

# TEWODROS GHEBRAB, PH.D., P.E.

Assistant Professor  
Civil, Environmental, and Construction Engineering (CECE)  
Texas Tech University (TTU), Lubbock, TX 79409

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## EDUCATION

Ph.D.	Civil Engineering	Michigan State University	2008
M.Sc.	Civil Engineering	University of New South Wales; Australia	1996
B.Sc.	Civil Engineering	Addis Ababa University (Ethiopia)	1992

## APPOINTMENTS

Associate Professor	Texas Tech University	2025 – Present
Assistant Professor	Texas Tech University	2009 – 2025
Project Engineer	Walker Engineering, Inc.,	2008 – 2009
Research Assistant	Michigan State University	2006 – 2007
Senior Lecturer	University of Asmara (Eritrea)	1996 – 2004
Graduate Assistant	Addis Ababa University (Ethiopia)	1992 – 1994

## PROFESSIONAL CERTIFICATIONS

Professional Engineer License	State of Texas (PE# 107332)	2010 – Present
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## PROFESSIONAL SOCIETIES MEMBERSHIP

American Concrete Institute (ACI)	2009 – Present
American Association of Civil Engineers (ASCE)	2010 – Present

## HONORS, AWARDS AND RECOGNITIONS

Awarded Dr. Charles L. Burford Faculty Teaching Excellence Award	2016
Nominated for Dr. Charles L. Burford Faculty Teaching Excellence Award	2013
Nordberg Fellowship Award for excellence in research achievement, MSU	2008
Nordberg Fellowship Award for excellence in research achievement, MSU	2007
Recognition for academic excellence, Phi Beta Delta, MSU Chapter	2005
Fulbright Scholarship, U.S. Department of State	2004
AIDAB Scholarship, Australian Government	1995

## SCHEDULED TEACHING

Courses Taught (Texas Tech University)
<ul style="list-style-type: none"> <li>• Structural Analysis</li> <li>• Surveying</li> <li>• Construction Foundation &amp; Earthwork</li> <li>• Mechanics of Materials II</li> <li>• Introduction to Construction Engineering</li> <li>• Construction Methods and Plans Reading</li> <li>• Transportation Engineering</li> </ul>

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- Construction Steel Structures
  - Construction Concrete Structures
  - Construction Capstone
  - Materials for Constructed Facilities
  - Engineering Mechanics (Statics)
  - Mechanics of Materials
  - Structural Analysis I
  - Structural Analysis II
  - Design and Construction of Prestressed Concrete
  - Advanced Design of Steel Structures

## **PUBLICATIONS**

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**Peer-Reviewed Journal** \*Corresponding, mentees (Scopus, google scholar citations)

1. \*Roz-Ud-Din Nassar, Kadhim Alamara, Anagi Balachandra, Parviz Soroushian, **Tewodros Ghebrab**, “Performance evaluation of innovative self-healing corrosion protection coatings for prestressing strands,” *Heliyon*, Volume 10, Issue 23, 15 December 2024. <https://doi.org/10.1016/j.heliyon.2024.e40681>
2. \*Roz-Ud-Din Nassar, Parviz Soroushian, **Tewodros Ghebrab**, Muhammad Sufyan-Ud-Din, “Development and evaluation of mixture formulations to enhance concrete resistance to microbial-induced corrosion,” *Results in Materials*, Volume 24, 2024, <https://doi.org/10.1016/j.rinma.2024.100644>
3. \*Feseha Sahile Asrat and **Tewodros T. Ghebrab**, “Using Mill-Rejected Granular Cement as a replacement for Fine Aggregate,” *Journal of Annals of Civil Engineering and Management*, 2024, 1 (1) pp. 1-7. [using-millrejected-granular-cement-as-a-replacement-for-fine-aggregate.pdf](https://doi.org/10.1016/j.jcem.2024.100644)
4. Samson Gelmessu, Werku Hareru, **Tewodros Ghebrab\***, “Assessment of Scaffolding Systems in Addis Ababa Public Building Projects; Current Practice, Related Problems, and Potential Solutions,” *Current Trends in Civil & Structural Engineering*, June 28, 2024. <https://irispublishers.com/ctcse/pdf/CTCSE.MS.ID.000757.pdf>
5. \*Roz-Ud-Din Nassar, Danish Saeed, **Tewodros Ghebrab**, Shah Room, Ahmed Deifalla, and Kadhim Al Amara, “Heat of hydration, water sorption and microstructural characteristics of paste and mortar mixtures produced with powder waste glass,” *Cogent Engineering*, 2024, V. 11, No. 1, <https://doi.org/10.1080/23311916.2023.2297466>
6. A. Rowell, \***T. Ghebrab**, R. Jeter, “Bacterial Treatment of Recycled Concrete Aggregate,” *Recycling*, 2023, 8, 68. <https://doi.org/10.3390/recycling8050068> (0,1)
7. A. Legesse, \*A. Nejat, **T. Ghebrab**, “The Coupling of Project Delivery Methods and Contract Strategies for Public Building Projects in Ethiopia,” *Construction Innovation: Information, Process, Management*, 2023. <https://www.emerald.com/insight/1471-4175.htm>
8. \*N. Feknssa, N. Venkataraman, V. Shankar, and **T. Ghebrab**, “Unobserved Heterogeneity in Ramp Crashes Due to Alignment, Interchange Geometry and Truck Volume: Insights from a Random Parameter Model,” *Analytic Methods in Accident Research*, 2023, 37, 100254. <https://doi.org/10.1016/j.amar.2022.100254> (5,7)

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9. Asfaw, F.B., \*Hareru, W.K., **Ghebrab, T.**, “Physical and Chemical Characterization of Coffee Husk Ash Effect on Partial Replacement of Cement in Concrete Production,” *International Journal of Sustainable Construction Engineering and Technology*, 13 (1), pp. 167-184, 2022. DOI:[10.30880/ijscet.2022.13.01.016](https://doi.org/10.30880/ijscet.2022.13.01.016) (2,3)
  10. \*Mahdi, T., Senadheera, S., and **Ghebrab, T.**, “Effect of PET Size, Content and Mixing Process on the Rheological Characteristics of Flexible Pavement,” *Materials*, MDPI, 15,10, 3565, 2022. (Cited 1) <https://doi.org/10.3390/ma15103565> (3,4)
  11. \*Asres, E., **Ghebrab, T.**, Ekwaro-Osire, S., “Framework for Design of Sustainable Flexible Pavement,” *Infrastructures*, 7 (1), 6, 2022. <https://doi.org/10.3390/infrastructures7010006> (4,7)
  12. Alemayehu, S., \*Nejat, A., **Ghebrab, T.**, Ghosh, S., “A multivariate regression approach toward prioritizing BIM adoption barriers in the Ethiopian construction industry,” *Engineering, Construction and Architectural Management*, 2021. <http://dx.doi.org/10.1108/ECAM-02-2021-0165> (14,20)
  13. Fadhel Aoudi, \***Tewodros Ghebrab**, Parviz Soroushian, and Roz-Ud-Din Nassar, “Effect of helical surface area on the performance of a multi-helix anchor,” *International Journal of Civil Engineering*, 18 (4), 1-10, April 2020. DOI:[10.1007/s40999-019-00490-7](https://doi.org/10.1007/s40999-019-00490-7) (2,3)
  14. \*Werku Koshe Hareru and **Tewodros T. Ghebrab**, “Rheological Properties and Application of Molasses Modified Bitumen in Hot Mix Asphalt (HMA),” *Applied Sciences-BASEL*, MDPI, 10, 6, 1931, March 2020. DOI:[10.3390/app10061931](https://doi.org/10.3390/app10061931) (10,11)
  15. \*Feseha Sahile Asrat and **Tewodros T. Ghebrab**, “Effect of Mill-Rejected Granular Cement Grains on Healing Concrete Cracks,” *Materials*, MDPI, 13, 4, 840, February 2020. DOI: [10.3390/ma13040840](https://doi.org/10.3390/ma13040840) (3,6)
  16. \*Lucy Feleke Nigussie, Muge Mukaddes Darwish, **Tewodros T. Ghebrab**, “Comparative Investigation of the effect of recycled fine aggregate from new and old construction wastes in C-25 concrete in Ethiopia,” *Sustainability*, MDPI, 11, 24, 7116, December 2019. DOI: [10.3390/su11247116](https://doi.org/10.3390/su11247116) (4,8)
  17. \*Getachew Kebede Warati, Muge Mukaddes Darwish, Fekadu Fufa Feyessa, and **Tewodros Ghebrab**, “Suitability of Scoria as Fine Aggregate and its Effect on the Properties of Concrete,” *Sustainability*, MDPI, 11, 17, 4647, September 2019. DOI:[10.3390/su11174647](https://doi.org/10.3390/su11174647). (20,23)
  18. Fadhel Aoudi, \***Tewodros Ghebrab**, Parviz Soroushian, “Reliable and Convenient Multi-Helix Soil Anchor for Deployable Structures,” *Journal of Geotechnical & Geological Engineering*, Springer, Vol. 36, Issue 4, pp. 2611-2623, 2018. DOI:[10.1007/s10706-018-0486-y](https://doi.org/10.1007/s10706-018-0486-y). (1,2)
  19. \*Ramon, M., Zhang, Y., Zhang, H.-C., **Ghebrab, T.**, “Laser ablation of electrodes for Li-ion battery remanufacturing,” *The International Journal of Advanced Manufacturing Technology*, Vol. 88, Issue 9, pp 3067–3076 (6/2016). <https://doi.org/10.1007/s00170-016-8986-5> (7,11)
  20. \*Roz-Ud-Din Nassar, Parviz Soroushian, **Tewodros Ghebrab**, “Field Investigation of High-Volume Fly Ash Concrete Pavements,” *Journal of Resources, Conservation &*

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- Recycling, Elsevier*, Vol. 73, 2013, pp. 78-85. (6/2013).  
<https://doi.org/10.1016/j.resconrec.2013.01.006> (44,61)
21. \***T. Ghebrab** and P. Soroushian, "Development of Structure-Property Relationships for Concrete," *Journal of Advanced Concrete Technology (ACT)*, Vol. 9, No. 1, 2011, pp. 5-14. (2/2011). [https://www.jstage.jst.go.jp/article/jact/9/1/9\\_1\\_5/\\_pdf](https://www.jstage.jst.go.jp/article/jact/9/1/9_1_5/_pdf) (5,8)
  22. \***T. Ghebrab** and P. Soroushian, "Mechanical Properties of Cement Mortar: Development of Structure-Property Relationships," *International Journal of Concrete Structures and Materials*, Vol. 5, No. 1, 2011, pp. 3-10. (6/2011). DOI:[10.4334/IJCSM.2011.5.1.003](https://doi.org/10.4334/IJCSM.2011.5.1.003). (0,18)
  23. \***T. Ghebrab** and P. Soroushian, "Mechanical Properties of Hydrated Cement Paste: Development of Structure-Property Relationships," *International Journal of Concrete Structures and Materials*, Vol. 4, No. 1, 2010, pp. 37-43. (6/2010). DOI:[10.4334/IJCSM.2010.4.1.037](https://doi.org/10.4334/IJCSM.2010.4.1.037). (0,20)
  24. P. Soroushian, \*R.U.D. Nassar, H. Chowdhury, **T. Ghebrab**, "Testing Concrete Durability in Sewer Environment," *Journal Proceedings of the Institution of Civil Engineers - Construction Materials*, Vol. 163, N. 1, 2010, pp. 35-44. (2/2010). DOI: [10.1680/coma.2010.163.1.35](https://doi.org/10.1680/coma.2010.163.1.35) (4,3)
  25. P. Soroushian, H. Chowdhury, \***T. Ghebrab**, "Evaluation of Water-Repelling Additives for Use in Concrete-Based Sanitary Sewer Infrastructure," *ASCE Journal of Infrastructure*, Vol. 15, No. 2, pp. 106-110. (6/2009). DOI:[10.1061/\(ASCE\)1076-0342\(2009\)15:2\(106\)](https://doi.org/10.1061/(ASCE)1076-0342(2009)15:2(106)). (9,11)
  26. P. Soroushian, O. Simsek, M. Elzafraney, \***T. Ghebrab**, "Compatibility of Cereal Straw with Hydration of Cement," *Journal of Solid Waste Technology & Management*, Vol. 35, No.1, pp. 1-6. (2/2009). DOI:[10.5276/JSWTM.2009.1](https://doi.org/10.5276/JSWTM.2009.1). (2,3)

## I. Conference Papers

1. Darwish, M.M., Nejat, A., Ghebrab, T., "Globalization and the new challenges for construction engineering education," *ASEE Annual Conference and Exposition*, Conference Proceedings, 2012. (8,8)
2. Nejat, A., Darwish, M.M., Ghebrab, T., "BIM teaching strategy for construction engineering students," *ASEE Annual Conference and Exposition*, Conference Proceedings, 2012. (10,17)
3. Aouadi, F., Ghebrab, T., Soroushian, P., Nassar, R.-U.-D., "Effect of Helix Geometry on the Performance of Multi-Helix Anchor for Temporary Shelters," Sustainable Transportation Infrastructure and Enhanced Mobility Conference, Jimma Institute of Technology, Ethiopia, March 11, 2019.

## II. Books

1. Tewodros Ghebrab & Parviz Soroushian, "Structure-Property Relationships for Cement-Based Materials: Development of Structure-Property Relationships for Hydrated Cement Paste, Mortar and Concrete," VDM Verlag, 2009, ISBN: 978-3-639-11930-5

## II. Technical Reports

1. Jayawickrama, P., **Ghebrab, T.**, and Lawson, W., "A Comprehensive Field Guide for Reconfiguration of MSE Reinforced around Obstructions," Texas Department of Transportation, August 2015.

2. Saraf, S.; Choi, P.; Ryu, S.; Ha, S.; Won, M., and **Ghebrab, T.**, “Minimize Premature Distress in Continuously Reinforced Concrete Pavement.” Texas Department of Transportation, August 2013.

## GRANTS

### I. Funded Proposals (total credit allocation to Ghebrab is \$889,395)

Submit'd	Granting Agency	Project Title	PI/Co-PI (% Cr.)	Total Budget	Ghebrab Allocat'n
November 2023	TXDOT	Assessment of the Vertical Clearance of Overpass Bridges of TXDOT Lubbock District	PI (100%)	\$301,148	\$301,148
September 2023	DOE	Paving a Road to Sustainability: Recycling Wind Turbine Blades to Asphalt	PI (20%)	\$75,000	\$15,000
September 2023	TXDOT	Evaluation of Salt Penetration into Bridge Decks and Concrete Pavements.in TXDOT Lubbock District	Co-PI (33%)	\$300,000	\$100,000
November 2019	Logistic Group	Recycling Wind Turbine Blade to Concrete	PI (100%)	\$6,606	\$6,606
July 2018	FDR Ethiopia Mistry of Educ.	International University Partnership in the Establishment of Postgraduate Programs in Ethiopia - II	Co-PI (18%)	\$624,464	\$112,404
July 2018	FDR Ethiopia Mistry of Educ.	International University Partnership in the Establishment of Postgraduate Programs in Ethiopia	Co-PI (15%)	\$221,054	\$33,158
March 2016	British Council	International University Partnership in the Establishment of Postgraduate Programs in Ethiopia with British Council	Co-PI (15%)	\$1,091,150	\$163,673
December 2015	British Council	International University Partnership in the Establishment of Postgraduate Programs in Ethiopia with British Council	Co-PI (16%)	\$33,000	\$5,280
March 2015	TXDOT	Field Guide for MSE Reconfiguration	Co-PI (16%)	\$59,196	\$14,799
February 2014	TEXO	Upgrading Construction Engineering & Engineering	PI (100%)	\$6,000*	\$6,000

		Technology Teaching Activities			
July 2013	NSF	RAPID: Collection of Perishable Data on Storm Shelters, Wind Speed Indicators, and Glazing after the May 20, 2013 Tornado in Moore, OK	Co-PI (20%)	\$30,742	\$6,149
February 2013	TEXO	Upgrading Construction Engineering & Engineering Technology Teaching Activities	PI (100%)	\$10,000*	\$10,000
September 2011	TXDOT	Field Guide for MSE Reconfiguration	Co-PI (40%)	\$212,945	\$85,178
February 2011	TEXO	Upgrading Construction Engineering & Engineering Technology Teaching Activities	PI (100%)	\$10,000*	\$10,000
February 2010	TEXO	Upgrading Construction Engineering & Engineering Technology Teaching Activities	PI (100%)	\$20,000*	\$20,000

\*Includes 50% matchup by the department (CEET)

## GRADUATE STUDENT ADVISING

### I. Graduate Research Advising

Venu Mekkala	M.S. Student (2024-2025)
Byeonguk Ryu	Ph.D. Committee Member (2022 – present)
Heejun Lee	Ph.D. Committee Member (2022 – present)
Dr. Nardos Feknssa	Ph.D. Co-Chair (2018-2023)
Dr. Ashraf Arefin	Ph.D. Committee Member (2018-2023)
Dr. Liang Li	Ph.D. Committee Member (2023)
Eniyew Asress	Ph.D. Chair (2016 – 2022)
Dr. Teyba Mahdi	Ph.D. Co-Chair (2016- 2022)
Dr. Alemineh Dessisa	Ph.D. Co-Chair (2016-2022)
Abay Legesse	Ph.D. Co-Chair (2016- 2020)
Shihunegn Alemayehu	Ph.D. Co-Chair (2016- 2020)
Dr. Werku Koshie	Ph.D. Chair (2016- 2020)
Dr. Feseha Sahile	Ph.D. Chair (2016- 2020)
Dr. Ketachew Kebede	Ph.D. Co-Chair (2016- 2019)
Dr. Lucy Feleke	Ph.D. Co-Chair (2016- 2019)
Dr. Susan Germany	Ph.D. Committee Member (2015 – 2019)
Dr. Olalekan Ramoni	Ph.D. Co-Chair (2009 - 2013)
Dr. Sureel Saraf	Ph.D. Co-Chair (2011 - 2013)
Mohan Vegesna	M.S. Thesis Advisor (2012- 2013)
Daniel Buntoro	M.S. Thesis Co-Advisor (2012- 2023)

**SERVICE****ASC Regional V Student Competition Coached**

Commercial Building Team 2014-2025

Design-Build Team 2010-2013

**Service to the Department of Construction Engineering & Engineering Technology*****Administrative***

Graduate Academic Advisor 2011- 2017

Department Chair Advisory Council Member 2014 - Present

Construction Engineering Program Lead 2014 – Present

CONE Program ABET Accreditation Coordinator 2015 – Present

***Committees***

1. CONE Program Scholarship Committee Chair 2010-2016

2. BIM Faculty Search Committee member 2010-2011

3. Graduate Certificate Program Development Committee member 2010-2012

4. Surveying Faculty Search Committee member 2010

5. ABET Accreditation Committee member 2012

6. Revision Committee for the Departmental Tenure &amp; Promotion OP Chair 2014

7. Geotech Faculty Search Committee Member 2016

8. Geotech Faculty Search Committee Member 2017

9. Structures Faculty Search Committee Member 2017

10. Structures Faculty Search Committee Member 2020

11. CONE Program Faculty Search Committee Chair 2024

**Service to Whitaker College of Engineering*****Committees***

1. Digital Measures Steering Committee Member 2010

2. College Grade Appeal Board Member 2011

3. Bioengineering Program Task Force Member 2013 – 2014

4. Distance Learning Committee Member 2013 – 2014

**Service to Texas Tech University*****Dean's Representative at Doctoral Dissertation Defenses***

1. Yugendra R. Guvvala, Ph.D., "Programming Models for Computers of Extreme Scale Parallelism," (2013).

2. Patrick Thor Kahl, Ph.D., "Refining the Semantics of Epistemic Logic Programs." (2014)

a. Dabetwar, Shweta, "Fatigue Damage Diagnostics and Prognostics of Composites Using Artificial Intelligence Methods for Experimental Data" (2020).

***Faculty Senate***

Faculty Senate Member 2014 - 2017

***Faculty Advisor of University Student Organizations***

Faculty advisor, TTU Baha'i Students Association	2012 – 2016
Faculty advisor, TTU Habesha Students Association	2012 – 2019

**Service to Profession of Engineering*****Conference Session Planning***

Co-Chair, Conference Planning, “Sustainable Transportation Infrastructure and Enhanced Mobility,” Jimma Institute of Technology, Ethiopia, 2019.

***Journal Review Editor***

Frontiers in Materials and Frontiers in Built Environment, 2017.

Guest editor for a special issue – MDPI: Processes Journal, 2024-2025.

***Journal Reviewer for***

1. ASCE Journal of Materials in Civil Engineering	2013
2. ASCE Journal of Materials in Civil Engineering	2013
3. Journal of Cement and Concrete Composites,	2015
4. Journal of Cement and Concrete Composites,	2017

***Professional Consultancy Service***

1. Litigation expertise, for Law Office of Travis S. Ware on a case related to foundation problem of a residential building in Lubbock, TX. (2011)
2. Litigation expertise, for Law Office of P. Howard Bailey, Jr. on a case related to water leakage to basement a residential building in Lubbock, TX. (2012)

***Professional Judge Service***

Judge for the Annual Outstanding Construction Award Competition organized by AGC – Texas Building Branch, 2010.