MECHANIZED AGRICULTURE (MCAG)

MCAG 1413 Introduction to Engineering in Agriculture
Prerequisites: MATH 1513 or concurrent enrollment.
Description: Application of the physical and engineering sciences to agricultural problems. Energy; energy conversion; thermal, electrical, mechanical and fluid systems; equipment calibration; environmental control of agriculture buildings and irrigation system requirements.
Credit hours: 3
Contact hours: Lecture: 3
Levels: Undergraduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

MCAG 2313 Surveying
Prerequisites: MATH 1613.
Description: A study of the equipment and practices used in surveying for small areas. Common practices of plane surveying: differential, profile, and topographic leveling; field notes, accuracy and precision, error and error control, and land measurement.
Credit hours: 3
Contact hours: Lecture: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

MCAG 3011 Ag Structures
Prerequisites: MATH 1513.
Description: Study of types of agricultural structures, building materials, construction tools and methods. Laboratory will provide opportunity to apply and develop associated skills.
Credit hours: 1
Contact hours: Lecture: 3 Lab: 2
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

MCAG 3211 Engines and Power
Prerequisites: MATH 1513.
Description: Theory, operation, performance and diagnostics of internal combustion engines for mobile applications.
Credit hours: 1
Contact hours: Lecture: .5 Lab: 1
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

MCAG 3222 Metals and Welding
Description: Welding safety and the principles and applications of gas, stick and MIG welding, and cutting. Previously offered as MCAG 3223.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

MCAG 3232 Lab Management and Project Construction
Prerequisites: MCAG 3222.
Description: Theory and practice of managing secondary school Ag Mechanics laboratories including safety, organization, design, project construction and evaluation of student projects. Previously offered as MCAG 4223.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

MCAG 4101 Ag Electrification
Prerequisites: MATH 1513 or equivalent.
Description: A study of electrical theory and electrical applications in agricultural environments.
Credit hours: 1
Contact hours: Lecture: 3 Lab: 2
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

MCAG 4112 Land Measurement and Site Analysis
Prerequisites: MATH 1513 or equivalent.
Description: Methods and techniques used to locate sites and evaluate physical conditions. Includes map interpretation and land description, use of Global Positioning Systems, Rectangular System of Land Description and determination of land elevations, areas and slopes. Same course as ENVR 4112. Previously offered as MCAG 3311.
Credit hours: 2
Contact hours: Lecture: 1 Lab: 2
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

MCAG 4123 Principles of Food Engineering
Prerequisites: MATH 1513.
Description: For non-engineers. Application of the engineering approach to solving heat and mass transfer problems in food processing. An introduction to the basic concepts of the conservation laws, fluid flow, heat transfer, refrigeration, freezing, psychrometrics, and energy conservation. Same course as FDSC 4123.
Credit hours: 3
Contact hours: Lecture: 3
Levels: Graduate, Undergraduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

MCAG 4200 Topics in Mechanized Agriculture
Description: Investigations in specialized areas of mechanized agriculture. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.
Credit hours: 1-4
Contact hours: Other: 1
Levels: Graduate, Undergraduate
Schedule types: Independent Study
Department/School: Biosystems & Ag Eng
MCAG 4203 Irrigation Principles
Prerequisites: MATH 1513.
Description: Sources, measurement and efficient use of irrigation water. Selection of pumping plants and power units. Layout and management of surface and sprinkler systems.
Credit hours: 3
Contact hours: Lecture: 3
Levels: Graduate, Undergraduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng

MCAG 4212 Safety and Health in Agribusiness
Prerequisites: Junior standing or above.
Description: Study of the causes and prevention of accidents in agribusinesses. Investigations including the acute and chronic risks of machinery, animals, gases, confined spaces, outdoor and hazardous materials.
Credit hours: 2
Contact hours: Lecture: 3
Levels: Undergraduate
Schedule types: Lab, Lecture, Combined lecture and lab
Department/School: Biosystems & Ag Eng

MCAG 4220 Advanced Methods in Agricultural Mechanics
Description: Developing agricultural mechanics programs for vocational agriculture and technical schools. Application of agricultural mechanics methods, practices and skills to advanced projects. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.
Credit hours: 1-6
Contact hours: Other: 1
Levels: Graduate, Undergraduate
Schedule types: Independent Study, Lab
Department/School: Biosystems & Ag Eng

MCAG 5413 Fundamentals of Conversion
Prerequisites: Graduate standing.
Description: Principles involved in converting biomass to useful products, including biomass properties, pretreatment, separation, and biochemical and thermochemical conversion. Course available online only through AG*IDEA consortium.
Credit hours: 3
Contact hours: Lecture: 3
Levels: Graduate
Schedule types: Lecture
Department/School: Biosystems & Ag Eng