

Civil Engineering Division
of the
American Society for Engineering Education
April 2003

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Message from the Chairman

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It has been a very good year for the Civil Engineering Division. The annual Membership Report, presented to the Board of Directors this past January, shows our division membership at 625 strong—up 4% from the previous year. Growth is good, especially at a time when so many other trends are negative. But even beyond these positive numbers, the division just keeps getting better.

This year we implemented a new fellowship program to honor the memory of **Jerry Seeley**, a devoted and highly respected member of the division, who died in 2001. The purpose of the Gerald R. Seeley Fellowship is to encourage CE faculty with five or fewer years' teaching experience to become active members of the ASEE Civil Engineering Division—a cause that Jerry supported enthusiastically during his many years of service to the division. The fellowship consists of reimbursement for attendance at the ASEE Annual Conference and is awarded to the eligible applicant who submits the best paper for presentation at the conference. The CE Division Executive Board outlined the basic concept for the Seeley Fellowship at last year's Annual Conference; but the real work was done this spring by an ad hoc selection committee composed of **Sam Clemence, J. P. Mohsen, Jim Nau, and Doug Schmucker**. Doug provided the committee with a uniquely valuable perspective—his personal association with Jerry Seeley at Valparaiso University. Jim Nau coordinated the committee's work and did a wonderful job. Gentlemen, thank you all for getting this program off to such a successful start.



Even though this was the first year for the Seeley Fellowship program, the quality of the entries was so high that the selection committee ultimately decided to award two fellowships, rather than just one. I am very pleased to announce the winners here. Our 2003 Gerald R. Seeley Fellows are **Dr. Tonya Emerson** from California State University at Chico, selected for her paper, "Student Chapters—An Adjunct to Engineering Education;" and Captain **Reid Vander Schaaf** of the U.S. Military Academy (*Go Army!*)

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From the Program Chair
2003 ANNUAL MEETING IN NASHVILLE

Vince Drnevich
Purdue University

Nashville

Music City USA is home and capital of live music. It also is known as *Athens of the South* for its dedication for education where there exists the only full-size replica of the Parthenon. The City also features the Frist Center for the Visual Arts, the Cheekwood Botanical Garden & Museum of Art, Country Music Hall of Fame, and of course the Grand Ole Opry. For more information see <http://nashville.citysearch.com/>



Civil Engineering Division Conference Highlights

Civil Engineering Rap Session and Toys in the Classroom

(Session 1815), 7:00 to 10:00 pm, Monday, June 23. The Department of Civil and Environmental Engineering at Vanderbilt will host us in their beautiful Featheringill Hall of Engineering. This FREE event will feature buffet style cheeses, fruits, tortilla chips and dips, finger sandwiches, and dessert bars along with beer, wine, and soft drinks. Vanderbilt is about 2 miles from the Convention Center and vans will get people to Vandy and take them back to their hotels. The Rap Session—will be devoted to an open discussion of issues and concerns in civil engineering education. Session Co-Chairs Ron Welch and Wilf Nixon will also conduct our third annual “Toys in the Classroom” exhibition—a showcase of physical models and demonstrations that CE educators have used successfully in their classes.



Civil Engineering Division Social and Banquet (Session 2815), 7:00 to 10:00 pm, Tuesday, June 24 at the Cumberland Club, 511 Union Street. This private club is on the 26th floor of a building just two blocks north of the Convention Center. It provides a breathtaking panoramic view of Nashville. Their reputation for food is excellent. I don't think anyone will be disappointed. At this session, we will present the Glen L. Mar-

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Come Join Us

Program Chair Message (Cont.)

(Continued from page 2)

tin best paper award, the George Wadlin Award, and the first Gerald A. Seeley Award.

Technical Sessions

Where are Tomorrow's Civil Engineers? (Session 1315) This session will address "pipeline" issues of attracting students into civil engineering programs. The first part will focus on current trends in the K-12 population, effective outreach programs to the K-12 market (noting success stories and impact on CE enrollment) and in intra-college transfers into CE programs. The second part will be a discussion involving the audience exploring effective programs to attract students into civil engineering graduate studies.

- ***Engineering the World: Hands-on Experimentation for Civil Engineering K-12 Outreach***, James L. Hanson, Donald D. Carpenter, and Tarek Rizk, Lawrence Technological University, Southfield, MI
- ***Shaping the Battlefield to Increase Enrollments in Civil Engineering***, Seán P. Buchholtz and Reid Vander Schaaf, United States Military Academy, West Point, NY
- ***Creative Ideas for Recruiting Domestic Doctoral Students*** – A group discussion led by Greg D. Reed, University of Tennessee, Knoxville, TN

Effective Teaching to Motivate & Retain Students (Session 1615) - This session will focus on proven educational techniques which will motivate students to pursue Civil Engineering, as well as retain those students already in Civil Engineering. Approaches used to engage the students include, but are not limited to, techniques for inside and outside the classroom, large and small classes and collaborative learning.

- ***An Effective Teaching Strategy for Motivation and Retention of Engineering and Technology Freshman***, Zia Razzaq, Old Dominion University, Norfolk, VA.
- ***Increasing Student Motivation Thru Development and Grading of Examinations and Homework***, Reid Vander Schaaf and Ronald Welch United States Military Academy, West Point, NY
- ***Effective Teaching and Learning of Composite Materials for Undergraduate Civil Engineering Students***, Julio F. Davalos (West Virginia University, Morgantown, WV) and Pizhong Qiao, University of Akron, Akron, OH

Instructional Technology (Session 2215) – Use of Instructional Technology (i.e., from simple toys to blackboard use) to meet educational needs and expectations of engineering learners.

- ***Using Technology to Enhance Learning about Construction Materials***, Hussain Bahia, Steven Cramer, and Nancy Ciezki, The University of Wisconsin - Madison
- ***Using Failure Case Studies in Civil Engineering Courses***, Norbert J. Delatte, The University of Alabama at Birmingham, AL

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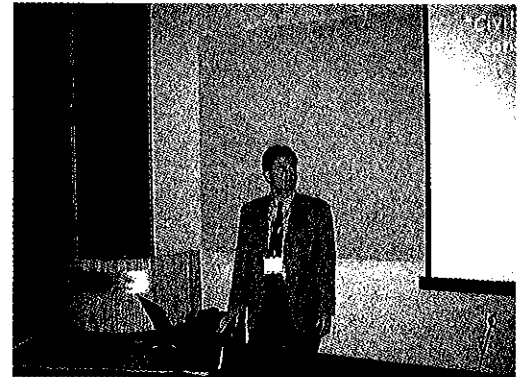
Program Chair Message (Cont)

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- ***Creativity in Design: A Cross-Disciplinary Approach*** by Kamyar C. Mahboub, Yinhui Liu (Graduate Student), Susantha Chandraratna (Graduate Student), and Margaret B. Portillo (Associate Professor of Interior Design), University of Kentucky, Lexington, KY
- ***Construct First, Design Later – A Hands-On Learning Experience in Reinforced Concrete***, Steven T. Kuennen and Anthony R. Barrett, United States Air Force Academy, Colorado Springs, CO
- ***Design of Concrete Fracture Experiments***, C.A. Totman and J.P. Dempsey, Clarkson University, Potsdam, NY

Raising the Bar and Body of Knowledge (Session 2315) – ASCE's Task Committee on Academic Prerequisites for Professional Practice (TCAP³) and others will provide participants with an update of the CE profession's implementation of ASCE Policy 465 and on defining the Body of Knowledge (BOK) for civil engineering practice at the professional level.

- ***ASCE's Raise the Bar Initiative: Master Plan For Implementation***, Jeffrey Russell for the ASCE Task Committee on Academic Prerequisites for Professional Practice (TCAP³), University of Wisconsin, Madison, WI
- ***ASCE's Raise the Bar Initiative: The Body of Knowledge for the Future***, Stuart G. Walesh, Consultant, Valparaiso, IN
- ***ASCE's Raise the Bar Initiative: Accreditation-Related Barriers and Critical Issues***, Ernest T. Smerdon (University of Arizona, Tucson, AZ), Richard O. Anderson (SOMAT Engineering, Inc., Taylor, MI), and Jeffrey S. Russell (University of Wisconsin-Madison, WI)
- ***A Methodology to Define the Body of Knowledge in Civil Engineering***, Wilfrid A. Nixon and M. Asghar Bhatti, University of Iowa, Iowa City, IA
- ***A Civil Engineering Curriculum for the 21st Century***, James K. Nelson, Osama Abudayyeh, Edmund Tsang, and Molly Williams, Western Michigan University, Kalamazoo, MI



Trends in Civil Engineering Accreditation (Session 2515) - Examine current practices and trends in CE accreditation, to include processes for selecting, training, assigning, and evaluating evaluators; and recent trends in accreditation results. Presentations will include the perspectives of experienced evaluators, newly trained evaluators and Department Heads.

- ***CE Accreditation: An Overview of Principles, Process, and Practice***, Stephen J. Ressler, United States Military Academy, West Point, NY

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Program Chair Message (Cont.)

(Continued from page 4)

- **Selecting, Training, Assigning, and Assessing CE Evaluators**, J. Phillip Smith, Texaco, Inc., VA
- **Trials of a Beginning ABET Evaluator: An Unauthorized Tell-All Biography**, Allen C. Estes, United States Military Academy, West Point, NY
- **A Senior Evaluator's Perspective: Common Problems and Recent Trends**, Greg D. Reed, University of Tennessee, Knoxville, TN
- **EC 2000 Round Two - The Arkansas Experience**, Robert P. Elliott, University of Arkansas, Fayetteville, AR

Programmatic Curriculum Developments (Session 2615) - Planned curricular developments to respond to ASCE Policy 465 and ABET assessment. Programmatic changes to prepare the new breed of engineers to face the challenges of global development of civil engineering. Courses that cut across disciplines and provide interaction between fourth and fifth year students.

- **Performance-Based Curriculum Design**, W.W. Massie, Interfaculty Offshore Engineering, Delft University of Technology, Delft, The Netherlands
- **A Flexible Undergraduate Civil Engineering Curriculum**, Wilfrid A. Nixon, Robert Ettema, Forrest M. Holly Jr., and James W. Stoner, University of Iowa, Iowa City, IA
- **Too Liberal or Not Liberal Enough: Liberal Arts, Electives, and Professional Skills**, W.B. Stouffer and Jeffrey S. Russell, University of Wisconsin-Madison, Madison, WI
- **The Integrated Civil Engineering Curriculum: The Gap Between the Blackboard and Business**, Marlee A. Walton, Iowa State University, Ames, IA
- **Integrating Sustainability into Civil Engineering Curricula**, Michael Robinson and Kevin Suterer, Rose-Hulman Institute of Technology, Terra Haute, IN



Student Chapters and Formulas for Success (Session 3215)

- Many engineering programs have student clubs and student professional society chapters that greatly enhance their students' academic experience. They do this through activities such as national competitions, professional development seminars, and community service. This session examines how successful student chapters complement traditional engineering curricula.

- **Enriching the Academic Experience by Enriching ASCE's Student Chapters and Clubs**, James O'Brien, ASCE,

Reston, VA

- **The Value of Student Chapters: A Difference in Perspective**, T. Bartlett Quimby, University of Alaska Anchorage Civil Engineering, Anchorage, AK

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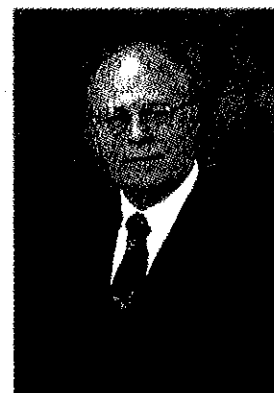
Program Chair Message (Cont)



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- **Community Service Projects for ASCE Student Chapters**, Mark D. Evans and Denise M. Evans, United States Military Academy, West Point, NY
- **Eight Factors for Creating an Active Student Professional Society and How It Enhances the Engineering Curriculum**, Richard A. Reid, Assistant Dean of Engineering and Charles Tiltrum, Associate Professor of Civil & Environmental Engineering, South Dakota State University, Brookings, SD
- **Student Chapters: An Adjunct to Engineering Education**, Tonya L. Emerson and Russell S. Mills, California State University, Chico, CA
- **The Role of Student Chapters In Improving CE Programs**, Allen C. Estes, Eric M. Lachance, and Mark D. Evans, United States Military Academy, West Point, NY

Chi Epsilon Luncheon (Session 3415) [Ticket required for lunch] – **Future CE Faculty, Who Will Take Our Place??** Dr. Donn Hancher, Professor and Terrell-McDowell Chair of Construction Engineering and Management, University of Kentucky, recipient of the 2002 *Chi Epsilon James M. Robbins Excellence in Teaching Award*.



Experienced-based Instruction (Session 3515) - The influence of licensure, design experience, research and consulting experience on effective teaching/learning.

- **Experience-Based Instruction in Engineering Education**, Ronald B. Meade, United States Air Force Academy, Colorado Springs, CO
- **Planning and Design of a Water Distribution System with Practitioner and Student Interaction**, Michael E. Mulvihill, Loyola Marymount University, Los Angeles, CA
- **Client-Based Projects for Every Senior – A Mark of Excellence for Any Program**, Ronald W. Welch and Allen C. Estes, United States Military Academy, West Point, NY
- **The Admiral Combs Design Retreat**, Stacy Eisenman and George List, Rensselaer Polytechnic Institute, Troy, NY

Business and Planning Sessions

Civil Engineering Division Executive Board Meeting (Session 1115) [Ticket required for breakfast] - Discuss actions of the last year, last minute details for CE Division Program and Annual Business Meet-

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Message from the Chair

(Continued from page 1)

for his paper, "Increasing Student Motivation Through Development and Grading of Examinations and Homework." Congratulations Tonya and Reid. I am looking forward to formally recognizing your achievement at the Annual Conference. We all hope that you will internalize the spirit of the Seeley Fellowship and will remain active, life-long members of the ASCE CE Division.

The 2003 Annual Conference will be held in Nashville, Tennessee, June 21-26. Be there. That's an order. Vince Drnevich, our Program Chair, has assembled a superlative program for the conference. Anyone who knows Vince knows that he never does anything halfway, and the Nashville conference is certainly no exception to the rule. Vince has devoted incredible time and energy to every aspect of the program—excellent technical sessions, extraordinary venues for our social events,



great food, *free beer* at the Rap Session, and of course, the ever-popular Toys in the Classroom extravaganza. (If you thought last year's "flaming catapult" demon-

stration was good, wait 'til you see what the Toy Guys have cooked up for us this year!) Oh...and did I mention that there will be *free beer* at the Rap Session?

Vince and his team of session chairs have developed a technical program covering a wide variety of topics that promise to be both relevant and stimulating. We received over 100 abstracts for this conference, so you can expect that the quality

of the papers will be high as well. Many thanks to Vince and to our hard-working session chairs—the unsung heroes of the division—who conceived and developed their sessions, orchestrated peer reviews of the abstracts and papers, and will serve as moderators at the conference.

Speaking of unsung heroes, **Dennis Fallon** and **Marvin Criswell** continue to do invaluable service to the CE Division as the Editor of this newsletter and as Secretary/Treasurer, respectively. With this newsletter, Dennis completes his three-year term as Editor; his desktop publishing skills will be sorely missed. Thanks, gentlemen, for all you do.

Our Awards Committee, consisting of Jim Nau, Sam Clemence, and J.P. Mohsen, has been hard at work as well. In addition to selecting our first Seeley Fellows, the Committee has chosen this year's winner of the Glen L. Martin Award for the best paper presented at the 2002 conference. And the award goes to [drum roll, please] **Dr. Tonya Emerson** from Cal State Chico for her paper, "Enhancing Student's Understanding of Key Engineering Concepts Through the Use of Civil Engineering Toys in the Classroom." Congratulations *again*, Tonya. The Awards Committee has also chose the winner of our division's highest honor, the George K. Wadlin Distinguished Service Award. And the award goes to...well, I can't tell you. If you want to find out, you'll have to attend the CE Division Banquet on Tuesday, June 24, in Nashville. Please come and help us honor one of engineering education's finest. I can guarantee you that the committee has chosen wisely.

By the time you read this, you should have already received an e-mail ballot for our annual

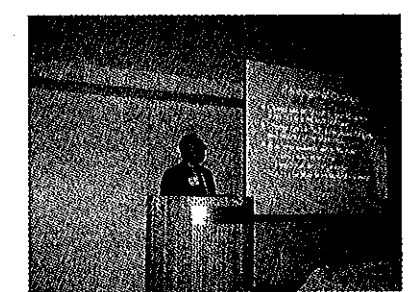
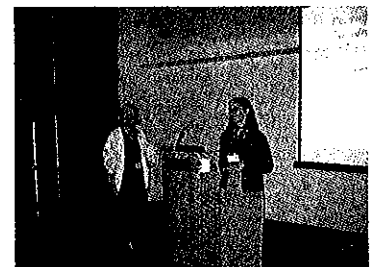
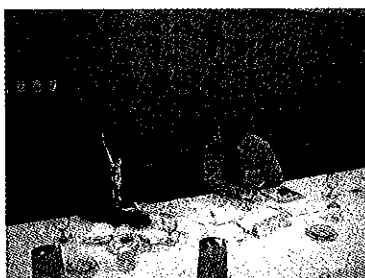
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ASCE Mission Statement

The American Society for Engineering Education *is committed* to furthering education in engineering and engineering technology. This mission is accomplished *by promoting excellence* in instruction, research, public service, and practice; exercising worldwide leadership; fostering the technological education of society; and providing quality products and services to members.

The Society *seeks to encourage* local, national, and international communication and collaboration; influence corporate and government policies and involvement; promote professional interaction and lifelong learning; utilize effectively the Society's human and other resources; recognize outstanding contributions of individuals and organizations; encourage youth to pursue studies and careers in engineering and engineering technology; and influence the recruitment and retention of young faculty and underrepresented groups.

People of the CE Division (at work and at play) A Pictorial



Program Chair Message (Cont.)

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ing. Stephen J. Ressler, Civil Engineering Division Chair presiding.

Civil Engineering Division Annual Business Meeting (Session 1415) [Ticket required for lunch] – Conduct the business of the Civil Engineering Division. Stephen J. Ressler, Civil Engineering Division Chair presiding.

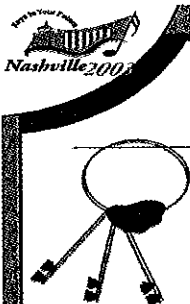
Civil Engineering Division Planning Luncheon (Session 2415) [Ticket required for lunch] - Planning for the 2004 CE Division Program. Choose Sessions, Topics, Session Leaders, etc. Wilfrid A. Nixon presiding.

Mini-Plenary Session (Session 3366)

Engineering in the Modern World: The interaction of Engineering and Society, Dr. David P. Billington, Princeton University, Princeton, NJ. This lecture will describe an introductory course on engineering for engineering students and for all other students in higher education. Based upon original research, this course, taught continually since 1985, traces the rise of America from the Industrial Revolution to today by exploring major innovations which have transformed our society. The focus is on the calculations made by the innovators, which are accessible to all students, the politics that these innovations transformed, and the individual engineers who made major contributions. This session is co-sponsored by the Mechanical Engineering Division and the Civil Engineering Division.

ASCE News
Civil Engineering Conference

ASCE American Society of
Civil Engineers



The 2003 Annual Civil Engineering Conference & Exposition—**Keys to the Future**—will be held in Nashville (yes we are returning to Nashville) from November 12–15. The three day conference will include plenary and technical sessions, panel discussions, workshops, networking opportunities, technical and guest tours, ASCE Annual Business Meeting, the 5th Annual National Civil Engineering Career Fair, the Exposition and much more.

For more information on the conference go to www.asce.org/conferences/annual03

Body of Knowledge

Curricula Committee

ASCE Policy Statement 465, unanimously adopted by the Society's Board of Direction in 2001, states that the Society "...supports the concept of the Master's degree or equivalent as a prerequisite for licensure and the practice of civil engineering at the professional level." ASCE created the Task Committee on Academic Prerequisites for Professional Practice (TCAP³) to "develop, organize and execute a detailed plan for full realization of Policy Statement 465." TCAP³ subsequently formed the Body of Knowledge (BOK) – Curricula Committee and its charge included defining the BOK, addressing the role of experience and describing the role of faculty.

In response to its charge, the BOK – Curricula Committee is conducting its deliberations and presenting its preliminary recommendations arranged by these three themes: 1) *what* should be taught and learned by future civil engineering students; 2) *how* should it be taught and learned; and 3) *who* should teach it.

The *what* recommendations are cast in terms of 16 outcomes, which include and build on the ABET's 11 outcomes. Each outcome is further described with a commentary. Knowledge, skills and attitudes in the outcomes include recognition, understanding and/or ability in broad and deep areas essential to the future practice of civil engineering at the professional level. Examples of those areas are mathematics, science, data analysis, design, use of modern engineering tools, communication, leadership, teamwork, project management, construction and asset management, business and public policy fundamentals, ethics, contemporary issues, and life-long learning.

Stressed in the *how* recommendations are new undergraduate – graduate tracks that help students fulfill the BOK, use of distance learning, participation by non-traditional educational providers, and the essential role of experience in fulfilling the BOK. The *who* recommendations identify four faculty success factors.

The preceding preliminary recommendations of the BOK-Curricula Committee, combined with those of the parallel Accreditation and Licensure Committees, are enabling TCAP³ to move forward in carrying out its charge to implement ASCE Policy Statement 465. The draft report *Civil Engineering Body of Knowledge for the 21st Century: Preparing the Civil Engineer for the Future* is available at www.asce.org/raisethebar. Comments are most welcome.

The committee will report its preliminary BOK recommendations at the upcoming ASCE Annual Conference and Exposition in Nashville. The relevant Tuesday, June 24 session (Session 2315, 10:30-Noon) is titled "Raising the Bar and Body of Knowledge." Another paper in that session will address accreditation implications of Policy Statement 465.

Please direct questions, comments, suggestions and offers to participate to Stuart G. Walesh, PhD, PE, Chair – Body of Knowledge – Curricula Committee (stuwalesh@aol.com).

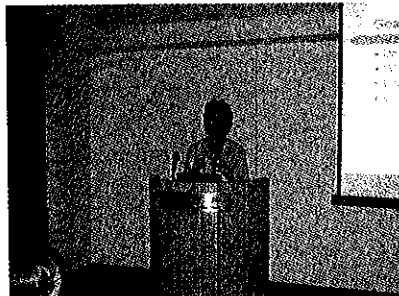
Message from the Chair (Cont)

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CE Division elections. Last year, J.P. Mohsen initiated the practice of doing our elections electronically. The process worked well—there were no “hanging chads” and very few proven cases of vote-buying—so I have decided to try it again this year. The candidates are **Vince Drnevich** (Purdue University) for Chairman, 2003-2004; **Wilf Nixon** (University of Iowa) for Vice Chair/Program Chair, 2003-2004; and **Ron Welch** (U.S. Military Academy) for Director, 2003-2006. If you have not yet cast your vote, please do! It's your civic duty—or perhaps I should say, your *civil* duty. If you did not receive a ballot, please contact me at stephen.ressler@usma.edu, and I'll be happy to send you one.

It has been an honor to serve as your Division Chair this year. I look forward to seeing y'all in Nashville.

Scrapbook of Montreal ASCE National Conference in 2002



Learnon.org

Learnon.org, the continuing education initiative of the American Society for Engineering Education (ASCE), is the nation's online resource for continuing engineering education and distance learning, offering engineering professionals a searchable database of thousands of courses across all engineering disciplines.

At no cost, engineers can search the database by course subject matter, geographic location, price, or course provider. Listings include traditional classroom courses, distance learning courses, evening courses, weekend seminars and workshops, web-based courses, CD-ROM courses, and video courses; all of which are offered by U.S. engineering colleges and universities and engineering professional societies. Learnon.org also contains articles, academic papers, conference announcements, news items related to continuing education and distance learning and useful links to all course providers' web sites.

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