changes and corrected typos. Changes were tracked and shown. A paper copy was distributed to the membership.

The first major change is a division name change to First-Year Programs Division (still FPD). Dues were included in the previous version of the By-Laws. The Executive Board chose to increase the dues from \$2 to \$4 in order to pay for the new plaque policy as well as having some sort of catered business meeting. The succession of officers was modified. It de-couples the Vice Chair and Program Chair track of responsibilities. Program Chair-Elect will be chosen by the membership rather than the board. Motion to accept updated By-Laws including cosmetic changes seconded and **passed**.

Discussion: Is there any provision in dealing with an election tie? Not that anyone can find in the By-Laws. Are By-Laws in other divisions substantially different from FPD's? No response from the group.

How does the BASS Account work exactly since there is a large balance in the account? Checks and plaques have normally been covered by the operating budget and there has been no food in the past. However, if the balance increases significantly, the ASEE Board takes notice. The operating budget is exceeded due to new plaque and food costs for the fiscal year.

Are we considering taking dues out of the By-Laws? The template from ASEE mentions provisions for stated By-Laws unless we want to provide for a two-thirds mail-in vote for changes. Some divisions just allow their Board to select the dues and that is reflected in the By-Laws

Shall we say the dues should be published in the newsletter as determined by the Executive Board and the Executive Board shall inform ASEE of any changes? Bill made changes in the update of the By-Laws. Motion made to accept changes seconded and **passed** unanimously.

(Ed.: ASEE insists on having the dues in the By-Laws. FPD was overruled and with this change, annual FPD dues are \$4, the By-Laws were subsequently approved by PIC III for ASEE.)

Respectfully submitted by S. Scott Moor, based on notes from Chris Rowe and comments/editing from Gunter Georgi



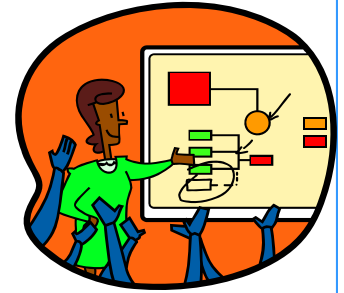
## Guidelines for Presentations—Some Thoughts

As we reflected on this conference and other events that we attend, many agreed that it might be time to review and rethink presentation guidelines. We try to emphasize these to our students, but may forget them from time to time ourselves. So in this article, we have summarized some basic points but also included some links that really showed us what a great presentation might look like.

For next year, the FPD moderators and the Program Chair may decide to send some presentation guidelines and/or requirements, so be looking for those as you prepare. One specific suggestion is to repeat the title slide at the end of the presentation for review and contact. Also, the ASEE FPD website may contain similar information for you to refer to next Spring. So happy presenting!

### **Top Ten Slide Tips:**

1. Keep it Simple
2. Limit Bullet points and text
3. Limit transitions and builds (animation)
4. Use high quality graphics
5. Have a visual theme, but avoid using PowerPoint templates
6. Use appropriate charts
7. Use color well
8. Choose your fonts well
9. Use video or audio
10. Spend time in the slide sorter



So here are some of those links:

<http://www.garreynolds.com/Presentation/slides.html>

<http://www.the-eggman.com/writings/keystep1.html>

*Below is one of a series of articles highlighting freshman engineering courses at different universities:*

### **Highlighting Freshman Programs: Arlisa Labrie Richardson**

I earned my Bachelor of Science in Physics from Grambling State University, a Masters of Science in Physics from the University of Texas at Dallas, and a Masters of Science in Engineering of Materials from Arizona State University. I recently earned a Ph.D. in Curriculum and Instruction specializing in Science Education at Arizona State University. My research focused on the development of students' tinkering self-efficacy during a freshman engineering design course; specifically examining the impact of team interactions and gender. My research interest includes issues of engineering recruitment, retention, and equity in science, engineering and technology, which stems from my personal academic and professional experience as an engineer. Before returning to graduate school to pursue a Doctorate degree, I worked as an engineer in the semiconductor manufacturing industry for ten years.

My academic preparation in engineering and education as well as extensive work experience, has provided me with the opportunity to work with a diverse population of students, faculty, staff and professional engineers. In my current position, Director of Learning Support Services at Estrella Mountain Community College (EMCC) in Avondale, AZ, I utilize my academic and professional background to prepare students for successful careers in the science, technology, engineering and mathematics fields (STEM).

While completing my dissertation on Freshman engineering students at the university, my position at EMCC allowed me the opportunity to apply many of the student-center academic approaches identified as best practices in engineering education. I assist students with identifying and applying for internships in engineering and I serve as the facilitator of the STEM Summer Bridge Capstone Leadership Program, which involves partnership with



## **Arlisa Labrie Richardson** (continued from previous page)

local industry members to facilitate student experiential learning in a project-based environment. I also provide technical and curriculum support for EMCC STEM K-12 outreach initiatives. In addition, I have oversight for all tutorial functions of the college and serves as the key liaison to faculty – developing and directing the learning support services required to help EMCC students succeed in their academic pursuits.

I have a strong commitment to teaching and research in engineering education and student success. I believe that the freshman engineering courses and the students' early academic experiences in college are critical in not only retaining engineering students, but also in preparing them for successful careers. Research on the engineering curriculum indicates that practice proceeding theory provides students with experiences that they will later be able to relate to the theory. I support the notation that the freshman engineering design course should be designed to provide introductory engineering design practice that includes tinkering hands-on experience and minimizes competition among student teams. Projects assigned to the teams should incorporate complexity, time restraints, and a variety of skills so that teamwork is necessary for the successful completion of the project. For the freshman engineering design course, lectures should be almost nonexistent in order for students to construct their knowledge in a cooperative learning environment. Students should be actively engaged in problem solving at a level much greater than plug-and-chug problems.

I take a student-centered, hands-on inquiry approach to instruction, a methodology informed by both my classroom experience and engineering experience. My philosophy as a faculty and administrator is not to transfer knowledge, but to create environments that bring students to discover and construct knowledge for themselves and to make students into learners who make discoveries and solve problems. I like to teach and conduct research in the context of student learning through engagement and welcome any opportunity to improve the engineering education environment for all students.



Shown above: Arlisa Labrie Richardson in her office.

## **Perspectives-**

### **A Message from the Past Chair**

A task of the immediate past chair of the Freshmen Programs Division (now First-Year Programs Division) is to present an assessment of the status of FPD. In my opinion, FPD is vital, relevant, and is publishing papers of general interest. FPD's Newsletters are accessible from the main ASEE website. Many papers are being presented. Chicago (2006) had 38 papers in 9 sessions, Honolulu (2007) had 43 papers in 11 sessions and Pittsburgh (2008) had 45 papers in 10 sessions. The presented papers were culled from over a hundred abstracts each year and the average session attendance was 35.

The quality of FPD papers is very high. For the past two years the best paper of FPD also was the best paper of PIC III (FPD's liaison to ASEE management). The 2008 best paper was "Tinkering Interactions on Freshman Engineering Design Teams" by Arlisa Labrie Richardson of Arizona State University.

The division finally has new By-Laws which are available for review on the ASEE website. The name is now

(continued from previous page)

“First-Year Programs Division” which more correctly reflects the first year educational experience of engineering students. FPD’s new By-Laws now match the guidelines set forth by ASEE, have a new succession of officers and increased the annual dues were to \$4. An attempt to not include dues in the By-Laws (which makes it difficult to change) was overruled by ASEE.

FPD is spear-heading a drive to improve visuals of presentations. ASEE has no such guidelines. PIC III was asked to get guidelines from ASEE similar to other conferences. Until ASEE responds, FPD will develop rules for its own presentations.

A thank you is due to the officers of FPD, the reviewers, the moderators, as well as the authors of all the papers. FPD can’t be as successful as it is without help from everyone.

I am looking forward to a great conference in Austin in 2009!

Gunter Georgi

Polytechnic Institute of New York University

Past Chair, ASEE First Year Programs Division

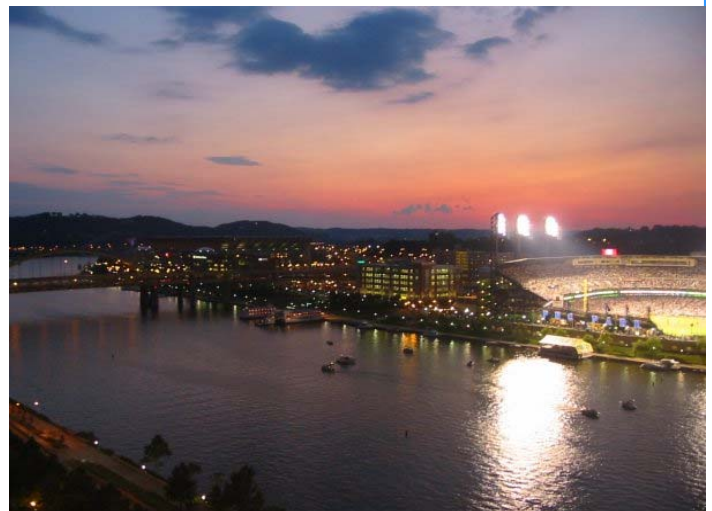
georgi@poly.edu

## ASEE 2008 FPD Program Chair Reflections

Many thanks to all of the authors, presenters, reviewers, moderators and attendees that helped to make the FPD sessions at the Pittsburgh Conference an informative success! From Sustainability & Global Warming to Early Success & Intervention, Retention & Advising, Curricula Development & Instruction, Learning & Assessment, and Teaming & Introduction to Design, the flexibility and importance of our division is apparent in the wide range of topics covered in the 10 FPD sessions this past June. The competitiveness of the First-Year Program Division is also reflected in the numbers of abstract and paper submissions received for each conference. For Pittsburgh, 106 abstract submissions resulted in 72 acceptances and 45 final presentations and the papers represented 43 different first authors from 38 different institutions.

The quality of our participating authors and presenters is also reflected in the FPD awards given for the 2008 conference. For the second year in a row, a PIC III award winner has come from our division and this year’s honors go to Arlisa Richardson of Arizona State University for her FPD and PIC III BEST PAPER submission “Tinkering Interactions on Freshman Engineering Design Teams”. Congratulations to all of this year’s FPD award winners for a job well done! Before our summer is over and we welcome new students to our campuses, take a few minutes to read these award winning presentations and reflect on how you can utilize and incorporate them into your first-year program. See you in Austin!

Sandy Wood



## ASEE 2008 FPD Best Papers

Reviewers and FPD Board members voted for the best papers. The winners are:

### **1<sup>st</sup> Place: AC 2008-654: TINKERING INTERACTIONS ON FRESHMAN ENGINEERING DESIGN TEAMS**

Arlisa Labrie Richardson, Arizona State University

NOTE: This paper also won the PIC III Best Paper Award for the conference

### **2<sup>nd</sup> Place AC 2008-2281: LIVING WITH THE LAB: A CURRICULUM TO PREPARE FRESHMAN STUDENTS TO MEET THE ATTRIBUTES OF "THE ENGINEER OF 2020"**

Mark Barker, Louisiana Tech University

Patricia Brackin, Rose-Hulman Institute of Technology

Kelly Crittenden, Louisiana Tech University

Stan Cronk, Louisiana Tech University (Author)

David Hall, Louisiana Tech University

### **3<sup>rd</sup> Place: AC 2008-2079- BREAKING THE CYCLE OF CALCULUS FAILURE: MODELS OF EARLY MATH INTERVENTION TO ENHANCE ENGINEERING RETENTION**

Robin Hensel, West Virginia University (Author)

Andrew Lowery, West Virginia University

J. Ryan Sigler, West Virginia University



At left: Sandy Wood awarding Arlisa Labrie Richardson



Shown above: Kelly Crittenden, Sandy Wood, David Hall, Stan Cronk



Shown above: Sandy Wood, Robin Hensel

## ASEE 2008 FPD Best Presentations

### **Best Presentation**

#### **A FIRST-YEAR ENGINEERING EXPERIENCE IN SUSTAINABLE DESIGN**

Amber Kemppainen, Michigan Technological University

Gretchen Hein, Michigan Technological University - presenter

David Shonnard, Michigan Technological University

### **Best Student Presentation**

#### **FRESHMEN ENGINEERING: THE INFLUENCE OF STUDENT FEEDBACK AND INVOLVEMENT ON A COURSE TEACHING MATLAB AND LABVIEW**

David Illig, Clarkson University - presenter

John Hrynuik, Clarkson University

Matthew Pennington, Clarkson University

John P. Dempsey, Clarkson University



Also awarded were Best Presentation winners from 2007:

Gunter Georgi presenting to Beverly Jaeger, Richard Whalen and Susan Freeman, Northeastern University



# Is There Anything Else Out There Besides FPD?

## Other Opportunities for Cooperative Involvement -

### Collaboration with Engineering Design Graphics Division: An Invitation to FPD

The Engineering Design Graphics Division (EDGD) of ASEE formally invites FPD to fully participate in the 63<sup>rd</sup> Midyear Conference, to be held in Berkeley, California, January 4-7, 2009. This is more than just another distribution of the call for papers that you may have received at the FPD sessions in Pittsburgh. More than a call for papers

Here's what to expect:

Each technical session at the EDGD Midyear Conference will begin with a presentation by FPD authors who were selected from the Pittsburgh FPD sessions and invited to re-present their work in Berkeley. These FPD authors will be honored with an "Invited Paper" designation, and EDGD will waive the Midyear Conference registration fees for them. Travel, lodging, food, and all other costs associated with attendance at the 63<sup>rd</sup> Midyear Conference will be the authors' responsibility. Other FPD members interested in presenting at the EDGD Midyear Conference are very welcome and strongly encouraged to participate. They should consult the call for papers available at <http://www.me.berkeley.edu/edgd-midyear> for a topic list, which includes freshman programs, and for the schedule for abstract and paper submissions. General FPD attendance at the EDGD Midyear Conference is also greatly desired.

Here's why EDGD has extended this invitation to FPD.

In the engineering curricula at many institutions, graphics is taught at the freshman level within freshman program courses. In order to better understand graphics teaching and learning, and to incorporate this knowledge in graphics educational research, EDGD must be kept aware of nascent trends in first-year engineering education. And, first-year engineering educators who wish to teach graphics content in their courses want to be kept informed of the latest theories and tools for including such content in an engaging and meaningful manner. EDGD and FPD collaboration on this front seems to be a natural and synergistic outcome of these combined objectives, and EDGD wishes to provide a venue to facilitate that collaboration.

Summary of Conference details.

ASEE Engineering Design Graphics Division  
63<sup>rd</sup> Midyear Conference  
January 4-7, 2009  
Doubletree Hotel on the Berkeley Marina  
200 Marina Blvd  
Berkeley, CA

Make reservations directly with the hotel (1-510-548-7920 or 1-800-222-8733) and mention the ASEE EDGD Midyear meeting to secure the special discounted rate of \$142/night. Please see the call for papers available at <http://www.me.berkeley.edu/edgd-midyear> for additional details on conference registration and more.



## Millennial Students – Are They Here? Does it Matter?

At the ASEE Conference, one of the distinguished lectures was by Richard Sweeney, with discussion on the Millennial student. So it seemed appropriate to put some thoughts here on the topic. The Journal of College Admissions has published an article entitled “Millennials Go to College”, according to this source, they are definitely here. And according to Richard Sweeney, it does matter; he has looked at “Millennial Behaviors and Demographics”. This information is compiled from these and other sources, just to give some insight into the topic. Referenced in many online writings, Millennials (born after 1981, the oldest are age 27) have seven identified traits:

- Special – This generation has been raised to think they are special by their hovering parents
- Sheltered – They must feel secure and cared for, even in their new independence
- Confident – They feel great things can and will happen
- Conventional – With conventional values, the “regular” student is coming back
- Pressured – They seek challenge, but yearn for relief from pressure; over grades, to succeed
- Team-Oriented – Most have been on teams, and expect diversity. This can be a two edged sword
- Achieving – These are better achievers, but have high expectations of other also

Richard Sweeney identifies even more behaviors, and then relates these to the academic challenges for universities due to these behaviors. There are too many to include details on all, so a few are presented here. See his website (<http://library1.njit.edu/staff-folders/sweeney/>) for the complete article:

- ◇ More Choices, More Selectivity – Millennials expect a greater array of product and service selectivity. Choices in abundance are a birthright. Impact on academe: They expect significantly increased learning options and for more educational services from their colleges and universities.
- ◇ Experiential and Exploratory Learners – Millennials strongly prefer learning by doing; they never read directions, but learn by interacting. Impact on academe: They are more engaged through active learning, effective experiential learning such as games, case studies, hands-on experiences and simulations that speed learning and hold interest.
- ◇ Impatience, Flexibility/Convenience, Personalization and Customization—more behaviors considered Millennial.
- ◇ Practical, Results Oriented—Students will go elsewhere if not getting the desired result; i.e. from teachers
- ◇ Multitaskers—Need to enable and encourage widespread recording and downloading from web learning modules.
- ◇ Digital Natives – They adapt faster to computer and internet services because they have always had them. Impact on academe: Every aspect of universities must be seamlessly woven with digital service options, and they expect them to work (practical, results oriented)
- ◇ Gamers—Universities need to find more ways to create or use academic games in student learning environments.
- ◇ Nomadic Communication Style – Millennials are prolific communicators, they love and expect mobility, untethered, in constant touch wherever and whenever. Impact on academe: Universities must give quick feedback, anytime, anywhere. Students expect to pull their grades, schedules etc, instantly.
- ◇ Media/Format Agnostic - Universities must institutionally develop multimedia, faculty need support.
- ◇ Collaboration and Intelligence— They know how and when to work with people more effectively. Even when they do not prefer to collaborate, they are willing as it gives a practical advantage. Impact on academe: Universities need to do far more in creating collaborative technology that is faster and more effective.
- ◇ Balanced Lives— Universities must offer a wide range of learning alternatives and extracurricular opportunities.
- ◇ Less Reading – “Disturbingly”, millennials are not reading as much as previous generations. Reading is a very efficient means of communicating knowledge, so this is problematic. The recommendation is to integrate “reading and writing opportunities” to a greater extent across the curriculum. E-portfolios may be effective here.

2008 Annual Conference in Pittsburgh

June 22-25, 2008

## Freshman Programs Division (FPD) Sessions Details

### Monday, June 23, 2008

**10:30 a.m. -Moderator(s): S. Scott Moor, Indiana University-Purdue University-Fort Wayne**

**1353: FPD1 - Early Success and Retention - This session will focus on strategies for success in early courses as an avenue for increased first-year student retention.**

477: INCREASING STUDENT SUCCESS IN ENGINEERING AND SCIENCE THROUGH A FRESHMAN ENRICHMENT PROGRAM

Alicia Boudreaux, Kelly Crittenden, James Nelson, Galen Turner, Louisiana Tech University

658: A PRE-ENGINEERING CLASS TO RETAIN STUDENTS INTO AN ENGINEERING MAJOR

Donna Reese, Robert Green, Mississippi State University

710: AN INNOVATIVE FRESHMEN ENGINEERING COURSE TO IMPROVE RETENTION

Jale Tezcan, John Nicklow, James Mathias, Lalit Gupta, Rhonda Kowalchuk, Southern Illinois University-Carbondale

848: IEEE'S RWEF PROGRAM TO RECRUIT AND RETAIN FIRST YEAR STUDENTS IN ELECTRICAL ENGINEERING, COMPUTER ENGINEERING AND COMPUTER SCIENCE

Amy Bell, Virginia Polytechnic Institute and State University, Moshe Kam, Drexel University, Joan Carletta, University of Akron, Douglas Gorham, IEEE

**12:30-2:00 p.m. -Moderator(s): Beverly Jaeger, Northeastern University**

**1453: FPD2 - First-Year Advising and Transition - Papers in this session will discuss aspects related to first-year engineering student advising and transition.**

896: ADDRESSING FRESHMEN RETENTION THROUGH FOCUSED ADVISEMENT AND SEMINAR PROGRAMS

Kate Baxter, Louise Yates, University of Southern California

1302: TRANSFER STUDENTS: TAILORING A FRESHMAN PROGRAM TO THEIR NEEDS

Jean Kampe, Whitney Edmister, Christi Boone, Bevlee Watford, Virginia Polytechnic Institute and State University

2127: THE FIRST YEAR TRANSITION: CHALLENGES AND SOLUTIONS FOR STUDENTS, INSTRUCTORS AND ADMINISTRATORS

Lisa Romkey, University of Toronto

2255: DECISION-MAKING IN FIRST-YEAR ENGINEERING: EXPLORING HOW STUDENTS DECIDE ABOUT FUTURE STUDIES AND CAREER PATHWAYS

Ida Ngambeki, Odesma Dalrymple, Demetra Evangelou, Purdue University

2912: THE VALUE OF SCAVENGER HUNTS IN THE LIFE OF A FRESHMAN

Craig Gunn, Michigan State University

**2:15-4:00 p.m. -Moderator(s): Richard Freuler, Ohio State University**

**1553: FPD3 - Computer & Programming Tools in First Year Instruction - Presentations in this session look at computer usage and instructional tools for engaging first-year students.**

139: ROBOTICS AS A TOOL FOR IMMERSIVE, HANDS-ON FRESHMEN ENGINEERING INSTRUCTION

Maja Mataric, Juan Fasola, David Feil-Seifer, University of Southern California

1157: CLICKERS AND FRESHMAN ENGINEERING CLINIC

Jess Everett, John Chen, Stephanie Farrell, Jennifer Kadowec, Rowan University

1337: FRESHMEN ENGINEERING: THE INFLUENCE OF STUDENT FEEDBACK AND INVOLVEMENT ON A COURSE TEACHING MATLAB AND LABVIEW

David Illig, John Hrynuk, Matthew Pennington, John P. Dempsey, Clarkson University

1508: PERSPECTIVES ON A FRESHMAN TREATMENT OF ELECTRONIC SYSTEMS

John Robertson, Sarah Roux, Vivek Ramanathan, Mark Rager, Arizona State University

2194: USING MICROSOFT OUTLOOK FOR PERSONAL AND PROJECT PLANNING IN A FIRST YEAR ENGINEERING COURSE

W. David Harding, Samuel Daniels, University of New Haven

### Tuesday, June 24, 2008

**8:30-10:15 a.m. -Moderator(s): Christopher Rowe, Vanderbilt University**

**2253: FPD4 - Teaching Methods for First Year Students - The papers in this session cover a range of topics related to teaching methods for first-year students.**

171: ENGINEERING PERSONIFIED: AN APPLICATION OF THE ONE MINUTE ENGINEER

John K. Estell, Laurie Laird, John-David Yoder, Ohio Northern University

464: IMPROVING ENGINEERING EDUCATION THROUGH CREATIVITY, COLLABORATION, AND CONTEXT IN A FIRST YEAR COURSE

Michael Haungs, John Clements, David Janzen, California Polytechnic State University

1089: COMPARISON OF TRADITIONAL AND INTEGRATED FIRST YEAR CURRICULA - GRADUATION SUCCESS AND MBTI DISTRIBUTION

J. Roger Parsons, Rachel McCord, J. Elaine Seat, Thomas Scott, University of Tennessee-Knoxville

2281: LIVING WITH THE LAB: A CURRICULUM TO PREPARE FRESHMAN STUDENTS TO MEET THE ATTRIBUTES OF "THE ENGINEER OF 2020"

David Hall, Stan Cronk, Patricia Brackin, Mark Barker, Kelly Crittenden, Louisiana Tech University

2498: FIRST YEAR ENGINEERING STUDENTS' INITIALS IDEAS FOR SOLVING COMPLEX PROBLEMS

Sean Brophy, Purdue University

**2:15-4:00 p.m. -Moderator(s): Nancy Lamm, Indiana University-Purdue University-Indianapolis**

**2553: FPD5 - Teaming and Peer Performance - The papers in this session focus on the impact and evaluation methods of student teams.**

654: TINKERING INTERACTIONS ON FRESHMAN ENGINEERING DESIGN TEAMS

Arlisa Labrie Richardson, Arizona State University

674: COMPARISON OF TWO PEER EVALUATION INSTRUMENTS FOR PROJECT TEAMS

Kerry Meyers, University of Notre Dame, Matthew Ohland, Purdue Engineering Education

Stephen Silliman, Leo McWilliams, Tracy Kijewski-Correa, University of Notre Dame

707: IMPACT OF PEER-MANAGED PROJECT-BASED LEARNING IN FIRST YEAR ENGINEERING

Brian Frank, James Mason, Queen's University

1081: EVALUATING EFFECT OF FIRST YEAR ENGINEERING TEAMS' PERFORMANCE USING THE STRENGTH DEPLOYMENT INVENTORY (SDI) ASSESSMENT TOOL

Claribel Bonilla, Leonard Perry, University of San Diego

1881: EVALUATION OF INDIVIDUAL PERFORMANCE ON GROUP PROJECTS

Jon Carson, Pennsylvania State University - Wilkes-Barre

**4:30-6:00 p.m. -Moderator(s): Susan Freeman, Northeastern University**

**2653: FPD6 - First Year Curricula Development - The papers in this session will cover topics in first-year engineering curricula development.**

1226: PERSPECTIVES ON FIRST YEAR ENGINEERING EDUCATION

Kerry Meyers, John Uhran, Catherine Pieronek, University of Notre Dame, Dan Budny, University of Pittsburgh, John Ventura, Christian Brothers University, Patricia Ralston, University of Louisville, John K. Estell, Ohio Northern University, Brenda Hart, University of Louisville, Constance Slaboch, Rebecca Ladewski, University of Notre Dame

1608: PROJECT-BASED INTRODUCTION TO ENGINEERING FOR FRESHMAN STUDENTS

Gregory Wight, R. Danner Friend, Jacques Beneat, William Barry, Norwich University

1915: THE RELATIONSHIP OF INSTRUCTOR RATINGS WITH TA RATINGS IN HIGH ENROLLMENT, LECTURE/LAB COURSES: A PRELIMINARY STUDY

Jon Sticklen, Mark Urban-Lurain, Michigan State University

2018: A FRESHMAN ENGINEERING CURRICULUM FOR A BACHELOR OF SCIENCE IN ENGINEERING PROGRAM

Laura Ruhala, Richard Ruhala, Eric Sprouls, University of Southern Indiana

### Wednesday, June 25, 2008

**7:00-8:15 a.m. -Moderator(s): John Demel, Ohio State University**

**3153: FPD7 - Global Warming & Sustainability for First-Year Students - This session focuses on the introduction of first-year students to issues in global warming and sustainability.**

399: A FIRST-YEAR ENGINEERING EXPERIENCE IN SUSTAINABLE DESIGN

Amber Kempainen, Gretchen Hein, David Shonnard, Michigan Technological University

686: FRESHMAN PROJECT: DISCOVERING GLOBAL TRENDS – A SURVEY OF THE ENVIRONMENTAL STRATEGIES OF THE AEROSPACE INDUSTRY

Alexander Friess, Carol Briam, Linda Thompson, Hemdeep Dulthummon, Dubai Aerospace Enterprise University

754: FRESHMAN ENGINEERING STUDENT PERCEPTIONS ON GLOBAL WARMING

Blair Rowley, Wright State University, Kumar Yelamarthi, Central Michigan University, Thomas Bazzoli, Wright State University

2301: INTEGRATING GLOBAL WARMING INTO A FRESHMAN ENGINEERING INTRODUCTORY COURSE

Blair Rowley, Wright State University, Kumar Yelamarthi, Central Michigan University, Thomas Bazzoli, Wright State University

**12:30-2:00 p.m. -Moderator(s):** Kristine Craven, Tennessee Technological University

**3453: FPD8 - Early Intervention & Retention** - The papers in this session reveal insights and strategies for early intervention to increase engineering student retention.

190: THE BACK-TO-BASICS PEER TUTORING PROGRAM: RESULTS AND EXPERIENCES

Mukul Shirvaikar, David Beams, Sagun Shrestha, University of Texas at Tyler

351: ADOPTING A SUCCESS STRATEGY FOR FIRST YEAR ENGINEERING STUDENTS ENROLLED IN PRE CALCULUS

Gretchen Hein, Amber Kempainen, Michigan Technological University

2079: BREAKING THE CYCLE OF CALCULUS FAILURE: MODELS OF EARLY MATH INTERVENTION TO ENHANCE ENGINEERING RETENTION

Robin Hensel, J. Ryan Sigler, Andrew Lowery, West Virginia University

2441: STUDENT ASSISTED GUIDANCE IN ENGINEERING (SAGE): A MENTORING COURSE TO RETAIN FRESHMEN ON ACADEMIC PROBATION

Joyce Lee, University of Illinois at Urbana-Champaign, Jacob Marszalek, University of Missouri-Kansas City, Annel Medina, California Polytechnic State University, Susan Linnemeyer, University of Illinois at Urbana-Champaign

**2:15-4:00 p.m. -Moderator(s): James Morgan, Texas A&M University**

**3553: FPD9 - First Year Learning & Assessment - Presentations in this session address assessment methods and results related to student learning.**

1128: DEVELOPING AND ASSESSING ENGINEERING-BASED MODULES FOR A FRESHMAN ENGINEERING CLASS

Joe Guarino, Janet Callahan, Seung Youn Chyung, Randi Walters, Bill Clement, Boise State University

1431: A MODULAR APPROACH TO A FIRST-SEMESTER ENGINEERING COURSE: TEACHING THE FUNDAMENTALS OF FLUID MECHANICS

Eric Johnson, Doug Tougaw, Kenneth Leitch, Barbara Engerer, Valparaiso University

1647: AGILE EDUCATION: WHAT WE THOUGHT WE KNEW ABOUT OUR CLASSES, WHAT WE LEARNED, AND WHAT WE DID ABOUT IT

Richard Whalen, Susan Freeman, Beverly Jaeger, Northeastern University

1848: GETTING STUDENTS ON THE RIGHT TRACK: A STUDY OF EXIT SURVEYS IN A FIRST YEAR ENGINEERING PROGRAM

Jim Chamberlain, Lisa Benson, Clemson University

1884: A NEW TOOL TO ASSESS THE VALUE OF ACTIVE AND PROBLEM-BASED LEARNING IN ENHANCING ENGINEERING STUDENT SELF-EFFICACY

Gary Halada, State University of New York at Stony Brook

**4:30-6:00 p.m. -Moderator(s): Richard Whalen, Northeastern University**

**3653: FPD10 - Freshman Engineering Introduction to Design - These papers will present experiences in the introduction of first-year students to engineering design.**

1571: DESIGN, THE NEXT GENERATION: A FIRST-YEAR COURSE IN PRODUCT DESIGN

Susan Montgomery, Rodney Johnson, University of Michigan

2311: CENTRIFUGAL PUMP DESIGN, FABRICATION AND CHARACTERIZATION: A PROJECT-DRIVEN FRESHMAN EXPERIENCE

Mike Swanbom, David Hall, Kelly Crittenden, Louisiana Tech University

2627: STUDENT-INITIATED DESIGN AND IMPLEMENTATION OF SUPPLEMENTAL HANDS-ON FABRICATION TRAINING CURRICULUM IN AN INTRODUCTION TO ENGINEERING DESIGN COURSE: A TQM APPROACH

Silas Bernardoni, Amit Nimunkar, John Murphy, Sandra Courter, University of Wisconsin - Madison

2182: DECISION-MAKING IN THE DESIGN-BUILD PROCESS AMONG FIRST-YEAR ENGINEERING STUDENTS

Phil Schlosser, Michael Parke, John Merrill, Ohio State University