Engineering Learning Communities in the Information Age

A Preliminary Proposal to Host an ICEE Conference

a. Name of Conference

The suggested conference name should be ICEE 2003 (2005): Engineering Learning Communities in the Information Age. Hosting the conference in the year 2003 (2005) is requested in order to take advantage of the currently strong emphasis on the use of educational technology in engineering curricula. The year 2003 is also requested to make use of special circumstances described below.

b. Proposed Program Emphases/Themes

We propose Engineering Learning Communities in the Information Age as the central theme. This emphasis recognizes the need to communicate amongst the teaching community in order to share methods and techniques applicable to developing learning communities in the new age of information technology. This central theme evokes numerous sub-themes, some traditional sub-themes while others are new. It is the intent that all sub-themes, and as such, all tracks, will be closely tied to the central theme. An example sub-theme might be Faculty Development wherein discussions would be held regarding how faculty must be prepared, assisted and rewarded for transforming their courses into a form that is facilitated by a technology-based information system. Another example is the Assessment of Student Learning. This sub-theme would heavily emphasize how the assessment process has changed to take advantage of all of the new techniques and technologies developed over the past ten years. A partial list of potential sub-themes is given below:

Assessment of student learning
Classroom management
Curriculum design / assessment / renewal
Distributed (distance) learning
Educational technology implementations
Faculty development & training
Graduate student training
Incorporation of engineering practice
Industry & government relations for improving education
Life-long learning facilitated by technology
Multidisciplinary design
Models for integrating research and education
Shared courseware development

The venue chosen affords a very strong interaction between industry, government and universities. It is the intent of the conference organizers that these groups will be brought together to discuss the international aspects of engineering education in the information age. In

addition to US government representatives, representatives of international embassies located in the Washington area will also be invited to attend the meeting. Bringing together this group of university, industry and government experts in the area of engineering and education promises to initiate new international collaborations for improving engineering education.

c. Plans for Publication of Proceedings

Web-based and CD-ROM proceedings will be produced. Peer review by a local team will ensure that 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.

The keynote speeches as well as selected individual presentations will be videotaped, digitized and subsequently available on the web as synchronized streaming media presentations. A server at the Virginia Tech campus will be host the presentation delivery web site.

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 the sub-theme 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. Additionally, the area of information technology is currently very relevant and important to many in the information community. Our plan is to bring the conference to one of the world-wide focal areas of implementation of network-based technologies - Washington, D.C.

The best possible dates for the conference are **Sunday August 3** through **Thursday August 7, 2003**. These dates are selected in order to be close to the start of the fall semester without taking people away from the office during critical semester startup times. The dates also attempt to stay away from peak tourist times at the venue. Alternative dates include August 9-14, 2003 or some appropriate segment of dates in this early August interval. If the conference is awarded to Virginia Tech for 2005, then the recommended dates are August 7-11, 2005 or July 31- August 4, 2005.

The proposed venue for the conference is Alexandria, Virginia focused at the Virginia Tech Alexandria Research Institute. Alexandria, Virginia is adjacent to Washington, D.C. being less than five miles from the nation's capital and is connected by a very efficient rapid-transit rail system. Alexandria has several large hotel complexes within the city and neighboring suburbs capable and experienced at hosting large conferences such as the ICEE.

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 Falls Church, Virginia at the Virginia Tech Northern Virginia Campus. These workshops will

generally be two hours in length and offered by members of the international engineering education community. Falls Church Virginia is approximately 20 minutes by subway from the Alexandria site.

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 ICEE 2002):
- 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

Virginia Polytechnic Institute & State University (Virginia Tech) will host the proposed conference. The Virginia Tech International Institute for Information Technology headed by Dr. Leonard Ferrari, Vice Provost for Special Initiatives, strongly supports this proposal and is willing to underwrite some expenses as well as seek funding from the many supportive industries located in northern Virginia. A letter of endorsement is attached, and further information on the host institution is provided below. Dr. Charles Steger, president of the university strongly supports international collaborations of this type. It is likely that Dr. Steger will actively participate in the conference, although it is too early to obtain this specific commitment at this point in time. Dr. Steger's letter of support is also attached.

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

Joseph G. Tront will act as General Chairman for the conference. Additional co-chairmen include Dr. Scott F. Midkiff and Mr. Brandon Muramatsu.

Dr. Joseph G. Tront received his education in electrical engineering from the University of

Dayton where he received his B.S.E.E. and M.S.E.E. degrees in 1972 and 1973. In 1978 he completed his Ph.D. degree from the State University of New York at Buffalo, also in electrical engineering. Shortly thereafter he joined the Department of Electrical Engineering at Virginia Tech as an assistant professor. He became a full professor in the department in 1992. From 1991 through 2000 he served the college of engineering as the Assistant Dean for Engineering Computing where his duties focussed on integrating the use of educational technologies into the curriculum.

Dr. Tront has been an integral part of the SUCCEED coalition from its proposal and inception. SUCCEED, the Southeastern University and College Coalition for Engineering Education, was sponsored by the National Science Foundation beginning in 1992 with funding continuing through 2002. Joe acted as the director of the Center for Technology & Communication for the coalition and currently leads the coalition focus team for Technology-Based Curriculum Delivery. Through this affiliation he has led, guided, and supported numerous project involving the appropriate use of technology in engineering education.

The National Engineering Delivery System (NEEDS) is a database of materials intended for use in implementing curricular reform in engineering education. Dr. Tront is actively working on the cataloging NEEDS material as well as studying techniques for reviewing and assessing materials contributed to the database. Over 2000 pieces of courseware are contained in the catalog. In conjunction with this work, Dr. Tront is the co-editor of the Premier award for outstanding non-commercial courseware. This annual award seeks to reward faculty for developing innovative technology-based tools for enhancing engineering education.

Dr. Tront has authored a number of publications in engineering education as well as scholarly works in his areas of technical expertise which include Very Large Scale Integrated (VLSI) Circuit design, fault-tolerant computing, and multimedia. His publications include four books used in teaching electronics and integrated circuit design. He has hosted workshops for groups of from 20 to 100 participants. Recently, under the auspices of SUCCEED, he produced a workshop on educational technology which toured the eight coalition campuses. He also served as the general chairman of the 1984 International Conference on Multiple Valued Logic, which convened 150 attendees.

i. Introduction to the Hosting Institution(s)

Virginia Polytechnic Institute and State University (Virginia Tech) is the major, public, comprehensive, land-grant, research university in Virginia. It is among the top 50 research institutions in the United States and among the top 25 institutions without a medical school. Virginia Tech is among the nation's most academically diverse public universities and has a long history of excellence including established programs in international education, research, and service. Tech conducts over $180 million dollars worth of advanced research per year, ranks 4th in U.S. patents, 10th in licenses, and 13th in royalty income for universities without medical centers. Since 1983, Virginia Tech has placed a special emphasis on becoming a leader in the use of technology in the education arena and continues to achieve a great deal of success in this area. Virginia Tech truly is an institution that firmly embraces a history of putting knowledge to work. Please see www.vt.edu

Located at Blacksburg, Virginia, the university is comprised of eight colleges and graduate school. Over 70 different bachelor's degree programs and nearly 150 master's and doctoral degree programs are offered. More than 25,000 students, attend Virginia Tech making it the largest university in the state. The main campus includes 100 buildings, 2,600 acres, a golf course, conference facility and an airport. An extension of the campus is the growing VT Corporate Research Center. This facility is home to over 100 businesses housed in 16 different buildings with over 120 acres available for expansion.

Our eight colleges (agriculture, architecture, arts/sciences, business, human resources/education, engineering, natural resources, and veterinary medicine) offer more degree programs than any other university in the state with 71 undergraduate and 147 graduate programs. Virginia Tech is one of the nation's leaders in developing and using new instructional technologies. The university's faculty and students are involved in more than 3,500 research projects in fields ranging from biotechnology to materials, from the environment and energy to food and health, and from transportation to computing information.

As part of its public service mission, Virginia Tech is involved in a multitude of outreach projects. For example, it spawns economic development, helps global marketing efforts, investigates better uses for strip-mined land, helps clean the Chesapeake Bay and other state waterways, directs reforestation in Senegal--and the list goes on.

In additional to its main campus in Blacksburg, Virginia, the university also operates two additional campuses in northern Virginia along with four other special program sites. The Northern Virginia Center offers a wide variety of graduate and continuing education opportunities specially designed for working professionals. The 105,000 sq. ft. building is conveniently located adjacent to the West Falls Church metro station allowing for easy access to Washington, D.C. area professionals. Nearly 2,000 students are currently pursuing master's and doctoral degrees and certificates of advanced graduate study at the center.

The Alexandria Research (ARI) opened in Old Town Alexandria in October 1998 to be in close proximity to the more than 3000 companies and numerous federal agencies involved in high tech fields in the Washington Capital, Northern Virginia and Maryland areas. This location provides Virginia Tech faculty easier access to federal funding agencies, research laboratories, and industrial centers. Above all, it provides faculty with opportunities to interact more effectively with universities and research institutes nationally and internationally. ARI offers joint teaching and collaborative research opportunities as well as student and faculty exchanges with domestic and international institutions. It brings together researchers from different disciplines, providing an opportunity for the emergence of new ideas and collaboration on a variety of specialized technical fields.

Virginia Tech is the home of the Commonwealth's leading College of Engineering. The college, its faculty and its administration are known in Virginia and throughout the nation for the excellence of its programs in engineering education, research, and public service. The college is consistently rated as a premier institution by its peers in surveys of the nation's engineering school deans as reported by U.S. News & World Report. The same magazine ranked our

undergraduate program 18th for the quality of our undergraduate program. In addition, Money magazine, investigating what it considered to be the best value in education for the dollar spent, scored the University as one of the top five science and technology schools in value rankings. The graduate program is ranked 16th in terms of reputation as reported by professional engineers and recruiters. The college ranks eighth in number of bachelor's degrees awarded, 13th in master's degrees, and 19th in Ph.D.'s. Virginia Tech's College of Engineering is the 14th largest producer of women engineers with a B.S. It ranks 19th for African Americans graduates among its peer schools. All of the College's Bachelor of Science degree programs are accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET). Student enrollment in the College of Engineering for Fall 2001 is approximately 5300 undergraduates and 1300 graduate students.

Further information about the Virginia Tech and its College of Engineering is available at http://www.vt.edu/ and http://www.eng.vt.edu/ respectively.

j. Introduction to the Hosting City/Region

Washington D.C. Metro area is an exciting and eclectic mix of all things American. There are so many things to experience it is difficult to choose which to highlight. The monuments are one. One can scarcely look anywhere in D.C. and not see a monument, or gift, or remembrance, to someone or something. While many American cities are strewn with hundreds and thousands of skyscraping buildings jetting non-scenically into the sky above, the U.S. capital is dominated by its monuments. There's a city ordinance that prohibits such Goliath structures, making for a scene that resembles more a rural theme park than an industrial state. Supposedly, when L' Enfant laid the plans for Washington, DC, he designed it in the mold of Paris, complete with grassy fields, long reflecting pools, and a sense of beauty that would otherwise be lost in an urbanized development. The city maintains the beauty envisioned by its designer.

But there is more to Washington than monuments. There are museums—lots of the world's finest museums from the Smithsonian's Air and Space Museum to Natural History Museum, to the National Gallery to the Holocaust Museum, to name just a few.

Business and industry flourish in the area. Being the center of the United States government means power is brokered here. In addition, high tech companies have located and grown in the Washington metro area. The area is now home to the nation's greatest population of high-technology workers, surpassing both the Boston corridor and Silicon Valley. This burgeoning technology industry is driving Virginia's economy. The Washington area is home to high tech giants such as IBM, AOL, UUNet, Lockheed-Martin and TRW, to name just a very few. In the Washington, D.C area, history and high technology co-exist graciously, side by side.

With the diversity produced by the melding of government, and technology, it no surprise that Washington is noted for fine dining, cultural events, historical neighborhoods and diverse cultural scenes, beautiful parks, and amazing shopping. Visiting Washington, D.C. is a great way to visit the U.S. in microcosm.

k. Comments on Conference Facilities

Hilton Alexandria Old Town

In the heart of Alexandria's quaint area known as Old Town, you will find the luxurious Hilton Alexandria Old Town. With its gracious elegance and unsurpassed attention to detail that is reminiscent of days gone by, its beautifully designed and impeccably appointed guestrooms and suites will surround you with every comfort.
Located adjacent to the King Street Metro/Amtrak Station, the Hilton Alexandria Old Town is just minutes from the monuments, museums and power centers of Washington, DC. If that is not enough, the Hilton Alexandria Old Town is within walking distance of Old Town's famed history, business and upscale shopping district. The Hilton Alexandria Old Town has 241 guest rooms. There is 8000 sq. ft. of conference facilities, accommodating 500 persons. Overflow hotels within walking distance include Holiday Inn Select Old Town and Embassy Suites Old Town.

l. Proposed Social/Cultural Programs and Industrial Visits

Opening Reception—The Smithsonian's Hirshhorn Museum and Sculpture Garden

The museum offers a compelling ambiance for viewing art, indoors and out. The elevated, drum-shaped building on the National Mall, midway between the Washington Monument and the Capitol, is surrounded by more than four landscaped acres for sculpture. Award-winning architect Gordon Bunshaft designed the complex. The museum contains 12,000 works, forming the core of this dynamic art collection. Its ever-changing exhibits generate an informed awareness and lively dialogue about modern and contemporary art. Drinks and hors d'oeuvres will be available to enjoy along with the art.

Evening cultural event—The Smithsonian's National Air and Space Museum

The Smithsonian Institution's National Air and Space Museum (NASM) maintains the largest collection of historic air and spacecraft in the world. The Museum has 23 main exhibition galleries, each displaying major artifacts from the massive collection. Located on the National Mall in Washington, D.C., the Museum has hundreds of artifacts on display including the original Wright 1903 Flyer, the "Spirit of St. Louis," Apollo 11 command module, and a Lunar rock sample that visitors can touch. The museum continues to develop new exhibits to examine the impact of air and space technology on science and society. A casual catered dinner will be held in the museum.

Evening cultural event—Wolf Trap Farm Park

An evening entertainment featuring music and dance under the stars at Wolf Trap, the Washington's areas outdoor performance arena is planned. Wolf Trap's sprawling meadow-seating can accommodate 2000 under cover and 5000 on the lawn.

Walking tour of the National Mall—Spouse tour

A leisurely and informative tour is planned, visiting many of the monuments on the national mall, between and including the Capital and the Lincoln Memorial. Included sites are the Washington Monument, the Vietnam Memorial, the Jefferson Memorial, the Library of Congress and the National Archives.

Mt. Vernon and Arlington Cemetery—Spouse tour

Close to Alexandria is Arlington National Cemetery, where president John F. Kennedy, among 20,000 others, is buried. A beautiful 45 minute bus ride down the Potomac River finds Mt. Vernon, the home of the first U.S. president, George Washington. His home is preserved as it was during his life as a plantation owner during colonial times in the late 1700's.

Alexandria Historical Tour—Spouse tour

The history of Alexandria reads like a Who's Who of American History. George Washington, George Mason, and Robert E. Lee are just a few famous Americans who had a hand in the heritage of a city that owes its founding to hardworking Scottish merchants. So much of the history has been preserved in the area surrounding the conference site. A tour and lunch is planned.

Post Conference Industrial Tour

Conferences attendees will have the opportunity to visit the Lockheed-Martin/IBM facility at Manassas, VA to see how technology is shaping our future. Other possible industrial visit sites include COMSAT, AOL, Honeywell and a long list of others.

Other Tour Possibilities

The White House
Baltimore Aquarium
Baltimore Orioles Baseball Game
Monticello and Univ. of Virginia
Bureau of Engraving and Printing
FBI

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 4 breakfasts	$40	per participant
$20 per conference lunch x 4 lunches	$80	per participant
$45 per conference dinner x 3 dinners	$135	per participant
Transportation (attendee)	$8,000	
Travel (committee status reports)	$10,000	
CD-ROM proceedings	$5,000	
Audio/Visual equipment rental	$3,000	
Conference services (professional and student assistance)	$10,000	
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)	$40,000	
	$186,000	for 400 participants

Income

Support from Virginia Tech	$10,000	
Conference registration fee	$440	per participant
	$186,000	for 400 participants

Additional corporate support is being sought and is expected to be confirmed once the conference venue is granted by the Steering Committee. With expected support of approximately $50,000, the attendee registration fee will be lowered to approximately $350 per participant.

m. 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 Blacksburg, Virginia, United States. This venue will be reached via Washington D.C., permitting a trip to visit the conference facilities and the hosting institution.

n. 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.