



American Society for Engineering Education

First-year Programs Division

Newsletter

Fall 2009

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 education."

Inside this issue:

<i>Call for Papers 2010 Annual Conference</i>	1
<i>Call for Papers FPD</i>	3
<i>Upcoming ASEE National Conferences -</i>	4
<i>Meet the Board</i>	5
<i>FPD Business Meeting</i>	6
<i>Presentation Guidelines</i>	8
<i>Highlighting Freshman Programs</i>	8
<i>Past Chair Perspectives</i>	11
<i>Program Chair Reflections</i>	12
<i>FPD Awards</i>	13
<i>Some News Some Thoughts, for FPD</i>	14
<i>2009 ASEE FPD Conference Activities</i>	16

A Message from the Chair

I returned from the 2009 National Conference in Austin energized and proud to be a part of engineering education. ASEE, along with several other organizations, are making great strides to assure the effectiveness of engineering education and improve the quality of the young engineers being produced. There are currently a number of programs aimed at encouraging innovation in the engineering education process including the Main Plenary II session that occurred on Tuesday. This session involved many educators who are working in conjunction with each other through these projects to foster progress by means of discussion, assessment, and collaboration on the local, regional, and national levels. Their effort to involve as much of the engineering education community as possible in this vital endeavor is commendable.

First-Year Programs may not seem integral to the process of improving the engineering education industry due to the lack of technical engineering courses



taken during that first year. However, if we are not able to retain the students, and this has historically been one of the key challenges to engineering education, then they will never graduate and become productive engineers. Therefore, we can and must take an interest in the activities that are occurring. I encourage all of you to explore the opportunities that are available through the various programs and help to shape the future of engineering education innovation.

The First-Year Programs Division finds itself in transition. Our new by-laws were passed at the 2008 National Conference in Pittsburgh. These by-laws require a change in

(Continued on page 4)

Call for Papers – Louisville 2010

In this newsletter is the official First-Year Programs Division (FPD) "Call for papers" for the 2010 Annual Conference in Louisville, Kentucky.

(Continued on next page)

Call for Papers – Louisville 2010

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Abstract submission, the initial step in getting a paper accepted for the conference, has already begun and **abstract submission will close on October 9th**. 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/2010/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 9, 2009
Abstract Status Notifications	December 4, 2009
Draft Paper Submission	December 7, 2009 – January 8, 2010
Draft Paper Status Notifications	February 26, 2010
Final Paper Submission	February 26 – March 12, 2010
Accepted Pending Changes upload	March 12—19, 2010
Accepted Pending Changes decision	March 26, 2010
Proceedings/Copyright Transfers	April 2, 2010
Author Registration Deadline	April 2, 2010
Housing Deadline	TBA

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 Chris Rowe at chris.rowe@vanderbilt.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 Louisville. We look forward to seeing you there!

FIRST-YEAR PROGRAMS DIVISION 2010 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,
- Managing transfers and January admissions,
- 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 2010 ASEE Annual Conference in Louisville. Submission of abstracts and final papers will be via the SmoothPaper system and in accordance with ASEE published deadlines.

For more information, contact:

Christopher Rowe (2010)
Mechanical Eng, Education Dept
Vanderbilt University
chris.rowe@vanderbilt.edu

Message from the Chair (continued from page 1)

our election process as well as our leadership succession plan. After much discussion, the executive board formulated and successfully implemented a plan to move our division closer to compliance with the by-laws. FPD now has a full and functional executive board and a better understanding of the new process as outlined in the by-laws. With any luck the transition will be completed at the 2010 National Conference in Louisville. Thank you to our members for their patience during this challenging time.

I have thoroughly enjoyed working with the executive board and all of the members of the First-Year Programs Division. I look forward to more excellent programs and creative ideas that can be borrowed to improve the educational experience of my students. See ya'll in Louisville!

~Kris Craven, Tennessee Tech University
First-Year Programs Division Chair
kcraven@tntech.edu

Attendees at FPD Sessions 2009



FUTURE CONFERENCES:

FIE: 2009 Frontiers in Education Conference:

"Imagining and Engineering Future CSET Education"

October 18 – 21, 2009

San Antonio, TX

Annual ASEE Global Colloquium on Engineering Education:

October 12-15, 2009

Hosted by Budapest Polytechnic

Budapest, Hungary

Conference for Industry and Education Collaboration (CIEC):

"Preparing the Workforce for the Global Marketplace"

February 3-5, 2010

Palm Springs, CA

Upcoming Annual ASEE Conferences!:

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

2012 ASEE Annual Conference & Exposition

June 17 - 20, 2012 - San Antonio, TX

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



Members of the 2009-2010 Executive Committee are (left to right) Scott Moor (Secretary/Treasurer), Sandy Wood (Past Chair), Beverly Jaeger, Robin Hensel, Jean Kampe, Kris Craven (Chair), Richard Whalen, Chris Rowe (Program Chair), Richard Freuler (Program Chair Elect)

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 Rich Whalen and Robin Hensel to the FPD Executive Committee at the Division Meeting in Austin. The entire 2009-2010 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. At the 2009 Annual Meeting in Louisville we have elections to serve a four-year term on the board. If you are interested in being nominated please let current past chair Sandy Wood know.

Meet the Board (continued)

Chair

Kristine Craven (2010)
Basic Engineering Program
Tennessee Technological University
kcraven@tntech.edu

Program Chair

Christopher Rowe (2010)
Mechanical Eng, Education Dept
Vanderbilt University
chris.rowe@vanderbilt.edu

Program Chair, Elect

Richard Freuler (2011)
Engineering Education Innovation Center
Ohio State
Freuler.1@osu.edu

Secretary/Treasurer

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

Past Chair

Sandy Wood (2010)
Freshman Engineering Program
University of Alabama
swood@coe.eng.ua.edu

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Meet the Board (continued from previous page)

Members at Large

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

Jean Kampe (2012)
Engineering Fundamentals
Michigan Technological University
kampej@mtu.edu

Rich Whalen (2013)
Mechanical and Industrial Engineering,
Northeastern University
whalen@coe.neu.edu

Robin Hensel (2013)
West Virginia University
Robin.hensel@mail.wvu.edu

*FPD Business Meeting
2009 Austin, TX*



American Society for Engineering Education First-Year Programs Division

Minutes of the Division Business Meeting at the ASEE 2009 Annual Conference in Austin, TX

June 14, 2009

1. Chair, Sandy Wood called meeting to order. Executive Committee members in attendance were: Kris Craven, Rick Freuler, Beverly Jaeger, S. Scott Moor, Chris Rowe, and Sandy Wood. Past Chair Gunter Georgi was at the PIC III meeting and joined this meeting later.
2. Agenda was provided and approved.
3. A review of officer's history, board terms and the transition to the new by-laws was conducted. A chart was developed that shows the officer progression and board membership by year. This chart also lists the method of appointment. This chart is attached separately.
4. Elections and succession:

The following offices are filled by succession:

Past Chair:	Sandy Wood
Chair	Kris Craven
Program Chair	Chris Rowe

The board elected Rick Freuler as Vice Chair Elect.

Newsletter Editors Susan Freeman, Beverly Jaeger, and Rich Whalen agreed to continue on for another year.

5. Elections by membership. It was determined that the following positions need to be elected by the membership at Tuesday's Business Meeting. First, to aid in the transition to the new bylaws the following positions need to be filled
 - Vice Chair - No Vice Chair Elect was Elected last year because we were under the old by-laws. Chris Rowe is the Program Chair and is therefore the Board's recommendation for this position
 - Board Member to fill a one year vacancy – **Due to** his current board term running out, Chris Rowe needs to be elected to a new term. A one year vacancy available this year is the ideal slot

FPD 2009 Business Meeting Minutes *(continued from previous page)*

for him. This will not be necessary in future years because the new bylaws extend board members terms automatically when they are continuing as an officer.

- Program Chair Elect – Finally it is recommended that, Rich Freuler, the Vice Chair Elect, be elected by the membership to Program Chair Elect to make his role clear in this transition year.

In addition the following positions need to be filled every year.

- Secretary/Treasurer – Scott Moor has indicated he is interested in continuing in this position.
- 2 regular Board Members for 4 year terms- Robin Hensel and Rich Whalen have indicated their interest in being on the board.

The above information was forwarded to the chair of the Nominating Committee Chair, Gunter Georgi, to prepare complete nominations for Tuesday's Business Meeting.

6. The minutes of the 2008 Business meeting and Executive Board meeting were approved with minor modifications.
7. Treasure Report - A 5.5 % decrease in dues income from FY07 to FY 08, reflects an equivalent decrease in membership. This is simply a reversal of the gain we had last year (FY06 to FY07). Last fiscal year (2008) the division spent ~ \$1,000 more than we took in. However, much of this is due to delayed expenses. Last year was at the old dues. No expenses have been paid yet this year but an estimate of income & expenses indicates they are approximately equal.

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 \$9,000. Treasure's report was Accepted.

8. Kris Craven, Program Chair for 2009 gave the program chair report. There were 73 abstracts submitted, 62 abstracts were accepted, 43 full

papers submitted, and 38 final papers were accepted. There are a total of 10 sessions with 3 to 4 papers/session. We did not use a poster session this year.

Annual Conference Awards were announced and are shown in the separate list of awards presented at the 2009 ASEE meeting. Voting for a second and third place paper was very close for the third year in a row. It was proposed that the third place paper be give the same cash award (\$100) as the second place paper. APPROVED.

9. The board noted the excellence of the Newsletter and thanked the editorial team for their work. Beverly Jaeger reminded the board that they can only continue to prepare the newsletter with the timely submittal of all materials.
10. Gunter Georgi reported on the PIC 3 meeting.
 - Smooth paper has had some difficulties and the board is considering a change. For the next year they will add an additional support position. They are hoping to roll out a new system in 2010/2011.
 - Full time membership in ASEE is down by 1.2 %. Meeting attendance is down by approximately 10%. Both likely due to the current economy.
 - A task force on sustainability is being put together and the board is looking for interested individuals.
 - There have been some problems with papers submitted to multiple divisions and also with some plagiarism. These problems should be watched for in the review process.

Respectfully submitted,

~ S. Scott Moor

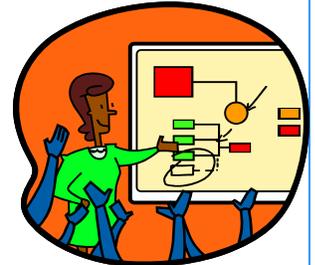
Guidelines for Presentations—Some Thoughts

As we reflected on this conference and others events that we attend, many agreed that it might be time to review and rethink again about 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.

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.garrreynolds.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: Southern Illinois University at Carbondale



College of Engineering

Implementing Change in First- and Second Year Engineering Programs at SIUC

Southern Illinois Normal University, chartered in 1869, began instruction in 1874 in Carbondale. The school's changing mission resulted in renaming the original institution to Southern Illinois University and in 1970, officially becoming Southern Illinois University Carbondale (SIUC).

Today, SIUC enrolls 15,980 undergraduate and 4,693 graduate and professional students. The institution is comprised of eight colleges and two professional schools (i.e., Law and Medicine). The College of Engineering offers four-year Bachelor of Science degrees in Civil Engineering, Computer Engineering, Electrical Engineering,

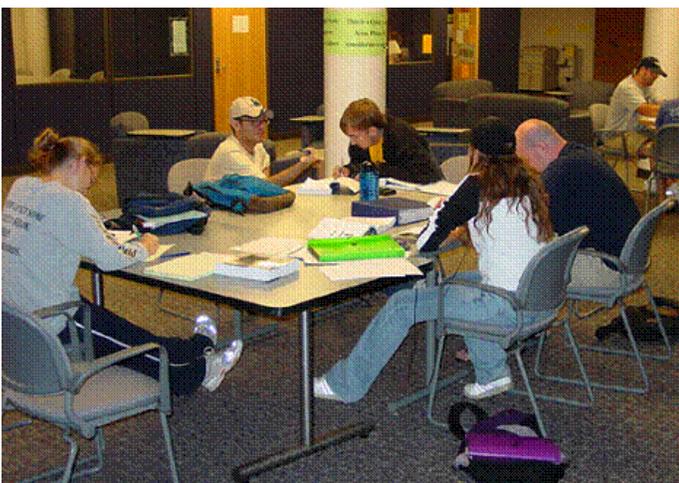
Mechanical Engineering, Mining Engineering, Engineering Technology, and Industrial Technology. At the graduate level, MScience Degrees in 6 programs, and PhD's in two programs.

An analysis of student demographics reveals a number of challenges that the University and College must overcome in order to reach its educational goals. For approximately 40 percent of students, neither parent has a college degree. Nearly 50 percent of SIUC's undergraduate students come from counties in and around Chicago, where competition for students is high, and only 40 percent originate from southern Illinois. The southern Illinois region itself is characterized by a low population density, low average income, and high unemployment. The region's primary economic resource, coal, is suffering from environmental constraints and production cost issues. The College of Engineering, and the University as a whole, has been plagued by low student retention rates and correspondingly low graduation rates that are, at least in part, associated with these factors.

In 2006, faculty from the SIUC College of Engineering, along with collaborators from the College of Education and Human Services and the College of Science, received a grant from the National Science Foundation to increase its graduation rate and, in turn, raise the number of students obtaining Bachelor of Science degrees in STEM

fields. This objective will be met by increasing College retention rates, with particular focus on rates at the freshman and sophomore levels. A holistic freshmen-sophomore program is being implemented to address common reasons for students leaving the engineering program, including lack of academic preparation; financial difficulties; difficulty in adjusting to college life; lack of a community atmosphere; and disappointment at not being able to experience engineering principles during the first two years. Following an initial planning period, seven major initiatives were launched in 2007 to achieve project goals. These initiatives include (1) an Engineering Residential College that forms the foundation of a new living-learning community; (2) a multi-tiered student mentoring program that includes peer-to-peer mentoring, faculty mentoring, and practicing-engineer mentoring; (3) an innovative Introduction to Engineering course; (4) common cohort classes for several courses; (5) a six-week Summer Bridge Program for at-risk students; (6) a new developmental mathematics course for under-prepared students; and (7) peer tutoring (please see Mathias, et al. presented at the 2007 ASEE annual conference).

The Engineering Residential College comprises the foundation of our new living-learning community for engineering students and consists of three residence halls in a premium location on campus; they are designated engineering-only buildings where students have easy access to student support services (e.g., tutoring and peer mentoring) and can become part of a supportive peer network and community of learners. First- and second-year students in the College of Engineering are required to live in the Residential College. Evening tutoring sessions occur four nights per week, three hours per night in math, physics, and chemistry courses. The goal is to facilitate increased grade point averages and limit preventable failures by students.



This picture illustrates teamwork and collaborative learning that happens as a result of some of the new activities at SIUC in the first year.

Peer mentors reside in the residence halls alongside students and are trained in problem intervention, conflict resolution, cultural sensitivity, and other related skills. Mentors are required to spend 10-12 hours per week with mentees, including accompanying mentees to one class per week, leading students in study groups twice per week, accompanying students to one of each sporting event on campus, and attending social functions with mentees. Peer mentors are directly supervised by the Associate Dean of the College of Engineering and by faculty mentors. Faculty mentors, in particular meet regularly with student groups and mentors at dinner, athletic events, tutoring sessions, etc. Mid-semester progress reports from instructors are shared with faculty so they can identify students experiencing difficulties and recommend appropriate resources to address problems. Finally, several practicing engineers serve as industry mentors and have their contact information distributed to all freshmen and are available if contacted by a mentee. Selected industry mentors meet with student groups and present information in the Intro to Engineering course. It is hoped that this contact will reinforce a student's commitment to engineering and lay the groundwork for future paid internship and co-op opportunities.

An important component of the project is a new Introduction to Engineering course. Previously, each department in the College offered its own introductory course. Beginning fall 2007, these courses were replaced with ENGR 101. This is a course for all majors that emphasize interdisciplinary, hands-on projects, previews of the different disciplines, and applications of basic mathematics, chemistry and physics in solving engineering problems. It is designed to inform the students about opportunities and assist them in making an informed career decision. Mentors from the professional engineering community are invited for guest lectures, but the course is officially co-taught by faculty in the College of Engineering. Students are co-enrolled in this course with many of their friends from the Engineering Residential College.

Mathematics has historically been a hurdle for some first-year students. Because of this, the College has implemented a new developmental math course (Engineering Learning Skills). This course is meant for those students who are not quite ready for Calculus; it is designed to improve math skills and prepare them for specific upper-level math courses. It integrates basic engineering-related applications of appropriate math skills so that students understand how and why mathematics is important to their future academic and professional careers. At the end of the course, students take the math placement test. Test scores, along with the instructor's recommendation, permit an assessment of the student's readiness for Calculus. This course is the College's way of acknowledging past difficulties that some of its students have had in mathematics and of taking responsibility for preparing students for important integral and differential calculus courses offered by the Department of Mathematics. Engineering also works closely with Mathematics faculty to offer a

supplemental instruction program in engineering-the designated sections of math courses (Calculus I and above). The program requires that students stay in the classroom an additional hour after lectures, form small study groups, and solve problems related to the lecture. The College hires three to four talented upper-classmen to guide students during the sessions. As a result of supplemental instruction, passing rates have risen dramatically in recent years.

In addition to engineering-designated sections of mathematics courses, the College is working with the Department of English and the Department of Speech Communications to offer engineering designated sections of composition and speech classes. These courses are required as part of the University's core curriculum. The project personnel have experimented with offering these courses in different location (residence halls, central dining facility, and traditional academic buildings). Cohorts of first-year students are co-enrolled in these course sections in order to further strengthen the concept of a living-learning community.

The Summer Bridge Program is designed to integrate first-year students into the socio-academic environment of the SIUC College of Engineering at an early stage. The program consists of non-credit bearing workshops focusing on an intensive pre-calculus math review, an engineering science preview, and a freshmen orientation seminar. Preference has been given to underserved populations, to students who have been unconditionally admitted to the College for the following fall term and to students, based on math placement test results and/or ACT math sub-scores, who would not be ready for Calculus I, the first math course required for the B.S. degree in any of the engineering disciplines.

Based on evaluation data, the project components, particularly ENGR 101 and the Residential College are a strong appeal to prospective students; these components are highlighted in all marketing materials and through all campus visits. The following are representative sample student responses from focus groups and open-ended responses to survey questions:

I like how they stuck us together; you had no choice but to meet each other.

The program helped jump start us when we got here.

The program has exceeded my college expectations; knowing and being around other engineering students made me more academically oriented. I've gotten better grades and my college experience is better because of it.

I looked at other schools, but they didn't have the Engineering set-up like SIU; it's so tailored to our needs and gives us all the help we can get.

I thought it would be a lot more on our own, but there's a lot of help; there's help everywhere.

It was a great course and it helped me learn about different disciplines of engineering and helped me pick my major

I liked the hand-on experiments that involved group work

I liked learning about each discipline and hearing real professionals talk about what they do/the benefit of their job

The STEP project team has experienced major successes with respect to student retention, thus increasing the number of students in the pipeline leading towards graduation. Average freshmen and sophomore retention rates from 1997 through 2004 were 64 and 70 percent, respectively, while junior and senior rates were 89 and 96 percent, respectively. Among all class levels, first- and second-year figures represent both the largest opportunity for improvement and the largest challenge to increasing graduation rates. Target retention rates are 80 and 90 percent for first- and second-year students, along with associated minor increases at the junior and senior levels. Following one year of implementation of STEP project activities, freshmen and sophomore retention rates are 71 and 79 percent, representing 7 and 9 percent increases, respectively.

Project personnel are cautiously optimistic that the early successes in student retention will ultimately translate into achievement of the primary objective and an increase in the number of students obtaining engineering degrees from SIUC.

It is already evident that the project is having broader campus-wide effects, with other Colleges and Departments implementing spin-off programs, and the University is amidst implementation of a coordinated First Year Experience program that builds on many of the same principles and concepts.

For more information on the project, please see <http://www.engr.siu.edu/ETTEP/ETTEP.html> or contact Dr. John Nicklow, College of Engineering, Southern Illinois University Carbondale (nicklow@engr.siu.edu)

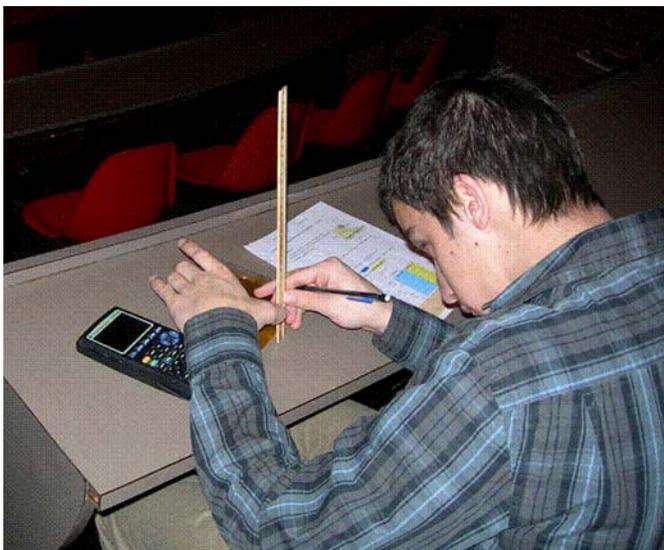
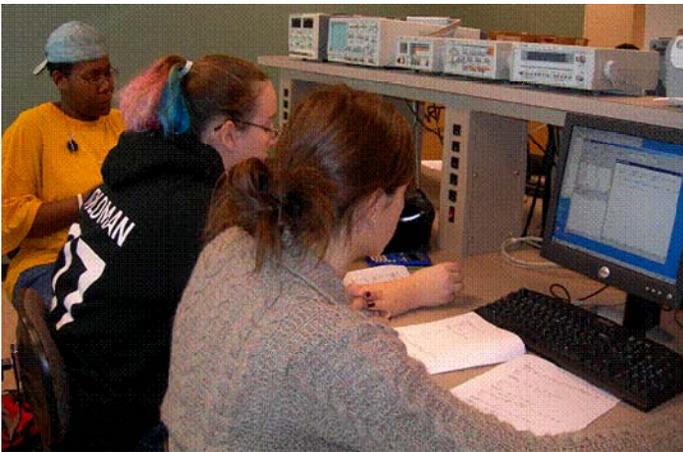
Ricks, R., Kowalchuk, R., Nicklow, J., Graceson-Martin, L. Gupta, L., Mathias, J., Tezcan, J., and Pericak-Spector, K. (2009). "Evaluation of a new engineering residential college initiative." *Proceedings of the 2009 ASEE Conference*, Austin, TX, June 14-17.

Southern Illinois University at Carbondale (continued from previous page)

Tezcan, J., Mathias, J., Gupta, L., Nicklow, J.W., and Kowalchuk, R. (2008). "An innovative freshman engineering course to improve retention." *Proceedings of the 2008 ASEE Conference*, Pittsburgh, PA, June 22-25.

Mathias, J., Gupta, L., Nicklow, J.W., Tezcan, J., Caffey, R., Chrisman, B., Pearson, C., Pericak-Spector, K., Kowalchuk, R., Lewis, E., and Sevim, H. (2007). "Improved retention through innovative academic and nonacademic programs." *Proceedings of the 2007 ASEE Conference*, Honolulu, HI, June 24-27.

Students from SIUC working in labs and workshops



Perspectives-

A Message from the Past Chair

We tend to mark time in the First-Year Programs Division beginning with the arrival of new students every fall and ending with the annual ASEE Conference and the conclusion of our summer engineering and outreach programs. When a milestone is reached, you stop to reflect and suddenly realize that the years have flown by while following your passion. A passion that is shared by the others around you and that is contagious. I am thankful that the FPD membership allowed me to join their ranks when I was just starting my academic career associated with First-Year Programs at my university. By serving as part of the FPD Executive Committee, I've had the experience of working with productive and energetic volunteer members that greatly enhanced my personal learning curve, knowledge and circle of colleagues that I now consider friends.

Many thanks to all of the FPD committee members, authors, presenters, reviewers, moderators and attendees that helped to make the Austin Conference a success. Before you attend your faculty fall planning meeting and welcome new students to your campus, take a few minutes to reflect on the FPD sessions that you attended and how energized you felt. Award winning presentations, new ideas, new research, and old ideas and data cast in a new light - all are just waiting to be utilized and incorporated into your first-year program and submitted for publication for the ASEE Louisville Conference. See you there!

~Sandy Wood
 University of Alabama
 Past Chair
 First-Year Programs Division
swood@eng.ua.edu

Austin, Texas

Some Austin sites



ASEE 2009 FPD Program Chair Reflections

First-Year Programs Division had a very full and successful program for 2009 in Austin Texas. From the initial 73 abstracts that were submitted 38 excellent papers were accepted and organized into ten fun-filled sessions. The conference sessions started with two international papers; one from the University of Auckland in New Zealand and the other from Newcastle University in the United Kingdom. The FPD sessions covered topics including sustainability, learning communities, residential college programs, and many unique methods for instruction, retention, and teaming. This year also featured collaboration with the Technical Literacy Constituent Committee which resulted in the last paper of the conference.

Although the number of submissions and acceptances were lower than typical for FPD the quality of the papers and presentations was outstanding. The competition for best paper was very close and again resulted in a tie for second place; these results have already been presented in Austin. The high quality of the presentations has resulted in a very competitive race for the best presentation awards and I would like to congratulate the winners. The best presentation by a professional was given on Wednesday afternoon by Ronald Welch of the University of Texas, Tyler and on Monday morning Casey Canfield of Franklin W. Olin College of Engineering gave the best presentation by a student.

I would like to extend a heartfelt "thank you" to all of the authors, presenters, and moderators who made this year's conference such a success. I am confident that FPD will continue to offer a high quality program in Louisville and beyond.

~Kris Craven



ASEE 2009 FPD Best Papers

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

Best Paper Award, First Place

AC2009-1987: EVALUATION OF A NEW ENGINEERING RESIDENTIAL COLLEGE INITIATIVE

Southern Illinois University - Carbondale.
Robert Ricks –Presenter, Rhonda Kowalchuk,
 John Nicklow, Leon Graceson-Martin, Lalit Gupta,
 James Mathias, Jale Tezcan, Kathy Pericak-Spector

Second Place

AC2009-62: EXPLORING THE IMPACT OF FIRST-YEAR ENGINEERING STUDENT PERCEPTIONS ON STUDENT EFFICACY

Mississippi State University
Lesley Strawderman- Presenter, Bill Elmore,
 Arash Salehi

Third Place

AC2009-1444: MATHEMATICS AND PHYSICS FACULTY CONCEPTIONS OF TEACHING IN A FIRST-YEAR INTEGRATED PROJECT-BASED ENGINEERING CURRICULUM

Franklin W. Olin College of Engineering
Yevgeniya Zastavker-Presenter, Casey Canfield

ASEE 2009 FPD Best Presentations

Best Presentation Award:

AC 2009-731: ENGAGING FRESHMAN EXPERIENCE: THE KEY TO RETENTION?

Ronald Welch, University of Texas, Tyler -Presenter

Best Student Presentation:

AC 2009-1444: MATHEMATICS AND PHYSICS FACULTY CONCEPTIONS OF TEACHING IN A FIRST-YEAR INTEGRATED PROJECT-BASED ENGINEERING CURRICULUM

Franklin W. Olin College of Engineering
Yevgeniya Zastavker-Presenter, Casey Canfield



At left: Rick Freuler awarding Lesley Strawderman



Above: Kris Craven with Robert Ricks and Jale Tezcan



Kris Craven with Casey Canfield

Sandy Wood recognizing Past Chairs Jim Morgan and Gunter Georgi



Some News, Some Thoughts for FPD

The Truth about Grit by Jonah Lehrer in the Boston Globe – 8/2/09 (shortened here for publication)

It's the single most famous story of scientific discovery: in 1666, Isaac Newton was walking in his garden outside Cambridge, England - he was avoiding the city because of the plague - when he saw an apple fall from a tree. The fruit fell straight to the earth, as if tugged by an invisible force. (Subsequent versions of the story had the apple hitting Newton on the head.) This mundane observation led Newton to devise the concept of universal gravitation, which explained everything from the falling apple to the orbit of the moon.

There is something appealing about such narratives. They reduce the scientific process to a sudden epiphany: There is no sweat or toil, just a new idea, produced by a genius. Everybody knows that things fall - it took Newton to explain why.

Unfortunately, the story of the apple is almost certainly false; Voltaire probably made it up. Even if Newton started thinking about gravity in 1666, it took him years of painstaking work before he understood it. He filled entire vellum notebooks with his scribbles and spent weeks recording the exact movements of a pendulum. (It made, on average, 1,512 ticks per hour.) The discovery of gravity, in other words, wasn't a flash of insight - it required decades of effort, which is one of the reasons Newton didn't publish his theory until 1687, in the "Principia."

Although biographers have long celebrated Newton's intellect - he also pioneered calculus - it's clear that his achievements aren't solely a byproduct of his piercing intelligence. Newton also had an astonishing ability to persist in the face of obstacles, to stick with the same stubborn mystery - why did the apple fall, but the moon remain in the sky? - until he found the answer.

In recent years, psychologists have come up with a term to describe this mental trait: grit. Although the idea itself isn't new - "Genius is 1 percent inspiration and 99 percent perspiration," Thomas Edison famously remarked - the researchers are quick to point out that grit isn't simply about the willingness to work hard. Instead, it's about setting a specific long-term goal and doing whatever it takes until the goal is reached. It's always much easier to give up, but people with grit can keep going.

While stories of grit have long been associated with self-help manuals and life coaches - Samuel Smiles, the author of the influential Victorian text "Self-Help" preached the virtue of perseverance - these new scientific studies rely on new techniques for reliably measuring grit in individuals. As a result, they're able to compare the relative importance of grit, intelligence, and innate talent when it comes to determining lifetime achievement. Although this field of study is only a few years old, it's already made important progress toward identifying the mental traits that allow some people to accomplish their goals, while others struggle and quit. Grit, it turns out, is an essential (and often overlooked) component of success. "I'd bet that there isn't a single highly successful person who hasn't depended on grit," says Angela Duckworth, a psychologist at the University of Pennsylvania who helped pioneer the study of grit. "Nobody is talented enough to not have to work hard, and that's what grit allows you to do."

The hope among scientists is that a better understanding of grit will allow educators to teach the skill in schools and lead to a generation of grittier children. Parents, of course, have a big role to play as well, since there's evidence that even offhand comments - such as how a child is praised - can significantly influence the manner in which kids respond to challenges. And it's not just educators and parents who are interested in grit: the United States Army has supported much of the research, as it searches for new methods of identifying who is best suited for the stress of the battlefield.

The new focus on grit is part of a larger scientific attempt to study the personality traits that best predict achievement in the real world. While researchers have long focused on measurements of intelligence, such as the IQ test, as the crucial marker of future success, these scientists point out that most of the variation in individual achievement - what makes one person successful, while another might struggle - has nothing to do with being smart. Instead, it largely depends on personality traits such as grit and conscientiousness. It's not that intelligence isn't really important - Newton was clearly a genius - but that having a high IQ is not nearly enough.

Consider, for instance, a recent study led by Duckworth that measured the grittiness of cadets at West Point, the elite military academy. Although West Point is highly selective, approximately 5 percent of cadets drop out after the first summer of training, which is known as "Beast Barracks." The Army has long searched for the variables that best predict whether or not cadets will graduate, using everything from SAT scores to physical fitness. But none of those variables were particularly useful. In fact, it wasn't until Duckworth tested the cadets of the 2008 West Point class using a questionnaire - the test consists of statements such as "Setbacks don't discourage me" - that the Army found a measurement that actually worked. Duckworth has since repeated the survey with subsequent West Point classes, and the result is always the same: the cadets that remain are those with grit.

One of the main obstacles for scientists trying to document the influence of personality traits on achievement was that the standard definition of traits - attributes such as conscientiousness and extroversion - was rather vague. Duckworth began wondering if more

(Continued from previous page)

narrowly defined traits might prove to be more predictive. She began by focusing on aspects of conscientiousness that have to do with “long-term stamina,” such as maintaining a consistent set of interests, and downplayed aspects of the trait related to short-term self-control, such as staying on a diet. In other words, a gritty person might occasionally eat too much chocolate cake, but they won’t change careers every year. “Grit is very much about the big picture,” Duckworth says. “It’s about picking a specific goal off in the distant future and not swerving from it.”

After developing a survey to measure this narrowly defined trait - you can take the survey at www.gritstudy.com - Duckworth set out to test the relevance of grit. The initial evidence suggests that measurements of grit can often be just as predictive of success, if not more, than measurements of intelligence. For instance, in a 2007 study of 175 finalists in the Scripps National Spelling Bee, Duckworth found that her simple grit survey was better at predicting whether or not a child would make the final round than an IQ score.

But grit isn’t just about stubborn perseverance - it’s also about finding a goal that can sustain our interest for years at a time. Consider two children learning to play the piano, each with the same level of raw talent and each expending the same effort toward musical training. However, while one child focuses on the piano, the other child experiments with the saxophone and cello. “The kid who sticks with one instrument is demonstrating grit,” Duckworth says. “Maybe it’s more fun to try something new, but high levels of achievement require a certain single-mindedness.”

Duckworth has recently begun analyzing student resumes submitted during the college application process, as she attempts to measure grit based on the diversity of listed interests. While parents and teachers have long emphasized the importance of being well-rounded - this is why most colleges require students to take courses in all the major disciplines, from history to math - success in the real world may depend more on the development of narrow passions.

“I first got interested in grit after watching how my friends fared after college,” Duckworth says. She noticed that the most successful people in her Harvard class chose a goal and stuck with it, while others just flitted from pursuit to pursuit. “Those who were less successful were often just as smart and talented,” Duckworth notes, “but they were constantly changing plans and trying something new. They never stuck with anything long enough to get really good at it.”

In recent decades, the American educational system has had a single-minded focus on raising student test scores on everything from the IQ to the MCAS. The problem with this approach, researchers say, is that these academic scores are often of limited real world relevance. However, the newfound importance of personality traits such as grit raises an obvious question: Can grit be learned?

While Duckworth and others are quick to point out that there is no secret recipe for increasing grit - “We’ve only started to study this, so it’s too soon to begin planning interventions,” she cautions - there’s a growing consensus on what successful interventions might look like. One of the most important elements is teaching kids that talent takes time to develop, and requires continuous effort. Carol S. Dweck, a psychologist at Stanford University, refers to this as a “growth mindset.” She compares this view with the “fixed mindset,” the belief that achievement results from abilities we are born with. “A child with the fixed mindset is much more likely to give up when they encounter a challenging obstacle, like algebra, since they assume that they’re just not up to the task,” says Dweck. In a recent paper, Dweck and colleagues demonstrated that teaching at-risk seventh-graders about the growth mindset - this included lessons about the importance of effort - led to significantly improved grades for the rest of middle school.

Interestingly, it also appears that praising children for their intelligence can make them less likely to persist in the face of challenges, a crucial element of grit. For much of the last decade, Dweck and her colleagues have tracked hundreds of fifth-graders in 12 different New York City schools. The children were randomly assigned to two groups, both of which took an age-appropriate version of the IQ test. After taking the test, one group was praised for their intelligence - “You must be smart at this,” the researcher said - while the other group was praised for their effort and told they “must have worked really hard.” Dweck then gave the same fifth-graders another test. This test was designed to be extremely difficult - it was an intelligence test for eighth-graders - but Dweck wanted to see how they would respond to the challenge. The students who were initially praised for their effort worked hard at figuring out the puzzles. Kids praised for their smarts, on the other hand, quickly became discouraged.

The final round of intelligence tests was the same difficulty level as the initial test. The students who had been praised for their effort raised their score, on average, by 30 percent. This result was even more impressive when compared to the students who had been praised for their intelligence: their scores on the final test dropped by nearly 20 percent. A big part of success, Dweck says, stems from our beliefs about what leads to success.

Woody Allen once remarked, “Eighty percent of success is showing up.” Duckworth points out that it’s not enough to just show up; one must show up again and again and again. Sometimes it isn’t easy or fun to keep showing up. Success, however, requires nothing less. That’s why it takes grit.

Jonah Lehrer is the author of “How We Decide” and “Proust Was a Neuroscientist.” He is a regular contributor to Ideas.

2009 Annual Conference in Austin

June , 2009

Freshman Programs Division (FPD) Sessions Details

Sunday, June 14, 2009

4:30-6:00 p.m. **Moderator(s):** Sandra Wood, University of Alabama

0653: First-Year Programs Executive Board Meeting

This is the business meeting of the Executive Committee of the First-Year Programs Division.

Monday, June 15, 2009

10:30 a.m. **Moderator(s):** James Morgan, Texas A&M University

1353: Assessment and Curriculum Development

This session will discuss the assessment of--and the impact of assessment on--students, courses, and programs.

AC 2009-538: INNOVATION AND INTEGRATION IN AN IN-HOUSE FIRST-YEAR ENGINEERING PROGRAM: A FAST TRACK TO ENGINEERING ENCULTURATION

Elizabeth Godfrey, Paul Denny, Margaret Hyland, Chris Smaill, Karl Stol, University of Auckland

AC 2009-541: INTRODUCING AND STIMULATING SUSTAINABLE ENGINEERING IN FIRST-YEAR CIVIL ENGINEERING STUDENTS

Tom Bramald, Sean Wilkinson, Newcastle University

AC 2009-2157: FACILITATING LIFELONG LEARNING SKILLS THROUGH A FIRST-YEAR ENGINEERING CURRICULUM

David Hall, Stan Cronk, James Nelson, Louisiana Tech University

Patricia Brackin, Rose-Hulman Institute of Technology

AC 2009-1444: MATHEMATICS AND PHYSICS FACULTY CONCEPTIONS OF TEACHING IN A FIRST-YEAR INTEGRATED PROJECT-BASED ENGINEERING CURRICULUM

Casey Canfield, Yevgeniya Zastavker, Franklin W. Olin College of Engineering

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

1453: Projects and Problems in First-Year Courses

This session will demonstrate the creative use of projects and problems in the engineering classroom.

AC 2009-270: A LEGO ROBOT PROJECT USING CONCEPT MAPS AND PEER-LED TEAMS FOR A FRESHMAN COURSE IN ENGINEERING AND ENGINEERING TECHNOLOGY

Mehrube Mehrubeoglu, Texas A&M University, Corpus Christi

AC 2009-348: THE COGNITIVE AND MOTIVATIONAL SCAFFOLDING THAT FIRST-YEAR ENGINEERING STUDENTS NEED WHEN SOLVING DESIGN PROBLEMS IN COLLABORATIVE TEAMS

Senay Purzer, Purdue University

AC 2009-1027: THE DEVELOPMENT AND IMPLEMENTATION OF A NANOTECHNOLOGY MODULE INTO A LARGE, FRESHMAN ENGINEERING COURSE

Vinod Lohani, Ganesh Balasubramanian, Ishwar Puri, Scott Case, Roop Mahajan, Virginia Tech

AC 2009-1431: TUTORIALS AND IN-CLASS ACTIVITY FOR IMPROVING STUDENT PERFORMANCE IN A FIRST-YEAR ENGINEERING COURSE

Lisa Benson, David Bowman, Randolph Hutchison, Carol Wade, Clemson University

2:15-4:00 p.m. **Moderator(s):** Arlisa Labrie Richardson, Arizona State University ; Sandra Wood, University of Alabama

1553: Exploring Retention

This session will explore issues surrounding retention, and its influences and implications.

AC 2009-1677: FRESHMAN RETENTION IN AN ENGINEERING AND TECHNOLOGY DEPARTMENT

Brian DeJong, Kumar Yelamarthi, Central Michigan University

AC 2009-454: AN INITIAL ANALYSIS OF FRESHMAN-TO-SOPHOMORE RETENTION IN A NEW FIRST-YEAR ENGINEERING PROGRAM

Richard Cassady, Sean Mulvenon, University of Arkansas

AC 2009-2085: EVALUATION OF SUPPORT PROGRAMS FOR UNDERSERVED POPULATIONS IN ENGINEERING

Jeong Hwan Choi, University of Illinois, Urbana-Champaign, Jacob Marszalek, University of Missouri, Kansas City

Joyce Lee, Susan Linnemeyer, University of Illinois, Urbana-Champaign

AC 2009-1212: WHEN THE LIGHT GOES ON: ILLUMINATING THE PATHWAY TO ENGINEERING

Susan Freeman, Beverly Jaeger, Richard Whalen, Northeastern University

Tuesday, June 16, 2009

7:00-8:15 a.m. **Moderator(s):** Kristine Craven, Tennessee Technological University ; Sandra Wood, University of Alabama

2153: First-Year Programs Business Meeting

Ticketed Event - \$15 advanced/\$25 on site. This is the business meeting of the First-Year Programs Division. The meeting is open to all FPD members and interested conference attendees. Join the Executive Committee for a full, hot breakfast while we conduct the official business of the First-Year Programs Division, one of the larger divisions of ASEE. The awards presented will include 2009 Best Paper, 2009 Best Presentation, and 2009 Best Student Presentation. We will also be electing two new executive board members. Your participation and input are valued.

10:30 a.m. **-Moderator(s):** Jean Kampe, Michigan Technological University

2353: Beyond the Engineering Classroom

This session will highlight courses that use means beyond the engineering classroom to benefit students in their first year at the institution.

AC 2009-102: A STUDY OF CALCULUS I STUDENTS

Cindy Veenstra, Engineering education consultant

AC 2009-432: EARLY EXPOSURE TO ENGINEERING PRACTITIONERS PROVIDES INFORMED CHOICES FOR STUDENTS CONTINUING ENGINEERING PROGRAMS

Matthew Traum, Sharon Karackattu, University of North Texas

AC 2009-599: TEACHING FIRST-YEAR STUDENTS ANALYTICAL REASONING USING INTERDISCIPLINARY TEAMS

Gary Bailey, Cindy Waters, North Carolina A&T State University

12:30-2:00 p.m. **Moderator(s):** Robin Hensel, West Virginia University

2453: Retention Tools and Programs

This session will focus on different tools and programs designed to increase success as an avenue to increase first-year student retention.

AC 2009-1899: ENGAGING EARLY ENGINEERING STUDENTS (EES): BACKGROUND AND GOALS OF AN NSF STEP PROJECT TO INCREASE RETENTION OF EARLY ENGINEERING STUDENTS

Jon Sticklen, Thomas Wolff, Wolfgang Bauer, Daina Briedis, Neeraj Buch, John Courtney, Nathaniel Ehrlich, Denise Fleming, Michigan State University, Ruth Heckman, Louise Paquette, Renee Mickelson, Lansing Community College
Mark Urban-Lurain, Clifford Weil, Michigan State University

AC 2009-104: DOES A SURVEY COURSE ON ENGINEERING CAREERS IMPROVE FIRST-YEAR ENGINEERING RETENTION?

Cindy Veenstra, Engineering education consultant, Gary D. Herrin, University of Michigan

AC 2009-764: USING ENGINEERING DESIGN AS A RETENTION TOOL FOR FIRST-YEAR ENGINEERING STUDENTS

Amber Kempainen, Amy Hamlin, Michigan Technological University

AC 2009-864: CONNECTOR FACULTY: A FRIENDLY FACE FOR EARLY ENGINEERING STUDENTS

Daina Briedis, Neeraj Buch, Jan Collins-Eaglin, Nathaniel Ehrlich, Denise Fleming, Timothy Hinds, Jon Sticklen, Mark Urban-Lurain, Thomas Wolff, Michigan State University

2:15-4:00 p.m. **Moderator(s):** Gunter Georgi, Polytechnic University

2553: Learning as a Community

This session will showcase programs that utilize a community environment to facilitate learning among the community's members.

AC 2009-1113: SUCCESSES OF AN ENGINEERING RESIDENTIAL-COLLEGE PROGRAM WITHIN AN EMERGING RESIDENTIAL CULTURE

Sondra Miller, Pat Pyke, Amy Moll, Melissa Wintrow, Cheryl Schrader, Janet Callahan, Boise State University

AC 2009-1987: AN EVALUATION OF A NEW ENGINEERING RESIDENTIAL-COLLEGE INITIATIVE

Robert Ricks, Rhonda Kowalchuk, John Nicklow, Loen Graceson-Martin, Lalit Gupta, James Mathias, Jale Tezcan, Kathy Pericak-Spector, Southern Illinois University, Carbondale

AC 2009-1256: INTEGRATED LEARNING IN FRESHMAN ENGINEERING: THE THEMED LEARNING COMMUNITY

Janet Meyer, Patrick Gee, Laura Masterson, Indiana University-Purdue University, Indianapolis

AC 2009-1922: INTEGRATING A FIRST-YEAR ENGINEERING PROGRAM WITH A LIVING-LEARNING COMMUNITY

Timothy Hinds, Thomas Wolff, Neeraj Buch, Amanda Idema, Cynthia Helman, Michigan State University
AC 2009-1736: EXPLICIT TEACHING OF CRITICAL THINKING IN "INTRODUCTION TO ENGINEERING"

James Lewis, Jeffrey Hieb, David Wheatley, University of Louisville

Tuesday, June 16, 2009 (continued)

4:30-6:00 p.m. **Moderator(s):** Richard Freuler, Ohio State University

2653: Goal Specific First-Year Courses

This session will highlight first-year courses that have targeted specific student goals and outcomes.

AC 2009-1482: INTRODUCTION TO ENGINEERING DESIGN: AN EMPHASIS ON COMMUNICATION

Taryn Bayles, University of Maryland, Baltimore County

AC 2009-2077: CUSTOMIZED INSTRUCTION IN A WEB-BASED, FIRST-YEAR CLASS: MAINTAINING PRESENCE AND THE IMPORTANCE OF TRANSITION USING CONTENT-MANAGEMENT TOOLS

Srikanth Tadepalli, Mitchell Pryor, Cameron Booth, University of Texas, Austin

AC 2009-62: EXPLORING THE IMPACT OF FIRST-YEAR ENGINEERING STUDENT PERCEPTIONS ON STUDENT EFFICACY

Lesley Strawderman, Bill Elmore, Arash Salehi, Mississippi State University

Wednesday, June 17, 2009

12:30-2:00 p.m. **Moderator(s):** William Koffke, Villanova University ; Nancy Lamm, Indiana University-Purdue University, Indianapolis

3453: First-Year Advising and Transition

This session will discuss aspects related to first-year engineering students' advising and transition.

AC 2009-2107: INTROENGINEERING.ORG: A STRUCTURED WIKI COMMUNITY FOR INSTRUCTORS OF FIRST-YEAR ENGINEERING COURSES

Jay Brockman, University of Notre Dame, Lynnwood Brown, WikiRing Partnership, Michael McDonald, John Wiley & Sons, Inc.

AC 2009-1422: EASING THE TRANSITION FROM THE COMMUNITY COLLEGE TO THE FOUR-YEAR UNIVERSITY

Charles McDowell, Adrienne Harrell, University of California, Santa Cruz

AC 2009-2236: UNDERSTANDING ENGINEERING FRESHMAN STUDY HABITS: THE TRANSITION FROM HIGH SCHOOL TO COLLEGE

Mary Anderson-Rowland, Arizona State University

AC 2009-1646: CENTRAL CALIFORNIA ENGINEERING DESIGN CHALLENGE: A UNIQUE COLLABORATIVE FIRST-YEAR EXPERIENCE

Maria Sanchez, Ira Sorensen, Walter Mizuno, Satya Mahanty, California State University, Fresno

2:15-4:00 p.m. **Moderator(s):** Christopher Rowe, Vanderbilt University

3553: The Ever-Changing Course

This session will present papers exploring new or redesigned courses targeted at first-year engineering students.

AC 2009-1777: COMPARING THE USE OF A GRAPHICAL PROGRAMMING LANGUAGE TO A TRADITIONAL TEXT-BASED LANGUAGE TO LEARN PROGRAMMING CONCEPTS IN A FIRST-YEAR COURSE

Kathleen Harper, Denison University, Richard Freuler, Stuart Brand, Craig Morin, Patrick Wensing, John Demel, Ohio State University

AC 2009-509: A HANDS-ON APPROACH TO COMPUTATIONAL METHODS IN ENGINEERING

Michael Gustafson, Rebecca Simmons, W. Neal Simmons, Duke University, Michael Ehrenfried, Kent Denver School

Tod Laursen, Duke University

AC 2009-2172: INFUSING SYSTEM ENGINEERING CONCEPTS AND SYSTEM ENGINEERING APPROACHES INTO A MULTIDISCIPLINARY PROJECT-BASED FRESHMAN ENGINEERING COURSE

Amy Thompson, Jean Nocito-Gobel, University of New Haven

AC 2009-849: LINKING DESIGN ACTIVITIES ACROSS PARALLEL FIRST-YEAR ENGINEERING COURSES

Gretchen Hein, Jean Kampe, Amber Kemppainen, Michigan Technological University

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

3653: Potpourri

This session will present papers spanning a wide range of topics pertaining to first-year engineering programs or students, as well as engineering courses which include nonengineering students.

AC 2009-1327: ENG2: ENGINEERING ENGAGEMENT FOR STUDENT SUCCESS--BUILDING A COMMUNITY FOR FIRST-YEAR FRESHMEN IN THE COLLEGE OF ENGINEERING

Summer Dann Johnson, John Scalzo, Sarah Jones, Kelly Rusch, Warren Waggenspack, Louisiana State University, Baton Rouge

AC 2009-731: ENGAGING FRESHMAN EXPERIENCE: THE KEY TO RETENTION?

Ronald Welch, University of Texas, Tyler

AC 2009-1102: A MODEL FOR COORDINATION AND MANAGEMENT OF RESOURCES FOR MULTIPLE SECTIONS OF AN ACTIVE-LEARNING-STYLE FRESHMAN COURSE

Jean Nocito-Gobel, Amy Thompson, Carl Barratt, Michael Collura, University of New Haven

AC 2009-84: NEW DEVELOPMENTS IN ENGINEERING FOR NONENGINEERS

John Krupczak, Hope College