



Makarand (Mark) Hastak, Ph.D., PE, CCP, CRIS, MASCE

Dernlan Family Head of Construction Engineering & Management
Professor of Construction Engineering & Management
Professor of Civil Engineering
Purdue University

CONTACT INFORMATION

WORK

Division of Construction Engineering & Management
PURDUE UNIVERSITY
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URL: <https://engineering.purdue.edu/CEM>

HOME

8639 Bay Colony Drive
Indianapolis, IN 46234
(765) 430-1981 (C)

Dr. Hastak is Professor and the Dernlan Family Head of Construction Engineering and Management as well as Professor of Civil Engineering at Purdue University. He is also an Honorary Distinguished Visiting Professor at Tsinghua University in China. Dr. Hastak has assisted the construction industry for the past 35 years through consulting, research, teaching, and service to the community. Prof. Hastak is recognized around the world as an expert in the area of construction engineering and management with specific expertise in profitability of construction companies, disaster risk reduction, infrastructure management, cost control, project management decision-making, risk management, factory-built housing, contracts, warranties, modular construction, and strategic planning. He is a licensed Professional Engineer (PE), a Construction Risk Insurance Specialist (CRIS), and a Certified Cost Professional (CCP). Prof. Hastak has worked on numerous projects sponsored by the NSF, State DOTs, City Agencies, and the Construction Industry Institute (CII). As a Fellow of the American Council on Education (cohort of 2013-14) at Cornell University his work focused on the various facets of Hybrid RCM budget, engaged institution, and Public-Private Partnership in academia.

As a prominent educator and consultant, he has given over 50 keynotes and invited lectures around the world. Prof. Hastak has authored/co-authored over 200 publications and reports in his area of expertise as well as co-authored and edited three widely used books (1) *Infrastructure Planning, Engineering, and Economics* (McGraw-Hill 2006 and 2015), (2) *Skills and Knowledge of Cost Engineering* (AACE 6th Ed. 2015), and (3) *CCP Certification Study Guide* (AACE 2nd Ed. 2016). He served on the AACE Education Board from 2004-2016. He is the current President of the International Council for Research and Innovation in Building and Construction (CIB) (<https://cibworld.org/>). Also, he serves as the Academic Advisor to the CII Downstream and Chemicals Committee (DCC). In addition, Prof. Hastak chaired the ASCE 2012 Construction Research Congress and co-edited the conference proceedings. He was also the Editor-in-Chief of the ASCE Journal of Management in Engineering (2009-2016) and currently serves on its board. He is one of the founders and the past chair of the GLF-CEM, the Global Leadership Forum for Construction Engineering and Management programs (<https://glf.cem.ecn.purdue.edu/>) and currently serves as the Chair of the Advisory Board and member of the ExCom. From 2008-2010, he served as the Chair of the National Consortium of Housing Research Centers (NCHRC) and was the invited Scholar-in-Residence (2006) at the National Association of Home Builders (NAHB) Research Center. Dr. Hastak has developed and managed (2007-2019) several websites as a public service to the industry, such as:

1. Emerging Construction Technologies (ECT): highlights innovative construction technologies (<https://docs.lib.purdue.edu/ect/> and <https://engineering.purdue.edu/ECT>)
2. Purdue Index for Construction (Pi-C): illustrates the periodic health of the construction industry (<https://cem.ecn.purdue.edu/pi-c/main.php>)

Dr. Hastak received his BE (Civil) from Nagpur University, India, MSCE from the University of Cincinnati, and PhD (Civil) from Purdue University, USA. In addition, he is a trained university planner through SCUP and has received training at Cornell University in Executive Leadership, Financial Management, and Advanced Strategic Human Resource Management. Dr. Hastak has completed 30-Hour OSHA Hazard Recognition Training for the Construction Industry. He has worked at Georgia Tech, NYU, University of Cincinnati, and currently at Purdue University.

EDUCATION

DEGREES

PhD	1994	Civil Engineering (CEM), Purdue University
MS	1991	Civil Engineering (CEM), University of Cincinnati
BE	1987	Civil Engineering, Nagpur University (India)

ADVANCED PROFESSIONAL CERTIFICATES

Certificate	2019	Construction Risk Insurance Specialist (CRIS) Certification through International Risk Management Institute, Inc. (IRMI); Courses completed on 10/30/19
Certificate	2019	30-Hour OSHA Hazard Recognition Training for the Construction Industry Course on 5/28/2019 (OEC-7060678); OSHA Education Center and the American Safety Council, Inc.
Certificate	2015	Integrated Planning in Higher Education -Step I, II, and III, The Society for College and University Planning (SCUP) (Step III completed in January 2015).
Advanced Certificate	2014	Strategic Human Resource Management , 12-week Certificate Program, Cornell University (Completed in August 2014)
Certificate	2014	Financial Management , 12-week Certificate Program, Cornell University (Completed in April 2014)
Certificate	2014	Executive Leadership , 12-week Certificate Program, Cornell University (Completed in February 2014)

LEADERSHIP AND ADMINISTRATIVE ACTIVITIES

2007-Present	Head	Division of Construction Engineering & Management, Purdue University
2020-Present	Academic Advisor	Construction Industry Institute (CII) Downstream and Chemicals Committee (DCC)
2022-Present	President	International Council for Research and Innovation in Building and Construction (CIB) – (Three-year term 2022-2025)
2020-2022	Vice President	
2019-Present	Departmental Academic Advisor	Department of Building and Real Estate, Hong Kong Polytechnic University, Hong Kong (three-year term)
2019-Present	Member of the Board	International Council for Research and Innovation in Building and Construction (CIB) – (three-year term)
2010-Present	Executive Committee	Global Leadership Forum for Construction Engineering and Management Programs
2014-2017	Member	President's Council on Budget and Affordability, Purdue University
2013-2016	Past-Chair	Global Leadership Forum for Construction Engineering and Management Programs
2009-2015	Editor-in-Chief	ASCE Journal of Management in Engineering

2007-2016	Editor-in-Chief	AACE Skills and Knowledge of Cost Engineering, 6 th Ed and Certification Study Guide, 4 th Ed.
2013-2014	Fellow of the American Council on Education (ACE) 2013-14	Office of the Vice President, Division of Planning and Budget, Cornell University, Ithaca, NY
2010-2013	Chair and Founder (GLF-CEM)	Global Leadership Forum for Construction Engineering and Management Programs
2011-2012	Chair	ASCE Construction Research Congress
2008-2012	Chair and Past-Chair	National Consortium of Housing Research Centers (NCHRC)
2003-2012	Research Director for Manufactured Housing	Purdue Housing Research Center

ACADEMIC AND INDUSTRY POSITIONS

2019-Present	Endowed Chair/Named Headship	Dernlan Family Head of Construction Engineering & Management, Purdue University
2007-Present	Professor and Head	Division of Construction Engineering & Management, Purdue University
2007-Present	Professor	Civil Engineering, Purdue University
2018-Present	Honorary Distinguished Visiting Professor	Civil Engineering/Construction Management, Tsinghua University, Beijing, China
2011-2018	Honorary Chair Professor	Civil Engineering/Construction Management, Tsinghua University, Beijing, China
2004-2007	Associate Professor	Civil Engineering as well as Construction Engineering & Management, Purdue University
2001-2004	Assistant Professor	Civil Engineering as well as Construction Engineering & Management, Purdue University (Joint Appointment)
1998-2001	Assistant Professor	Civil Engineering, University of Cincinnati
	<i>Program Coordinator: Construction Engineering & Management</i>	
1995-1998	Assistant Professor	Civil Engineering, Polytechnic University (now NYU-Tandon School of Engineering)
	<i>Program Coordinator: CEM and Exec 21 Programs</i>	
1994-1995	Post-Doctoral Fellow	Civil and Environmental Engineering, Georgia Institute of Technology
1991-1994	Graduate Assistant	Civil Engineering/Construction Engineering & Management, Purdue University
1989-1991	Graduate Assistant	Civil Engineering, University of Cincinnati
1987-1989	Assistant Design Engineer	STUP Consultants Ltd., New Delhi, India

LICENSES AND REGISTRATIONS

Professional Engineer (Civil), Indiana, 2011 (# PE11100350)

Certified Cost Professional (CCP), 1996 (# 1902)

Instructor – Real Estate-CE, 2006, (# INST000644 – Expired 2013)

PROFESSIONAL SERVICES (2011 - PRESENT)

1. Expert Witness Service, Eminent Domain Services, LLC, Madison, WI (2022-) – Transmission line special assessment challenge/appeal (Expert Report for Plaintiff, **Deposition**, Attorney: Erik Olsen).
2. Expert Witness Service, Lanier Law Group, P.A. (2022). In the General Court of Justice, Superior Court Division, County of Wake, State of North Carolina – Trench Accident (Expert Witness for Plaintiff, Attorney: Robert O. Jenkins)
3. Expert Witness Service, Darylaine Hernandez, LLC (2022-). In the Circuit Court of the Fifth Judicial Circuit, in and for Marion County, Florida – Sink Hole Accident (Expert Witness for Plaintiff, **Deposition**, Attorney: Michael Toole and Darylaine Hernandez)
4. Expert Witness Service, Nelson Mullins Riley & Scarborough, LLP (2022-). In Southern District of West Virginia – Contractual Dispute (Expert Report for Defendant, **Deposition**, Attorney: Alex Frampton)
5. Consultant/Expert Witness Service, Banks and Brower, LLC (2022). In Southern District of Indiana – Loss amount and restitution (Expert Report for Defendant; Attorney: Matt Kubacki)
6. Expert Witness Service, Clendening, Johnson, & Bohrer (2022). In the Monroe Circuit Court 1, Indiana – Construction Safety (Expert Report for Defendant; Attorney: Justin Schwemmer)
7. Consultant/Expert Witness Service, Goering Law (2021-). Raymond J. Lilly vs Miracle Mod Homes, LLC – Modular Home (Expert for Plaintiff, Attorney: Wilmer E. Goering, II)
8. Expert Witness Service, Zane D. Smith & Associates, Ltd (2021-). In the Circuit Court of Cook County, Illinois – Road Safety (Expert Report for Plaintiff; **Evidence Deposition**, Attorney: Boris Samovalov)
9. Consultant, Tata Projects Ltd, India, (2021). “Guaranteed Maximum Price Contracts.”
10. Expert Witness Service, Williams Barrett & Wilkowski, LLP (2020-2021). In Delaware Circuit Court, No. 1, Delaware County, Indiana – Construction Safety (Expert for Defendant; Attorney: Danny Paul)
11. Expert Witness Service, Archer & Greiner P.C. (2021). Lawsuit filed in NJ. Rock Creek Community Academy vs Mobilease Modular – Modular Construction Lease (Expert for Defendant, Attorney: Edward J. Kelleher)
12. Expert Witness Service, Moore & Portelli (2020-2021). In the Circuit Court of Lake County, Indiana – Construction Safety (Expert Report for Defendant; **Deposition**, Attorney: Jim Portelli)
13. Expert Witness Service, Joseph Wade Law (2020). Review and report on infrastructure damage claim-GDOT (Expert Report for Defendant; Attorney: Joseph Wade)
14. Expert Witness Service, Joseph Wade Law (2020). Review and report on infrastructure damage claim-MNDOT (Expert Report for Defendant; Attorney: Joseph Wade)
15. Expert Witness Service, Watkins Calcara, Chtd. (2020). Review and report on infrastructure damage claim-KDOT (Expert Report for Defendant; Attorney: Allen Glendenning)
16. Expert Witness Service, Eminent Domain Services, LLC, Madison, WI (2020-2021) – Road construction special assessment challenge/appeal-Elsner Road (Expert Affidavit for Plaintiff, Attorney: Erik Olsen).
17. Expert Witness Service, Eminent Domain Services, LLC, Madison, WI (2020-2021) – Road construction special assessment challenge/appeal-Spencer Street (Expert Affidavit for Plaintiff; **Deposition**, Attorney: Erik Olsen).
18. Expert Witness Service, Eminent Domain Services, LLC, Madison, WI (2020-2021) – Road construction special assessment challenge/appeal-McCarthy Road (Expert Affidavit for Plaintiff; Attorney: Erik Olsen).
19. Consultant/Expert Witness Service, Fort Wayne MHC, LLC, Indiana (2019- 21) – Water usage
20. Expert Witness Service, Palmieri, Tyler, Wiener, Wilhelm & Waldron LLP (2019- 2021), Superior Court of the State of California, for the County of Riverside– Construction Safety (Expert for Defendant; Attorney: Doug Robinson).

21. Expert Witness Service, Clendening, Johnson, & Bohrer (2019). In the Jackson Superior Court 1, Indiana – Construction Safety (Expert Consultation for Defendant; Attorney: Belinda Johnson-Hurtado)
22. Expert Witness Service, Norris Choplin Schroeder LLP (2019), Indiana Commercial Court, Marion Superior Court 12, State of Indiana – Project Controls (Expert Report for Defendant, **Deposition**; Attorney: Scott Harkness)
23. Expert Witness Service, Clendening, Johnson, & Bohrer (2019). In the Monroe Circuit Court, Indiana – Construction Safety (Expert Report for Defendant; Attorney: Belinda Johnson-Hurtado)
24. Expert Witness Service, Attorney Corbin Fowler (2019), Lindskog v. NIPSCO, Indiana – Road Safety (Expert Report for Plaintiff)
25. Chief Quality Reviewer, Cambridge Innovation Consulting Ltd (2018) – Innovation Practices of East Asian Infrastructure Companies
26. Expert Witness Service, Procopio, Cory, Hargreaves & Savitch LLP (2017-18), Bladeroom v. Emerson, United States District Court, Northern District of California, San Jose Division – Modular Construction/Trade secret misappropriation (Expert Report for Defendant, **Deposition**; Attorneys: Chris Jaczko, Robert Sloss and, Mindy Morton)
27. Expert Witness Service; Sudekum, Cassidy & Shulruff, Chtd (2017-2018), Hedrick v. TJ Materials, Lake Superior Court, Gary, Indiana – Construction Safety (Expert Affidavit for Defendant, **Deposition, Evidence Deposition**; Attorney: Mark Sickles)
28. Defining Capital Efficiency Metrics (CII DCC RT 399), Jan 2022 – Aug 2022. Construction Industry Institute (CII), (M. Hastak, PI)
29. Safety, Mobility, and Cost Benefits of Closing One Direction of Interstate in Rural Areas During Construction Work (SPR 4409), Nov 2019 – Dec 2021, Joint Transportation Research Program (JTRP), (M. Hastak PI and S. Labi Co-PI)
30. Synthesis Study on Best Practices for Mapping and Coordinating Detours for Maintenance of Traffic Including Risk Assessment/Management for Duration of Traffic Control Activities (SPR 4405), Nov 2019 – Feb 2021, Joint Transportation Research Program (JTRP), (M. Hastak PI and S. Labi Co-PI)
31. The Impact of Offsite Construction on the Workforce (The Workforce of 2030 Program) (CII RT 371), Sept 2019 – Aug 2021. Construction Industry Institute (CII), (M. Hastak, PI, Islam El-Adaway, MST Co-PI, Kim LaScola Needy, UArk Co-PI).
32. Towards a Resilient Grid: An Investment Prioritization Decision Framework that Integrates the Growing Risks of Severe Weather- Induced Outages. Aug 2017-July 2020, National Science Foundation (NSF) (M. Hastak, PI, Roshnak Nateghi Co-PI, Wallace Tyner, Co-PI)
33. Consultant for Performance Assessment for P.T. Tripatra Engineers and Constructors (an EPC Firm), Jakarta, Indonesia through Purdue Enterprise Company (PEC) LLC and the EPCOM Consortium at Purdue University, July-Aug, 2016.
34. Simplified Construction Scheduling for Field Personnel – SPR 3907, Jan 2015 – April 2016, Joint Transportation Research Program (JTRP), (M. Hastak, PI).
35. Intelligent Compaction of Asphalt Pavement Implementation – SPR 3804, Oct 2013 – Feb 2015, Joint Transportation Research Program (JTRP), (M. Hastak, PI).
36. Enhanced Treatment Selection for Reflective Joint Cracking in Composite Pavements (PHASE-2) – SPR 3626, Jan 2013 – Apr 2014, Joint Transportation Research Program (JTRP), Extension granted for May 2014 – Apr 2015; Second Extension granted from May 2015-Aug 2015 (PI).
37. Mitigating Threats of Counterfeit Materials in the Capital Projects (RT307), Sept 2012 – August 2014, Construction Industry Institute (CII), (M. Hastak, PI, Sanjiv Gokhale, Vanderbilt Co-PI, Mehmet Emre Bayraktar, Florida International University Co-PI)
38. Comparing Stabilized/Unstabilized Subbase for Unsealed Joints in PCCP – SPR 3510, Jan 2011 – Dec 2013 (extended at no cost until 2016), Joint Transportation Research Program (JTRP), (M. Hastak, PI and Yigong Ji, INDOT, Co-PI).

39. Performance Evaluation of Crack Sealing and Filling Materials with Pavement Preservation Treatments, SPR 3533, Jan 2011 – Dec 2014 (extended until Oct 31, 2015), Joint Transportation Research Program (JTRP), (M. Hastak, PI and Jusang Lee, INDOT, Co-PI).
40. Project Evaluation Methods for Pavement Preservation Treatments, Jan 2011 – April 2013, Joint Transportation Research Program (JTRP), (M. Hastak, PI and Jusang Lee, INDOT, Co-PI).
41. Enhanced Treatment Selection for Reflective Joint Cracking in Composite Pavements (PHASE-1), SPR-3626, Jan 2012 – Apr 2013, Joint Transportation Research Program (JTRP), (M. Hastak, PI).
42. Quantify the Benefits of Pavement Preservation, Jan 2010 – Apr 2011, NCE till May 2011, Joint Transportation Research Program (JTRP), (M. Hastak, PI).
43. Secretarial Support for the Journal of Management in Engineering, Annual Recurring Fund 2009-2015, American Society of Civil Engineers (ASCE) (M. Hastak, PI).
44. "Introduction to Skills and Knowledge of Cost Engineering" Organized by the Association for Advancement of Cost Engineering International for the Russian Section, Saint Petersburg, Russia. April 2013 and December 2013.
45. "Skills and Knowledge of Cost Engineering-Cost Planning" Organized by the Association for Advancement of Cost Engineering International for the Russian Section, Saint Petersburg, Russia. December 2013.
46. "Skills and Knowledge of Cost Engineering" Organized by the Association for Advancement of Cost Engineering International for Tasnee, Jubail, Saudi Arabia. February 2014.
47. "Project Costing and Financial Management." Intensive Course for Master of Project Management (MPM) degree program, Abu Dhabi University, UAE. Feb 8-19, 2015.
48. "Project Management Professionalism." Intensive Course for Master of Project Management (MPM) degree program, Abu Dhabi University, UAE. Jan 10-Feb 6, 2016.
49. "ACEI CCE/CCC (CCP since 2012) Certification Review Course" Organized by the Association for Advancement of Cost Engineering International during the Annual Conference (Las Vegas 2006; Nashville 2007, Toronto 2008, Seattle 2009, Atlanta 2010, Anaheim 2011, San Antonio 2012, Washington DC 2013, New Orleans 2014, Las Vegas 2015, Toronto 2016, Orlando 2017).
50. Developed Course-in-a-box, CCE/CCC Certification course for ACEI. Jan 2011.

PATENTS: NONE

HONORS AND AWARDS

- **Best Peer Reviewed Paper Award - Runner Up** (2020), "Capacity Building for an Infrastructure System in Case of Disaster Using the System's Associated Social and Technical Components". ASCE Journal Management in Engineering (Vol 35, Issue 4).
- **Dernlan Family Head of Construction Engineering and Management** (2019 - Present), Endowed Chair/Named Headship, Purdue University
- **Departmental Academic Advisor** (2019-Present), Department of Building and Real Estate, Hong Kong Polytechnic University, Hong Kong.
- **Honorary Distinguished Visiting Professor** (2018-Present), Civil Engineering/Construction Management, Tsinghua University, Beijing, China
- **Honorary Chair Professor** (2011-2018), Civil Engineering/Construction Management, Tsinghua University, Beijing, China
- **Brian D. Dunfield Educational Service Award** (2017), Association for Advancement of Cost Engineering (ACEI) International, Morgantown, WV.
- **Distinguished Visiting Professor** (May 15-19, 2017), General Tedeusz Kosciuszko Military Academy of Land Forces, Wroclaw, Poland.
- **Best Peer Reviewed Paper Honorable Mention** (2016) "Exploratory Framework for Application of Analytics in the Construction Industry." ASCE *Journal Management in Engineering*.

- **Highly Commended Award Winner** at the Literati Network Awards for Excellence. (2011). "Impact of Flood Damaged Critical Infrastructure on Communities and Industries," Journal of Built Environment Project and Asset Management, *Emerald Group Publishing Ltd, UK*.
- **Highly Commended Award Winner** at the Literati Network Awards for Excellence (2010). "Disaster impact analysis based on inter-relationship of critical infrastructure and associated industries: A winter flood disaster event" International Journal of Disaster Resilience in the Built Environment, *Emerald Group Publishing Ltd, UK*.
- **Academic Keys Who's Who** in Engineering Higher Education (WWEHE), 2007
- **Scholar-in-Residence** at the National Association of Home Builders (NAHB) Research Center, Upper Marlboro, Maryland, May 29 – July 20, 2006.
- **Roy E. and Myrna Wansik Civil Engineering Research Award** (2006) in recognition of outstanding research in the School of Civil Engineering, Purdue University.
- **Who's Who in Engineering Education** (WWE), 2002 edition
- **Academic Achievement Award** given by Construction Management Association of America (CMAA), NY/NJ Section for *Exec 21* program established at Polytechnic University in conjunction with colleagues, Polytechnic University (1997). *Exec 21* is a certificate program for executive training in construction engineering and management.

MEMBERSHIP AND LEADERSHIP ROLES IN PROFESSIONAL SOCIETIES

National Consortium of Housing Research Centers (NCHRC)

2010–2012	Past-Chair of NCHRC
2008–2010	Chair of NCHRC
2006–2008	Secretary of NCHRC
2001–2012	Member, representing Purdue Housing Research Center

Global Leadership Forum for Construction Engineering and Management Programs

2021-Present	ExCom Member, GLF-CEM
2021-Present	Chair, Task Force on Resilience of the Construction Industry.
2021-Present	Chair, Task Force on Scientific Principles in Construction Research.
2020-Present	Chair, Advisory Board.
2016-2020	Chair, Committee for the Global KPI Initiative.
2014-2016	Past Chair, GLF-CEM.
2012	Forum Chair, <i>GLF-CEM 2012</i> , Purdue University.
2011	Forum Chair, <i>GLF-CEM 2011</i> , Purdue University.
2010-2013	Founding Chair, GLF-CEM.

International Council for Research & Innovation in Building & Construction (CIB)

2020-Present	Vice President
2019-Present	Board Member

American Society of Civil Engineers (ASCE)

2010-2012	Chair, ASCE 2012 <i>Construction Research Congress</i> , Purdue University.
2009-2015	Editor-in-Chief, ASCE <i>Journal of Management in Engineering</i> .
2008-Present	Member (288614)
2007-Present	Member, Construction Engineering Education Committee
1997-2001	Member, Computing in Construction (CIC)
1997-1998	Member, National Task Committee on Continuing Professional Development/Education in the Professional Practice Area of ASCE
1994-Present	Member, Construction Research Council (CRC)
1990-2008	Associate Member

The Association for the Advancement of Cost Engineering (AACE International)

2007-2016	Editor-in-Chief, Skills and Knowledge of Cost Engineering, 6 th Ed. and Certification Study Guide, 4 th Ed.
2006-2016	Full Member, Academic Council
2004-2016	Full Member, Education Board
2004-2008	Member, Grant Funding Task Force
2003-2004	Contributing Member, Education Board
1990-Present	Associate Member (03681)

Construction Industry Institute (CII)

2022-2022	Member, CII RT 399 – <i>Defining Capital Efficiency Metrics for Downstream and Chemicals projects</i>
2020-Present	Academic Advisor to the CII Downstream and Chemicals Committee (DCC)
2019-2021	Member, CII RT 371 – <i>The Impact of Offsite Construction on the Workforce (The Workforce of 2030 Program)</i> .
2015-2016	Chair, Academic Committee Subcommittee on Webinars
2012–2014	Member, CII Project Team 307 – <i>Mitigating Threats of Counterfeit Materials in the Capital Projects</i>
2006-2008	Member, CII Project Team 241 – <i>Maximizing the Value of Construction in Pre-Project Planning</i>
2005-2016	Member, Academic Council
2004-2006	Member, CII Project Team 214 – <i>Cost Schedule Tradeoff</i>
2002-2004	Member, CII Project Team 193 – <i>Radical Reduction in Project Cycle Time</i>
2000-2007	Member, Globalization Committee
1998-2001	Member, CII Research Team 154 – <i>Electronic Simulation in Construction</i>
1994-1995	Research Associate, CII Research Team 112 – <i>A Framework and Practices for Cost-Effective Engineering in Capital Projects in the A/E/C Industry</i>
1992-1993	Research Assistant, CII Research Team 90 – <i>The Future Needs of the Construction Industry's Worldwide Customers</i>

PUBLICATIONS

FULL ARTICLES IN REFEREED PUBLICATIONS

Over 200 papers in leading journals and conference proceedings related to Construction Engineering and Project Management (List available upon request). In addition, I have advised 18 PhD students and over 43 Masters Students. Four PhD and three Masters Students are currently working with me.

BOOKS

1. Goodman, Alvin S. and **Makarand Hastak**. (2006). *Infrastructure Planning Handbook: Planning, Engineering & Economics*. McGraw Hill/ASCE, New York, NY.
2. Cai, H., Kandil, A., **Hastak, M.**, and Dunston, S. P., Editors (2012). *Construction Research Congress 2012: Construction Challenges in a Flat World*, ASCE, May 21-23, 2012, Purdue University, West Lafayette IN. A total of 2,530 pages.
3. Goodman, Alvin S. and **Makarand Hastak**. (2015). *Infrastructure Planning, Engineering & Economics*. 2nd Ed., McGraw Hill/ASCE, New York, NY.
4. **Hastak, Makarand** (Editor) (2015). *Skills and Knowledge of Cost Engineering*, 6th Edition, Association for Advancement of Cost Engineering (AACE), Morgantown, WV.

5. **Hastak, Makarand** (Editor) (2016). *CCP Certification Study Guide*, 2nd Edition, Association for Advancement of Cost Engineering (AACE), Morgantown, WV.

COMPLETED PROJECTS AND REPORTS FOR THE INDUSTRY, GOVERNMENT, OR UNIVERSITY

1. **Hastak, Makarand** (1991). "Study of Factors Causing Variability in Project Estimate." M.S. Thesis, University of Cincinnati, Cincinnati, Ohio.
2. Halpin, Daniel W., Rong-Yau Huang, **Makarand Hastak**, S. Peter Dozzi, R. David Unkefer and Peter H. Bopp (1993). "The Future Needs of the Construction Industry's Worldwide Customers." A report to the Construction Industry Institute, the University of Texas at Austin, ***CII Source Document 90***.
3. **Hastak, Makarand** (1994). "Decision Support System for Project Cost Control Strategy and Planning." Thesis in partial fulfillment of the requirements for the degree of Doctor of Philosophy, at Purdue University, West Lafayette, Indiana.
4. Vanegas, Jorge, **Makarand Hastak**, Annie Pearce, and Francisco Maldonado. (1998). "A Framework and Practices for Cost-Effective Engineering in Capital Projects in the A/E/C Industry." A report to the Construction Industry Institute, the University of Texas at Austin, May 1998. ***CII Research Report 112-11***
5. **Hastak, Makarand**, A. K. Singh, and V. Thakkallapalli. (2001). "Electronic Simulation in Construction." A report to the Construction Industry Institute, the University of Texas at Austin, December 2001. ***CII Research Report 154-11***
6. Syal, M., **Hastak, M.**, Senghore, O, and Mehrotra, N. (2002). "Continuing Education Package – Manufactured Housing Production Process," NSF-PATH Project Report No.2, Michigan State University, MI.
7. Syal, M., **Hastak, M.**, Banerjee, D., and Mehrotra, M. (2003). "Continuing Education Package – Manufactured Housing Facility layout," NSF-PATH Project Report No.4, Michigan State University, MI.
8. **Hastak, M.**, Minkarah, I.A, Cui, Q., and Bayraktar, M.E. (2003). "Evaluation of Warranty Provisions on ODOT Construction Projects." A project report to Ohio Department of Transportation (ODOT), Columbus, Ohio.
9. **Hastak, Makarand** (Contributing Author). (2003). "Detailed Planning for Research on Accelerating the Renewal of America's Highways." NCHRP Project 20-58(1) Renewal, Final Report Prepared for the National Cooperative Highway Research Program, Transportation Research Board, National Research Council, April 2003. Main authors/editors: Stephen J. Andrie, E. Thomas Cackler, Theodore Ferragut, and Rebecca McDaniel.
10. **Hastak, Makarand** (Contributing Author). (2003). "Connection Between Simple Span Precast Concrete Girders Made Continuous." NCHRP Project 12-53, Final Report Prepared for the National Cooperative Highway Research Program, Transportation Research Board, National Research Council, October 2003. Main authors/editors: Richard Miller, Reid Castrodale, Amir Mirmiran, and Makarand Hastak.
11. Syal, M., **Hastak, M.**, Banerjee, D., Mehrotra, N., "Continuation Education Module – Manufactured Housing Facility Layout," NSF Project Report, MSU & Purdue, Mar 2004
12. Syal, M., **Hastak, M.**, and Mullens, M. (August 2004). Final Report, NSF-PATH Housing Research Agenda, NSF and U.S. Department of HUD, Washington DC. (<http://www.pathnet.org/sp.asp?id=12201>)
13. **Hastak, M.**, S. Gokhale, K. Goyani, T. Hong, and B. Safi. (2004). "Radical Reduction in Project Cycle Time." A report to the Construction Industry Institute, the University of Texas at Austin, June 2004. ***CII Research Report 193-11***
14. **Hastak, M.**, Halpin, D. W., and Hong, TaeHoon (2004). "Constructability, Operability, Maintainability of Fiber Reinforced Polymer (FRP) Bridge Deck Panels." A project report to Joint Transportation Research Program (JTRP), INDOT, West Lafayette, Indiana.
15. **Hastak, M.** and Alex Duran (2006). "Decision Model to Evaluate Decentralized and Centralized Wastewater Treatment Options for Residential Land Development." A report to the NAHB-

- Research Center for the National Housing Endowment Scholar-In-Residence Program. Report number AT629.160_081506, Upper Marlboro, Maryland.
16. **Hastak, M.**, S. Gokhale, Bhavin Safi, and Emre Bayraktar. (2006). "Trade-off between Cost and Schedule." A report to the Construction Industry Institute, the University of Texas at Austin, Oct 2006. ***CII Research Report 214-11***
 17. **Hastak, M.** and Sharvil Shah (2008). "Acquisition and Analysis of Earthwork Pay Quantity Verification Data." A project report to Joint Transportation Research Program (JTRP), INDOT, West Lafayette, Indiana.
 18. Gokhale, Sanjiv, **Makarand Hastak**, and EunHo Oh. (2008). "Optimizing Construction Input in Front End Planning (FEP)." A report to the Construction Industry Institute, the University of Texas at Austin, Aug 2008. ***CII Research Report 241-11***
 19. **Hastak, M.**, Oh, EunHo, and Deshmukh, Abhijeet, (2009) "SGER: Short Term Investigation of 2008 Midwest Floods" NSF Project Report, Purdue Univ, August 2009.
 20. Shah, Hiral, Yoojung Yoon, **M. Hastak**, Jusang Lee. (2011). "Benefits and Assessment of Budget Allocation for Pavement Preservation." A project report to Joint Transportation Research Program (JTRP), INDOT, West Lafayette, Indiana.
 21. Yoon, Yoojung, Saumyang Patel, Yigong Ji, and **Makarand Hastak**. (2013). "Enhanced Treatment Selection for Reflective Joint Cracking in Composite Pavements – Phase-I." A project report to Joint Transportation Research Program (JTRP), INDOT, West Lafayette, Indiana.
 22. Lee, J., **M. Hastak**, D. Harris, and H. J. Ahn. (2013). "Subsurface Condition Evaluation for Asphalt Pavement Preservation Treatments." Publication FHWA/IN/JTRP-2013/05. Joint Transportation Research Program, Indiana Department of Transportation and Purdue University, West Lafayette, Indiana, 2013. DOI: 10.5703/1288284315187. (<http://dx.doi.org/10.5703/1288284315187>)
 23. **M. Hastak**, Gokhale, S., Bayraktar, E., Naderpajouh, N., Arif, F, and Iyer, A. (2014). "Mitigating Threats of Counterfeit Materials in Capital Projects Industry." A report to the Construction Industry Institute, the University of Texas at Austin, Sept 2014. ***CII Research Report 307-11***
 24. Yoon, S., **Hastak, M.**, and Lee, J. (2015). "Intelligent compaction of asphalt pavement implementation," (Joint Transportation Research Program Publication No. FHWA/IN/JTRP-2015/05). West Lafayette, IN: Purdue University. <http://dx.doi.org/10.5703/1288284315524>
 25. Kang, K., Yoon, S., Patel, S., Yoon, Y., Ji, Y., & **Hastak, M.** (2015). *Enhanced treatment selection for reflective joint cracking in composite pavements* (Joint Transportation Research Program Publication No. FHWA/IN/JTRP-2015/21). West Lafayette, IN: Purdue University. <http://dx.doi.org/10.5703/1288284316006>
 26. Lee, J., **M. Hastak**, and H. J. Ahn. (2015). "Crack Sealing/Filling: The Best Practices." (Joint Transportation Research Program Publication, No. FHWA/IN/JTRP-2015/23). West Lafayette, IN: Purdue University. <http://dx.doi.org/10.5703/1288284316008>
 27. Khallaf, R., Yoon, S., **Hastak, M.**, and Nantung, T. (2016). *Simplified construction scheduling for field personnel* (Joint Transportation Research Program Publication No. FHWA/IN/ JTRP-2016/28). West Lafayette, IN: Purdue University. <https://doi.org/10.5703/1288284316355>
 28. **Hastak, M.**, Nageghi, R., Wallace, T., Yoon, S., Bhattacharyya, A. (2020) "Towards a Resilient Electric Power Grid: An Investment Prioritization Decision Framework Integrating Risks of Severe Weather-Induced Outages." NSF Project Report, Purdue University, August 2020.
 29. Mwamba, I.C., Morshedi, M., Padhye, S., Davatgari, A., Yoon, S., Labi, S., **Hastak, M.** (2021). *Synthesis study on best practices for mapping and coordinating detours for maintenance of traffic (MOT), including risk assessment/management for duration of traffic control activities*. DRAFT SPR 4405 Report submitted to JTRP for review. West Lafayette, IN: Purdue University.
 30. Padhye, S., Mwamba, I.C., Kang, K., Labi, S., **Hastak, M.** (2021). *Safety, mobility, and cost benefits of closing one direction of interstate in rural areas during construction work*. DRAFT SPR 4409 Report submitted to JTRP for review. West Lafayette, IN: Purdue University.
 31. Assaad, R., El-adaway, I. H., **Hastak, M.**, and LaScola Needy, K (2021). "Getting Ready for 2030: A People, Process, and Technology Roadmap for Offsite Construction." A report to the Construction Industry Institute, the University of Texas at Austin, 2021. ***CII Research Report 371***.

32. Padhye, S and **Hastak, M.** (2022). "Defining Capital Efficiency Metrics for Downstream and Chemicals projects," A report to the Construction Industry Institute, the University of Texas at Austin, 2022. ***CII Research Report 399.***

DEVELOPMENT AND TEACHING OF SHORT COURSES AND WORKSHOPS:

1. "Constructability and Modularization & Preassembly." Construction Industry Institute (CII) Continuing Education Short Courses for Project Management, Sponsored by the Construction Industry Cooperative Alliance (CICA), Clemson University, Clemson. September 18-23, 1994.
2. "Project Management." Project Management Training to the Department of Aviation (DOA) Employees in preparation for the Hartsfield Improvement Program (HIP-96) initiative, Department of Aviation (DOA), Hartsfield International Airport, Atlanta, Georgia (in collaboration with colleagues), Atlanta, Georgia. 1995.
3. "Constructability." Continuing Education Short Courses for Project Management. Fernald Environmental Restoration Management Corporation (FERMCO) in cooperation with the Construction Industry Cooperative Alliance (CICA), Clemson University. Cincinnati, Ohio. September 23, and September 30, 1995.
4. "Introduction to Factorized and Prefabricated Production in Construction Projects: Preassembly and Modularization." Training program for the delegation from the Ministry of Chemical Industry, P.R. China, US-CHINA Business Co., New York, New York. Nov. 7, 1995.
5. "Educational Training Module for Constructability, Value Engineering, and Inputs to Design," part of the Continuing Education Short Courses for Project Management, Georgia-Pacific Corporation in cooperation with the Construction Industry Cooperative Alliance (CICA), Clemson University. Developed at Georgia Institute of Technology, Atlanta, Georgia in collaboration with colleagues. 1995.
6. "Educational Training Module for Constructability," part of the Continuing Education Short Courses for Project Management, Fernald Environmental Restoration Management Corporation (FERMCO) in cooperation with the Construction Industry Cooperative Alliance (CICA), Clemson University. Developed at Georgia Institute of Technology, Atlanta, Georgia in collaboration with colleagues. 1995.
7. "Constructability." Continuing Education Short Courses for Project Management, Georgia-Pacific Corporation in cooperation with the Construction Industry Cooperative Alliance (CICA), Clemson University, Cedar Springs, Georgia. September 9, 1996.
8. "Introduction to Factorized and Prefabricated Production in Construction Projects: Preassembly and Modularization." Training program for the delegation from the Ministry of Chemical Industry, P.R. China, US-CHINA Business Co., New York, New York. Dec. 4, 1996.
9. "Probability, Statistics, & Optimization," AACE International Certification training program for CCC and CCE, AACE International, Metropolitan New York Section, New York. May 1, 1997.
10. "Engineering Economics," NYU P.E. Certification training program, NYU, School of Continuing Education, New York. March 12, 1998.
11. "AACEI CCE/CCC (CCP since 2012) Certification Review Course" Organized by the Association for Advancement of Cost Engineering International. (Las Vegas, June 2006; Nashville July 2007, Toronto June 2008, Seattle 2009, Atlanta 2010, Anaheim 2011, San Antonio 2012, Washington DC 2013, New Orleans 2014, Las Vegas 2015, Toronto 2016, Orlando 2017.)
12. "Managing Construction Projects in Tennessee" Professional Education Seminar, Chattanooga, TN (Jan 2006), Nashville, TN (Feb 2006), Knoxville, TN (April 2006).
13. "Program/Project Management for Leadership Development." Short course organized for the Leadership Development Program at the Boeing Company by ProEd, College of Engineering, Purdue University, Palmdale, CA (Summer, 2006, Spring 2007).
14. "Construction Project Management Skills in Indiana" Professional education short course, Indianapolis, IN. Summer 2006.
15. "Construction Project Management Skills" Professional education short course for the US Customs and Border Protection, Indianapolis, Dallas, and Laguna Niguel. Summer 2006.

16. "Construction Project Management Skills" Professional education short course for the US Naval Academy, Public Works, Annapolis, Maryland. August 2006.
17. "Strategic Planning and Decision Making for Construction Executives." Professional Education Short course organized by ProEd, College of Engineering, Purdue University, Indianapolis, IN. October 2006.
18. "Construction Project Planning and Scheduling." Professional Education Short course organized by ProEd, College of Engineering, Purdue University, Indianapolis, IN. November 2006.
19. "Program/Project Management." Short course organized for Butler International, Inc., by ProEd, College of Engineering, Purdue University, West Lafayette, IN. October 2007.
20. "Skills and Knowledge of Cost Engineering" Organized by the Association for Advancement of Cost Engineering International for Enbridge Inc., Edmonton, Canada. Jan 2008 and May 2010.
21. "Skills and Knowledge of Cost Engineering" Organized by the Association for Advancement of Cost Engineering International for DoE, Washington, DC. April 2010.
22. "Introduction to Skills and Knowledge of Cost Engineering" Organized by the Association for Advancement of Cost Engineering International for the Russian Section, Saint Petersburg, Russia. April 2013 and December 2013.
23. "Skills and Knowledge of Cost Engineering-Cost Planning" Organized by the Association for Advancement of Cost Engineering International for the Russian Section, Saint Petersburg, Russia. December 2013.
24. "Skills and Knowledge of Cost Engineering" Organized by the Association for Advancement of Cost Engineering International for Tasnee, Jubail, Saudi Arabia. February 2014.
25. "Project Costing and Financial Management." Intensive Course for Master of Project Management (MPM) degree program, Abu Dhabi University, UAE. Feb 8-19, 2015.
26. "Project Management Professionalism." Intensive Course for Master of Project Management (MPM) degree program, Abu Dhabi University, UAE. Jan 10-Feb 6, 2016.
27. "Profitability and Risk Management for Construction Companies (EPC Contractor's Perspective)." Webinar, Larson & Tubro Institute of Project Management, Vadodara, India, November 27, 2018.
28. "Effective Project Execution – Ensuring Profitability and Project Risk Management (EPC Contractor's Perspective)." First Level Leadership Program, Larson & Tubro Institute of Project Management, Lonavala, India, February 4-5, 2019; April 22-23, 2019.
29. "Global Best Practices for Precontract Risk Management in Government Contracts." Webinar, Larson & Tubro Institute of Project Management and World Bank Initiative, Vadodara, India, February 19, 2019.
30. "Advanced Techniques for Risk Analysis and Profitability Management (EPC Contractor's Perspective)." Specific Competency Development Module, Larson & Tubro Institute of Project Management, Mumbai, India, April 25-26, 2019.

INVITED LECTURES AND KEYNOTE PRESENTATIONS

1. "Decision Support Methods in Project Management." **Invited Speaker** at the 5th Annual Canadian Construction Research Forum, University of Alberta, Edmonton, Alberta, Canada. October 5-6, 1998.
2. **Invited Speaker**, Forum on *Emerging Trends in Construction Technology*, Sponsored by Indiana Construction Roundtable, Indianapolis, IN. January 23, 2002.
3. "Cost Effective Management & Maintenance of Urban Infrastructure" **Invited Speaker** at the National Institute of Construction Management & Research (NICMAR), Pune, India, Oct 17, 2005.
4. "A Decision Support System for Infrastructure Rehabilitation Planning" **Invited speaker** at the International Infrastructure Management Seminar, organized by the Korean Institute of Construction Technology (KICT), Seoul, Republic of Korea, Nov 28, 2005.
5. "Infrastructure Risk Management in Preparedness of Extreme Events." **Keynote Speaker** at the ICCEM & ICCPM 2009, The 3rd International Conference on Construction Engineering and

- Management, The 6th International Conference on Construction Project Management, Global Convergence in Construction, Jeju, Korea, 27-31 May 2009.
6. "Post Disaster Housing – A U.S. Perspective." **Invited Speaker** at the International Symposium on Wenchuan Earthquake Reconstruction Efforts (ISWERE), Dujiangyan City, Sichuan Province, China, September 11-13, 2009
 7. "Challenges in Infrastructure Management" **Invited speaker** at the International Infrastructure Asset Management Seminar, organized by the Korean Institute of Construction Technology (KICT), Seoul, Republic of Korea, Nov 19, 2010.
 8. "Impact Analysis of Natural Disasters on Critical Infrastructure, Associated Industries, and Communities." **Public Lecture**, Hong Kong Polytechnic Univ, Hong Kong, June 22, 2011.
 9. "New Trends and Challenges in Civil Engineering." **Keynote Speaker** at the 10th International Congress on Advances in Civil Engrg, Oct 17-19, 2012, Ankara, Turkey.
 10. "Sovereign Disaster Risk and Critical Infrastructure Management for Developing Countries." **Keynote Speaker** at the 2nd International Conference on Sustainable Built Environment (ICSBE 2012), December 14-16, 2012, Kandy, Sri Lanka.
 11. "Risk Management and Profitability in Construction." **Invited Lecture** organized by the Institute for Lean Construction Excellence (ILCE) at IIT Delhi (Dec 13, 2012) and at the Chamber of Commerce, Mumbai, India (Dec 21, 2012).
 12. "Construction Project Delivery Methods in the US." **Invited Speaker** at the Department of Civil Engineering, College of Engineering Pune, Pune, India (Dec 20, 2012).
 13. "Effective Debris Management for a Resilient Community." **Keynote Speaker** at the 7th International Structural Engineering and Construction Conference (ISEC-7), June 18-23, 2013, Honolulu, Hawaii.
 14. "Infrastructure & Resource Planning Perspective to Make Communities More Resilient to Natural Hazards." **Invited Lecture** at Guizhou Institute of Technology, Guizhou, China, July 15, 2013.
 15. "Strategic Capacity Building for Making Communities more Resilient to Natural Hazards," **Invited Lecture** at the Korean Institute of Construction Technology (KICT), Seoul, Republic of Korea, July 23, 2013.
 16. "Planning of Multiyear Optimal Rehabilitation Strategies for Infrastructure," **Invited Lecture** at the Korean Institute of Construction Technology (KICT), Seoul, Republic of Korea, July 23, 2013.
 17. "Profitability and Risk in Construction," **Invited Lecture** at Yonsei University, Seoul, Republic of Korea, July 23, 2013.
 18. "Strategic Capacity Building for Making Communities more Resilient to Natural Hazards." **Invited Speaker** at the Stellenbosch University, South Africa, May 7, 2014.
 19. "Capacity Building and Resilience for Disaster Risk Reduction." **Invited Speaker** at the Innovation in Construction Forum 2014, University of Alberta, June 4-5, 2014, Edmonton, Canada.
 20. "Ex-Ante Infrastructure Capacity Building for Improving Community Resilience to Natural Disasters." **Keynote Speaker** at the First International Conference on Infrastructure Failures and Consequences (ICIFC), July 16-20, 2014, Melbourne, Australia
 21. "Ex-Ante Infrastructure Capacity Building for Improving Community Resilience to Natural Disasters." **Invited Speaker** at the 3rd National Symposium on Engineering Risk & Insurance Research, August 1-3, 2014, Yichang, China.
 22. "A System of Systems Approach to Profitability Analysis of Construction Companies. **Keynote Speaker** at the 19th Intl Symposium on the Advancement of Construction Management and Real Estate (CRIOCM 2014), Nov 8-9, 2014, Chongqing, China.
 23. "Optimal Capacity Building - A Post Disaster Recovery Perspective." **Invited Speaker** at the Indian Institute of Public Administration (IIPA), Dec 15, 2014, New Delhi, India.
 24. "Profitability Analysis of Construction Companies." **Invited Speaker** at the RICS School of Built Environment, Amity University, Dec 16, 2014, New Delhi, India.

25. "Enhancing Post Disaster Recovery by Optimal Infrastructure Capacity Building." **Keynote Speaker** at the Professional Engineers: Challenges in Disaster Management Conference, Dec 18-19, 2014 at GITAM University campus, Visakhapatnam, India.
26. "An Approach towards Expediting Post Disaster Community Recovery." **Invited Speaker** at the International Conference on Disaster and Safety Management of Water Infrastructure for Safe Korea." March 26, 2015, Daejeon, South Korea.
27. "A Model for Profitability Analysis of a Construction Company." **Invited Speaker** at the 2015 Global Leadership Forum for CEM Programs (GLF-CEM 2015), June 5-7, 2015, Weimar, Germany.
28. "Optimal Capacity Needs for Community Resilience during Post Disaster Recovery." **Keynote Speaker** at the Building Resilience Conference." July 15-17, 2015, Newcastle, Australia.
29. "Post Disaster Capacity Needs for Improving Community Resilience." **Keynote Speaker** at CONSTRUCT15. July 28-31, 2015, Perth, Australia.
30. "Emerging Careers in Engineering." **Invited Speaker**, Education and Health International (EHI) Science, Technology, Engineering, and Math (STEM) Symposium. New Delhi, India, November 22, 2015.
31. "Purdue Index for Construction (Pi-C): The need for Construction Performance Review and International Benchmarking." **Invited Speaker**, First International Construction Innovation Conference. The University of Hong Kong, Hong Kong, December 16, 2015.
32. "The Role of Infrastructure in Improving Resilience of Disaster Affected Communities." **Keynote Speaker**, WBC 16, CIB World Building Congress, Tampere, Finland, May 30-June 3, 2016.
33. "The Role of Infrastructure Capacity in Building Resilience for Disaster Affected Communities," **Keynote Speaker**, 12th International Conference of International Institute for Infrastructure Resilience and Reconstruction (IIIRR), August 5 - 7, 2016, Peradeniya, Sri Lanka.
34. "Improving Building Industry Resilience through Strain Capacity Analysis," **Keynote Speaker**, BRANZ NSC: Building better homes, towns, cities, 6th Building Resilience Conference, September 7-9, 2016, Auckland, New Zealand.
35. "Theory of an Intelligent Planning Unit (IPU) for the Complex Built Environment." **Keynote Speaker** at the 21st International Symposium on the Advancement of Construction Management and Real Estate (CRIOCM 2016), Dec 14-16, 2016, Hong Kong.
36. "Role of Infrastructure in Mitigating Risk from Natural Hazards" **Invited Speaker** at the National Institute of Construction Management & Research (NICMAR), Pune, India, July 25, 2017.
37. "Global Challenges in Infrastructure Management" **Invited Speaker** at the JSPM's Rajarshi Shahu College of Engineering at Tathawade, Pune, India, July 26, 2017.
38. "Theory of an Intelligent Planning Unit (IPU) For Lean Construction of Complex Built Environment" **Keynote Speaker** at the Indian Lean Construction Conference (ILCC 2017), IIT Madras, July 28-29, 2017.
39. "Intelligent Planning Units (IPUs) for Sustainable Design," **Keynote Speaker** at the 7th International Conference on Construction Engineering and Project Management (ICCEPM2017), Chengdu, China, October 28-31, 2017.
40. "Globalization of Indian Higher Education – Drawing the Roadmap," **Eminent Guest Speaker** at the 2nd National Teachers' Congress, Pune, India, January 10-12, 2018.
41. "Intelligent Planning Units (IPUs) for Future Cities and Smart Construction," **Keynote Speaker** at the International Symposium on Future Cities and Smart Construction, Chongqing, China, January 13, 2018.
42. "Intelligent Planning Units (IPUs) for the Complex Built Environment" **Invited Speaker** at the Stellenbosch University, South Africa, May 16, 2018.
43. "Planning for disaster mitigation, resilience and capacity building," **Invited Guest Speaker** at the Maharashtra Institute of Technology-Global Peace University (MITGPU), One Day Conference on Sustainability and Construction Management, Pune, India, January 3, 2019.
44. "Leapfrogging to Future Ready Higher Education – Opportunities and Challenges," **Eminent Guest Speaker** at the 3rd National Teachers' Congress, Pune, India, January 4-6, 2019.

45. "The Concept of Intelligent Planning Units (IPUs): *A Paradigm Shift in Planning, Design, and Construction of the Built Environment*," **Keynote Speaker** (via WebEx) at the Larson & Tubro Project Management Conclave 2019, Connected Excellence in Project Management, Manapakkam, Chennai, India, January 24-25, 2019.
46. "Ex-Ante Infrastructure Capacity Building for improving Community Resilience to Natural Disasters" **Invited Speaker** at the University of Huddersfield, UK, June 4, 2019
47. "Infrastructure Capacity Building for Resilient Cities of the Future," **Keynote Speaker**, Chinese Academy of Engineering (CAE) Forum on Future Cities and Infrastructure, Tsinghua University, Beijing, Nov 9-10, 2019.
48. "Intelligent Infrastructure Planning for Resilient Cities of the Future," **Keynote Speaker**, at the 24th International Symposium on the Advancement of Construction Management and Real Estate (CRIOCM 2019), Nov 29-Dec 1, 2019, Chongqing, China.
49. "Intelligent Planning Units (IPUs) and their Impact on the Future of Built Environment," **Keynote Speaker**, the 2nd International Conference on Construction Futures (ICCF2020), July 7, 2020, Virtual Conference hosted by the University of Wolverhampton, UK.
50. "Capacity Building of Critical Infrastructure Supply Chain to Improve Urban Resilience to Disasters." **Keynote Speaker**, Frontiers of Engineering Management: City and Infrastructure Engineering and Management, Tsinghua University, Beijing, April 7, 2021.
51. "Role of Infrastructure in Mitigating Risk from Natural Hazards," **Invited webinar** for the Adani Infrastructure Institute, India, August 26, 2021.
52. "Sustainable Capacity Building for Community Resilience," **Keynote Speaker**, at the 26th International Symposium on Advancement of Construction Management and Real Estate (CRIOCM 2021) and the 7th Cross-Strait Forum on Sustainable Urban Development, Nov 20-22, 2021, Beijing, China.

TEACHING ACTIVITIES

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| – Infrastructure Planning | – Construction Plans and Estimates |
| – Risk Management in Construction | – Construction Management |
| – Computer Applications in Construction | – Life Cycle Engineering & Management of Constructed Facilities |
| – Construction Operations Analysis | – Project Control & Life Cycle Execution of Constructed Facilities |
| – Strategic Planning | – Measurements in Civil Engineering |
| – Project Costing and Financial Mgmt. | – Construction Equipment |
| – Project Management Professionalism | |
| – Cost Engineering (Including scheduling, estimating, cost control, contracts, safety, etc.) | |