



Makarand (Mark) Hastak, Ph.D., PE, MS(Law), CCP, CRIS, FASCE, NAC
Associate Dean of Engineering for Facilities and Planning in Indianapolis
Dernlan Family Head and Professor of Construction Engineering & Management
Professor of Civil Engineering
Purdue University

CONTACT INFORMATION

WORK: Division of Construction Engineering & Management
PURDUE UNIVERSITY
550 Stadium Mall Dr, West Lafayette, IN 47907-2051
(765) 494-0641 (W); hastak@purdue.edu
URL: <https://engineering.purdue.edu/CEM>

HOME: 8639 Bay Colony Drive
Indianapolis, IN 46234
(765) 430-1981 (C)
hastak@gmail.com

Dr. Hastak is Associate Dean of Engineering for Facilities and Planning in Indianapolis, Dernlan Family Head and Professor of Construction Engineering and Management as well as Professor of Civil Engineering at Purdue University. He was 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 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). 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. He is the current President of the International Council for Research and Innovation in Building and Construction (CIB) (<https://cibworld.org/>). He has served as the Academic Advisor to the CII Downstream and Chemicals Committee (DCC), UT Austin, TX and presently serves as the Academic Advisor to the Building and Real Estate (BRE) Department of the Hong Kong Polytechnic University, Hong Kong. He was recently elected to the National Academy of Construction (NAC 2023). As the Principal Consultant of Hastak Consulting Services (HCS), he has provided consulting and expert witness services on number of cases including expert review, reports, depositions, and trial. Also, he is a registered Domestic Relations Mediator in Indiana.

As a prominent educator and consultant, he has given over 60 keynotes and invited lectures around the world. Prof. Hastak has authored/co-authored over 235 publications and reports in his area of expertise as well as co-authored and edited six books including (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 was also the Editor-in-Chief of the ASCE Journal of Management in Engineering (2009-2016) and currently serves on its board. In addition, Prof. Hastak chaired the ASCE 2012 Construction Research Congress and co-edited the conference proceedings. 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 a member of the ExCom and was Chair of the Advisory Board. He served as the Chair of the National Consortium of Housing Research Centers (NCHRC, 2008-2010) 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) (<https://engineering.purdue.edu/ECT>) and (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 Univ, India, MSCE from the Univ of Cincinnati, and PhD (Civil) from Purdue Univ, USA and a Master of Science in Law (MSL) from the Pritzker School of Law, Northwestern Univ with a focus on Intellectual Property and Contracts. He is a trained university planner through SCUP and has received training at Cornell Univ in Executive Leadership, Financial Mgmt., and Advanced Strategic Human Resource Mgmt. 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	2024	Law, Pritzker School of Law, Northwestern 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

2024-Present	Associate Dean for Facilities and Planning in Indianapolis	College of Engineering, Purdue University
2007-Present	Head	Division of Construction Engineering & Management, Purdue University
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
2019-Present	Member of the Board	International Council for Research and Innovation in Building and Construction (CIB)
2010-Present	Executive Committee	Global Leadership Forum for Construction Engineering and Management Programs
2020-2024	Academic Advisor	Construction Industry Institute (CII) Downstream and Chemicals Committee (DCC)
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
2018-2023	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)

Expert Witness Services (Cases: 35; Deposition: 11; Trial/Evidence Deposition: 4)

1. Expert Witness Service, Lorch Naville Ward, LLC, New Albany, IN (2024-) – Manufactured Homes-Drainage/Foundation issues (Expert for Plaintiff, Attorney: J. David Agnew)
2. Expert Witness Service, Tasso Paris Law, Cleveland, OH (2023-) – Sidewalk Safety-Slip and Fall (Expert for Plaintiff, Attorney: Tasso Paris)
3. Expert Witness Service, Plews Shadley Racher & Braun LLP, Indianapolis, IN / MC Law, Washington DC (2023-) – Insurance Dispute (Expert for Plaintiff, Attorney: Joanne Sommers (PSRB); Casey Scott McKay (MC Law)).
4. Expert Witness Service, Eminent Domain Services, LLC, Madison, WI (2023-) – Road construction special assessment challenge/appeal-Marley Street (Expert for Plaintiff, **Deposition**, Attorney: Erik Olsen).
5. Expert Witness Service, Zane D. Smith & Associates, Ltd (2023-). In the Circuit Court of Cook County, Illinois – Sidewalk Safety (Expert for Plaintiff; **Deposition, Evidence Deposition**, Attorney: Boris Samovalov)
6. Expert Witness Service, James Kelly Law Firm (2023-) – Construction and Extreme Events (Expert, Attorney: James Kelly).
7. Expert Witness Service, Pfefferle Kane LLP (2023) – Storm Damage Claim – (Expert for Cincinnati Insurance Co., Attorney: Tony Kane).
8. Expert Witness Service, Priest and Miller, New Mexico (2023-) – In First Judicial District Court, County of Santa Fe, New Mexico – Breach of Contract (Expert for Defendant, **Deposition**, Attorney: Greg Miller).
9. Expert Witness Service, Wildman ADR Firm (2023) – Electrical Safety/Rehabilitation (Expert for Plaintiff, Attorney: Michael Wilder).
10. Expert Witness Service, Hoyt and Blewett, Montana (2023-) – Staircase Safety (Expert for Plaintiff, Attorney: Drew Blewett).
11. Consultant, RoMAAS, Inc. (2023) – Contractual dispute/E&O
12. Expert Witness Service, Clendening, Johnson, & Bohrer (2022). In the Marion Superior Court No. 1, Indiana – Construction Safety (Expert for Defendant; Attorney: Ben Katchur).
13. Expert Witness Service, Eminent Domain Services, LLC, Madison, WI (2022-) – Transmission line special assessment challenge/appeal (Expert Report for Plaintiff, **Deposition, Trial**. Attorney: Erik Olsen).
14. 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)
15. 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)
16. 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)
17. 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)
18. Expert Witness Service, Clendening, Johnson, & Bohrer (2022). In the Monroe Circuit Court 1, Indiana – Construction Safety (Expert Report for Defendant; Attorney: Justin Schwemmer)
19. 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)
20. 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)

21. 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)
22. 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)
23. 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)
24. Expert Witness Service, Joseph Wade Law (2020). Review and report on infrastructure damage claim-GDOT (Expert Report for Defendant; Attorney: Joseph Wade)
25. Expert Witness Service, Joseph Wade Law (2020). Review and report on infrastructure damage claim-MNDOT (Expert Report for Defendant; Attorney: Joseph Wade)
26. Expert Witness Service, Watkins Calcara, Chtd. (2020). Review and report on infrastructure damage claim-KDOT (Expert Report for Defendant; Attorney: Allen Glendenning)
27. 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).
28. 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).
29. 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).
30. 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).
31. Consultant/Expert Service, Fort Wayne MHC, LLC, Indiana (2019- 21) – Water usage
32. Expert Witness Service, Clendening, Johnson, & Bohrer (2019). In the Jackson Superior Court 1, Indiana – Construction Safety (Expert Consultation for Defendant; Attorney: Belinda Johnson-Hurtado)
33. 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)
34. Expert Witness Service, Clendening, Johnson, & Bohrer (2019). In the Monroe Circuit Court, Indiana – Construction Safety (Expert Report for Defendant; Attorney: Belinda Johnson-Hurtado)
35. Expert Witness Service, Attorney Corbin Fowler (2019), Linskog v. NIPSCO, Indiana – Road Safety (Expert Report for Plaintiff)
36. 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)
37. 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)

Consulting and Research Services

38. INDOT Project Change Orders – Root Causes and Recommendations (SPR 4710), Nov 2022 – Oct 2023, Joint Transportation Research Program (JTRP), (M. Hastak PI, S. Labi and Konstantina Gkritza, Co-PIs)
39. Defining Capital Efficiency Metrics (CII DCC RT 399), Jan 2022 – Aug 2022. Construction Industry Institute (CII), (M. Hastak, PI)
40. Consultant, Tata Projects Ltd, India, (2021). “Guaranteed Maximum Price Contracts.”

41. 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)
42. 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 & S. Labi Co-PI)
43. 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).
44. Chief Quality Reviewer, Cambridge Innovation Consulting Ltd (2018) – Innovation Practices of East Asian Infrastructure Companies
45. 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)
46. 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.
47. Simplified Construction Scheduling for Field Personnel – SPR 3907, Jan 2015 – April 2016, Joint Transportation Research Program (JTRP), (M. Hastak, PI).
48. Intelligent Compaction of Asphalt Pavement Implementation – SPR 3804, Oct 2013 – Feb 2015, Joint Transportation Research Program (JTRP), (M. Hastak, PI).
49. 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).
50. 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)
51. 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).
52. 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).
53. 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).
54. 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).
55. Quantify the Benefits of Pavement Preservation, Jan 2010 – Apr 2011, NCE till May 2011, Joint Transportation Research Program (JTRP), (M. Hastak, PI).
56. Secretarial Support for the Journal of Management in Engineering, Annual Recurring Fund 2009-2015, American Society of Civil Engineers (ASCE) (M. Hastak, PI).
57. “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.
58. “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.
59. “Skills and Knowledge of Cost Engineering” Organized by the Association for Advancement of Cost Engineering International for Tasnee, Jubail, Saudi Arabia. February 2014.
60. “Project Costing and Financial Management.” Intensive Course for Master of Project Management (MPM) degree program, Abu Dhabi University, UAE. Feb 8-19, 2015.

61. "Project Management Professionalism." Intensive Course for Master of Project Management (MPM) degree program, Abu Dhabi University, UAE. Jan 10-Feb 6, 2016.
62. "AACEI 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).
63. Developed Course-in-a-box, CCE/CCC Certification course for AACE. Jan 2011.

PATENTS: NONE

HONORS AND AWARDS

- Elected **Fellow of the American Society of Civil Engineers (FASCE)**, 2024
- Elected to the **National Academy of Construction (NAC)**, 2023
- **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 (AACE) 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.
2020-2024	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)

2022-Present	President
2020-2022	Vice President
2019-Present	Board Member

American Society of Civil Engineers (ASCE)

2024-Present	Fellow (288614)
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> .
2008-2024	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>
2020-2024	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>

National Academy of Construction (NAC)

2023-Present	Member, NAC Safety Committee
	Member, NAC Safety Subcommittee - Safety Culture in Undergraduate Curriculum II
2023-Present	Member, NAC Communications Committee
2023-Present	Member, NAC Scholarship Committee

PUBLICATIONS

FULL ARTICLES IN REFEREED PUBLICATIONS

Over 235 papers in leading journals and conference proceedings related to Construction Engineering and Project Management (List available upon request. Journal Publications in the last 20 years listed below). In addition, I have advised 19 PhD students and over 50 Masters Students. Six PhD and one 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.
6. Srinath Perera, S., Chan, A., Amaratunga, D., **Hastak, M.**, Lombardi, P., Senaratne, S., Jin, X., and Sawhney, A. (Editors) (2023). *Advances in Construction and Project Management*, Vol 1, 2, and 3, MDPI.

JOURNAL PUBLICATIONS (LAST 20 YEARS)

1. **Hastak, Makarand**, Amir Mirmiran, Richard Miller, Ronak Shah, and Reid Castrodale. (2003) "State of Practice for Positive Moment Connections in Prestressed Girders Made Continuous." *Journal of Bridge Engineering*, ASCE, Vol. 8, No. 5, pp. 267-272.
2. **Hastak, Makarand**, Amir Mirmiran, and Deepak Richard. (2003). "A Framework for Life-Cycle Cost Assessment of Composites in Construction." *Journal of Reinforced Plastics and Composites*, Sage Publications, London, UK, Vol. 22, No. 15, pp. 1409-1430.
3. **Hastak, Makarand**, Sanjiv Gokhale, and Vamshidhar Thakkallapalli. (2004). "Decision Model for Assessment of Underground Pipeline Rehabilitation Options." *Urban Water Journal*, Vol. 1, No. 1, March 2004, 27 – 37, Taylor and Francis Ltd, London, UK.
4. Reising R.M.W., Shahrooz B.M., Helmicki A.J., Hunt V.J., Neumann A.R., **M. Hastak**. (2004). "Close Look at Installation Issues and Performance of Four Fiber Reinforced Polymer Composite Bridge Decks," *Journal of Composites for Construction*, ASCE, Volume 8, Issue 1, pp. 33-42.
5. Senghore, O., **M. Hastak**, T. S. Abdelhamid, A. AbuHammad, and M. G. Syal. (2004). "Production Process for Manufactured Housing." *Journal of Construction Engineering and Management*, ASCE, Vol. 130, No. 5, September/October 2004, pp. 708-718.
6. Abu Hammad, Ayman, **Makarand Hastak**, and Matt Syal. (2004). "Comparative Study of Manufactured Housing Production Systems." *Journal of Architectural Engineering*, ASCE, Vol. 10, No. 4, December 2004, pp. 136-142
7. Bayraktar, Mehmet Emre, Qingbin Cui, **Makarand Hastak**, and Issam Minkarah. (2004). "The State-of-Practice of Warranty Contracting in the US." *Journal of Infrastructure Systems*, ASCE, Vol. 10, No. 2, June 2004, pp. 60-68
8. Mehrotra, N., M. G. Syal, and **M. Hastak**. (2004). "Manufactured Housing Trends and Codes in Michigan." *The American Professional Constructor*, Journal of the American Institute of Constructors, AIC, St. Petersburg, FL. April, pp. 26-36. (2nd tier category)
9. Cui, Qingbin, Mehmet Emre Bayraktar, **Makarand Hastak**, and Issam Minkarah. (2004). "The Use of Warranties on Highway Projects: A Real Option Perspective." *Journal of Management in Engineering*, ASCE, Vol. 20, No. 3, July 2004, pp. 118-125.
10. Barriga, Edgar, Jae Jeong, **Makarand Hastak**, and Matt Syal. (2005). "Material Requirements Planning for a Manufactured Housing Facility." *Journal of Architectural Engineering*. ASCE, Vol. 11, No. 3, Sept 2005, pp. 91-98.
11. M. Syal, **M. Hastak**, M. Mullens, S. Cramer, E. Burnett, T. Koebel, M. O'Brien, and C. Martin. (2005). "Housing Research Agenda for NSF-PATH." *Journal of Architectural Engineering*, ASCE, Vol. 11, No.1, pp.1-7.
12. Mehrotra, N., M. Syal, and **M. Hastak**. (2005). "Manufactured Housing Production Layout Design." *Journal of Architectural Engineering*, ASCE, Vol. 11, No.1, pp.25-34.
13. Barriga, Edgar, Jae Jeong, **Makarand Hastak**, and Matt Syal. (2005). "Material Control System for the Manufactured Housing Industry." *Journal of Management in Engineering*, ASCE, Vol. 21, No. 2, April 2005, pp. 91-98
14. Hong, TaeHoon and **Makarand Hastak**. (2005) "MEMRRES: Model for Evaluating Maintenance, Repair, and Rehabilitation Strategies for Concrete Bridge Decks" *Journal of Civil Engineering and Environmental Systems*, vol. 22, issue 4 (December 2005), pp. 233-248, Taylor and Francis Ltd, London, UK.
15. Dimmerling, A, Miller, R. A., Castrodale, R, Mirmiran, A., **Hastak, M.** and Baseheart, T. M. (2005). "Connections between Simply Supported Concrete Beam Made Continuous; the Results of NCHRP Project 12-53," *Transportation Research Record*, No. 1928, Dec. 2005, pp. 126-133.
16. Bayraktar, Mehmet Emre, Qingbin Cui, **Makarand Hastak**, and Issam Minkarah. (2006). "An Evaluation of Warranty Contracting in United States." *Canadian Journal of Civil Engineering*. Vol 33, No. 1, January 2006, pp 1-9.

17. Jae Jeong, **Makarand Hastak**, and Matt Syal. (2006). "Supply Chain Analysis and Modeling for the Manufactured Housing Industry." *ASCE Journal of Urban Planning and Development*. Vol. 132, No. 1, March 2006, pp. 1-9
18. Banerjee, D., M. Syal, **M. Hastak**. (2006). "Material Flow Based Facility Layout Analysis of Manufactured Housing Production Plant." *ASCE Journal of Architectural Engineering*, 12(4), 196-206.
19. Sukumaran, Praveen, Mehmet Emre Bayraktar, TaeHoon Hong, and **Makarand Hastak**. (2006). "Model for Analysis of Factors Affecting Construction Schedule in Highway Work Zones." *ASCE Journal of Transportation Engineering*. Vol. 132, No. 6, June 2006, pp. 508-517
20. Sukumaran, Praveen, TaeHoon Hong, Mehmet Emre Bayraktar, and **Makarand Hastak**. (2006). "Validation of a Model for Predicting Schedule Changes in Highway Work Zones – Case studies." *ASCE Journal of Transportation Engineering*. Vol. 132, No. 8, August 2006, pp. 638-648
21. Hong, TaeHoon and **Makarand Hastak**. (2006) "Life-Cycle Performance Model for FRP Bridge Deck Panels" *Journal of Civil Engineering and Environmental Systems*. Taylor and Francis Ltd, London, UK, 23(1), pp. 35-56
22. Hong, TaeHoon, and **Hastak, Makarand** (2006). "Construction, Inspection and Maintenance of FRP Deck Panels." *ASCE Journal of Composites for Construction*, 10(6), 561-572.
23. Jae Jeong, **Makarand Hastak**, and Matt Syal. (2006). "Supply Chain Simulation Modeling for the Manufactured Housing Industry." *ASCE Journal of Urban Planning and Development*. Vol. 132 (4), pp. 217-225.
24. Hong, TaeHoon and **Makarand Hastak**. (2007). "Evaluation and Determination of Optimal MR&R Strategies in Concrete Bridge Decks" *International Journal of Automation in Construction*, Elsevier Science Publishers, 16(2), p. 165-175
25. Richard, Deepak, TaeHoon Hong, **Makarand Hastak**, Amir Mirmiran, and Osama Salem. (2007). "Lifecycle Performance Model for Composites in Construction." *Composites Part B-Engineering Journal*, Elsevier Publication, 38(2), Mar 2007, pp. 236-246.
26. Hong, TaeHoon and **Hastak, Makarand**. (2007). "Simulation Study on Construction Process of FRP Bridge Deck Panels." *International Journal of Automation in Construction*, Elsevier Science Publishers, 16 (5), p.620-631
27. **Hastak, Makarand**, Sanjeev Gokhale, Kartik Goyani, TaeHoon Hong, and Bhavin Safi (2007). "Project Manager's Decision Aid for a Radical Project Cycle Reduction." *ASCE Journal of Construction Engineering and Management*, Vol. 133 (6), pp. 437-446.
28. Hong, TaeHoon, and **Hastak, Makarand**. (2007). "Life-Cycle Cost Assessment Model for Fiber Reinforced Polymer Bridge Deck Panels." *Canadian Journal of Civil Engineering*, Vol. 34, August, pp. 976-991.
29. Cui, Q., Johnson, P, Quick, A. and **Hastak, M.** (2008). "Valuing the Warranty Ceiling Clause on New Mexico Highway 44 Using a Binomial Lattice Model." *ASCE Journal of Construction Engineering and Management*, Vol. 134, No. 1, January 2008, pp. 10-17.
30. AbuHammad, A., Salem, S., **Hastak, M.**, and Syal, M. (2008). "A Decision Support System for Manufactured Housing Facility Layout." *ASCE Journal of Architectural Engineering*, Vol. 14, No. 2, June 2008, pp. 36-46.
31. **Hastak, Makarand**, Sanjeev Gokhale, Kartik Goyani, TaeHoon Hong, and Bhavin Safi (2008). "Analysis of Techniques Leading to Radical Reduction in Project Cycle Time." *ASCE Journal of Construction Engineering and Management*, 134(12), 915-927.
32. Sabharwal, A., Syal, M. and **Hastak, M.** (2009). "Impact of Manufactured Housing Component Assembly Redesign on Facility Layout and Production Process." Special Issue "Offsite Manufacturing," *Construction Innovation Journal*, Emerald Publishing, Bingley, UK, Vol. 9 (1) 2009, pp. 58-71.
33. Jeong, Jae G., **Hastak, Makarand** and Syal, Matt. (2009). "Manufacturer-Retailer Relationship Modeling and Optimization for the Manufactured Housing Industry." Special Issue "Offsite

- Manufacturing," *Construction Innovation Journal*, Emerald Publishing, Bingley, UK, Vol. 9 (1) 2009, pp. 22-41.
34. Bayraktar, Mehmet Emre and **Hastak, M.** (2009). "A Decision Support System for Selecting the Optimal Contracting Strategy in Highway Work Zone Projects." *International Journal of Automation in Construction*, Elsevier Science Publishers, Vol. 18, Issue 6, October 2009, pp. 834-843.
 35. Bayraktar, Mehmet Emre and **Makarand Hastak.** (2009). Bayesian Belief Network Model For Decision Making in Highway Maintenance: *Case Studies.*" *ASCE Journal of Construction Engineering and Management*, Vol. 135, No. 12, Dec. 2009, pp. 1357-1369.
 36. Alhaj Ali, Souma, Ayman Abu Hammad, **M. Hastak**, and M. Syal. (2010). "Analysis of a Modular Housing Production System Using Simulation" *Jordan Journal of Mechanical and Industrial Engineering*, Published by the Jordanian Ministry of Higher Education and Scientific Research in corporation with the Hashemite University, Jordan. 4(2), 256-269.
 37. Oh, E. H., Deshmukh, A., and **Hastak, M.** (2010). "Disaster Impact Analysis Based on Inter-relationship of Critical Infrastructure and Associated Industries: a Winter Flood Event," *International Journal of Disaster Resilience in the Built Environment*, Emerald, Vol. 1, No. 1, pp. 25-49.
 38. Cui, Q. **Hastak, M.**, and Halpin, D.W. (2010). "Systems Analysis of Project Cash Flow Management." *Journal of Construction Management and Economics*. Routledge, Taylor and Francis Ltd, London, UK. 28 (4), 361-376
 39. Bayraktar, Mehmet Emre and **Makarand Hastak.** (2010). "A Scoring Approach to Construction Bond Underwriting." *ASCE Journal of Construction Engineering and Management*. Vol. 136, No. 9, Dec. 2010, pp. 957-967.
 40. Bayraktar, Mehmet Emre, **Makarand Hastak**, Sanjiv Gokhale, and Bhavin Safi. (2011). "A Decision Tool for Selecting Optimal Techniques for Cost and Schedule Reduction in Capital Projects." *ASCE Journal of Construction Engineering and Management*, Vol. 137, No. 9, pp. 645-655.
 41. Deshmukh, A., Oh, E. H., and **Hastak, M.** (2011), "Application of Severity Assessment Tool (SAT) to 2008 Midwest Flood affected Areas," *International Journal of Safety and Security Engineering*, Vol. 1, No. 2 (2011). pp. 147-161.
 42. Jeong, Jae G, **Hastak, Makarand**, Syal, Matt, and Hong, TaeHoon. (2011). "Internal Relationship Modeling and Production Planning Optimization for the Manufactured Housing" *Journal of Automation in Construction*, 20 (2011) 864–873.
 43. Bayraktar, M. E., Arif, F., **Hastak, M.**, and Gad, N. (2011). "The Judiciary's use of the Critical Path Method to Resolve Construction Claims." *ASCE Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, Vol. 4, No. 1, pp. 10-16.
 44. Deshmukh, A., Oh, E. H., and **Hastak, M.** (2011). "Impact of Flood Damaged Critical Infrastructure on Communities and Industries" *Built Environment Project and Asset Management (BEPAM)*, Vol. 1, Issue: 2, pp. 156-175.
 45. Pillai, G, Syal, M., **Hastak, M.**, Ofei-Amoh, K., and Duah, D. (2012). "Health Performance Criteria for Homes," *The American Professional Constructor*, *Journal of the American Institute of Constructors (AIC)*, Vol. 36(1), 20-37.
 46. Fernandez, Marcela, **Hastak, M.**, and Nader Naderpajouh (2012). Risk Assessment for the Housing Market in Mexico." Paper accepted for publication in the *ASCE Journal of Management in Engineering*.
 47. Tamer, Z., Yoon, Y., and **Hastak, M.** (2012). "Protocol for Profitability Analysis using Internal Entities in Organizational Structure of Construction Companies." *ASCE Journal of Construction Engineering and Management*, Vol. 138, No. 12, December 2012, pp. 1394-1402, (doi: [http://dx.doi.org/10.1061/\(ASCE\)CO.1943-7862.0000563](http://dx.doi.org/10.1061/(ASCE)CO.1943-7862.0000563))
 48. Oh, E. H., Deshmukh, A. and **Hastak, M.** (2013). "Criticality Assessment of Lifeline Infrastructure for Enhancing Disaster Response." *Natural Hazards Review*, Vol. 14, No. 2, May 2013, pp. 98-107, (doi:[http://dx.doi.org/10.1061/\(ASCE\)NH.1527-6996.0000084](http://dx.doi.org/10.1061/(ASCE)NH.1527-6996.0000084)).

49. Patel, S. and **Hastak, M.** (2013). "A Framework to Construct Post-Disaster Housing". *International Journal of Disaster Resilience in the Built Environment*, Emerald, Vol 4, No. 1, pp. 95-114.
50. Cho, Kyuman and **Makarand Hastak.** (2013). "Time and Cost-Optimized Decision Support Model for Fast-Track Projects." *Journal of Construction Engineering and Management*, Vol. 139 (1), pp. 90-101.
51. Jeong, Jae G, **Hastak, Makarand,** Syal, Matt, and Hong, TaeHoon. (2013). "Framework of Manufacturer-Supplier Relationship in the Manufactured Housing Industry" *Journal of Management in Engineering*, Vol. 29, No. 4, October 2013, pp. 369-381, (doi: [http://dx.doi.org/10.1061/\(ASCE\)ME.1943-5479.0000164](http://dx.doi.org/10.1061/(ASCE)ME.1943-5479.0000164)).
52. Yoon, Y., Shah, H., **Hastak, M.** and Lee, J. (2014). "Leveling Process of Annual Budgetary Requirements for Pavement Preservation Projects." *J. Infrastruct. Syst.*, 10.1061/(ASCE)IS.1943-555X.0000140 (Dec. 3, 2012).
53. Wright, E., Cho, K., **Hastak, M.** (2014). "Assessment of the US Nuclear Construction Industry in Terms of Human Capital and Construction Technologies." *Journal of Management in Engineering*. DOI: 10.1061/(ASCE)ME.1943-5479.0000286
54. Naderpajouh, N., Mahdavi, A., **Hastak, M.**, and Aldrich, D. (2014). "Modeling Social Opposition to Infrastructure Development" *Journal of Construction Engineering and Management*. ASCE, 140(8), (DOI: 10.1061/(ASCE)CO.1943-7862.0000876)
55. Wright, E., Cho, K., and **Hastak, M.** (2014). "Assessment of Critical Construction Engineering and Management Aspects of Nuclear Power Projects." *Journal of Management in Engineering*. 10.1061/(ASCE)ME.1943-5479.0000286
56. Naderpajouh, N. and Hastak, M. (2014). "Quantitative Analysis of Policies to Mitigate Emergent Dynamics in Complex Construction Projects." *Journal of Construction Management and Economics*, Taylor and Francis. 32 (12), 1222-1237. DOI: 10.1080/01446193.2014.980835
57. Naderpajouh, N., Hastak, M., Gokhale, S., Bayraktar, M., Iyer, A., and Arif, F. (2014) "Counterfeiting Risk Governance in the Capital Projects Supply Chain." *Journal of Construction Engineering and Management*, ASCE, 141(3), 04014084; DOI: [10.1061/\(ASCE\)CO.1943-7862.0000943](https://doi.org/10.1061/(ASCE)CO.1943-7862.0000943)
58. Deshmukh, A., and **Hastak, M.** (2014). "Enhancing Post Disaster Recovery by Optimal Infrastructure Capacity Building." *International Journal of Research in Engineering and Technology*, 03(28), 5–12.
59. Yoon, Y., Tamer, Z., and Hastak, M. (2015). "Protocol to Enhance Profitability by Managing Risks in Construction Projects." *Journal of Management in Engineering*, 31(5), 04014090-1-10.
60. Oh, E. H., Naderpajouh, N., **Hastak, M.**, and Gokhale, S. (2015). "Integration of the Construction Knowledge and Expertise in Front-End Planning." *Journal of Construction Engineering and Management*, ASCE, 142(2); DOI: 10.1061/(ASCE)CO.1943-7862.0001050, 04015067.
61. Naderpajouh, Nader, Juyeong Choi, and **Makarand Hastak.** (2015). "An Exploratory Framework for Application of Analytics in the Construction Industry." *Journal of Management in Engineering*. ASCE, 32(2), 1–11; DOI: [10.1061/\(ASCE\)ME.1943-5479.0000409](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000409), 04015047.
62. Yoon, Y. and **Hastak, M.** (2016). "Condition Improvement Measurement using the Condition Evaluation Criteria of Concrete Bridge Decks." *Journal of Transportation Engineering, ASCE*; DOI: [10.1061/\(ASCE\)TE.1943-5436.0000883](https://doi.org/10.1061/(ASCE)TE.1943-5436.0000883), 04016054.
63. Choi, Juyeong, Abhijeet Deshmukh and **Makarand Hastak.** (2016). "Increase in stress on infrastructure facilities due to natural disasters," *International Journal of Urban Sciences*. The link to this article: <http://dx.doi.org/10.1080/12265934.2016.1170626>
64. Yoon, Y. and **Hastak, M.** (2016). "Annual Rehabilitation Costs Estimation for a Bridge Network." *KSCE Journal of Civil Engineering*, May, DOI: 10.1007/s12205-016-1175-0.
65. **Hastak, M.**, and Koo, C. (2016). "Theory of an Intelligent Planning Unit for the Complex Built Environment." *ASCE Journal of Management in Engineering*, [10.1061/\(ASCE\)ME.1943-5479.0000486](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000486), 04016046.
66. Mukhopadhyay, S., Halligan, J., and **Hastak, M.** (2016). "Assessment of Major Causes: Nuclear Power Plant Disasters." *International Journal of Disaster Resilience in the Built*

- Environment*, Emerald, Vol 7, No. 5, pp. 521-543. <https://doi.org/10.1108/IJDRBE-11-2015-0056>
67. Yoon, Y., **Hastak, M.**, and Cho, K. (2016). "Method for Generating Multiple MR&R Solutions for Application in Cost-Leveling Models" *Journal of Infrastructure Systems*, ASCE, DOI: 10.1061/(ASCE)IS.1943-555X.0000351.
 68. Yoon, Y, Patel, S, Ji, Y, **Hastak, M.** (2016). "Current State of Reflective Cracking in the United States." *Journal of Construction Engineering and Management*, ASCE, 143(3), 04016099
 69. Choi, J., Deshmukh, A., Naderpajouh, N., and **Hastak, M.** (2017). "Dynamic Relationship between Functional Stress and Strain Capacity of Post-Disaster Infrastructure." *Natural Hazards*, Springer, Netherlands.
 70. Yoon, Y. and **Hastak, M.** (2017). "Multitiered Prioritizing Method using Urgency Scale for Bridge Deck Rehabilitation" under review by the *Journal of Infrastructure Systems*, ASCE, 23(4), 04017020
 71. Yoon, Y., **Hastak, M.**, and Cho, K. (2017). "Preference clustering-based mediating group decision-making (PCM-GDM) method for infrastructure asset management." *Expert Systems with Applications* (Elsevier), 83, 206-214.
 72. Mukhopadhyay, S. and **Hastak, M.** (2017). "A Novel Methodological Approach to Estimate the Impact of Natural Hazard-Induced Disasters on Country/Region-Level Economic Growth." *International Journal of Disaster Risk Science*, Springer Open, PP 1-12; <https://doi.org/10.1007/s13753-017-0156-3>
 73. Yoon, S., **Hastak, M.**, and Lee, J. (2017). "Suitability of Intelligent Compaction for Quality Control and Quality Assurance in Hot Mix Asphalt Pavement," Accepted for publication in the *Journal of Construction Engineering and Management*, ASCE.
 74. Kim, J., and **Hastak, M.** (2018). "Online Human Behaviors on Social Media During Disaster Responses." *Homeland Security Affairs*. The Journal of the NPS Center for Homeland Defense and Security, Vol. XIII, pp. 7-8.
 75. Kim, J., and **Hastak, M.** (2018). "Social network analysis: Characteristics of online social networks after a disaster." *International Journal of Information Management*, Elsevier, 38(1), 86–96.
 76. Kim, J., Bae, J., and **Hastak, M.** (2018). "Emergency information diffusion on online social media during storm Cindy in US." *International Journal of Information Management*, Elsevier, 40, 153-165, <https://doi.org/10.1016/j.ijinfomgt.2018.02.003>
 77. Mukherjee, S., Nateghi, R. and **Hastak, M.** (2018). "A Multi-Hazard Approach to Assess Severe Weather-Induced Major Power Outage Risks in the U.S.," *Reliability Engineering & System Safety*, Elsevier, <https://doi.org/10.1016/j.ress.2018.03.015>
 78. Mukherjee, S., Nateghi, R. and **Hastak, M.** (2018). "Data on Severe Weather-Induced Major Power Outage Risks in the U.S.," *Data in Brief (DIB)*, (Elsevier, Cite Score 1.5), Vol 19 (2018) pp. 2079–2083
 79. Khallaf, R., Naderpajouh, N., and **Hastak, M.** (2018). "A Systematic Approach to Develop Risk Registry Frameworks for Complex Projects," *Built Environment Project and Asset Management (BEPAM)*, Emerald. <https://doi.org/10.1108/BEPAM-08-2017-0051>
 80. Yoon, S., Kang, K., Yoon Y., **Hastak, M.**, and Ji, R. (2018). "Systematic decision-making process for composite pavement maintenance," *Journal of Construction Engineering and Management*, ASCE, June, Vol. 144 (6). [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001447](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001447)
 81. Kim, J, Deshmukh, A, and **Hastak, M.** (2018). "A Framework for Assessing the Resilience of a Disaster Debris Management System," *International Journal of Disaster Risk Reduction*, Elsevier, Vol. 28, pp. 674-687. <https://doi.org/10.1016/j.ijdr.2018.01.028>
 82. Khallaf, R., Naderpajouh, N., and **Hastak, M.** (2018). "Modelling Three-Party Interactional Risks in the Governance of Public Private Partnerships." *Journal of Management in Engineering*, ASCE, DOI: [10.1061/\(ASCE\)ME.1943-5479.0000646](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000646)
 83. Choi, J., Deshmukh, A., and **Hastak, M.** (2019). "Seven-Layer Classification of Infrastructure to Improve Community Resilience to Disasters," *ASCE Journal of Infrastructure Systems*, ASCE, DOI: [10.1061/\(ASCE\)IS.1943-555X.0000486](https://doi.org/10.1061/(ASCE)IS.1943-555X.0000486)

84. Yoon, S., Naderpajouh N., Hastak, M. (2019). "Decision model to integrate community preferences and nudges into the selection of alternatives in infrastructure development," *Journal of Cleaner Production*. 228(10), 1413-1424, DOI: [10.1016/j.jclepro.2019.04.243](https://doi.org/10.1016/j.jclepro.2019.04.243)
85. Mahdavi A., Naderpajouh, N., Choi, J., Ketabi, A. B., **Hastak, M.**, and Cui, Q. (2019) "Dynamics of Project Selection and Growth in Project Based Organizations." *International Journal of Construction Management*, Taylor & Francis, May 2019, 1–18, DOI: [10.1080/15623599.2019.1604307](https://doi.org/10.1080/15623599.2019.1604307)
86. Choi, J., Naderpajouh, N., Yu, D. J., and **Hastak, M.** (2019) "Capacity Building for an Infrastructure System in Case of Disaster Using the System's Associated Social and Technical Components." *Journal of Management in Engineering*, 35(4), 04019013.
87. Yoon, S., Kang, K, **Hastak, M.** and Ji, R. (2020). "Development of Systematic Mitigation Strategy Utilizing Computer-based Guidelines for Reflective Cracking," *Journal of Transportation Engineering, Part B: Pavements, ASCE*, 146(3), 04020034
88. Assaad, R., El-adaway, I. H., **Hastak, M.** and LaScola Needy, K. (2020). "Commercial and Legal Considerations of Offsite Construction Projects and their Hybrid Transactions. *Journal of Management in Engineering*, ASCE Vol. 146, No. 2, pp. 1-13. DOI: [10.1061/\(ASCE\)CO.1943-7862.0001948](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001948).
89. Yoon, S., Jeon, JH, Cai, H, and **Hastak, M.** (2020). "A Verification and Validation Framework for Purdue Index for Construction (Pi-C)." *Journal of Management in Engineering*, ASCE, DOI: [10.1061/\(ASCE\)ME.1943-5479.0000850](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000850).
90. Su, G., Hastak, M, Deng, X, and Khallaf, R. (2020). "Risk sharing Strategies for IPD projects: Interactional Analysis of Participants' Decision-making," *Journal of Management in Engineering*, ASCE, DOI: [10.1061/\(ASCE\)ME.1943-5479.0000853](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000853).
91. Kim, J, Hong, T., **Hastak, M.** Jeong, K, (2020). "Intelligent Planning Unit for the Artificial Intelligent based Built Environment Focusing on Human-Building Interaction." *Journal of Asian Architecture and Building Engineering*, Taylor and Francis, DOI: [10.1080/13467581.2020.1803076](https://doi.org/10.1080/13467581.2020.1803076)
92. Yoon, S, **Hastak, M.** and Weidner, T. (2020). "Total Packaged Prioritization (TPP) Mitigation Strategy for the Deferred Maintenance (DeM) of a Campus-Sized Institution," *Journal of Construction Engineering and Management*, ASCE, DOI: [10.1061/\(ASCE\)CO.1943-7862.0001956](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001956).
93. Jain, A, Yoon, S, Kang, K, and **Hastak, M.** (2020). "Implementation of the Data-driven Analytics Protocol through Facility Management and Real Estate Industry Cases," *Journal of Management in Engineering*, ASCE, Vol. 38, No. 1, January 2022. DOI: [10.1061/\(ASCE\)ME.1943-5479.0000894](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000894).
94. Khallaf, R., Naderpajouh, N, **Hastak, M.** (2021). "Robust Decision Making for Multi-Party Renegotiations in Public-Private Partnerships," *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, ASCE. DOI: [10.1061/\(ASCE\)LA.1943-4170.0000473](https://doi.org/10.1061/(ASCE)LA.1943-4170.0000473)
95. Bhattacharyya, A., Yoon, S., **Hastak, M.** (2021). Optimal Strategy Selection Framework for Minimizing the Economic Impacts of Severe Weather Induced Power Outages. *International Journal of Disaster Risk Reduction*. (Accepted for Publication)
96. Bhattacharyya, A., Yoon, S., Weidner, T., **Hastak, M.** (2021) Purdue Index for Construction (Pi-C) Analytics: Prediction and Forecasting Model Development. *Journal of Management in Engineering* (Accepted for Publication)
97. Bhattacharyya, A, Yoon, S., **Hastak, M.** (2021). "Economic Impact Assessment of Severe Weather Induced Power Outages in the U.S.," *Journal of Infrastructure Systems*, ASCE. DOI: [10.1061/\(ASCE\)IS.1943-555X.0000648](https://doi.org/10.1061/(ASCE)IS.1943-555X.0000648)
98. Jeon, J., Padhye, S., Yoon, S., Cai, H., and **Hastak, M.** (2021). "Identification of Metrics for the Purdue Index for Construction (Pi-C) Using Latent Dirichlet Allocation (LDA)," *The Journal of Construction Engineering and Management*, ASCE. [https://doi.org/10.1061/\(ASCE\)ME.1943-5479.0000968](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000968)
99. Jeon, J., Padhye, S., Bhattacharyya, A., Cai, H., and **Hastak, M.** (2022). "Impact of COVID-19 on the U.S. Construction Industry as Revealed in the Purdue Index for Construction (Pi-C)." *Journal of Management in Engineering*, ASCE. [https://doi.org/10.1061/\(ASCE\)ME.1943-5479.0000995](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000995)

100. Wu, L, Ye, K., **Hastak, M.** (2022). "A comparison study on environmental policies for expressway construction projects between China and the US: A tiered analysis approach," *The Journal of Environmental Management*, Elsevier. Mar 1;305:114298. doi: 10.1016/j.jenvman.2021.114298. Epub 2021 Dec 24. PMID: 34954686.
101. Assaad, Rayan, Islam El-adaway, **M. Hastak**, and Kim La Scola Needy (2022a). "The Impact of Offsite Construction on the Workforce: Required Skillset and Prioritization of Training Needs", *Journal of Construction Engineering and Management*, ASCE, 148(7).
102. Assaad, Rayan, Islam El-adaway, **M. Hastak**, and Kim La Scola Needy (2022b). "Quantification of the State of Practice of Offsite Construction: Current Trends and Future Prospects", *Journal of Construction Engineering and Management*, ASCE, 148(7).
103. Assaad, Rayan, Islam El-adaway, **M. Hastak**, and Kim La Scola Needy (2022c). "The COVID-19 Pandemic: A Catalyst for Offsite Construction", *Journal of Management in Engineering*, ASCE, 38(6), 04022062.
104. Mohamadali Morshedi; Suyash Padhye; Isaiah Mwamba; Kyubyung Kang; Samuel Labi; **Makarand Hastak**. (2022). "Suitability Assessment of Detour Routes for Road Construction Projects - A Framework and Case Studies," *Journal of Management in Engineering*, ASCE. (Accepted for Publication)
105. Bhattacharyya, A., and **Hastak, M.** (2022) Indirect Cost Estimation of Winter Storm Induced Power Outage in Texas. *Journal of Management in Engineering*, [https://doi.org/10.1061/\(ASCE\)ME.1943-5479.0001084](https://doi.org/10.1061/(ASCE)ME.1943-5479.0001084)
106. Bhattacharyya, A., Morshedi, M., **Hastak, M.** (2022). A Clustering-Classification Approach in Categorizing Vulnerability of Roads and Bridges using Public Assistance Big Data. *International Journal of Disaster Risk Reduction*, 103448. <https://doi.org/10.1016/j.ijdrr.2022.103448>
107. Khallaf, R.; Kang, K.; **Hastak, M.**; Othman, K. (2022). Public–Private Partnerships for Higher Education Institutions in the United States. *Buildings* **2022**, *12*, 1888. <https://doi.org/10.3390/buildings12111888>
108. Ashish Kumar Pampana, JungHo Jeon, Soojin Yoon,* Theodore J. Weidner, Makarand Hastak. (2022). Data-driven Analysis for Facility Management in Higher Education Institution. *Buildings* **2022**, *12*, 2094. <https://doi.org/10.3390/buildings12122094>
109. Morshedi, M., Yoon, S., Bhattacharyya, A., Jung, J., and **Hastak, M.** (2023). Engaging Engineering Students with the Stakeholders for Infrastructure Planning. *Journal: Buildings* **2023**, *13*, 39. <https://doi.org/10.3390/buildings13010039>
110. Assaad, Rayan, El-adaway, Islam, **Hastak, Makarand**, and LaScola Needy, Kim (2023). "Key Factors Affecting Labor Productivity in Offsite Construction Projects" *Journal of Construction Engineering and Management*, 149(1), 04022158, pp. 1-16.
111. Bhattacharyya, A. and **Hastak, M.** (2023). A Data Driven Approach to Quantify Disparities in Power Outage. *Nature Scientific Reports* **13**(1), 7247. <https://doi.org/10.1038/s41598-023-34186-9>
112. Padhye, S. and **Hastak, M.** (2023). A Framework to Evaluate Information and Source Credibility: International Construction Decision-Making. *Journal of Management in Engineering*, *40*(1), <https://doi.org/10.1061/JMENE.A.MEENG-553>
113. Bhattacharyya, A. and **Hastak, M.** (2023). Intersectoral Vulnerabilities: Assessing the Impact of External Shocks on the U.S. Construction Sector. *Journal of Management in Engineering*, *40*(3): 04024016, DOI: <https://doi.org/10.1061/JMENE.A.MEENG-5774>
114. Yoon, S., Lee, C., Naderpajouh, N., and **Hastak, M.** (2023). "An Innovative Budget Framework for Funding Model in Higher Education Institutions: A Real Options Approach." *Journal of Building Engineering*, Elsevier. (Accepted)
115. Bhattacharyya, A. and **Hastak, M.** (2024). Empirical Causal Analysis of Flood Risk Factors on U.S. Flood Insurance Payouts: Implications for Solvency and Risk Reduction. *Journal of Environmental Management*. (Accepted)
116. Bhattacharyya, A, Wang, H.H., and **Hastak, M.** (2024). Impact of Post-Disaster Federal Support on the National Flood Insurance Program. *International Journal of Disaster Risk Reduction*. (Accepted)

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.**, Nateghi, 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***.
33. Padhye, S., Sharma, A., Arefkhani, H., Benny, D., Gkritza, K., Labi, S., **Hastak, M.** (2023). *INDOT Project Change Orders: Root Causes and Recommendations*, SPR 4710 Report submitted to JTRP for review. West Lafayette, IN: Purdue University.

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, Nov 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 Int'l 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.
53. "Building Resilience into Design and Construction of Critical Infrastructure," **Invited Speaker**, Colloquium on Managing Construction in the 21st Century, June 21, 2022, Western Sydney University, Sydney, Australia.
54. "Engineer of the Future - a Perspective," **Keynote Speaker**, Future of Engineering Education, 33rd Australasian Association for Engineering Education Conference (AAEE2022), 4-7 December 2022, Sydney, Australia.
55. "Advances in Construction Excellence – Past, Present, and Future," **Keynote Speaker**, CICID 20th Anniversary Conference. Hong Kong 2050 – A City for the People: Capacity, Innovation, Smart & Sustainability. 12 December 2022, Hong Kong.
56. "Construction Industry Challenges and the Need for Innovation," **2023 Hurst-McCarthy Distinguished Lecture**, March 20, 2023, Missouri S&T, Rollo, MO.
57. "The need for Innovation to Address the Construction Industry Challenges," **Invited Lecture**, May 31, 2023, Federal University of Bahia, El Salvador, Brazil.
58. "Intelligent Planning Units (IPUs) and the Complexity of the Built Environment," **Keynote Speaker**, 10th International Workshop on: When Social Science Meets Lean and Digital Technologies: 10 years and beyond, June 1-2, 2023, Federal University of Bahia, El Salvador, Brazil.
59. "Research and Innovation to Address the Construction Industry Challenges," **Invited Lecture**, July 18, 2023, National Institute of Construction Management and Research (NICMAR) University, Pune, India.
60. "Off-Site Construction and Intelligent Planning Units (IPUs) for Modular Construction," **Invited webinar** for the ABC Modular Group, Sao Paulo, Brazil, August 17, 2023.
61. "Net Zero Carbon – A Path Forward and a Challenge for the Construction Industry." **Invited Speaker**, CIB TG-124: Net Zero Carbon Building Design and Construction, Massey University, Auckland, NZ, Nov 27, 2023.

62. "Construction Industry Challenges and the Need for Innovation." **Panel Member**, Embracing Advanced Technology and Innovation for Sustainable Future for Building Education and Practice, AUBEA 2023, Massey University, Auckland, NZ, Nov 27, 2023.
63. "Building Research Profile," **Panel Member**, 2023 Built Environment Research Workshop, Massey University, Auckland, NZ, Nov 29, 2023.
64. "Improving Urban Resilience through Sustainable Infrastructure Capacity Building." **Keynote Speaker**, CIB Conference on Green Smart Urban Futures, Hanoi, Vietnam, Nov 29, 2023.
65. "Creating Sustainable Infrastructure Capacity and Capability for Urban Resilience," **Keynote Speaker**, EPPM 2023, Massey University, Auckland, NZ, Nov 30, 2023.
66. "Innovation to Achieve Excellence in Construction Technology and Management," **Invited Lecture**, Feb 27, 2024, NIRMA University, Ahmedabad, India.

TEACHING ACTIVITIES

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