

Biological and Agricultural Engineering Technology (BAET)

BAET 135 Introduction to Precision Agriculture (3 credit hours)

Introduction to a comprehensive precision agriculture program. Topics include computers, FMIS, GNSS, sensors, mechanized soil sampling, variable rate control system, and yield monitors. Applications of precision agriculture in crop planning, tillage, planting, chemical applications, and harvesting.

Prerequisite: MAA 102

Typically offered in Spring only

BAET 200 Computer Applications in Biological and Agricultural Engineering Technology (1 credit hours)

Students develop computer-based problem solving techniques to solve introductory problems in Biological and Agricultural Engineering Technology. Emphasis is on developing solution algorithms and implementing them with spreadsheets.

Prerequisite: MA 131

Typically offered in Fall only

BAET 201 Shop Processes and Management (3 credit hours)

Safety practices, materials, equipment, processes, procedures, and management techniques related to operation and maintenance of a mechanized agricultural enterprise or agriculture-related industry. Theory and practice through basic shop operations and procedures.

Typically offered in Spring only

BAET 323 Water Management (3 credit hours)

Water management principles applied to agriculture; hydrologic cycle, runoff, surface and sub-surface drainage, soil conservation measures to reduce erosion and sedimentation, irrigation, pond construction, open channel flow, water rights and environmental laws pertaining to water management. Emphasis on problem solving

Prerequisite: Junior standing.

Typically offered in Spring only

BAET 332 Management of Animal Environments (4 credit hours)

Environmental relationships, design methods, materials and construction procedures as they relate to agricultural animal production facilities. Problem situations integrating structural design, environmental control, and waste handling.

Prerequisite: PY 211 or PY 205.

Typically offered in Spring only

BAET 333 Processing Agricultural Products (3 credit hours)

Application of the principles of fluid flow, heat transfer, refrigeration, psychrometrics, and materials handling to the processing of agricultural products. Pump sizing, heat exchanger selection, refrigeration analyses, fan sizing, crop drying, and selection of materials handling equipment.

Prerequisite: PY 211 or PY 205.

Typically offered in Spring only

BAET 343 Agricultural Electrification (4 credit hours)

Practical and efficient use of electrical energy for agricultural and home application. Energy conservation, electric rates, farm and house wiring, circuit design, single-phase and three-phase distribution systems, electric motors, lighting, space and water heating, electric controls, safety and protective devices.

Prerequisite: PY 211 and Junior standing or above

Typically offered in Spring only

BAET 411 Agricultural Machinery and Power Units (4 credit hours)

Agricultural machinery principles, energy requirements, operation, calibration and environmental considerations. Diesel engine principles and their application to engine power, efficiencies and systems. Power trains and hydraulic systems. Application of basic machinery and power principles to mechanical needs in environmental systems.

Prerequisite: Ch 101, CH 102, and PY 211 or PY 205.

Typically offered in Spring only

BAET 432 Agricultural and Environmental Safety and Health (3 credit hours)

Safety and health issues for agricultural and environmental occupations. Hazard recognition, injury and illness prevention, regulations, and safety and health management strategies for agricultural production, chemical handling, and waste management. Environmental factors which affect human health and safety.

Prerequisite: Junior standing.

Typically offered in Fall only

BAET 443 Environmental Restoration Implementation (3 credit hours)

Students will learn how to implement environmental restoration designs for streams, wetlands, and stormwater best management practices to improve ecosystem health. Topics include interpretation of construction drawings and specifications, calculating construction quantities and developing contractor bid tabs, environmental permitting and regulations, erosion and sediment control, project management and scheduling, construction oversight, specialized construction materials and equipment for environmental projects, survey stakeout, vegetation installation and management, site inspection and maintenance, and monitoring of structural and ecological conditions of restoration projects. In-class field trips are required.

Corequisite: BAET 323 or BAE 371

Typically offered in Fall only

BAET 450 Biological and Agricultural Engineering Technology Capstone (3 credit hours)

Study of Project Management Institute (PMI) principles and management of management tools relating to a technology capstone project. Includes development and evaluation of potential project solutions, problem resolution emphasizing communication, critical analysis, and planning techniques, effective teamwork, and presentation of project through oral presentation and written reports. Must be within 36 credit hours of completing the degree.

Prerequisites: BAET 323, 332, 333 and 343.

Typically offered in Spring only