

TECHNOLOGY TSM SYSTEMS MANAGEMENT

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

121 Fundamentals of Electricity

Fall. 4(3-2) 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.

122 Alternating and Direct Current Machines

Spring. 3(3-3) P: (TSM 121 or concurrently) or MTH 103 or approval of department SA: AE 084

Types and characteristics of electric motors. Connecting, reversing and servicing of AC and DC motors and drives. Stepper motors. Variable frequency drives for induction motors. Offered first ten weeks of semester.

223 Fundamentals of Automation and Controls

Fall. 4(3-2) P: (TSM 121 or concurrently) or MTH 103 or approval of department SA: AE 083

On-off controllers for electric actuators. Installation according to code. Ladder-logic. Programmable logic controllers. Installation and programming. Interfacing to a computer.

224 Fundamentals of Digital Systems

Spring. 3(3-0) P: (TSM 121 or concurrently) or MTH 103 or approval of department Not open to students with credit in ECE 230.

Electrical components in transient and steady state operation. Thermo-electric, piezoelectric, magnetic, resistive and capacitive sensors. Electro-optical devices. Digital circuits. Data acquisition.

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.

341 Power and Machinery Systems

Fall. 3(2-2) P: MTH 103 or approval of department

Principles, performance, operation, and management of agricultural machine systems and tractors.

343 Principles of Precision Agriculture

Fall. 3(2-2) 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.

431 Irrigation, Drainage and Erosion Control

Fall. 3(2-2) P: MTH 103 and CSS 210 or approval of department R: Not open to freshmen or sophomores.

Soil and water conservation engineering, including land and soil surveying, basic hydraulics, hydrology, soil moisture, and soil and water conservation practices. Applications to irrigation, drainage, and erosion control systems.

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.