

NATHAN J. McNEILL, P.E.

EDUCATION

- 2010 PhD in Engineering Education
Purdue University, West Lafayette, IN
Dissertation: "Global Engineering Education Programs: More Than Just International Experiences"
Committee: Monica F. Cox, E. Daniel Hireman, Brent K. Jesiek,
& Ruth A. Streveler
- 2006 MS in Mechanical Engineering
Georgia Institute of Technology, Atlanta, GA
- 2006 Master Professionnelle
Ecole Nationale Supérieur d'Arts et Métiers (ENSAM), Metz, France
- 1999 BS in Engineering (concentration in Mechanical Engineering)
Walla Walla University, College Place, WA

EXPERIENCE

- 2012 - present Senior Instructor of Mechanical Engineering, *University of Colorado Boulder*
· Teach upper division courses in mechanical engineering partnership program at Colorado Mesa University
· Implemented flipped classroom in two courses
· Advisor for 50+ students
- 2010 - 2012 Postdoctoral Associate, *University of Florida*
· Investigated relationship between epistemic beliefs and approaches to problem solving used by engineering students
· Co-authored 5 journal articles and 3 conference papers
- 2007 - 2010 Graduate Research and Teaching Assistant, *Purdue University*
· Evaluated learning outcomes of study abroad programs for engineering students (Dissertation)
· Served as member of development team for National Science Foundation funded project to create a virtual organization to support global team projects (GlobalHUB.org)
· Taught one section of ME 200 Thermodynamics I (115 students)
· Developed and taught ME 497 Topics: Classroom Acoustics in the Developing World (7 students)

EXPERIENCE (CONTINUED)

- 1999 - 2005 Mechanical Design Engineer, *Forge Industrial Engineering*, Abbotsford, BC, Canada
- Designed batching, conveying, mixing, and dust collection equipment for production of dry concrete products using SolidWorks
 - Conducted economic studies, prepared project budgets, presented project proposals to clients, acquired building permits, developed factory layouts, and managed equipment fabrication and installation

COURSES TAUGHT

ENGR 140 First Year Engineering Projects	1x
ENGR 312 Engineering Thermodynamics	1x
ENGR 435 Industrial Controls	5x
ENGR 496 Topics: Engineering in a Global Context	1x
MCEN 2000 Professionalism Seminar	2x
MCEN 3012 Thermodynamics	6x
MCEN 3025 Component Design	3x
MCEN 3032 Thermodynamics II	7x
MCEN 4026 Manufacturing Processes and Systems	4x
MCEN 4037 Measurements Lab	4x
MCEN 4045 ME Design Project 1	3x
MCEN 4085 ME Design Project 2	2x
MCEN 4228 Special Topics: HVAC design	4x
MCEN 4228 Special Topics: Advanced Machine Design	2x
MCEN 4228 Special Topics: Intro to Acoustics	1x

GRANTS

- 2018 - 2019 “Design and Fabrication of an Engine Test Stand for Measuring Internal Combustion Engine Performance While Burning Unconventional Fuels”
- \$14,000 award from *Unconventional Energy Center* at Colorado Mesa University
 - Team of three senior mechanical engineering students designed and built a small engine dynamometer
 - Dynamometer is used for laboratory activities in two thermodynamics courses each year

CONSULTING

- 2019 - present External Evaluator, National Science Foundation Grant 1908900 - *Aligning the Science Teacher Education Pathway: A Networked Improvement Community*
- Research team is developing an online community to support the use of training tools developed in a prior project
 - PI Michele Korb, California State University East Bay
- 2018 - present External Evaluator, National Science Foundation Grant 1763357 - *Engineering Students' Beliefs about Decision-Making*
- Study of the use of rational, intuitive, and emotive reasoning in senior capstone design courses
 - PI Emily Dringenberg, Ohio State University
- 2015 - 2019 External Evaluator, National Science Foundation Grant 1418440 - *Next Generation Alliance of Science Educators Toolkit*
- Evaluated project monthly and provided suggestions for project improvement to research team
 - Developed tools to provide training in NextGen Science and Engineering Standards for pre-service K-12 teachers
 - PI Michele Korb, California State University East Bay
- 2016 Subject Matter Expert, *McGraw-Hill*
- Transitioned textbook problems to online problem solving environment for *Shigley's Mechanical Engineering Design*
 - Completed 4 chapters of book

SERVICE

- 2008 - present Reviewer, *American Society for Engineering Education (ASEE)*
- Review 1 or 2 journal manuscripts and 5 conference papers each year
- 2013 - present Session Moderator, *American Society for Engineering Education (ASEE)*
- Moderate one session each year for Educational Research Methods Division at annual ASEE conference

LICENSE

- 2013 - present Professional Engineer in Colorado. License Number: PE.0048407

JOURNAL PUBLICATIONS

- Zhu, J., Chen, J., **McNeill, N.**, Zheng, T., Liu, Q., Chen, B., & Cai, J. (2018). Mapping Engineering Students' Learning Outcomes From International Experiences: Designing an Instrument to Measure Attainment of Knowledge, Skills, and Attitudes. *IEEE Transactions on Education*.
- Koro-Ljungberg, M., Douglas, E. P., **McNeill, N. J.**, Therriault, D. J., Lee, C. S., & Malcolm, Z. (2017). Academic Problem-Solving and Students' identities as engineers. *The Qualitative Report*, 22(2), 456–478.
- McNeill, N. J.**, Douglas, E. P., Koro-Ljungberg, M., Therriault, D. J., & Krause, I. (2016). Undergraduate Students' Beliefs about Engineering Problem Solving. *Journal of Engineering Education*, 105(4), 560–584.
- Roumani, A. M., **McNeill, N.**, Patil, L., Ouzzani, M., and Hirleman, E. D. (2014). GlobalHUB: A Model for Sustainable Online Communities. *International Journal of Web Portals*, 6(2), 1–13.
- Lee, C. S., **McNeill, N. J.**, Douglas, E. P., Koro-Ljungberg, M. E., & Therriault, D. J. (2013). Indispensable Resource? A Phenomenological Study of Textbook Use in Engineering Problem Solving. *Journal of Engineering Education*, 102(2), 269–288.
- Koro-Ljungberg, M., Douglas, E. P., Therriault, D., Malcolm, Z., & **McNeill, N.** (2013). Reconceptualizing and decentering think-aloud methodology in qualitative research. *Qualitative Research*, 13(6), 735–753.
- Douglas, E. P., Koro-Ljungberg, M., **McNeill, N. J.**, Malcolm, Z. T., & Therriault, D. J. (2012). Moving beyond formulas and fixations: solving open-ended engineering problems. *European Journal of Engineering Education*, 37(6), 627–651.
- Cox, M. F., Cawthorne, J., **McNeill, N. J.**, Cekic, O., Frye, M., & Stacer, M. (2011). Assessing the Pedagogical Impact of the VaNTH Engineering Research Center on Faculty and Postdoctoral Professionals. *International Journal for the Scholarship of Teaching and Learning*, 5(2), 1–19.
- Cox, M. F., Hahn, J., **McNeill, N.**, Cekic, O., Zhu, J., & London, J. (2011). Enhancing the Quality of Engineering Graduate Teaching Assistants through Multidimensional Feedback. *Advances in Engineering Education*, 2(3), 1–20.

CONFERENCE PAPERS (PEER REVIEWED)

- Bairaktarova, D., Pilotte, M. K., & **McNeill, N. J.**, & Cox, M. F. (2014). Challenging Students' Values and Assumptions Through Project-Based Learning. Presented at the American Society for Engineering Education Annual Conference. Indianapolis, IN.
- McNeill, N. J.**, & Cox, M. F. (2011). Global Engineering Programs: Identifying and Supporting a Diverse Array of Learning Outcomes. Presented at the American Society for Engineering Education Annual Conference. Vancouver, BC, Canada.
- Douglas, E. P., Koro-Ljungberg, M., Malcolm, Z., **McNeill, N. J.**, Therriault, D. J., & Lee, C. S. (2011). Moving Beyond Formulas and Fixations: Exploring Approaches to Solving Open-Ended Engineering Problems. Presented at the American Society for Engineering Education Annual Conference, Vancouver, BC.
- Therriault, D. J., Lee, C. S., Douglas, E. P., Koro-Ljungberg, M., & **McNeill, N. J.** (2011). Open-Book Problem-Solving in Engineering: An Exploratory Study. Presented at the American Society for Engineering Education Annual Conference, Vancouver, BC.
- Koro-Ljungberg, M., Douglas, E. P., **McNeill, N.**, Therriault, D. J., & Malcolm, Z. (2011). Layered data collection methods. Presented at the Seventh International Congress of Qualitative Inquiry, Urbana-Champaign, IL.
- McNeill, N. J.**, Blevins, M., Drott, E., Kremer, A., Kusch, M., Pluhar, B., Ringer, A., et al. (2010). Classroom acoustics in the developing world: A student project to develop simple assessments and treatments. Presented at Noise-Con, Baltimore, MD.
- Wang, J. Q., Li, S. S., **McNeill, N.**, & Jesiek, B. K. (2010). Growing Pains: Chinese Engineering Education During the Late Qing Dynasty. Presented at the American Society for Engineering Education Annual Conference, Louisville, KY.
- Cox, M. F., & **McNeill, N.** (2010). Developing a Global Real-Time Assessment Tool for the Teaching Enhancement of Engineering Graduate Teaching Assistants. Presented at the American Society for Engineering Education Annual Conference, Louisville, KY.
- McNeill, N. J.**, Hirleman, E. D., & Jesiek, B. K. (2009). Using an Engineering Virtual Organization to Support Global Service Learning: Case Study of a US-Rwanda Irrigation Project. Presented at the American Society for Engineering Education Global Colloquium, Budapest, Hungary.
- McNeill, N. J.**, Cox, M. F., Medley, T., & Hayes, J. (2008). Development of an Instrument to Collect Pedagogical Data from Graduate Teaching Assistants Within Engineering Laboratories. Presented at the American Society for Engineering Education Annual Conference, Pittsburgh, PA.