ABSTRACT
State-of-the-Art Technical Skills for Agriculture Irrigation Technicians

Modesto Junior College (MJC) sits in Stanislaus County in the heart of California’s Central Valley, a region that is 26,000 square miles of some of the richest agricultural soil in the world. In spite of the ideal growing environment, California’s agricultural operations are struggling as the state experiences one of the worst droughts in its history. The impact is so severe that more than 400,000 acres of normally productive acreage sits fallow this year. Many of the farmers still operating use the old surface irrigation methods of their grandfathers, wasting significant amounts of water with each irrigation. New technology has created a skills gap as it develops more quickly than the industry can keep up with. Irrigation efficiency and water conservation are critical, creating a need for irrigation technicians with state-of-the-art skills. Technology that enables remote monitoring, precise irrigation designs and projections, and increased water conservation will be embedded in this new program.

To address this growing challenge, MJC will implement an Agriculture Irrigation Technology program. The goal of this project is to increase the number, preparation and technical expertise of irrigation technicians and designers who are prepared to improve agriculture water management, increase irrigation delivery system efficiency, and enhance on-farm water conservation. Three specific objectives will support the goal of the program: 1) Develop and deliver standardized curriculum that advances the efficient design and use of irrigation systems and can be replicated at other institutions; 2) Create a pipeline of skilled, certified technicians that meet current conservation, efficiency and water management regulations; and 3) Increase recruitment and success rates for underrepresented students in agricultural science technical programs.

Technical Description: Specific activities to support the goal of increasing the number, preparation and technical expertise of irrigation technicians and designers who are prepared to improve agriculture water management, increase irrigation delivery system efficiency, and enhance on-farm water conservation will be implemented. They include development of a new associate degree, an Irrigation Technology Summer Institute to increase the recruitment and retention of typically underrepresented students in this field, on-site student advising, hands-on experience with state-of-the-art technology, and industry internships.

The design of new curriculum will combine a strong foundation in science, including critical components of plant science, soil science, hydrology, and meteorology with cutting edge technology that enables workers to accurately put water when and where it is needed. The development of this program will contribute to multiple agricultural science areas. It has relevance for animal science, plant and crop science, environmental horticulture, as well as other agriculture disciplines. Skilled technicians with strong scientific backgrounds will be the greatest need of the industry in the next several years according to area irrigation organizations and companies.