AG ENGINEERING (AGEN)

AGEN 100. Equipment Care & Maintenance. (3 Credits)
Care, adjustments and overall maintenance of gasoline and diesel power applications. Servicing, fuel systems, lubrication, cooling, exhaust systems, clutch and brake adjustments and hydraulic systems will be covered. Principles of safety as applied to mobile machinery are emphasized. The course is designed for basic competency skills in care and maintenance. 3 credits (2 lecture hours, 2 laboratory hours)

AGEN 102. Agricultural Equip Operation. (2 Credits)
Familiarize students with the safe and proper methods of operating, performing maintenance, managing and selecting equipment in an economically viable way. Equipment that will be covered includes stationary and mobile machines such as feed mixers, equipment normally found on dairy farm, and forestry and construction industries. Lectures highlight management considerations whereas laboratories emphasize proper machine operation. 2 credits (1 lecture hour, 3 laboratory hours), fall semester

AGEN 104. Estate & Sm Farm Equip Opera. (2 Credits)
This course will familiarize the student with safe and proper methods of operating, performing maintenance, managing and selecting equipment in an economically viable way. Equipment covered will include stationary and mobile machines such as auxiliary power units and equipment found on small farms and horticultural applications. It does not include the in-depth study into any specific machine, but covers the basics. 2 credits (1 lecture hour, 3 laboratory hours), fall semester

AGEN 105. Principles of Farm Machinery. (2 Credits)
Care, adjustment, operation and repair of tillage, planting and harvesting field machinery common to New York state farms with special attention to adjustment and maintenance in the laboratory are covered in this course. Efficient machinery selection and use is also investigated. 2 credits (1 lecture hour, 2 laboratory hours), fall semester

AGEN 110. Small Power Equipment. (2 Credits)
Principles of operation, service and repair of 2 and 4 cycle small engines and the equipment which they operate such as lawn and garden equipment, chain saws, small power generators and outboard motors. Laboratory practice in testing, servicing and rebuilding the equipment. 2 credits (1 lecture hour, 2 laboratory hours), fall semester Non-majors only

AGEN 115. Ag Engr Industry Overview. (1 Credit)
This course will expose the student to the many and varied opportunities that exist for graduates in Agricultural Engineering Technology and Agricultural Mechanics. The course will present a broad spectrum of speakers to describe their careers and the linkages that exist to their educational background. 1 credit (1.5 lecture hours), first 10 weeks of fall semester

AGEN 120. Water Supply & Sanitation. (2 Credits)
Development of sources of water. Selection, servicing, installation of pumping equipment, and treatment of water. Designing and installing supply plumbing and sanitary disposal systems. 2 credits (1 lecture hour, 2 laboratory hours), spring semester This course satisfies the Liberal Arts and Sciences requirement.

AGEN 131. Fundamentals of Hydraulics. (3 Credits)
Students will develop a foundation of hydraulic principles and system operation as found on mobile hydraulic systems. Topics studied will include the principles of flow and pressure and how force can be multiplied within a mobile hydraulic system. The student will be introduced to components used in hydraulic systems: pumps (gear, vane and piston), valves, cylinders and accumulators. Students will also develop an understanding of how an open center hydraulic system functions. 3 credits (2 lecture hours, 2 laboratory hours), fall semester

AGEN 135. Construction Surveying. (3 Credits)
Basic concepts of construction surveying as it specifically relates to agriculture and conservation applications, including field work in land drainage, pipeline stakeout, building stakeout and road construction. Survey planning and associated survey computations. Emphasis is on the operation of modern land measurement equipment including dumpy, laser and automatic levels, theodolite and EDM. 3 credits (2 lecture hours, 3 laboratory hours), fall semester

AGEN 145. Agriculture Building Systems. (3 Credits)
The design of agricultural production facilities as an integration of unique structural, environmental, and waste management systems is studied along with the principles of design and construction of the structure and associated environmental systems with emphasis on coordination of various systems. Laboratory exercises include construction of an exemplary structure on site. 3 credits (2 lecture hours, 3 laboratory hours), spring semester

AGEN 151. Applied Hydraulics Hydropower. (3 Credits)
This course covers the basic concepts of water hydraulics as applied to hydropower generation. The course is introductory in nature and is intended to provide basic review of fluid static and hydrodynamic conditions as applied to micro- and mini-hydro power generation systems. Focus will be on the utilization of the conservation of energy principle to establishing the conditions that will impact the selection of a hydropower generation system along with the assessment of how to harness energy from flowing fluids (water). Prerequisites: MATH 102 3 credit (2 lecture hour, 2 laboratory hours), spring semester

AGEN 161. Basic Hydraulics. (3 Credits)
This course will present the fundamental principles of hydraulic and pneumatic systems as used on mobile agricultural, construction and on-highway machinery. Disassembly and inspection of the various components in hydraulic systems will be completed throughout the course. Introduction to ISO graphic symbols and how they are represented in actual systems will be stressed. Additionally, diagnostics and testing of equipment will be discussed. Pre- or co-requisite: AGEN 131 or MAGN 101, or permission of instructor. 3 credits (2 lecture hours, 2 laboratory hours), spring semester. This course satisfies the Liberal Arts and Sciences requirement and the SUNY General Education Requirement for Natural Science.

AGEN 210. Advanced Small Power Equipment. (3 Credits)
Students will learn technical and business aspects of operating a small engine repair business and technical theory covering design characteristics of different types of compact power units for lawn and garden, recreational vehicle, and commercial and industrial applications. Laboratory classes simulate repair shop conditions. Students are responsible for scheduling, servicing, performing repairs of equipment for the college community. A basic set of tools is required. Prerequisite: AGEN 100 or AGEN 110 3 credits (2 lecture hours, 3 laboratory hours), spring semester

AGEN 220. Main,Rep, Perf Tune Artic Cat. (4 Credits)
This course will cover the maintenance, repair, and performance tuning of Arctic Cat Snowmobiles and All-Terrain Vehicles. The concepts taught will be common to many other sport equipment manufacturers' products. The systems studied will include; Suspension, EFI, Drivetrain, Electrical, Fuel, and 2 and 4 stroke engines. The course will include mandatory testing that will allow the student to be certified at the basic level of Arctic Cat CatMaster Technician Certification. Prerequisite: AGEN 210 and successful completion of EETC 4-Stroke Cycle Test 4 credits (2 lecture hours, 4 laboratory hours), spring semester

AGEN 240. Advanced Welding. (2 Credits)
Bonding and fusion of metals including alloy steels and nonferrous metals. Metallurgical changes which ac-company welding and the fabrication of metals, TIG, MIG, Flux-cored and plasma-arc processes are stressed. This course has an additional lab fee. Prerequisite: AGEN 140 or AUTO 102 2 credits (1 recitation, 2 laboratory hours), fall or spring semester

AGEN 261. Advanced Hydraulics. (4 Credits)
This course will be an application of previously mastered principles of hydraulic systems to both farm and light industrial equipment. Inspection, testing and servicing hydraulic circuits, systems and components, such as pumps, lift systems, hydraulic transmissions and motors will be emphasized. Appropriate testing procedures and equipment will be used. System difficulties and common service problems will be diagnosed. Prerequisite: AGEN 131, AGEN 161, MAGN 101 or permission of instructor. 4 credits (2 lecture hours, 1 recitation hour, 2 laboratory hours), fall semester

AGEN 270. Tractor Overhaul and Repair. (5 Credits)
In this course, students study principles, overhaul and repair of multi-cylinder internal combustion engines and various types of engines used in farm and light industrial power applications. Design and construction of engine components and systems and fundamentals and principles of systems of power transmission are covered. There is a laboratory practice in which students may use their own machines. Prerequisites: AGEN 100, AGEN 261, DTEC 150, or permission of instructor, agricultural engineering majors only 5 credits (2 lecture hours, 4 laboratory hours), spring semester

AGEN 300. Intern Agricultural Engineerng. (4 Credits)
Students work in an approved job in the agricultural engineering industry. Comprehensive written report required at the end of the work period. Employer and staff evaluation are due upon completion of internship. Prerequisite: Completion of one semester in Agricultural Engineering and permission of staff, overall GPA of 2.0. 4 credits (12-Week, 480-hour minimum), fall or spring semester