

## California Water Institute Provides Project Opportunities for Students

### Classroom Case Study: Civil Engineering



Civil engineering students at Fresno State received some real-world classroom experience as part of a collaborative project with the California Water Institute (CWI). CWI identified several groundwater recharge facilities that needed to be evaluated and enlisted the help of Henry Liang, a lecturer in the civil engineering department. Liang incorporated the project into his Spring 2023 curriculum for his CE 180A senior project design class.

“Whenever we have the opportunity to partner with a real project, then I’m always all for it. And this one was especially interesting to me just because my specialty is water resources,” said Liang, who has planned and designed recharge facilities in his role as a principal engineer at MKN & Associates, a water resources engineering firm. Liang said implementing the project into his

curriculum was streamlined with CWI doing all the initial work to set up the project with clients and locations.

“By the time it got to the students, it was already somewhat defined,” Liang said. Work with students in the senior project design class started immediately in the Spring 2023 semester.

Students were divided into two groups, with each group surveying improvements needed for the sites to become groundwater recharge facilities. That included performing a preliminary design of the facility to include determining the shape and depth of the basin to the alignment of pipelines and figuring out costs and permitting requirements. Because agriculture relies on significant water resources for crop production, Liang said being able to develop recharge facilities ultimately provides an additional water source.

“We’ve historically been over drafting our groundwater basins and recharge projects help replenish groundwater basins and offset any pumping that we’re doing, so it’s ultimately a big part of ensuring we have a sustainable water supply,” he said.

In addition to learning about planning and design, another valuable training experience for students was it required them to make connections with professionals in water districts and utility companies and private property owners. Carson Hatmaker was one of the students in Liang’s class. He noted some of the most beneficial things he learned were soft skills that taught him how to interact with colleagues and work with different people outside of a classroom.

“The opportunity to work with people outside of the academic field; namely with other engineers and consultants is super beneficial and actually leads them to gain some hands-on experience before jumping into the real world,” Hatmaker said.

After graduating from Fresno State, Hatmaker was hired as an assistant engineer at MKN Associates and continues to work with his former professor Henry Liang. Hatmaker credits his work in his senior project design class with helping him to land his current job.

