

# EMMANUEL U. NZEWI, Ph.D., P.E., M.ASCE

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## EDUCATION

*B S* Civil Engineering (*High Honors*), **Michigan Technological Univ.**, Houghton, MI, August, 1980.  
*M S* Civil Engineering, **Purdue University**, West Lafayette, IN, December, 1982.  
*Ph D* Civil Engineering, **Purdue University**, West Lafayette, IN, August, 1987.

## PROFESSIONAL EXPERIENCE

2013 – Present **Professor & Department Head**, Department of Civil & Environmental Engineering, Prairie View A&M University, Prairie View, TX 77446

2008 – 2013 **Professor & Department Chair**, Department of Civil & Environmental Engineering, Southern University and A&M College, Baton Rouge, LA 70813

2000 – 2008 **Director**, Civil & Environmental Engineering, North Carolina A&T State Univ., Greensboro, NC 27411

2002 -2008 Professor, Civil & Environmental Engineering, North Carolina A&T State Univ., Greensboro, NC 27411.

1989 – 2008 Faculty, Civil & Environmental Engineering, North Carolina A&T State Univ., Greensboro, NC 27411.

1988 - 1988 Visiting Assistant Professor, School of Civil Engineering, Purdue University, West Lafayette, IN 47907.

1987 - 1988 Post-Doctoral Research Associate, Whistler Center for Carbohydrate Research, Purdue University, West Lafayette, IN 47907

1987 -1987 Consulting Engineer/Sub-Contractor, for H. Steward Kline & Associates, Inc., 106S. 16th Street, Lafayette, Indiana 47902.

## REGISTRATION

Registered Professional Engineer in the State of Louisiana (2013)  
Registered Professional Engineer in the State of Indiana (1989)

## ADVISORY BOARDS

2013 - 2013 Engineer Selection Board, City of Baton Rouge/East Baton Rouge Parish  
2005 - 2008 National Science Foundation CLEANER/WATERS Observatory Coalition  
2001 - 2008 Civil Engineering Technology, Guilford Technical Community College

## PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers (ASCE)  
ASCE Environmental and Water Resources Institute (EWRI) – Emerging & Innovative Technologies  
American Water Resources Association  
Omega Rho (Operations Research/Management Science Honor Society)

## PROFESSIONAL LEADERSHIP & CONTRIBUTIONS

2005 - 2007 Vice-Chairperson, Emerging & Innovative Technologies Committee, ASCE-EWRI  
2007 - 2008 Past Vice-Chairperson, Emerging & Innovative Technologies Committee, ASCE-EWRI  
2005 - 2009 Control Group, Emerging & Innovative Technologies Committee, ASCE-EWRI  
1999 - 2000 Chairperson, Emerging & Innovative Technologies Council, ASCE - EWRI  
1997 - 2007 Steering Committee, North Carolina GIS Conference, 1997, 1999, 2001, 2003, 2005, & 2007  
1996 - 1999 Chairperson, Water Resources Technical Group, ASCE (North Carolina Section)  
1997 - 1998 Vice-Chairperson, Application of Emerging Technologies Committee, ASCE Water Resources Planning & Management Division  
1995 - 1996 Steering Committee, North Carolina GIS Conference, held Feb 8-9, 1996  
1994 - 1999 Emerging & Innovative Technologies, ASCE Water Resources Planning & Management Division  
2010 - present Journal Reviewer, ASCE Journal of Hydrologic Engineering  
1993 - 2007 Journal Reviewer, ASCE Water Resources Planning & Management Division  
1992 - 1995 Publications Committee, American Water Resources Association  
1992 - present Water Resources Systems Committee, ASCE Environmental & Water Resources Institute  
1992 - 2008 Journal Reviewer, ASCE Computing in Civil Engineering Division  
1989 - 1991 Journal Reviewer, Water Resources Research

## RESEARCH INTERESTS

Low Impact Development (LID) and rainwater harvesting. Analysis, monitoring and development of sustainable water resource systems for developing areas. Hydropower production and real-time reservoir management. Water resources systems analysis, urban hydraulics and stormwater management. Gravity sewer network analysis and design including hydrologic analysis of urban watersheds. Mathematical modeling and programming applications including probabilistic optimization. Remote Sensing, Geospatial Informatics - including GIS for urban infrastructure systems and natural resource systems modeling. 21<sup>st</sup> Century engineering education and other educational thrusts: increasing graduates from minority and under-represented groups in STEM, development of assessment programs and methods, engineering registration as a priority, freshman retention and academic orientation in engineering programs.

## HONORS

- **2013 Outstanding Service Award**, 2013 ASCE Deep South Conference (Southern Univ.), March 21-23, 2013
- **2011 Louisiana Engineering Foundation Faculty Professionalism Award**, Louisiana Engineering Foundation, January 2011.
- **2007 - Service Award** -ASCE Environmental and Water Resources Institute, 2007 Water Congress, Tampa, FL, May 2007
- **2000, 2001 & 2002 Faculty Advisor Reward**, American Society of Civil Engineers (ASCE)
- **2000 & 2001 Honorable Mention**, for outstanding activities of the ASCE Student Chapter, American Society of Civil Engineers (ASCE) May, 2001.
- **2000 College of Engineering Teaching Excellence Award**, NC A&T State University
- **1998/1999 Outstanding Teacher Award**, Civil & Environmental Engineering, NC A&T State University
- **1999 Outstanding Service Award**, 1999 ASCE Carolinas Conference, April 11, 1999.
- **1987 Maple Point Foundation Award**, Purdue University
- **1985/86 Munson Outstanding Graduate Teaching Assistant Award**, Purdue University
- Graduated with **High Honors**, Michigan Technological University, 1980

## COMPUTER (APPLICATIONS, PRODUCTIVITY & OPERATING SYSTEMS )

- **Assessment Software:**  
*LiveText*
- **Floodplain and River Analysis:**  
*HEC-RAS River Analysis System* (US Army Corps of Engineers)
- Fluent in FORTRAN 77/90/95
- **Geographic Information Systems Software:**  
*ArcGIS* (Environmental Systems Research Institute) and *MapInfo GIS* [Pitney Bowes]
- **Operating Systems and Productivity Packages:**  
UNIX, Windows 7, Windows XP, Macintosh OS X  
Microsoft Office Suite (*Word, Excel, Powerpoint*); Apple *iWork* Suite
- **Optimization Packages:**  
Also IMSL and CERN Libraries; LINDO/LINGO and XMP.

## REVIEW PANELS (Selected)

- **2013** - NSF Graduate Research Fellowship Program (NGRFP), Washington, DC, January 11-13, 2013
- **2011** - EPA *Research and Demonstration of Innovative Drinking Water Treatment Technologies in Small Systems*, STAR Grant Peer Review, Arlington, VA, October 3-5, 2011

## WORKSHOPS/SEMINARS ORGANIZED/CONDUCTED

- Conducted Geodetic Height Modernization Workshop [80+ attendees], September 20-21, 2007, Greensboro, NC (Sponsored by National Geodetic Survey [NGS])
- Conducted Geodetic Height Modernization Workshop [40+ attendees], September 21-22, 2006, Greensboro, NC (Sponsored by National Geodetic Survey [NGS])
- Conducted Geodetic Height Modernization Workshop [60+ attendees], September 22-23, 2005, Greensboro, NC (Sponsored by National Geodetic Survey [NGS])
- Conducted Geodetic Height Modernization Workshop [60+ attendees], September 23-24, 2004, Greensboro, NC (Sponsored by National Geodetic Survey [NGS])
- Dedication of Greensboro Nationwide Differential Global Positioning System (NDGPS) Tower Facility, September 24, NC A&T State University Experimental Farm (US Coast Guard and NOAA-NGS)
- Geodetic Height Modernization Workshop/Forum [70+ attendees], June 13, 2003, New Hilton & Marina, New Bern, NC, NC (Sponsored by NGS)

- Geodetic Height Modernization Workshop/Forum [50 attendees], March 27, 2003, Owen Conference Center, UNC-Asheville, Asheville, NC (Sponsored by National Geodetic Survey [NOAA-NGS])
- Workshop on “Network Adjustment: Retooling of NGS ADJUST” (with Mike Potterfield and Renee Shields), April 7-8, 2003, IRC 405, NC A&T State University, Greensboro, NC (Sponsored by NOAA-NGS)
- Workshop/Seminar: “Global Positioning System: An Introduction” (with Dr. Chris Pearson), April 16, 2003, IRC 405, NC A&T State University, Greensboro, NC (Sponsored by NOAA-NGS)
- Geodetic Height Modernization Workshop/Forum [70 attendees], April 17, 2003, Memorial Union, NC A&T State University, Greensboro, NC (Sponsored by NOAA-NGS)
- Technical Work Group (TWG) meeting for the project entitled, “Design and Implementation of a Web-Based GIS Road Closure Information System,” Greensboro, NC May 29-30 [with Judy Perkins and Anna Yu]
- Technical Work Group (TWG) meeting for the project entitled, “Design and Implementation of a Web-Based GIS Road Closure Information System,” Greensboro Marriott Downtown, Greensboro, NC April 17-18 [with Judy Perkins and Anna Yu]
- Principles & Practice of Engineering Exam Preparation Course for Civil Engineers, March 16 – April 4, 2000, Greensboro, NC [with ASCE Northern Branch]
- A GIS Training Workshop For Environmental Management, November 1, 1996, Greensboro, NC (with Drs. Dillon and Kapur)
- "UNIX Computing Environment," Workshop *sponsored by US Dept. of HUD*, North Carolina A&T State University, Greensboro, NC, July 5, 1994
- "MapInfo (GIS) for Managers," 1-day Workshop *sponsored by US Dept. of HUD*, North Carolina A&T State University, Greensboro, NC, Feb. 25, 1994 (with Gary S. Spring)
- "MapInfo (GIS) for Power Users," 2-day *Workshop sponsored by US Dept. of HUD*, North Carolina A&T State University, Greensboro, NC, March 18 & 25, 1994 (with Gary S. Spring)

## BOOKS

- Uzochukwu, G.; Schimmel, K.; Chang, S.-Y.; Kabadi, V.; Luster-Teasley, S.; Reddy, G.; **Nzewi, E.** (Eds.), *Proceedings of the 2007 National Conference on Environmental Science and Technology*, Springer, ISBN 978-0-387-88482-0, 2009, 600 pages.
- Nzewi, Emmanuel U, *Water Resources PE Guide*, McGraw-Hill, ISBN 0-07-136183-9, March 2001
- Nzewi, Emmanuel U, et. al, *Civil Engineering PE Exam Guide: Breadth and Depth*, McGraw-Hill, ISBN 0-07-136177-4, (edited by: Woodson and Griffin), April, 2001.
- R. P. Millane, **E. U. Nzewi** and S. Arnott, "Molecular Structures of Carrageenans as Determined by X-Ray Fiber Diffraction", Book Chapter, *Frontiers in Carbohydrate Research 1*, R. P. Millane, J. N. BeMiller and R. Chandrasekaran (Eds.), Elsevier, 1989.

## REFERENCE VOLUMES & ARTICLES

- Nzewi, Emmanuel U., “Dams,” in *Natural Resources*, Salem Press, ISBN 0-89356-912-7, **Vol 1**, 310pp, April, 1998.
- Nzewi, Emmanuel U., “Water Supply Systems,” in *Natural Resources*, ISBN 0-89356-912-7, **Vol 3**, 335pp, Salem Press, April, 1998
- Nzewi, Emmanuel U., “Irrigation,” in *Natural Resources*, ISBN 0-89356-912-7, **Vol 2**, 315pp, Salem Press, April, 1998.

## ARTICLES & PAPERS (Selected)

- Minsker, Barbara, L. Baldwin, J. Crittenden, K. Kabbes, M. Karamouz, K. Lansey, T. Malinowski, **E. U. Nzewi**, A. Pandit, J. Parker, S. Rivera, C. Queiroz, C. Q. Surbeck, B. Wallace, and J. Williams (2015), “Progress and Recommendations for Advancing Performance-Based Sustainable and Resilient Infrastructure Design,” *ASCE J. Water Resources Planning and Management*, May 2015, 10.1061/(ASCE)WR.1943-5452.0000521.
- Nzewi, Emmanuel U. (2012), “A Probabilistic Balancing Rule (PBR) Approach for the Optimization of Reservoir Operation,” *Proceedings, 2012 American Water Resources Association Conference*, November 2012
- Nzewi, Emmanuel U. (2012), “Sustainable Water Supply for Developing Regions: A Case for Rainwater Harvesting,” *Proceedings, 2012 American Water Resources Association Conference*, November 2012
- Nzewi, Emmanuel U. (2012), “Revisiting Probabilistic Balancing Rule (PBR) Models for Reservoir Operation,” *Proceedings, ASCE Environmental and Water Resources Institute, 2012 Water Congress*, May 2012
- Nzewi, Emmanuel U. (2012), “Small-Scale and Point-of-Use Water Treatment Technologies for Developing Areas,” *Proceedings, ASCE Environmental and Water Resources Institute, 2012 Water Congress*, May 2012
- Nzewi, Emmanuel U. and R. Montgomery (2012), “Sustainable Water Supply Technologies for Developing Regions via Technology Transfer, Collaboration and Research,” *Proceedings, ASCE Environmental and Water Resources Institute, 2012 Water Congress*, May 2012
- Nzewi, Emmanuel U., S. Sarikonda and Eun Ju Lee (2011), “Monitoring of Roof-Harvested Rainwater Quality,” *Proceedings, ASCE Environmental and Water Resources Institute, 2011 Water Congress*, May 2011

**UNDERGRADUATE AND GRADUATE\* COURSES TAUGHT**

Civil Engineering Systems Analysis	Purdue University
Stochastic Methods in Civil Engineering	Purdue University
Civil Engineering Senior Design	Purdue University
Fluid Mechanics	North Carolina A&T State University
Fluid Mechanics Laboratory	North Carolina A&T State University
Sanitation & Fire Protection	North Carolina A&T State University
Computer Applications in Civil Engineering	North Carolina A&T State University
Introduction to Civil Engineering	North Carolina A&T State University
Hydrology	North Carolina A&T State University
Water Resources Systems Analysis*	North Carolina A&T State University
Civil Engineering Systems Analysis*	North Carolina A&T State University
Advanced Water Resources Systems Analysis*	North Carolina A&T State University
Water Resources Engineering Design	North Carolina A&T State University
Water Resources Engineering	North Carolina A&T State University
UNIX Operating Environment (Non-Credit)	North Carolina A&T State University
Applied Hydraulics	North Carolina A&T State University
Earth System Science (Team taught)*	North Carolina A&T State University
Emerging Technologies in Civil Engineering*	North Carolina A&T State University
Geographic Information Systems for Geomatics	North Carolina A&T State University
Geographic Information Systems for Geomatics [Online]	North Carolina A&T State University
Open Channel Flow*	North Carolina A&T State University
Hydraulics	North Carolina A&T State University
Hydraulics Laboratory	North Carolina A&T State University
Groundwater Hydrology & Groundwater Contamination: An Introductory Course*	North Carolina A&T State University
Hydraulics & Hydrology	North Carolina A&T State University
Water Resources & Environmental Engineering Systems Analysis	Southern University and A&M College
Optimization Theory and Methods	Southern University and A&M College
Engineering Fluid Mechanics	Southern University and A&M College
Design of Hydraulic Structures	Southern University and A&M College
Water Resources Engineering	Southern University and A&M College
Statistics for Engineers	Southern University and A&M College
Engineering Economy	Southern University and A&M College
Fundamentals of Eng. Topics Review	Southern University and A&M College
Intro to Engineering, Computer Science & Technology	Prairie View A&M University
Systems Engineering	Prairie View A&M University
Water Resources Engineering	Prairie View A&M University
Hydraulics	Prairie View A&M University