



April, 2002, Volume 2, Issue 1

Civil Matters

Civil Engineering Professional Academy launched

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The purpose of the Civil Engineering Professional Academy is to recognize individuals and business entities that partner with the Department of Civil Engineering at Kansas State University. The academy will provide the opportunity for CE industries and professional leaders to impact civil engineering education and personally interact with department leadership, faculty and students. Specifically, the academy will

- recognize, at the annual CE Awards Banquet, Civil Engineering friends and alumni who bring honor to their profession and to their alma mater through professional practice and public service.
- strengthen the dedication of current students in civil engineering through personal and professional interactions facilitated between academy members and students.

- provide advisory guidance and counsel at the call of the department head, faculty or students.
- provide financial support (through membership gifts) for the benefit of the civil engineering department at Kansas State University.

Membership is extended through invitation from the CE department head and the dean of engineering. Members of the academy will be recognized in the annual civil engineering newsletter, *Civil Matters*, and in distinctive signage located at the Civil Engineering Bruce R. Butler Foyer. Corporate members will be invited to display company information (i.e., values, missions, highlights of successful projects) in the department hallways as space allows. These industry displays are expected to stimulate the interest and dedication of students in the CE profession, and exemplify the company's commitment to engineering education.

CIVIL ENGINEERING *Designing and Building for Quality of Life*



CE faculty in the Bruce R. Butler Foyer.

Editors
Lakshmi Reddi
Steve Starrett

News from the department head



Lakshmi N. Reddi

It is my honor to welcome readers to the second issue of *Civil Matters*. The year 2001 delivered several fruits of our hard work, posed new challenges (none more drastic than those created by the incidents of September 11) and created some more dreams to follow.

September 11th was a sad reminder that the mighty skyscrapers we take so much pride in creating are so fragile and vulnerable to uncivil forces of destruction. History shows that time and again, the products of our intellectual pride become symbols to attack in conflicts. Yet in the face of such adversity, the civil engineering profession has always helped people build greater civilizations and rebuild greater skyscrapers. This time will be no exception.

We took a crucial step last year to bring CE industries and professional leaders to a closer partnership with our department. The newly created CE Professional Academy will provide the opportunity for CE industries and professional leaders to impact civil engineering education and personally interact with department leadership, faculty, and students. Invitations are going out to outstanding CE professionals and industries welcoming them to join the academy.

On the curriculum front, we have gone through major reforms this past year including the cre-

ation of CE-101: Introduction to Civil Engineering, which will introduce our profession to students at the freshmen stage of the curriculum and generate broad interest in the field. Our graduate student body is steadily growing, particularly the off-campus (distance-learning) student body.

Our faculty are more active than ever before fulfilling the comprehensive mission of our department and our college, which is to provide quality instruction to create civil engineering leaders of tomorrow, advance frontiers of civil engineering research, and provide professional service to our community and the nation. Even in the face of dwindling resources (and gloomy state budget forecasts for next year), our faculty continue to be enthusiastic in what they do.

We are dedicated to creating a learning environment where faculty and students progress alike in their pursuit of knowledge. We strongly believe our alumni and CE practitioners have a valuable role in creating this environment. We would love to hear from you.

Best wishes.

Lakshmi N. Reddi

Lakshmi N. Reddi



CE faculty, staff, graduate students, and families at annual picnic.

ASCE chapter news

2001—another active year

2001 was another great year for the KSU ASCE Student Chapter. ASCE students helped out at Sunset Zoo in Manhattan in the spring semester. The ASCE special project included demolition and removal of out-dated animal cages. In fall 2001, ASCE special projects officer Will Hye organized a project with the city of Manhattan. The students built a wooden fence that will serve a sports complex on the east side of Manhattan. In addition to the special projects, ASCE served the community by removing litter on a two-mile stretch of US Highway 24 between Manhattan and Wamego. An excellent turnout of civil engineering students for the bi-annual task aided in making it a fun and rewarding experience for those involved.

Both the concrete canoe team and the steel bridge team had excellent participation in 2001 and were able to proudly represent Kansas State University at the Mid-Continent Regional Competition held in Fayetteville, Ark. in April. The concrete canoe team finished in a controversial third place after coming up less than a point away from second place Oklahoma. KSU rowers were able to beat perennial powerhouse OSU in many of the races; a feat that others teams have not been able to do for many years.

The third place finish left the canoe team more determined than ever to return to nationals in 2002.

The KSU steel bridge team was able to bring two designs to the regional competition in 2001, due to the large number of team members. The steel bridge team did not place in the top two overall, but did do well in the deflection category with both of their bridges. The Steel Bridge Team will benefit from lessons learned in 2001 and work to improve the time and weight categories to put themselves in a position to return to nationals in 2002.

This year's representatives of the student chapter attended the ASCE Region III Workshop for Student Chapter Leadership in Duluth, Minn. ASCE also participated in the Open House in Spring 2001 and the faculty-freshmen mixer in Fall 2001. Chapter officers and members are hopeful of winning the regional competitions to be held in Norman, Okla. in 2002 and taking concrete canoe and steel bridge teams to the 150th anniversary student conference in Madison, Wisc. We are also excited to have been selected to host the 2003 regional competitions in Manhattan.

Dr. Bob Peterman was selected by the ASCE student chapter as the 2001 Outstanding Faculty Member of the Year.

Gregory Weatherd HNTB, was the invited speaker for the ASCE Bob Thorn Lecture 2001.

Chi Epsilon 2002 update

XE initiated 12 new members last year. All have outstanding achievements and promising futures. Alok Bhandari, Ph.D. was awarded the first XE Advisor of the Year Award and Jacob Najjar, Ph.D. was selected for the XE Teacher of the Year Award. Two remarkable civil engineers were elevated to Chapter Honor Members this past year: William Stannard and Charles Eby. Mr. Stannard is currently a vice-president at Black & Veatch and Mr. Eby is vice-president at Eby Construction.



XE officers clockwise from back right: Richie Benninghoven, president; Travis Heier, vice-president; Larry Close, pledge marshall; Bryce Barkus, secretary; Jerome Estes, newsletter editor; Lance Harter, treasurer.

Congrats to Student of the Year winners



Kelly Carlton

Kelly Carlton, Lansing, Kan., was named the 2001 Freshman CE Student of the Year. Along with being an outstanding student, Kelly is on the K-State varsity cross country team.

Tricia Petr, Blue Rapids, Kan., was named the 2001 Sophomore CE Student of the Year. Tricia has strong leadership skills and is very active in ASCE.

Raegan Willoughby, Minneapolis, Kan., was named the 2001 Junior CE Student of the Year. Raegan has received numerous scholarships and awards. She has also been on winning intramural sports teams.



Tricia Petr

Mark Hutcherson was named the Kansas Section of ASCE Outstanding Senior for Spring 2001. He is now living in Houston and working for Exxon.

Ryan Robinson was the CE Dept. Outstanding Senior for Fall 2001. He is working for HNTB in Kansas City.

Honors and Awards

This year, the department established four awards to recognize outstanding faculty. Winners were chosen by the faculty themselves through a ballot. These awards were sponsored by CAS Construction Co. and Brungardt & Honomichl Co. The four awards and their winners are as follows:

Fish Award (winner: Steve Starrett, Ph.D.) recognizes a faculty member who possesses a number of outstanding characteristics such as overall positive attitude, enjoyable to work with, extremely student-oriented, very unselfish, and has worked the hardest during the past year for the betterment of the department.



Steve Starrett



Alok Bhandari

Outstanding Teaching Award (winners: Alok Bhandari, Ph.D. and Bob Peterman, Ph.D.) recognizes a faculty member whose teaching activities and accomplishments during the past year have had the most positive impact on the department.



Gene Russell

Outstanding Research Award (winner: Gene Russell, Ph.D.) recognizes a faculty member whose research activities and accomplishments during the past year have had the most positive impact on the department.



Bob Peterman

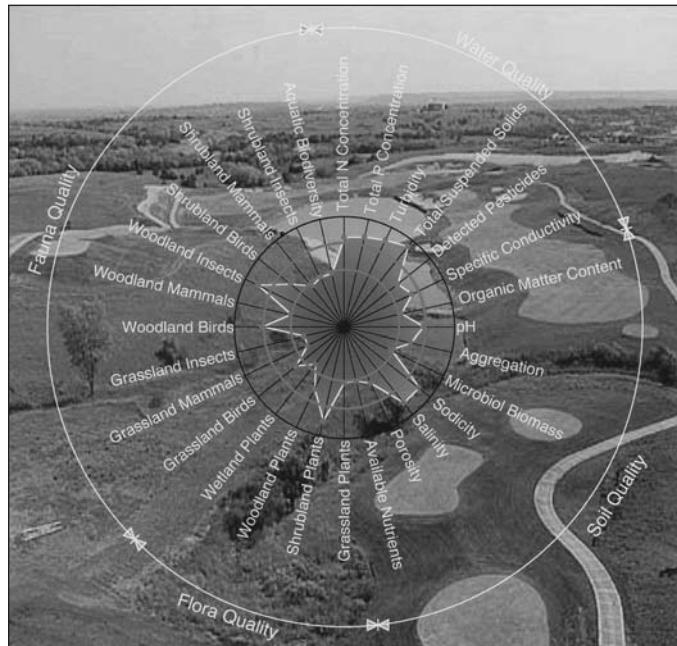
Outstanding University and Professional Service Award (Winner: Gene Russell Ph.D.) recognizes a faculty member whose activities and accomplishments in university and professional service during the past year have had the most positive impact on the department.

Environmental and water resources

CTEEM developed

Steve Starrett, Ph.D. has played a critical role in the development of the Colbert Thien Environmental Evaluation Method (CTEEM). Its purpose is to visually illustrate environmental quality. This method has been developed from research conducted at Colbert Hills Golf Course; however, the concept could be adapted for any land use. Steve Starrett, Ph.D. and Steve Thien, Ph.D. (Agronomy) were recent guests of the Presidio Trust in San Francisco to recommend how to implement the CTEEM system for the Presidio Golf Club.

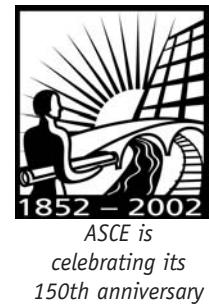
*CTEEM diagram with
Colbert Hills Golf Course in
the background.*



Consortium for Groundwater Research Initiated

Dave Steward, Ph.D. initiated development of the Consortium for Research on Groundwater-Based Economies at K-State this summer. The vision of this multi-college group of faculty and researchers is, "To help citizens, planning agencies and policy makers understand both the technical aspects of aquifer management and the economic and social impacts of groundwater management strategies." Research has begun

with a grant from the Kansas Water Resources Research Institute. Dave has published articles in *Water Resources Research* and *Proceedings A of the Royal Society of London* related to horizontal wells and groundwater flow. Wei Jin, a graduate student working with Dave Steward, received the "Outstanding Ph.D. student in Civil Engineering" award.



Decontaminating dirt

Alok Bhandari, Ph.D. and students Fangxiang Xu, Monica Palomo and Ryan (Ty) Harvey are investigating uses of enzymes to immobilize phenolic contaminants in soils. Soil enzymes are known to polymerize naturally occurring phenolic chemicals into soil humus. It is believed that the addition of these enzymes to sites contaminated with toxic phenols can result in incorporation of the pollutant into soil

organic matter. This attenuates the mobility of the contaminant in soil and reduces the risk of surface and groundwater contamination. Bhandari and coworkers are using bacteria and earthworms to evaluate toxicity reductions resulting from binding of the contaminant to soil. This work is funded by the National Science Foundation.

Structures update

New hands-on opportunities for CE544 students

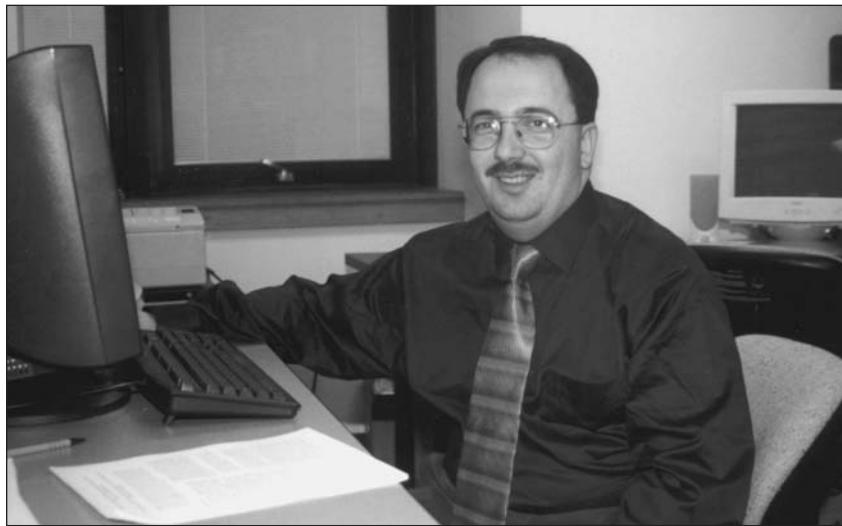
The opening of Fiedler Hall has meant new opportunities for students enrolled in CE544, Reinforced Concrete Design. The Structural Mechanics Laboratory, located on the first level, is equipped with a 288-square foot, strong floor



CE students breaking concrete beam in class.

with a new 250-kip-capacity load frame that was fabricated and donated by PKM Steel Service, Inc., Salina, Kan. Each year, students in CE544 design reinforced concrete beams according to the ACI Building Code. Since moving to Fiedler Hall, however, the students additionally help build formwork, tie a reinforcement cage, cast and finish the concrete beam(s), determine material properties of the concrete and load the members to failure. It is through these hands-on experiences that students gain first-hand knowledge about dimensional tolerances and field practice. Bob Peterman, Ph.D. introduced this hands-on component to the design course during the fall 2000 semester and it was received well by the students. This year, students fabricated two 14-ft-long concrete I-beams—one with steel reinforcement and one with Glass Fiber Reinforced Polymer (GFRP) bars. Ambassador Steel, Raytown, Mo., donated all of the steel reinforcement, while Hughes Brothers, Seward, Neb., donated the GFRP Rebar.

Establishing a laboratory for structural computations



Hayder Rasheed, Ph.D. in STEAM Lab.

Hayder Rasheed, Ph.D. and Hani Melhem, Ph.D. have established the STEAM (STructural Engineering Analysis and Mechanics) lab as a working space for computational research in structures. The lab is located in room 2141 Fiedler Hall. It has three state of the art computers (1-1.5 GHz speed, 40 GB hard disk, 384 MB RAM) and peripherals (scanner, laser printer and CD writer). One of the computers run Windows 2000 and the PC version of UNIX (Linux) for higher computational versatility. The lab also houses a collection of journal and conference proceedings, including the holdings of *ASCE Journal of Engineering Mechanics* (past 15 years to present) and the proceedings of the ASCE annual Engineering Mechanics Conference.

Materials faculty offer training and education to industry

More than 800 participants have been trained over the last five years in Superpave training. The training classes are offered by Drs. Hossain and Romanoschi in cooperation with KDOT and the asphalt industry, to train the engineers and technicians working on Superpave projects in Kansas. This is the longest running Superpave training program in the country.

The Kansas Asphalt Pavement Association (KAPA) pledged \$20,000 per year to support a course on hot mix asphalt materials and con-

struction during the Spring semester of every year. Students enrolled in the course are also eligible to receive KAPA scholarships. The South Central Cement Promotion Association (SCCPA), an industry group of cement manufacturers in Arkansas, Kansas, Louisiana, Missouri, and Oklahoma, pledged \$10,000 per year toward development of a class on concrete pavements. This senior/graduate-level class on concrete pavement materials and construction is expected to be offered starting Fall '02.

Foamed asphalt research at Civil Infrastructure Systems Laboratory (CISL)

Stephen Romanoschi, Ph.D. and Mustaque Hossain, Ph.D. are actively involved in a research project at CISL to study structural characteristics of foamed asphalt-stabilized recycled base. A German company, Wirtgen, currently markets this technology, which was developed originally at Iowa State in the mid 1950s. The 12-month, \$270,000 project is funded by the departments of transportation in four Midwestern states—Missouri, Iowa, Kansas and Nebraska, in cooperation with the Federal Highway Administration (FHWA). Romanoschi and Hossain are also involved in other related research projects on automated distress data collection and characterization of modulus values of Superpave asphalt mixtures.



Paul Lewis and student measuring asphalt wear.

Stokes named CE undergraduate program director

Bobb Stokes, Ph.D. has been appointed as the CE undergraduate program director. In this capacity, Bobb will oversee a number of undergraduate program activities including the institution of a mentoring program for undergraduate students, course and curriculum changes as these relate to ABET requirements, and devising programs to enhance faculty/student interactions.

Bobb Stokes, Ph.D. has also been named chair of the National ASCE Committee on Students Activities (CSA). The committee oversees activities of the society's 200+ student chapters and clubs, including regional student conferences and concrete canoe and steel bridge competitions.



*Bobb Stokes
CE undergraduate program
director*

Geotechnical corner



Dunja Peric

Dr. Dunja Peric brings Geomechanics expertise to K-State

Dunja Peric, Ph.D. joined the CE faculty in the summer of 2001. She received her Ph.D. from the University of Colorado at Boulder in 1990 and worked at CU-Boulder as a post-doctoral researcher and at CU-Denver as assistant professor before coming to K-State. Dunja's research strength lies in her holistic approach to geotechnical engineering. Her research interests include both theoretical (numerical and analyti-

cal) and experimental geomechanics, with applications in characterization of soils and selection of their engineering properties, advanced laboratory testing, and failure analysis (with emphasis on localization and instabilities). Her work in these areas was funded by the National Science Foundation and was referenced extensively by her peers.



Jacob Najjar

Najjar builds research interactions in Europe

Jacob Najjar, Ph.D. is busy taking trips to Europe to initiate research interactions with various research teams. He was invited to visit the University of Pavia, Italy, and the University of Lille, France, and give various presentations on artificial neural networks. He will also be taking a one-week visit to Rome, Italy, to present a research paper on this subject. Artificial

neural networks forms the core of Jacob's research in geotechnical engineering. Back home, Jacob was honored with the 2001 Chi Epsilon Award for Excellence in Teaching.

NASA approves funding for research on soil behavior under zero or micro-gravity

"Can we engineer water delivery to plant root systems on Mars?" is the central question that is being addressed by teams from Utah State University, Kansas State University, NASA Johnson Space Research Center and John Glenn Research Center in Cleveland, Ohio. The team from K-State consists of Lakshmi Reddi, Ph.D. and Gerard Kluitenberg Ph.D. (Agronomy). Lakshmi is looking at the behavior of a population of water droplets and air bubbles subjected to launch type of vibrations followed by zero- or micro-gravity conditions. Gerard is developing monitoring sensors that would work under these conditions. Together, they expect to receive \$200k per year from NASA for the next three years.



Victoria Felker helps soils lab student.

Russell to retire after 28 years at K-State

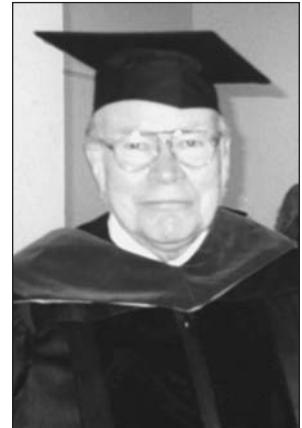
Professor Gene Russell will retire from K-State in May 2002 after 28 years of service to the university and the profession. Gene Russell, Ph.D. was born and raised in Cromwell, Conn. and served as an electricians mate in the U.S. Navy during the Korean War. He received his BSCE from the Missouri School of Mines and Metallurgy in Rolla, Mo. (now UMR) in 1958, an MSCE degree (soils engineering) from Iowa State University in 1965, and his Ph.D. from Purdue University in 1974. Prior to coming to K-State in 1974, Gene Russell, Ph.D. was an assistant professor of civil engineering at Indiana Institute of Technology in Ft. Wayne, Ind. Gene and his wife, Mary, have 10 children and 27 grandchildren.

During his career, Gene has taught an extraordinary number of courses and has served as

principal investigator or co-principal investigator on more than 80 funded projects.

Dr. Russell has received numerous awards and honors, most recently the CE department award for Outstanding University and Professional Service (2001), CE department award for Outstanding Research (2001), Transportation Research Board (TRB) Committee Member Emeritus (for 20+ years of meritorious service to the committee and TRB) and elevation to Fellow in the Institute of Transportation Engineers (1999).

Dr. Russell indicates that he intends "to be around awhile finishing research projects, etc." Please join us in thanking him for his many years of service and in wishing him and Mary all the best (geno@ksu.edu).

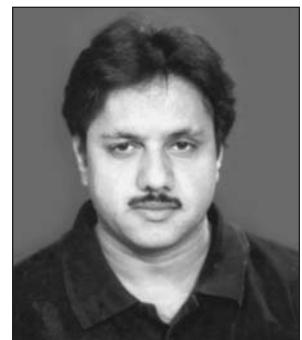


Gene Russell

Graduate student awards named for Gattani

Two awards for outstanding graduate students have been established, one in the M.S. category and the other in the Ph.D. category. Criteria for the awards involve graduate seminar attendance and participation, GPA, and overall academic excellence as reflected in a resume. They have been named after Sanjay Gattani, (Ph.D. in '93 under the guidance of Tony Hu, Ph.D.) who provided financial support to these awards.

The 2001 winners of these awards are as follows: Outstanding Ph.D. Award—shared by Sai Kakuturu (geotechnical engineering; major professor—Lakshmi Reddi) and Wei Jin (water resources; major professor—Dave Steward); Outstanding MS Award—Mahmuda Akhter (transportation and materials; major professor—Mustaque Hossain).

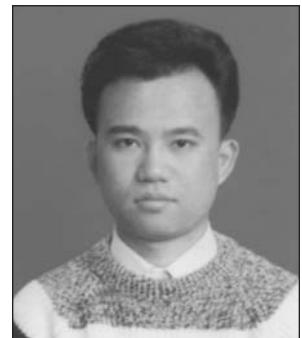


Sai Kakuturu

K-State joins Purdue to form EPA's Midwest Hazardous Substance Research Center

Kathy Banks, Ph.D. (Purdue University) and Lakshmi Reddi, Ph.D. picked up a check for one million dollars at a ceremony attended by Carol Whitman, EPA Administrator. This check was the first installment to conduct hazardous substance research and technology transfer for the Midwest region. K-State's share of funding from this center will be \$250k during the first year and is expected to increase during the subsequent four years. Lakshmi Reddi will

be serving the center as the Associate Director of Outreach Programs. In this capacity, he will be assisted by Blase Leven, Outreach Program Manager, and a staff of three engineers stationed in various parts of the Midwest region. In addition to Kathy Banks, the other key participant in the center is John Novak, Ph.D. from Virginia Tech., who will be serving as the Associate Director of Industry Partnership Programs.



Wei Jin

Charlie Stryker (CE '71) named 2002 Engineering Alumni Fellow



Charlie Stryker

The CE department is proud to have one of its alumni selected as the 2002 Engineering Alumni Fellow. Charlie established CAS Construction, Inc., Topeka, Kan. which has been recognized nationally for excellence and achievement in the procurement method of Design/Build. It has received numerous awards for project recognition and safety performance including the Kansas Consulting Engineer's Qualification-Based Selection of Public Works Award, 1997; the Design/Build Excellence Civil

Sector Award by the Design/Build Institute of America, 1998; and the Associated General Contractors (AGC) of America's Year 2000 National Safety Award. Stryker has been appointed by three governors to the statutory maximum of three, four-year terms as a member of the Kansas State Board of Technical Professions, and has served as chairperson of that board in '93, '94, and '96. He is currently president-elect of the Kansas Society of Professional Engineers.

CE 101 started

CE 101 "Introduction to Civil Engineering" instructors Steve Starrett, Alok Bhandari, Bobb Stokes, Bob Peterman and Lakshmi Reddi have an exciting semester planned for freshmen CE students. The course will be focused around teams of students designing a new Wildcat City. Many outside speakers will be guest lecturing on specific topics related to CE and Wildcat City. The course should be an interesting and invigorating experience for students, and will also provide a good avenue for freshmen to get connected to the department.



Jane Jordan (Kirkham Michaels, Omaha, Neb.) brings industrial experience to CE 101 lecture.

CE distance courses for fall 2002

- CE 725—*Seepage in Permeable Materials*
- CE 742—*Adv. Steel Design*
- CE 751—*Hydraulics of Open Channels*
- CE 766—*Wastewater Engg.: Bio. Processes*
- CE 776—*Pavement Perf. & Mgmt. Systems*
- CE 803—*Numerical & Anal. Tech/Engr.*

Advanced Steel Design and engineering ethics go online

In conjunction with the K-State Division of Continuing Education, the Department of Civil Engineering is offering the Advanced Steel Design course (CE 742) next fall (August 2002). The class will cover concepts of plastic design, stability problems, composite design, and design of framing, moment, and bracing connections. The course is based on LRFD specifications and uses the latest AISC Manual

(3rd Ed.). It will be Internet-based, with most of the learning material made available on the Web. It will be taught by Hani Melhem as a full-semester, 3-credit-hours course. Steve Starrett is also developing a new web-based course for the Division of Continuing Education entitled, "CE 790 Engineering Ethics."

Partnership with K-State CE

Feedback from alumni and corporate CE

Please support the K-State CE Department through your financial contributions and/or suggestions/recommendations on our curricular and extracurricular activities.

Name

Year of Graduation	P.E.	Yes	No
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I would like to contribute to the following activities within the department. Enclosed please find a check to the KSU Department of Civil Engineering in the amount of \$100
 \$200 \$300 other \$

- Student and faculty professional development
 - Outreach activities of the department
 - Concrete canoe/steel bridge, other activities
 - No preference

Please send us your comments, ideas or suggestions by using the space below (use additional sheets if necessary), or by visiting the CE Web page at www.engg.ksu.edu/CEDEPT/ and clicking on "Comment" to send us a message.

Please mail your comments and/or contribution to the Department of Civil Engineering, Kansas State University, 2118 Fiedler Hall, Manhattan, KS 66506-5000.

Major contributions (greater than \$1000) to the KSU Civil Engineering Department operating expenses and professional development funds during '01-'02 were provided by:

- Brungardt & Honomichl Co. (Kevin Honomichl and Bill Brungardt)
 - CAS Construction Co. (Charlie Stryker, CEO)
 - Finney & Turnipseed (Bob B. Thorn)
 - Kansas Asphalt Pavement Association (KAPA) (Jim Jones)
 - Wilson & Company (Jeri L. Meyer)





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