

LEARNING-CENTERED EDUCATION: A Preliminary Proposal to Host an ICEE Conference

a. Name of Conference

ICEE-2003 is requested to take advantage of special circumstances described below, but ICEE-2005 or ICEE-2006 is also acceptable, consistent with the published schedule of approved conference sites.

b. Proposed Program Emphases/Themes

We propose Learning-Centered Education as a theme. This emphasis recognizes a driving force in engineering education—the effort to identify the learning needs of the engineering community and serve them as effectively as possible. This central theme suggests numerous subthemes—for example, faculty development is needed to develop in faculty the awareness of and the ability to serve the needs of all prospective and practicing engineers and assessment of student learning is critical to ensuring appropriate outcomes. A partial list of subthemes is given below:

- Assessment of student learning
- Classroom management
- Curriculum design / assessment / renewal
- Distance learning
- Educational technology
- Faculty development
- Graduate student training
- Incorporation of engineering practice
- Management of change
- Multidisciplinary design
- Models for integrating research and education

c. Plans for Publication of Proceedings

Web-based and CD-ROM proceedings will be produced. Peer review by a local team will assure the published papers are of high quality. The conference co-chairs will propose to serve as volunteer editors of a special issue of the Journal of Engineering Education dedicated to publishing selected papers from the conference proceedings. Conference proceedings will not be published in printed form.

d. Dates and Location of the Conference

The Engineering Education Coalitions program sponsored by the National Science Foundation in the United States has developed a wealth of expertise in a variety of these areas. It would be advantageous for the proposed conference to coincide with the conclusion of the Coalitions

program in 2003 to best capture the collective lessons learned by the many Coalition participants.

A list of possible dates is given below. These are selected based on the assumption that these dates will be during the week immediately prior to the start of the fall semester at the University of Florida, the proposed host site. This selection of dates assures the optimum availability of University faculty and facilities as well as hotel accommodations.

August 19-22, 2003

August 17-20, 2004

August 16-19, 2005

August 15-18, 2006

The University of Florida is located in Gainesville, Florida, in the southeastern USA.

e. Dates and Location of Pre- or Post-Conference Workshop

The first day of the dates given above will be reserved for pre-conference workshops to be held in Gainesville, Florida. These workshops will generally be two hours in length and offered by members of the international engineering education community.

The last day of the dates given above will be reserved for an invitation-only post-conference workshop, also to be held in Gainesville, Florida. This workshop will aim to evaluate the conference and to cement future international collaborations.

f. Proposed Schedule

1-1/2 Year Prior to Conference

Mail Out First Call for Paper

Conference web site online

1 Year Prior to Conference (at Preceding ICEE):

Distribute Brochures About Conference on Site

Mail Out Second Call for Paper

November – December of Prior Year

Mail Out Reminders/Third Call for Papers

During Year of Conference:

March 15: Abstracts Due

April 15: Notice of Acceptance

May 15: Camera-Ready Manuscripts Due

May 15: Registration Materials and Hotel Information Mailed

June 30: Early-Registration Deadline

Mid-August: Conference and Workshops

g. Hosting Institution(s) or Organization(s), including letter of endorsement and commitment from the head of the organization

The University of Florida and its College of Engineering will host the proposed conference. This proposal has strong local support, including a commitment of monetary support from the University administration. A letter of endorsement is attached, and further information on the host institution is provided below.

h. Proposed Conference Chair or Co-Chairs and Discussion of Past Experience and Qualifications

Dr. Tim Anderson and Dr. Marc Hoit are the proposed co-chairs of the conference.

Tim Anderson received his education in chemical engineering from Iowa State University (B.S. 1973) and the University of California, Berkeley (M.S. 1975, Ph.D. 1978). He is currently professor and chairman of the Chemical Engineering Department at the University of Florida where he has been a member of the faculty since 1978. Tim is editor of the *Chemical Engineering Education* journal and director of the NSF **SUCCEED** Engineering Education Coalition. He has been active in ASEE including serving as chair of the Chemical Engineering Division, chair of New Engineering Educators, chair of New Engineering Educator Excellence Award Committee, and program chair of the Chemical Engineering Division. Dr. Anderson has also participated in a number of national projects related to engineering education including the Quality of Engineering Education Project, NSF Workshop on Undergraduate Engineering Education, NAE Workshop on Engineering, and Engineers, and Engineering Education in the 21st Century, John Wiley Workshop on Engineering: The Future—Educating, Informing, and Retaining Engineers in the 21st Century, and the NSF Workshop on Restructuring Engineering Education: A Systems Approach to Integrated Curricula.

Dr. Anderson has had considerable experience in organizing conferences including serving as Meeting Program Chair for the 1995 Annual Meeting of the American Institute of Chemical Engineers in Miami Beach. This conference had over 4000 participants and he was responsible for the technical program and local arrangements. Dr. Anderson also hosted CALPHAD XXVI conference in 1997. This was a small venue (150 attendees) of mostly international members. He has also served on a number of international conferences organizing committees.

His research is devoted to the study of advanced electronic and optoelectronic materials processing issues. In particular, his is involved in the development of alternative processes to grow CuInSe₂ absorber layers for thin film photovoltaic applications. Tim has been recognized for his research accomplishments through several awards, including the AIChE Gary L. Leach Award (1996), the AIChE Charles M. A. Stine Award, (1994), the California Institute of Technology's W.N. Lacey Lectureship (1993), and the Professional Progress in Engineering Award by Iowa State University (1993). Dr. Anderson spent the 1985-86 academic year on sabbatical at the University of Grenoble, France under a Fulbright award. He has published over 120 peer reviewed manuscripts and given over 200 presentations.

Dr. Hoit received his BS from Purdue University in 1978, his MS in 1980 and PhD in 1984 from University of California, Berkeley. He is a Professor of Civil Engineering at the University of Florida where he specializes in the development of Finite Element Analysis software and educational reform. Dr. Hoit is very active in the research and educational community. His specialty is in the development of Finite Element Analysis software. His current structural engineering research involves the computer program, *Florida Pier*, which analyzes bridge pier, superstructure and pile foundations subjected to any loading. His textbook entitled *Computer Assisted Structural Analysis and Modeling*, Prentice Hall, fully integrates the use of the computer for teaching undergraduate structural behavior and analysis.

Dr. Hoit is very active in the SUCCEED coalition, one of the National Science Foundation funded engineering educational reform coalitions. He is the associate director of the coalition and was the PI on two major projects: Freshman Lab and Knowledge Studio. Dr. Hoit has organized a number large educational events including: American Society of Civil Engineers Faculty Development program. He was responsible for initiating the committee and defining its role. The committee was charged with creating a faculty development program for Civil Engineering faculty. He organized and presented two workshops within the first year and chaired a nine person, eight day planning workshop that developed the guidelines for future ASCE sponsored workshops; The Southeastern Consortium for Minorities in Engineering (SECME) summer institute hosted 185 middle and high school teachers at the University of Florida campus for 10 days to learn how to teach engineering. Coordinated the entire academic curriculum that resulted in graduate credit and; He developed HOIST which was a weeklong residential camp for 32 high school sophomores and juniors devoted to increasing their awareness of engineering as a profession

Some of Dr. Hoit's awards include: Certificate of Commendation, National ASCE, 1999, the Ben Dasher Award, Honorable Mention, Best Paper, National Frontiers in Education, 1996 and the Edmund Friedman Young Engineer from ASCE in 1988. Dr. Hoit is the faculty advisor for the student chapter of the American Society of Civil Engineers who won the National Steel Bridge Building Competition in 1997.

i. Introduction to the Hosting Institution(s)

The University of Florida is a major, public, comprehensive, land-grant, research university. Florida is among the nation's most academically diverse public universities and has a long history of established programs in international education, research, and service. It is one of only 17 public, land-grant universities that belongs to the Association of American Universities.

University of Florida students are among the best in the nation. Florida ranks fifth among public universities, and more than 90 percent of all entering freshmen score above the national average on standardized college entrance exams. University of Florida students engage in many activities outside of the classroom. There are more than 450 student organizations on campus and more than 2,000 concerts, art exhibits, theatrical productions, guest lectures, sports contests and other events are held each year. In addition to being academically talented, Florida students are geographically and culturally diverse. They come from more than 100 countries and all 50 of the

United States. Some 50 percent of the students are women. Of the 43,382 students enrolled in the Fall of 1999, some 74 percent are undergraduates, 19 percent are graduate students and 7 percent are in professional programs (including dentistry, law, medicine, pharmacy and veterinary medicine).

Florida has more than 4,000 distinguished faculty members with outstanding reputations for their teaching, research and service. The faculty attracted \$280 million in research and training grants in 1997-98. In 1997-98 University-of-Florida-based technologies brought in a record \$19.1 million in royalty and licensing income. Florida has 23 colleges and schools and more than 100 research, service and education centers, bureaus and institutes. More than 100 undergraduate majors are offered. The Graduate School coordinates almost 200 graduate programs. Professional degree programs include dentistry, law, medicine, pharmacy and veterinary medicine.

Florida has a 2,000-acre campus and 875 buildings (including 158 with classrooms and laboratories). Outstanding campus facilities include:

- Florida Museum of Natural History, among the nation's top 10 natural history museums
- Center for the Performing Arts
- Harn Museum of Art
- University Art Galleries
- University of Florida Brain Institute, a federally funded, world-class brain institute
- Engineering & Industrial Experiment Station
- One of the nation's few self-contained intensive-care hyperbaric chambers
- A microkelvin facility that has recorded the closest temperatures to absolute zero
- 100-kilowatt training and research reactor
- The world's largest citrus research center
- A world-class bell carillon
- 99-rank Anderson Memorial pipe organ
- One public television, one public radio and two commercial radio stations

The University of Florida's intercollegiate athletic program pursues and achieves excellence across the whole spectrum of sports competition. A founding member of the Southeastern Conference, Florida finished second in the 1997-98 Sears Directors' Cup national all-sports competition. For the last nine years, UF has ranked among the nation's top five athletic programs.

Student enrollment in the College of Engineering for Fall 1999 is given below:

	Total	Men	Women
Undergraduate	4,179	3,294	885
Master's	793	617	176
Doctoral	808	700	108
TOTAL	5,780	4,611	1,169

Degrees granted by the College of Engineering in the period July 1, 1998 – June 30, 1999 are given below:

	Total	Men	Women
Undergraduate	739	616	123
Master's	385	316	69
Doctoral	100	87	13
TOTAL	1,224	1,019	205

Further information about the University of Florida and its College of Engineering is available at <http://www.ufl.edu/> and <http://www.eng.ufl.edu/> respectively.

j. Introduction to the Hosting City/Region

United States Interstate 75 skirts Gainesville on the west, its link with major metropolitan centers such as Orlando and the Tampa-St. Petersburg area. U.S. Routes 301 and 441 join Gainesville with Jacksonville and Ocala, respectively. The Gainesville Regional Airport (airport code GNV) offers 32 non-stop flights each weekday to major hub cities such as Atlanta, Charlotte, Miami and Orlando via four commercial carriers. Airport service via Jacksonville (JAX), Orlando (MCO), and Tampa (TPA) enhances Gainesville's accessibility by air. Distances and driving times to each of these cities is given below and at

http://www.gainesvillechamber.com/gville_transport.html

City	Highway Distance	Time	Direction
Jacksonville	78	90 min	NE
Orlando	115	120 min	SE
Tampa	127	130 min	South

To facilitate access from each of these international airports, the co-chairs will make arrangements for accommodations for conference participants on an as-needed basis in any of these cities prior to and following the conference. The co-chairs will also arrange for transportation from each of these airports, with demand determining the schedule.

Just two hours south of Gainesville, the Walt Disney World Resort is the most popular vacation destination in the world. Check out <http://www.disney.com/> for information about its parks and entertainment.

More details about the Gainesville area can be found in the section on Proposed Social/Cultural Programs and Industrial Visits and at a variety of Internet sites:

<http://www.visitgainesville.net/>
<http://www.state.fl.us/gvl/Culture/index.html>
<http://www.state.fl.us/gvl/Leisure/index.html>

k. Comments on Conference Facilities

The University of Florida Hotel and Conference Center, which will serve as the primary conference facility, is a 7-story, 25,000 square foot facility featuring state-of-the-art meeting and conference facilities, 248 luxury guest-rooms and 3 deluxe suites. The 7,000 square foot Century Ballroom (with 19 foot ceilings) and nine other meeting rooms all offer fixed, soundproof walls, electronic drop down screens, remote control lighting, and other modern features. Meeting rooms feature a state-of-the-art audio/visual environment and comfortable 5-pedestal swivel-arm chairs.

Each conference center meeting room has access to the Internet-2 network, and each conference room and guest room is also wired for traditional Internet and World Wide Web access via a dedicated fiber-optic T1 line. This access is available to all guests and requires a 10/100-base-T Ethernet port. The University of Florida Hotel and Conference Center also has a full inventory of state-of-the-art A/V equipment as well as full time technicians to support any technology application. There is a complete business service center including internet-connected computer stations, color laser printers, fax and photocopy services, package/mail shipping and receiving and staff support. Each guestroom has two dedicated telephone lines, complete with separate analog data ports for high-speed (56K) Internet access. Further information about the hotel and conference center is available at <http://www.ufhotel.com/>.

Overflow accommodations will be in one of five other full-service hotels in Gainesville. The city features 1226 guest rooms in total, some of which are close by to the convention center. Further information is available at: <http://www.visitgainesville.net/Conference/conference.htm>.

I. Proposed Social/Cultural Programs and Industrial Visits

A variety of social/cultural programs are planned, many within walking distance of the hotel. The type of event is identified at the head of each section. The assumption of availability and cost of these programs is based upon past experience. More detailed information will be obtained at a later date.

Harn Museum of Art—Opening reception

The opening reception will be held on the first evening at the University of Florida Harn Museum of Art, and a private tour will be arranged. The spacious galleries of the dramatic 62,000-square-foot Harn Museum of Art house collections from the varied cultures of the Americas, Asia, Africa and Europe, as well as contemporary works.

Florida Museum of Natural History—Evening cultural event

A full-sized replica of a North Florida limestone cave and a 14-foot tall mammoth skeleton are only part of the allure of the largest collections-based natural history museum in the Southeast. With more than 25 million specimens, the museum has one of the nation's top 10 natural history collections.

Center for Performing Arts—Evening cultural event

The Center for Performing Arts is Gainesville's center for theatre, music, and dance performances. Home to several local performance groups, the Center also hosts Broadway touring companies, opera, symphony orchestras and nationally known performers.

Behind the Scenes at Disney—Post-conference industry tour—\$75 including lunch

Conference participants choosing to participate in this post-conference tour will have the opportunity to see behind the scenes at the world's most popular vacation destination in the world and see the engineering supporting the many park attractions. More information is available at <http://www.disney.com/>.

Kennedy Space Center—Post-conference industry tour—\$50 including lunch

Some conference participants may choose to tour the Kennedy Space Center following the conference. The Center allows visitors to experience elements of the US space program of the past and present. Visitors can walk through full-scale mock-ups of space station modules and visit the viewing gallery, where they can see actual space station components being readied for flight. Featuring an actual 363-foot, 6.2 million pound Saturn V moon rocket, with a dramatic recreation of the first manned Apollo launch, and hands-on exhibits, the Apollo/Saturn V Center brings to life the U.S. space program's missions to the moon. Visitors can also get a bird's-eye view of today's space adventures from a 60-foot observation tower, where they will have an unobstructed view of the space shuttle launch pads. In the rocket garden, visitors can see the rockets that launched astronauts and machines into space including a Mercury Redstone, similar to the one that carried Alan Shepard into space. Another special vehicle in the collection is an awe-inspiring Mercury Atlas identical to the rocket that carried John Glenn into space for America's first orbit. The Kennedy Space Center is also a National Wildlife Refuge with more than 25 endangered species making it their home, and visitors can join a wildlife guide on a two hour tour that takes you deep into the Merritt Island National Wildlife Refuge. More information is available at <http://www.ksc.nasa.gov/>.

Appleton Museum of Art—Spouse tour—\$45 including lunch

The Appleton Museum of Art in Ocala, Florida is one of the South's premier art repositories and education centers. Originally built to display and preserve the collection of Arthur I. Appleton, the museum has expanded to include traveling exhibitions, educational programs, and cultural events.

The museum building is a contemporary interpretation of classical architecture clad in travertine marble. Sitting on 11.3 wooded and landscaped acres, it commands a small rise preceded by a cascading marble reflecting pool and fountain. The original museum building is a two-story edifice of 45,000 square feet with 30,000 square feet devoted to gallery space. Galleries are arranged in a quadrangle that surrounds an interior courtyard and fountain. Five large galleries are divided into several smaller bays that enable more intimate viewing of smaller objects. More information is available at: <http://www.fsu.edu/~svad/Appleton/AppletonMuseum.html>.

The City of St. Augustine—Spouse tour—\$25 including trolley ticket

Participants in this tour will see St. Augustine, the oldest permanently occupied European settlement in the continental United States by foot and trolley. Learn why the Spanish fort

Castillo de San Marcos was never taken in battle with an interactive flash timeline, photos and stories. For more information, visit <http://www.staugustine.com/visit/> .

Kanapaha Botanical Gardens—Spouse tour—\$30 including lunch

Kanapaha Botanical Gardens is a 62 acre display facility, nestled along the shores of Lake Kanapaha in Gainesville, Florida. Since 1977, the North Florida Botanical Society has orchestrated the development of the Gardens with a twofold educational goal: to develop major collections to demonstrate principles of ecology and evolution and to develop interpretive systems that will import this information to visitors. Ten major gardens have been completed and a 29-acre arboretum is now under development. Further information is available at <http://hammock.ifas.ufl.edu/kanapaha/> .

Silver Springs—Spouse tour—\$50 including lunch and boat tour

Billed as “Nature’s Theme Park,” Silver Springs includes a tour of glass-bottom boats offer passengers an unparalleled view of the underwater life in the 99.8% pure waters of the Silver River. Invented at Silver Springs in 1878, these boats take guests on a dramatic tour of seven major spring formations, including Mammoth Spring, the world’s largest artesian limestone spring. Learn more at <http://www.silversprings.com/> .

m. Proposed Costs and Budget and Method of Funding, Including Voluntary Contribution for Support of iNEER/ICEE activities

An estimated budget is included below. Corporate sponsorship will be sought and will be used to offset costs of conference registration and professional tours.

Expenses

\$10 per conference breakfast x 3 breakfasts	\$30 per participant
\$25 per conference lunch x 3 lunches	\$75 per participant
\$45 per conference dinner x 3 dinners	\$135 per participant
Transportation	\$8,000
Travel to give status reports	\$10,000
CD-ROM proceedings	\$3,000
Audio/Visual equipment rental	\$3,000
Conference services (professional and student assistance)	\$5,000
Conference bag	\$0 donated by corporate sponsor
Cost of honorarium and travel of Keynote speakers	\$8,000
iNEER and ICEE/ISC support (including web site)	\$33,000
	<u>\$166,000</u> for 400 participants

Income

Support from University of Florida and College of Engineering	\$6,000
Conference registration fee	\$400 per participant
	<u>\$166,000</u> for 400 participants

n. Dates and Sites for International Steering Committee Meeting for the Autumn Preceding Proposed Conference

The meeting of the International Steering Committee in the Fall preceding the proposed conference will be held in Orlando, Florida, of the United States. This venue will permit a trip to visit the conference facilities, but keep travel costs down.

o. Commitment by the Organizing Committee to Adhere to the ICEE Guidelines as Provided Herein, Including Any Reasonable Future Modification Thereto

The co-chairs guarantee cooperation with the ICEE/ISC and iNEER in adherence to any and all conference guidelines.