



Preparing Future Transportation Construction Professionals: Developing a Course Module on AI use in Construction for Undergraduates

CTIPS-045 – UTC Project Information

Recipient/Grant Number:	North Dakota State University, Colorado State University Grant No. 69A3552348308
Center Name:	Center for Transformative Infrastructure Preservation and Sustainability
Research Priority:	Preserving the Existing Transportation System
Principal Investigator(s):	Rebecca Atadero, Ph.D., P.E. Mehmet E. Ozbek, Ph.D.
Project Partners:	USDOT, Office of the Assistant Secretary for Research and Technology – \$35,750 Colorado State University – \$35,750
Total Project Cost:	\$71,500
Project Start and End Date:	5/14/2025 to 5/13/2027

Project Description

Artificial intelligence (AI) is transforming the ways many transportation professionals complete their work. In the construction field, AI is helping professionals with tasks ranging from construction planning and scheduling to risk and safety management. To ensure the future construction workforce is ready to leverage technology to improve the quality and efficiency of transportation infrastructure projects, construction management and construction engineering students need to have lessons in industry use of AI as part of their undergraduate degree programs. In this project we will interact with technology leaders in construction companies to understand construction industry tasks and roles AI is currently supporting or expected to support in the near future. With this insight we will develop a new learning module for a relevant construction course. This learning module will accomplish two key goals, 1) the module will introduce transportation related content into construction courses and 2) the module will demonstrate how traditional curricula can be updated and transformed to meet the changes demanded by AI. The learning module will be shared with other construction and engineering educators by placing the module in a teaching repository and by presenting the work at education focused conferences such as Associated Schools of Construction (ASC) or American Society for Engineering Education (ASEE).

USDOT Priorities

This project is relevant to the strategic goal of Transformation. AI will be a key driver of change across roles in the transportation sector. In this project we focus on helping to prepare construction managers and construction engineers to leverage AI to more effectively build transportation infrastructure, and to have AI knowledge to help them adapt to further changes in the future. The example of AI use in a specific course can also help other faculty in the AEC fields incorporate AI into their courses.

Outputs

This work will produce one learning module to teach construction students about the use of AI in the construction industry. The module and associated instructional materials and assignment will be shared with other construction educators at education focused conferences such as the ASC Annual Conference and the ASEE Annual Conference.

Outcomes/Impacts

Students entering the transportation field must be prepared to use AI to meet future transportation challenges. At the same time, engineering and construction educators must learn how to adapt their teaching to incorporate AI into programs that still provide students with the necessary foundational knowledge and skills. This project aims to contribute to both needs by developing a learning module that 1) exposes construction students to industry applications of AI in a transportation context, and 2) demonstrates to construction educators how AI lessons can enhance student learning. In the long term we envision AI seamlessly incorporated into construction and education practices. This project is a small step to begin this incorporation while learning what works for students.

Final Report

Upon completion, the final report link will be added to the [project page on the CTIPS website](#).