

Civil Engineering Newsletter

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Padmanabhan Named Chair of the Department

Dr. G. Padmanabhan, Professor of Civil Engineering, assumed the department chair position on July 1, 1999. Dr. Padmanabhan joined the NDSU civil engineering faculty in 1980 and attained the rank of Professor in 1994. His areas of expertise include hydrology, water resources and hydraulic engineering. He has numerous articles in journals and conference proceedings.

ABET Visit Scheduled for October 2000

Representatives of the Accreditation Board for Engineering and Technology will visit all of the NDSU engineering programs on October 1-3, 2000. This is part of ABET's continuing effort to ensure the quality of engineering graduates across the United States.

This year's visit is somewhat different from the past because our program is being evaluated on what students are learning, not on what students are being taught. In some ways this new method can be thought of as an end-result specification rather than a procedural specification. We determine what the product, in this case the engineering graduate, should be able to do when they leave college.

This method of measurement, referred to as outcome assessment, places much more emphasis on input from our constituents. Some of these tools include graduate questionnaires, employer surveys and use of the Fundamentals of Engineering Test (EIT) results.

Our departmental mission, educational objectives and program outcomes are listed on the last page of this newsletter. Please review these and use the Reader Response page to provide any comments that you may have. Your input is important.

INSIDE

p. 2	Faculty News	p. 5	ASCE Student Chapter
p. 3	Scholarship Recipients	p. 6	Alumni News
p. 4	Enrollment and Graduates	p. 7	Notes from the Chair

Faculty News

G. Padmanabhan and **Wei Lin** are involved with a project entitled An Adaptive Systemic Initiative of Tribal Collaboration for Increasing Native American Participation in Mathematics, Science and Engineering. It is funded by the ONR (NAVY). Dr. Padmanabhan wrote "Flood Control" and "Runoff: agricultural", two sections in the Encyclopaedia of Environmental Issues, Salem Press. He also contributed a paper, "Genesis of a Multi-Institutional Collaborative Proposal," to the Proceedings of the 2000 ASEE Annual Conference and "The Effect of Grazing on Rangeland Hydrology," another paper to the 53rd Annual Meeting of the Society for Range Management with Chad Engels, graduate student.

Wei Lin has received funding for several research projects: "Determination of the Factors Causing Elevated Phosphorous Levels in a National Wetland and Methods for Remediation," Pelican River Water District, "Phosphorus Analysis of Corn Milling Wastewater," Cargill Inc. and "Ozonation By-product Study," Moorhead Water Treatment Plant. Dr. Lin co-authored two refereed journal articles, "Wastewater Treatment-Electronics and Metal Finishing and Processing," Water Environment Research and "Investigation into the Nature and Extent of Microbial Contamination Present in a Commercial Metal working Fluid," Resource and Environmental Biotechnology.

Frank Yazdani was named the Interim Director of the Construction Division of the Department on August 1, 1999 for one year. Frank Yazdani and Dinesh Katti

received a research grant from the North Dakota Department of Transportation to study grouting materials to be used for the retrofit of dowels in concrete pavements.

Melanie Bengtson presented a paper, "Using a Web Page as a Supplemental Tool in Teaching Fluid Mechanics" at the ASCE International Water Resources Conference in Seattle, WA. Melanie continues to serve as president of the North Dakota Section of ASCE.

Dinesh Katti, Frank Yazdani and J. Tang published "Non-Associative Plasticity Model with Damage for Cohesionless Soils" in the Proceedings of the ASCE-13th Engineering Mechanics Division Conference. They also published, "Modeling and Experimental Evaluation of Damage in Dense Sands," in the ASCE-14th Engineering Mechanics Division Conference Proceedings.

Dinesh Katti and Kalpana Katti published "Three Dimensional Finite Element Modeling Of Microstructural Development Of Nacre In Seashells And Implication On Mineralization Of CaCO₃" in the Materials Research Society Proceedings of the 1999 Annual Fall Meeting, Boston. They published another article, "Nanomechanical Properties of a Biocomposite, Mollusk Shell Nacre", in the Proceedings of Microscopy and Microanalysis, MSA 58th annual meeting.

Ken Kellogg presented the paper, "Influence of Moisture and Low Temperature on Notched

Izod Impact Toughness in a Pultruded Reinforced Composite" at the Ninth International Offshore and Polar Engineering conference, Brest, France. He recently received a grant "Durability of Graphite-Fiber Composites Subjected to Reduced Temperature Thermal Fatigue" funded by the US Department of the Army/Army Research Office. He continues to advise the student chapter of ASCE

Amiy Varma presented "Data Assessment for ITS/CVO Technology Deployment" at the Sixth International Symposium on Heavy Vehicle Weights and Dimensions, in Saskatoon, Saskatchewan. He is the advisor for the ITE student chapter.

George La Palm coordinates the FE examination at NDSU. He continues to advise the Tau Beta Pi student chapter.

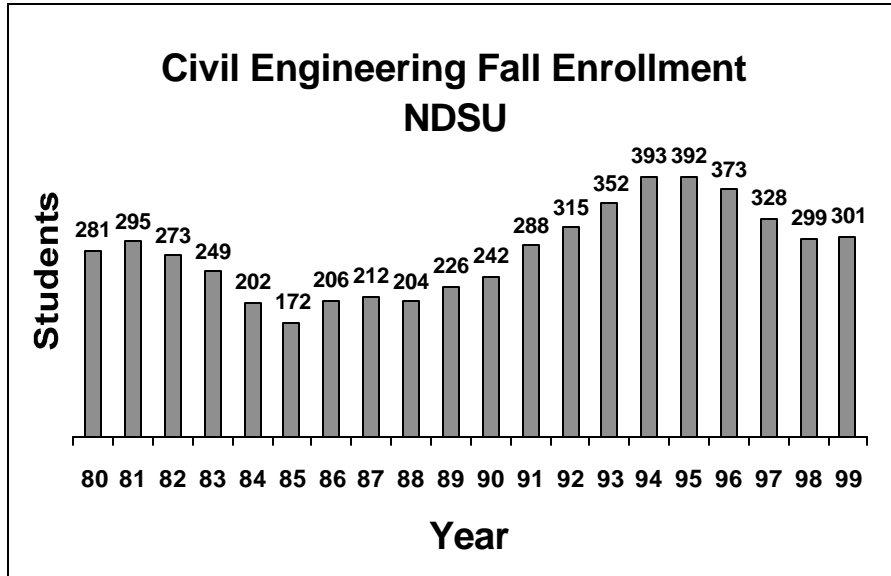
Brian Nelson chairs the College Relations Committee and was involved with several recruiting events during the year.

Don Andersen and **Frank Peiloubet** continue to operate the Transportation Technology Transfer Center funded by FHWA and the NDDOT. Additional funding is provided by the North Dakota Insurance Reserve Fund. The Center publishes the **Center Line** newsletter in addition to presenting short courses on road-related topics.

DEPARTMENT OF CIVIL ENGINEERING 1999-00 SCHOLARSHIP RECIPIENTS

<u>Scholarship</u>	<u>Recipient</u>	<u>Hometown</u>
Asphalt, Inc.	Katie Johnson	Prior Lake, MN
J. Darrell Bakken	Sheila DeWolf	Litchfield, MN
Barr Engineering	Aaron Jaeger	Rochester, MN
Bartlett & West Engineering	Joshua Beringer	Fargo, ND
Boeing	Charles Peterson	Breckenridge, MN
John & Susan Bloom Memorial Endowment	Derek Kost	Bismarck, ND
Civil Engineering Scholarship	Mark Vizecky	Cottonwood, MN
Dolve Scholarship	Jason Link	Hazen, ND
Arlan D. Gilbertson Memorial Scholarship	Rebecca Regenscheid	Litchfield, MN
Glen Martin Memorial Scholarship	Thomas Haag	Grand Forks, ND
Minnesota County Highway Engineers Assn.	Rebecca Regenscheid	Litchfield, MN
Minnesota Surveyors & Engineers Society	James Bittman Brian Collins Sheila DeWolf Justin Gabrielson Daniel Krocheski Brad Morrison Rebecca Regenscheid Ross Reiffenberger Jeffrey Schrock Tanya Wolfe	Park Rapids, MN Woodbury, MN Litchfield, MN Litchfield, MN Eagan, MN Waubun, MN Litchfield, MN Bellingham, MN Fergus Falls, MN Shakopee, MN
NCITE	Bridget Breidenbach	Reynolds, ND
NDSPE	Joshua Beringer	Fargo, ND
John Oakey Memorial Scholarship	David Lyste Scott Schneider	Grand Forks, ND Rhame, ND
Lloyd & Virginia Thompson	Ross Reiffenberger	Bellingham, MN
Mel Ulteig Memorial Scholarship	Aric Rude	Watertown, SD
Ulteig Engineering Scholarship	Bridget Breidenbach	Reynolds, ND
Upper Great Plains Transportation Institute	Joshua Beringer Bradley Krogstad	Fargo, ND Fargo, ND

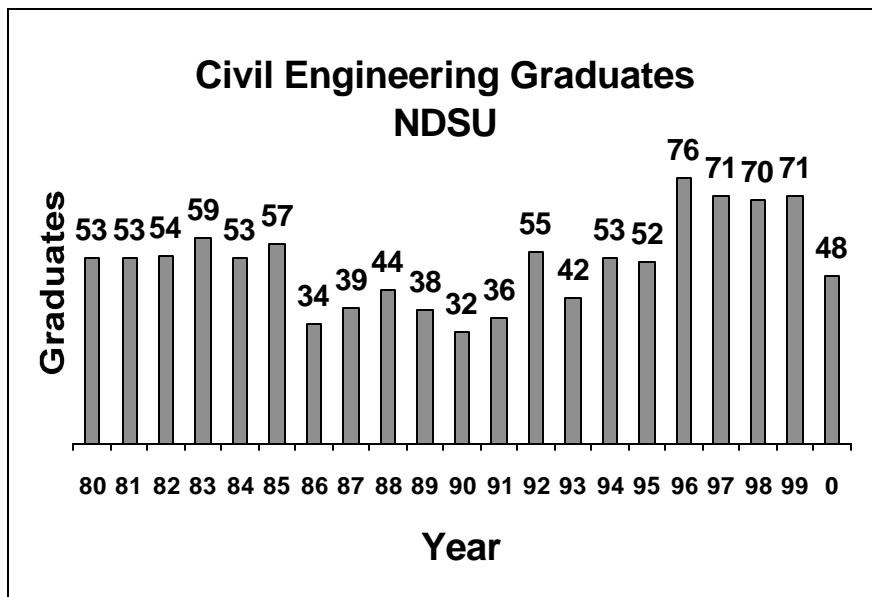
Enrollment Levels Off at about 300



Employers of NDSU CE Graduates in 1999

- Black & Veatch (5)
- Bureau of Reclamation
- Campus Crusade for Christ
- Cessna Aircraft Company
- City of Fargo Engineers (2)
- Coteau Properties
- Energy Systems Management
- Gilbert Texas Constr. Corp.
- GME Consultants
- Houston Engineering (2)
- Humphrey Engineering
- Interstate Engineering, Inc.
- Kadmas, Lee & Jackson (4)
- KBM, Inc.
- LS Engineers
- Maryland State Highway Admin.
- Minnesota DOT (2)
- Moore Engineering (2)
- NDSU Graduate School (3)
- North Dakota DOT (8)
- OSM & Associates, Inc.
- Paquette, J. A. & Associates
- Pioneer Engineering
- Red River Basin Board
- Short Elliott Hendrickson, Inc.
- South Dakota DOT (2)
- South Dakota DOT
- TKDA Associates, Inc.
- Upper Plains Contracting, Inc.
- US Department of Interior
- Wenck Associates, Inc.
- Widseth Smith Nolting
- Winfield Engineering

Number of Graduates Down



ASCE Student Chapter Activities

The ASCE student chapter had another busy year that included the regional concrete canoe and steel

bridge competitions. A highlight of the year was a visit by Dr. Daniel Turner, past president of ASCE.



Concrete canoe competition at Iowa City



Loading the steel bridge at Grand Forks

Kalpana Katti Joins CE Faculty



Dr. Kalpana Katti has joined the civil engineering faculty as a Research Assistant Professor. She received her Ph.D. from the University of Washington, Seattle. Her area of specialization is materials science and engineering. Her research has won awards from Microscopy Society of America, Mate-

rials Research Society and Federation of Societies for Coatings Technology. Her field of research is strongly focussed in the fields of nanocomposites, nanotechnology and biomimetics. She has received funding from the National Institutes of Health ND Idea and NDSU development foundation centennial award. Recently she has been notified of receiving a research grant from National Science Foundation and National Institutes of Health on nanocomposites for biomedical applications. She has published over 15 refereed research articles.

Graduate Program

Our graduate program is alive and well. Several graduate students won scholarships awarded by the Graduate School and Graduate Research Fellowships awarded by the Water Resources Research Institute and the NSF EPSCoR program. Currently we have 14 MS and four PhD students in the Department.

Emy's Corner by Emy Schulz CE Secretary

Hope you are having a wonderful summer. For those of you living in and around North Dakota, you know we have had more than our share of rain and flooding.

The University sustained a lot of water damage but we are survivors and were up and running in a short space of time.

Despite the weather, I am having a good summer. This week we have family visiting who are from Virginia, Arizona and Texas. Harold and I will be vacationing the next two weeks.

The CE Department continues to be an enjoyable place to hang out five days a week!

Alumni News

1949

John P. Wold attended graduate school at M. I. T. and his first employment was in New York City for a water conditioning company. Later he was a commissioned officer in the USPHS to the U. S. Corps of Engineers, worked for Shell Oil and later undertook the management of a series of under performing companies. He finally started his own consulting firm he sold about five years ago.

1975

Roger K. Terrill obtained a mix of experience in both the private (six years) and public (seventeen years) sectors of civil engineering. He is a registered professional engineer and a registered professional surveyor in the state of Ohio and presently holds the elected position of Wayne County Engineer.

1975

Gregory J. Reep recently repatriated back to the USA after a six-year assignment in London, England. He is currently employed by Texaco, Inc., Houston, Texas.

1976

Bob Bengtson retired from the Navy on June 1, 2000. His active duty career as a Civil Engineer Corps Officer and Seabee spanned 22 years. He will remain in Hawaii and has accepted a position with Summit Construction, Inc.

1984

Gregory G. Hill, P.E., has been appointed as Vice-president and Principal Engineer in the firm of Roth Hill Engineering Partners, Inc. Roth Hill Engineering Partners, Inc. is a consulting civil engineering firm specializing in the

design and construction management of complex municipal utility projects in the greater Seattle area. Gregory also holds the positions of City Engineer for Medina, Washington, Town Engineer for Woodway, Washington and District Engineer for King County Water District No. 111 of Kent, Washington.

1985

Dennis Reep began his career with the North Dakota State Water Commission as a Water Resource Engineer. Since 1988, he has worked for the Natural Resources Conservation Service (formerly the Soil Conservation Service) as a Civil Engineer. His duties have included design and review of designs for small dams and water management projects, flood plain management studies, and serving as a project engineer on several construction projects.

1986

Timothy J. Welch started his own civil consulting firm Grapevine, Texas in 1998. His firm currently has five employees.

1987

Professor Hilary Inyang is University Professor/DuPont Young Professor and Director of the Center for Environmental Engineering, Science and Technology (CEEST) at the University of Massachusetts Lowell, USA. His research activities cover both theoretical and applied aspects of material deterioration processes, contaminant leachability, soil-contaminant interactions and waste disposal/containment systems.

1989

Terri Jo (Lindow) Battson was promoted to Sr. Engr. at the Naval Reactors Facility, located at the Idaho National Engineering and Environmental Lab. She is primarily the project manager for demolition and remediation projects. This includes writing the specification packages, identifying hazardous material disposition and safety concerns and performing field follow-up.

1993

Grant Olson is currently working for CIBER (Consultants in Business, Engineering and Research) in Rochester, Minnesota, as a computer programmer. He had been teaching high school math and science in Texas after graduating from Texas A&M in May '98 with a M.Ed. in Curriculum and Instruction.

1994

Tom Neigum is employed as a Project Engineer with Kadrmas, Lee & Jackson in Bismarck. He works primarily with airports as well as county grading projects and urban projects

1995

Donald Bergstrom is currently employed by David Evans & Associates in Tacoma, Washington. Previously, he worked for Alaska Surveying Co., Inc., Haines, Alaska.

1997

Jon Scrapper is employed by Ulteig Engineers, Inc. in Fargo, North Dakota. He is married to Sara Abrahamson and they have one daughter, Mackenzie Beth born January 23, 1998

Reader Response

Name: _____

Address: _____

City: _____ State: _____

Zip: _____ Graduation Year: _____

Employer: _____

Location: _____

Alumni News

Please use the space below to let us know what you have been doing since you left NDSU.

Return to: Civil Engineering Department
North Dakota State University
Fargo, ND 58105

(701) 231-7244
(701) 231-6185 FAX
<http://hardhat.cme.ndsu.nodak.edu/>

Notes from the Chair

by G. Padmanabhan

One year has already gone by since I assumed charge as the Chair of the department. The annual publication of this newsletter continues to be an extremely important activity of the department, as it serves as an important link between us and the alumni and friends of the department. As we move into the 21st century, technology involved in the practice of civil engineering is becoming more and more advanced. It is a challenge for the faculty to provide students the necessary exposure to these technological advances; even while teaching the fundamentals of civil engineering, along with the other soft skills. More and more WWW resources are being inte-

grated into courses by the faculty. Several interesting research projects are going on.

This past year has been a very active one for the department. Apart from the usual teaching, research, and service activities the faculty were busy preparing for the Accreditation Board of Engineering and Technology (ABET) visit in October, 2000. Our undergraduate program will be evaluated on the new Engineering Accreditation Criteria 2000 (EAC-2000). The new criteria place more emphasis on learning. Regardless of what is in the curriculum and what is being taught, the visiting team will be asking "what are the students learning?" "Does actual learning occur in the program?" and

"Are the intended objectives and outcomes of the program being met?"

The main strength of the program continues to be the quality of the students and the faculty. Last year, several curricular changes were implemented. New pieces of equipment were added to the laboratories. A new computer cluster was added for the exclusive use of civil and construction students. There is always need for more laboratory space.

I want to take this opportunity to thank you all for the continued support of the program. Please drop by while in Fargo and stay in touch.

Mission – Educational Objectives – Program Outcomes

The mission of the Civil Engineering Division is to:

provide **quality education** to prepare nationally competitive undergraduate students for a successful career in civil engineering;
provide **advanced skills and knowledge** in state-of-the-art research and design in sub-areas of civil engineering for graduate students; and
provide **service** to the university, engineering profession, and the public.

Educational Objectives

1. The graduating civil engineering students will have the technical knowledge, design capability, and problem solving skills fundamental to a career in civil engineering.
2. The graduating civil engineering students will have the knowledge and skills necessary for comparative evaluation of design alternatives.
3. The graduating civil engineering students will have the necessary communication skills to successfully practice the civil engineering profession.
4. The civil engineering students will be made aware of the need for professionalism, teamwork, life-long learning, and understanding the broader societal implications of civil engineering projects.

Program Outcomes

- a. an ability to apply knowledge of mathematics, science, and engineering
- b. an ability to design and conduct experiments, as well as to analyze and interpret data
- c. an ability to design a system, component, or process to meet desired needs
- d. an ability to function on multi-disciplinary teams
- e. an ability to identify, formulate and solve engineering problems
- f. an understanding of professional and ethical responsibility
- g. an ability to communicate effectively
- h. the broad education necessary to understand the impact of engineering solutions in a global and societal context
- i. a recognition of the need for, and an ability to engage in life-long learning
- j. a knowledge of contemporary issues
- k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice