# TECHNOLOGY SYSTEMS MANAGEMENT TSM

## Department of Biosystems and Agricultural Engineering
## College of Agriculture and Natural Resources

**121 Fundamentals of Electricity**
Fall. 4(3-2) R: Open to students in the Electrical Technology Major. SA: AE 071
Application of Ohm's law. Kirchoff's laws. Series and parallel circuits. Inductive and capacitive reactance. Power factor. Practical single and three-phase electrical systems. Electromagnetic induction. Transformers. Environmental constraints in power use and production.

**130 Energy Efficiency and Conservation in Agricultural Systems**
Spring, Summer. 3(3-0)
Introduction and basic concepts of energy efficiency and conservation in agricultural and food production systems.

**222 Fundamentals of Automation and Controls**
Fall. 3(2-2) P: (TSM 121 or concurrently) or MTH 103 or approval of department SA: AE 083, TSM 223
On-off controllers for electric actuators. Installation according to code. Ladder-logic. Programmable logic controllers. Installation and programming. Interfacing to a computer.

**251 Information Technology in Agricultural Systems**
Fall. 3(2-2) RB: Basic computer science course
Applications and trends in information systems. Evaluation and use of computer systems, peripherals, networks, management decision support software, presentation systems, and communication systems.

**331 Water Management in Agriculture and Food Systems**
Spring. 3(3-0) Interdepartmental with Crop and Soil Sciences. Administered by Technology Systems Management. P: MTH 103 or MTH 124 or MTH 132 or LB 118 SA: TSM 431
Principles of water management, use efficiency and conservation in agricultural production, natural resources and food processing facilities. Best agricultural water management practices, water rights, irrigation scheduling, irrigation systems selection, evaluation and management and drainage principles. Large scale water use, management and conservation in food processing.

**343 Principles of Precision Agriculture**
Fall. 3(2-2) Interdepartmental with Crop and Soil Sciences. Administered by Technology Systems Management. P: MTH 103 or MTH 114 or MTH 116 or MTH 124 or MTH 132
Global positioning systems (GPS), yield monitors, and computer software. Analysis and interpretation of field maps. Variable-rate application. Economics of precision agriculture.

**490 Independent Study**
Fall, Spring, Summer. 1 to 5 credits. A student may earn a maximum of 5 credits in all enrollments for this course. R: Approval of department.
Supervised individual student research and study in technology systems management.

**491 Special Topics**
Fall, Spring, Summer. 1 to 5 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Approval of department.
Special topics in technology systems management.

**493 Professional Internship in Technology Systems Management**
Fall, Spring, Summer. 3 credits. A student may earn a maximum of 6 credits A student may earn a maximum of 6 credits in any or all of these courses: ABM 493, ANR 493, AEE 493, ANS 493, CSS 493, CSUS 493, EEP 493, FIM 493, FW 493, HRT 493, PDC 493, PKG 493, and PLP 493 R: Open to juniors or seniors in the College of Agriculture and Natural Resources. Approval of department; application required.
Supervised professional experiences in agencies and businesses related to a student's major field of study.