

Iowa State University

Ames, Iowa, United States of America



Civil, Construction, and Environmental Engineering (CCEE)

www.ccee.iastate.edu

National Concrete Pavement Technology Center (CP Tech)

www.cptechcenter.org

Program descriptions

CCEE: The Civil, Construction, and Environmental Engineering Department at Iowa State University promotes intellectual, social, and ethical development of civil and construction engineers. CCEE also creates and communicates engineering concepts and technology.

CP Tech: The mission of the CP Tech Center is to unite key transportation stakeholders around the central goal of advancing concrete pavement technology through research, technology transfer, and accelerated implementation of promising technologies.

Faculty and selected projects

Dr. Kejin Wang (kejinw@iastate.edu)

- Effect of Admixtures on Roller-Compacted Concrete Mixes
- Investigation into Freezing-Thawing Durability of Low Permeability Concrete with and without Air Entraining Agent

Dr. Vern Schaefer (vern@iastate.edu)

- Geotechnical Solutions For Soil Improvement, Rapid Embankment Construction, and Stabilization of the Pavement Working Platform
- Use of Ultra-High Performance Concrete in Geotechnical and Sub-structure Applications (TR-558)

Dr. Halil Ceylan (hceylan@iastate.edu)

- Development of a Device for Analysis of Portland Cement Concrete and Composite Pavements: Phase 1 Feasibility Study
 - Characterization of Unbound Materials (Soils/Aggregates) for Mechanistic-Empirical Pavement Design Guide
-

Facilities

PCC Pavement and Materials Research Laboratory: Located on the Iowa State University campus this 2,500 square-foot facility is fully equipped with state-of-the-art laboratory equipment. The lab helps researchers discover practical solutions to the challenges faced by the concrete paving community and provides students with opportunities for hands-on research experience.

Mobile Concrete Research Lab: The CP Tech Center's Mobile Concrete Research Lab brings high-tech concrete materials and concrete pavement testing capabilities to the field. The results of the lab's research will help transportation agencies better understand concrete material properties and interactions and improve quality-control testing during construction. The lab will also lead to critical advancements and improved practices for the concrete paving industry.

Geotechnical Mobile Lab: The lab will help ensure geotechnical construction projects will be built with specifications and processes that allow maximum efficiency and creativity on the part of the contractor. It will also help engineers use acceptance criteria that ensure responsible use of public funds, as well as help maximize value by increasing the performance life of roadways.

Materials Analysis Research Lab: MARL's function is three-fold, namely research and development, teaching, and service. Its facilities are used for chemical and physical characterization of a wide variety of materials to support research and teaching programs within the university. MARL also conducts research on unusual material evaluation problems for outside agencies through research grants. MARL also undertakes analyses for industry when comparable facilities are not available.