TAE 010 — Introduction to Agricultural & Environmental Technologies (3 units)

Course Description: Technologies of agriculture and the environmental sciences. History & revolution of industrial technology and its impacts on agriculture, environment, energy, and bioproducts; types of sensing technologies; communication and information transfer technologies; artificial intelligence, technologies for control of automatic processes; technologies for the production of food, bioproducts, clean energy and water purification; gene-editing technology; wearable technologies.

Learning Activities: Lecture 2 hour(s); Discussion 1 hour(s).

Enrollment Restriction(s): Pass One restricted to Agricultural & Environmental Technologies majors and students in College of Agricultural & Environmental Sciences.

Grade Mode: Letter.

General Education: Oral Skills (OL).

TAE 030 — Mobile Communication & Computing Technologies for Agriculture & the Environment (4 units)

Course Description: Modern computer technologies and the applications of sensing technologies and the Internet of Things (IoT) in agriculture and the environment. IoT and embedded devices; history and evolution of IoT, communication, and computing technologies; sensors and actuators; microcontrollers; data communication technology; introduction to data analysis and data visualization; designing web applications; and hands-on IoT-based projects.

Learning Activities: Lecture 2 hour(s), Discussion 1 hour(s), Laboratory 3 hour(s).

Enrollment Restriction(s): Pass One restricted to students in the College of Agricultural & Environmental Sciences.

Grade Mode: Letter.

General Education: Quantitative Literacy (QL); Visual Literacy (VL).

TAE 100 — Smart Control Systems for Agricultural & Environmental Technologies (4 units)

Course Description: Smart devices that communicate, sense their environment, and control their environment. Application examples include smart plant & animal care, and irrigation & fertigation. Technologies include Supervisory Control & Data Acquisition (SCADA) and Programmable Logic Controllers (PLCs) for applications in agricultural, environmental, and food sciences.

Prerequisite(s): Upper division standing; TAE 030 recommended.

Learning Activities: Lecture 2 hour(s), Discussion/Laboratory 2 hour(s).

Enrollment Restriction(s): Pass One restricted to Agricultural & Environmental Technology majors.

Credit Limitation(s): Only 3 units of credit if the student has taken EME 172, EEC 157A, and EEC 157B.

Grade Mode: Letter.

TAE 121 — Controlled Environments for Plants & Animals (4 units)


Prerequisite(s): Upper division standing in Agricultural Environmental Technology; or consent of instructor.

Learning Activities: Lecture/Discussion 3 hour(s); Laboratory 3 hour(s).

Enrollment Restriction(s): Pass One restricted to Agricultural & Environmental Technology or Biological Systems Engineering majors only.

Grade Mode: Letter.

General Education: Science & Engineering (SE); Quantitative Literacy (QL); Writing Experience (WE).