

# T. MICHAEL TOOLE

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## EDUCATION

Massachusetts Institute of Technology, Ph.D. in Technology Strategy.

Massachusetts Institute of Technology, M.S. in Civil Engineering.

Bucknell University, B.S. in Civil Engineering, *cum laude*.

## PROFESSIONAL EXPERIENCE

**University of Toledo**

**2017-present**

**Dean, College of Engineering  
Professor of Civil Engineering**

The University of Toledo is an urban public research (R2) university with student enrollment exceeding 18,000. Its thirteen colleges offer Bachelors, Masters, JD and PhD degrees in the liberal arts and professional programs. The College of Engineering is the largest college with ~3100 undergraduate and ~250 graduate (master's and PhD) students. Its D1 sports teams compete in the Mid-American Conference.

### **Responsibilities:**

- Manage a complex College consisting of 6 departments offering 22 degree programs, ~75 full-time faculty (including faculty providing on-site instruction for a degree program at a partner community college), and ~35 part-time instructors. The 12 undergraduate degree programs are accredited by three different ABET commissions.
- Oversee a dedicated marketing, budgeting, information technology staff; 10 full-time researchers at NASA Glenn Research Center, an industrial testing and research center, and a Career Development Center that places ~1600 full-time co-ops per year.
- Responsible for a \$45.8 million annual budget (including tuition revenues, state share of instruction and external grants funding).
- Oversee research expenditures averaging \$8.0M per year.

### **Selected Key Accomplishments**

- Created new certificate and degree programs in cybersecurity, mechatronics / automation and manufacturing.
- Established new enrollment and research partnerships with institutions in Asia, Europe and Africa.
- Created a cultural shift within the College through the creation and hiring of an Associate Dean for Diversity, Inclusion and Community Engagement and Manager for Diversity, Inclusion and Community Engagement.

- Achieved an unprecedented number of female hires and appointments, including 2 out of 4 Associate Deans, 2 out of 6 department chairs, 7 out of 15 faculty hires, and 6 of 9 staff hires.
- Received Bronze Award by the ASEE Diversity Recognition Program, the highest level awarded to any institution to date.
- Initiated a culture of inclusivity evidenced by Engineering attaining the highest number of faculty participating in the Equity Champions program.
- Implemented changes to increase student diversity student diversity by changing admissions criteria, creating pathways from other colleges, and securing an NSF grant to strengthen retention of underrepresented students.
- Lead donor cultivation and solicitation (including multiple 7-figure asks), collaborated with University Foundation fundraising staff dedicated to the College of Engineering to raise ~\$1.5M in annual giving and to pursue a \$15M college campaign goal within the university capital campaign.
- Increased the number and engagement of 21 regional employers who provide annual support as members of the Corporate Partners Program.
- Successfully initiated membership in the Kern Engineering Entrepreneurship Network (KEEN) and modified KEEN educational modules to create successful alternative co-op program during the pandemic.
- Signed Memorandum of Understanding with Oak Ridge National Lab and am pursuing federal funding for additive manufacturing and shape-memory alloys.
- Established partnerships with other national labs and regional employers and am pursuing federal funding in solar energy, grid modernization, hydrogen production, and advanced manufacturing.
- Launched the Institute for Applied Engineering Research to pursue funded industrial and DOD research projects.
- Launched the Technology Takes the Wheel series focusing on autonomous vehicles and smart mobility in partnership with regional organizations. Personally appointed by the OH Governor to serve on the DriveOhio Advisory Board. This initiative has increased the visibility of the College of Engineering regionally and nationally as well as strengthened relationships between the College and state and regional firms and agencies. It has also led to regional grant proposals.

**Bucknell University**

**1999 – 2017**

**Associate Dean of Engineering**

**Director, Grand Challenges Scholars Program**

**Director, Institute for Leadership in Technology and Management**

**Professor / Associate Professor / Assistant Professor of Civil & Environmental Engineering**

Bucknell University is a private liberal arts university located in Central Pennsylvania with an enrollment of ~ 3600 undergraduate students and ~50 masters students. Bucknell offers 65 majors within three colleges: Arts & Sciences, Management, and Engineering. Its D1 varsity sports teams compete in the Patriot League.

**Associate Dean of Engineering (2012-2016)**

Served three-year term plus one additional year at request of Dean until start of scheduled sabbatical. Primary duties included development associated with the university's \$500M comprehensive campaign, contributing to drafting and implementing the College of Engineering's revised strategic plan and ABET self-study report, expanding internal and external communications, expanding innovation and entrepreneurship within the College, serving as a founding faculty adviser to the Entrepreneurship & Innovation Affinity House, and serving as the Dean's representative on various university and college committees.

**Director, Grand Challenges Scholars Program (2012-2017)**

Wrote proposal that established Bucknell as the thirteenth *National Academy of Engineering* Grand Challenges Scholars Program, which focuses on undergraduate students demonstrating competencies relating to independent learning, interdisciplinary perspectives, global awareness, service-learning and entrepreneurship. Initiated and directed all operations relating to admissions, mentoring, administration and budgeting, collaborating with a 13-member interdisciplinary Steering Committee. Expanded program to include both engineering and liberal arts students. Created and taught interdisciplinary courses entitled The Grand Challenges, Social Entrepreneurship in New Orleans, and Entrepreneurship and Renewable Energy in Iceland. Program success led to three invited presentations at the National Academy of Engineering and appointment on the GCSP National Steering Committee.

**Senior Fellow in the Society and Technology Residential College (2012-2016)**

Collaborated with three liberal arts faculty to teach seminars to first year engineering and liberal arts students. Courses, extracurricular activities and dorm clusters provided immersive experience that emphasized critical thinking, global awareness and multidisciplinary perspectives.

**Director, Institute for Leadership in Technology and Management (2007-2008, 2010-2013)**

Led an intensive, interdisciplinary summer program for 24 highly motivated rising juniors in engineering, management and the liberal arts. Core topics included strategic management, economics, marketing, organizational behavior, engineering and technology development, global competition, ethics, leadership, and communication. Real-world consulting projects for firms such as General Electric, JP Morgan, and Hershey provided experiential learning to supplement classroom sessions. Responsible for all operations, including admissions, curriculum, arranging executive speakers and budgeting.

**Professor (2012-2017) / Assoc. Professor (2006-2012) / Asst. Professor (1999-2006) of Civil & Environmental Engineering**

Teaching responsibilities included undergraduate courses entitled the Human Side of Technology, Exploring Engineering, Engineering in a Global and Societal Context (Argentina), the Challenges of Green Building, Innovation in Design and Construction, Construction Engineering, Materials Engineering, Engineering Planning and Project Management, Civil Engineering Design (senior design project), and Introduction to Transportation. Research and service listed below.

*Recognition: Class of 1956 Lectureship Teaching Award (2009)*  
*University nominee for the U.S. Professor of the Year award (2011)*

**Pennsylvania State University, Dept. of Architectural Engineering (2016-2017)**

**PACE Faculty Fellow**

During year-long sabbatical, collaborated with faculty and students on research associated with the Partnership for Achieving Construction Excellence. Occasional guest lecturer.

**The Packer Group, Inc. (1996 – 1999)**

**Director of Construction Systems for Packer Engineering and Vice President for HomeCAD, Inc.**

A multi-disciplinary engineering company offering a wide range of technical consulting for litigation support, insurance investigations, and industrial services. Engagements as Director of Construction Systems typically involved failures in the design, construction or maintenance of structures and building systems or occupational accidents and overseeing a team of engineers and engineering technicians. As founding Vice President of HomeCAD, launched new business unit to use parametric CAD to perform estimating and visualization services for building product retailers.

**Ryland Homes (1995 – 1996)**

**Purchasing and Construction Services Manager**

In the Chicago division of firm later acquired by Lennar Homes, solely responsible for bidding and awarding contracts totaling \$51 million with material suppliers and union subcontractors for the construction of ~400 homes in 10 subdivisions.

**Tonyan Composites Corporation (1992 – 1994)**

**President and co-founder**

Established to develop and market innovative concrete building panels for residential and commercial construction, starting with a foundation product. Although the venture was never fully launched, completed milestones included a prize-winning business plan, constructing a prototype building, and raising \$125,000 investment capital.

**Massachusetts Institute of Technology (1992 – 1994)**

**Instructor for “Strategy for Engineering and Construction Management”**

Solely responsible for developing course content, delivering lectures and grading a full-credit graduate course in business and technology strategy.

*Recognition: Civil & Env. Engineering Dept. Teaching Award (1993).*

**Brown & Root Services Corporation**

**(1988 – 1989)**

**Delivery Order Manager**

Accepted six-month position before beginning scheduled graduate study. Assigned to three Job Order Contract sites in California and Hawaii to troubleshoot operational and client issues at each site. Estimated and/or negotiated 15 projects and developed 18 bid packages.

**U.S. Navy Civil Engineer Corps (commissioned officer)**

**(1983 – 1988)**

*Recognition: Outstanding Graduate, U.S. Navy CECOS Basic Class 169 (1983).*

*Recognition: Navy Achievement Medal (1988).*

**Assistant Resident Officer in Charge of Construction**, administering 71 fixed-price construction contracts and job order contract delivery orders worth over \$20.7 million and supervising 2 NAVFAC engineers and 4 field inspectors in California. Managed all aspects of contract administration: design review, quality control inspection, partial payments, resolving design deficiencies, estimating and negotiating change orders, claims analysis, and occupancy.

**Company Commander** in charge of 75 SEABEES and 8 construction projects worth \$5.5 million in Puerto Rico.

**Assistant Officer in Charge** of a 70-SEABEE detachment and 7 construction projects worth \$4.1 million in Guantanamo Bay, Cuba.

**Material Liaison Officer** in charge of 10 SEABEES, 2 civilians, \$800,000 of funds and over \$3.2 million of construction materials in Guam.

## **SCHOLARSHIP**

### **Publications**

First or sole author of 13 and co-author of 3 peer-reviewed journal articles, most focusing on construction safety (especially Prevention through Design) and construction innovation.

(Articles linked on [tmichaeltoole.com](http://tmichaeltoole.com).)

*Recognition: Best Paper Award, Journal of Professional Issues in Eng. Education and Practice (2004-5)*

Author or co-author of ~dozen peer-reviewed conference, four peer-reviewed book chapters and ~dozen articles published in industry-focused publications, most focused on construction safety, construction innovation, or project management.

*Recognition: Best Paper Award, ASCE Construction Research Congress (2005).*

[Google Scholar](https://scholar.google.com/citations?user=...) 1890 citations, h-index 18, i10-index 27.

## **Teaching Resources**

“The Owner’s Role in Construction Safety.” Online educational module based on CII Research Report 190 made available in 2017 by the Construction Industry Institute, Austin, TX.

Bucknell Bidding Simulator. Online teaching tool intended for civil engineering and construction management students to learn the dynamics of bidding on fixed-price construction contracts.

Project Management Flight Simulator. A 1500+ variable simulation model created using Ithink system dynamics software that allows users to virtually manage a hypothetical building construction project.

Toole, T. M., D. Treppel, and S. Van Nossdall (2010). “Prevention through Design in Structural Steel Design.” Educational module commissioned by NIOSH.

## **Presentations and Webinars**

Delivered over 50 invited (including 7 keynote or plenary) presentations to industry and educational groups since 2009 on construction safety, construction innovation, engineering ethics, and engineering education.

Presented 8 webinars on prevention through design since 2014 hosted by ACEC, NSPE, ACI, ABA, and COAA.

## **PROFESSIONAL SERVICE (SINCE 2007)**

Initiated and maintaining [www.designforconstructionsafety.org](http://www.designforconstructionsafety.org)

Chair, Ohio Engineering Deans Council (2019-present)

Member (appointed by Gov. Kasich), DriveOhio Advisory Board (2019-present)

Member, Engineer’s Foundation of Ohio Board (2019-present)

Member, Toledo Society of Professional Engineers Board (2019-present)

Member, Board of Better Business Bureau of NW Ohio and SW Michigan (2020-present)

Associate Editor, *ASCE Practice Periodical on Structural Design and Construction* (2017-present)

Member, Board of Directors, World Association of Co-operative Education (2018-2020)

National Academy of Engineering Grand Challenges Scholars Program Steering Committee (2014-2019)

ANSI A10 Prevention Through Design Working Group (2015-present)

Advisory Panelist. Provided review comments to Urban Institute and Virginia Tech University on a research report for HUD entitled “Building Even Better Homes: Strategies for Promoting Innovation in Home Building” and participated in March 30, 2018 workshop

External Examiner in 2017 for a PhD dissertation on Prevention through Design, University of Canberra, Bruce, ACT 2601 Australia

Technical Chair, 2011 Engineering Projects Organizations Conference, Estes Park, CO, August

9-12, 2011

Program Committee, 4th Annual Symposium on Engineering and Liberal Education, held at Union College June 3-4, 2011

American Society of Civil Engineers

Founding Vice Chair of the Prevention through Design Committee within the ASCE Construction Institute (2007-2009)

Vice Chair of the Construction Safety Committee, responsible for initiating and implementing the ASCE-OSHA alliance (2003-2006)

Chairman, Engineering Management Group, Central Pennsylvania Section (2001-2004)

*Recognition: elected ASCE Fellow (2008)*

Founding Member, OSHA Alliance Program Construction Roundtable Design for Construction Safety Workgroup (2004-2009)

Co-Chair, Construction Hazards Prevention Through Design workgroup, NIOSH NORA Construction Sector Council (helps sets NIOSH's construction research agenda) (2006-2008)

Member of the Planning Committee for the NIOSH Prevention through Design workshop held July 9-11, 2007 in Washington, DC

Assistant Specialty Editor for the ASCE *Journal of Construction Engineering and Management*, (2003-2007)

## **UNIVERSITY SERVICE**

University of Toledo (*excluding service performed by all deans of the colleges*)

Member, Vice President for Development Search Committee (2018-19)

Chair, College of Business and Innovation Dean Search Committee (2017-18)

Welltower Gift Advisory Committee (2017-18)

Bucknell University (2009-2017 only)

Committee on Athletics (2013-2016, representing Dean of Engineering)

Engineering Instructional Facilities Committee (2013-2016, representing Dean of Engineering)

Engineering Product Development Lab Committee (2014-2016, representing Dean of Engineering)

Committee on Admissions and Financial Aid (2013-2015, representing Dean of Engineering)

Faculty Adviser, Entrepreneurship & Innovation Affinity House (2013-2016)

Engineering Council of Chairs (2013-2016)

Ecosystem of Entrepreneurship Steering Committee (2013-2015)

Faculty leader for the Bucknell Appalachian Service Project Spring Break trip (March 2015)

Sexual Assault Hearing Adviser (2014-2016)

Service-Learning Advisory Board (2013-present)

Residential Colleges Steering Committee (2012-2016)

Middle States Accreditation Working Group 1 (2012-2014)

Engineering Curriculum Committee (2013-2015)

Appointed member of the President's Task Force on Online and Residential Learning (2012-2013)

Elected member of Faculty Council (2006-2009, re-elected 2009-2012)

Appointed member of the President's Task Force on Campus Climate (2010-2011)

*Recognition: Awarded Maxwell Award for cross-functional excellence at Bucknell (2011)*

Faculty Co-Advisor, men's (2009-2013) and women's varsity soccer teams (2009-2012).

*Recognition: Friend of Bucknell Award, Women's Varsity Soccer Team (2009)*

Elected Faculty Representative to the Board of Trustees' Committee on Development and Alumni Relations (2008-2011)

Chair or member of numerous departmental review committees for tenure or promotion.

Member of numerous search committees within the department, College of Engineering and the University.

Initiated departmental Facebook page (2011)

Mentor to seven new faculty (2006-2017)

Appointed (by Provost) member of Student Engagement Working Group (2010)

Appointed member (by President) of the Bucknell Forum National Speaker Series Task Force (2007-2010)

Participated in the Suriname fresh water supply senior design project (2010)

Led the design and construction of a waterline to a rural community in Nicaragua through the Bucknell Brigade (2006-2009)

## **OTHER INFORMATION**

Professional Civil Engineer since 1987, currently registered in Pennsylvania

Member, American Society for Engineering Education

Member, American Society of Safety Professionals

Member, National Society of Professional Engineers

Member, Order of the Engineer

Member, Tau Beta Pi, Sigma Xi, Chi Epsilon, Omicron Delta Kappa, Mortar Board and Phi Kappa Phi honor societies