APPLIED ENGINEERING TECHNOLOGY MANAGEMENT (AETM)

AETM 1010 Principles of Safety and Risk Management 3 Credits
A study of the principles of industrial and construction safety and the associated management of risk exposures. This course includes basic industrial and construction safety concepts, analyzing safety and health issues at the workplace, accident causation, and prevention theories. A review of applicable safety standards and best practices will also be covered.
Components: Class, Discussion

AETM 1030 Introduction to Manufacturing 3 Credits
An introduction to manufacturing principles, systems, and operations. The relationship of manufacturing to the major technological systems (Energy/power, Communication, Construction, and Transportation) is examined. Product development/engineering design is simulated through use of 3-D software.
Components: Laboratory, Class

AETM 1100 Introduction to the Construction Industry 3 Credits
This course will provide an introductory overview to provide the students with a basic understanding of the construction industry. Each module will be introductory, experiential focused.
Components: Class

AETM 1130 Wood Technology 3 Credits
An introduction to basic woodworking processes used by industry. The design process and problem solving are emphasized through development of a portfolio. A problem is identified by the student, then solved through the construction and testing of a project.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 1010

AETM 1200 AC/DC Fundamentals 3 Credits
Students study direct and alternating current circuits and their characteristics, Ohm's Law, Kirchhoff's Laws, voltage dividers, power, etc. Labs are performed using multimeters, oscilloscopes, circuit simulation software, and breadboards.
Components: Laboratory, Class
Prereqs/Coreqs: P. or C: AETM 1010 and (Math placement level of 15 or MATH 15)

AETM 1230 Technical Drafting 3 Credits
An introduction to basic drafting techniques as a means of graphic communication. The principles of defining shape and size are studied utilizing computer aided drafting techniques. Activities deal with precise, applied graphic representation including precision and limit dimensioning associated with a variety of industrial situations.
Components: Laboratory, Class
Prereqs/Coreqs: P. Math placement level of 15 or MATH 15

AETM 1260 Building Construction Drafting 3 Credits
An introduction to basic drafting techniques as it pertains to building construction. The principles of defining shape and size are studied utilizing computer aided drafting techniques. Topics include sketching, projection, architectural dimensioning, sections detail views, print reading, and components of residential and commercial building structures.
Components: Laboratory, Class
Prereqs/Coreqs: P. Math placement level of 15 or MATH 15

AETM 1300 Construction Computer Applications 3 Credits
An introduction to basic construction principles including an introduction to scale and plan reading and an introduction to the following software: Bluebeam, Procore, AutoCAD, and Revit as it pertains to construction. The principles of defining shape and size are studied utilizing computer-aided drafting techniques, dimensioning, sections, detail views, printing, and basic plans. The concepts of scaling a construction plan(s) and utilizing paper space and model space will be practiced.
Components: Class

AETM 1530 Power Systems Technology 3 Credits
An analysis of methods of transferring industrial power. The basic principles of applied mechanisms, electrical actuators, control systems, engines and introductory pneumatics and hydraulics are emphasized in the course.
Components: Laboratory, Class
Prereqs/Coreqs: P. or C: AETM 1010

AETM 1830 Introduction to Plastics Processing 3 Credits
The course is designed to cover the history and evolution of plastics synthesis and processing, while highlighting the important material properties that have driven current processing techniques. Safety and material testing are also emphasized as we discuss basic and established processing methods and explore advanced techniques used today and on the horizon.
Components: Laboratory, Class
Prereqs/Coreqs: P. or C: AETM 1010 and AETM 1030

AETM 2040 Special Issues in Applied Engineering Technology Management 1-3 Credits
The study of selected topics common in the industrially oriented disciplines. The issues to be covered will be identified in the course title.
Components: Laboratory, Class

AETM 2430 Building Construction Materials 3 Credits
A study of the properties and application of building materials including concrete, block and brick masonry as they are related to residential and commercial building construction. Lab includes the introduction to 3D CAD modeling of buildings and the drawing of building details as they pertain to the building materials.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 1010, AETM 1100 and AETM 1260 or AETM 1300

AETM 2540 Materials and Techniques of Building Construction 3 Credits
The basics of construction surveying, the properties and application of wood as a building construction material, an introduction to the use and application of the psychrometric chart, moisture control, the impact and prevention of mold, and analyses of building techniques. Lab includes the performance of various analyses via 2D/3D CAD, spreadsheets and other analysis methods.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 2430 and COMPUTER 1830 and Math placement level 30 or MATH 1530

AETM 3030 Supervision of Work Based Learning and Student Organizations 2 Credits
This course prepares Technology Engineering Education and Agriculture Education majors to effectively supervise and manage work-based learning programs and student organizations. Emphasis is placed on strategies for coordinating experiential learning, developing local business and industry partnerships, and advising student organizations to support students. The course explores best practices in structuring both work-based learning and student organizations to enhance students' personal and professional growth.
Components: Class
Prereqs/Coreqs: P. 30 credits completed

AETM 3050 Introduction to Metals Processes 3 Credits
An introductory course surveying metalworking processes. Designed to impart academic and laboratory understanding of the fundamental principles of: machining, fabrication techniques, welding, casting and other metals manufacturing processes.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 1030 or GENENG 1030 or AGET 1750

AETM 3070 Geometric Dimensioning & Tolerancing 3 Credits
Geometric Dimensioning and Tolerancing (GDT or GD and T) is a language of symbols and standards designed and used by engineers and manufacturers to describe the shape (geometry) and size (dimensions) of a product and facilitate communication between entities working together to manufacture products.
Components: Class
Prereqs/Coreqs: P. AETM 1010, AETM 1030 and AETM 1230

AETM 3130 General Industry OSHA 30 Hour 3 Credits
A comprehensive, yet practical study of safety management principles and concepts for general industry designed for ITM/Occupational Safety Management majors/minors. Students learn various management strategies for the identification, evaluation, and correction of unsafe behaviors in the work place. Emphasis is placed on reduction of injuries, fatalities, and accidents in general industries such as manufacturing, healthcare, warehousing, distribution and retail through application of OSHA 29 CFR 1910. Upon successful completion of class (attendance required) students receive the OSHA 30 Hour card.
Components: Class
Prereqs/Coreqs: P. AETM 1010

AETM 3140 General Construction Estimating 3 Credits
Principles, theories, and systems of general construction estimating; quantity survey techniques; standard forms; material costs and labor pricing; and the use of computer estimating software.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 2430

AETM 3150 Manufacturing Materials 3 Credits
The course introduces students to current manufacturing materials (polymers, metals, ceramics, and composites) under the lens of Material Science concepts. Focus is placed on the relation between material structure, properties, processing, and performance, with students exploring the fundamentals of atomic bonding, crystalline structures, phase diagrams, and kinetics in relation to material selection, design considerations, and applications of industrial materials.
Components: Class, Laboratory
Prereqs/Coreqs: P. or C: AETM 1830 and AETM 3050

AETM 3160 Machining and CNC Programming 3 Credits
An intermediate course combining academic and laboratory principles of machining, Computer Numerical Control (CNC), computer assisted part programming, and CAD/CAM. Several laboratory projects develop knowledge and familiarity with machining centers and turning centers.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 3460; C: AETM 3050

AETM 3180 Construction Safety Management 3 Credits
A practical study of construction safety management principles and concepts are covered in this course designed for Building Construction Management majors or minors and Occupational Safety Management majors or minors. The course includes various management strategies for the identification, evaluation and correction of unsafe behaviors in effort to reduce injuries, fatalities and accidents on the construction site. Emphasis is also placed on the understanding of selected Code of Federal Regulations # 1926 OSHA Construction Industry Standards utilized in the development of a safe and healthy working environment.
Components: Class
Prereqs/Coreqs: P. AETM 1010, AETM 1100, and AETM 1300

AETM 3210 Commercial Construction Laboratory 3 Credits
Laboratory and field experience in basic carpentry and masonry principles, concrete forming, brick and block laying, estimating, scheduling and related areas.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 2430, AETM 3180, AETM 3350 and instructor consent

AETM 3220 Construction Procedures 3 Credits
Planning and analysis of work methods, scheduling and its computer applications, control of crews, materials and equipment selection, CPM and PERT methods of scheduling, contract types, the project manual concept, and construction specification writing and interpretation.
Components: Class, Laboratory
Prereqs/Coreqs: P. AETM 2430

AETM 3230 Digital Electronics 3 Credits
Students will study digital and linear integrated circuits utilized in control systems applications. Timer circuits, logic gates, and interfacing will be used in applications. Field Programmable Gate Array and microcontroller programming and applications will be studied in class and implemented in labs.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 1200 and AETM 1530

AETM 3310 Metallurgy 3 Credits
An intermediate course studying the physical and mechanical properties of metals and their alloys, and the principles of heat treatment of ferrous and non-ferrous alloys. Metallugical sample preparation, image analysis, spectrographic and combustion analysis of metals will be explored.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 3050

AETM 3350 Road and Infrastructure 3 Credits
This course will provide students with an exposure to all aspects of the processes, equipment and materials relating to the Heavy Highway and infrastructure construction. The students will also be introduced to contract administration including, submittals and subcontracts. The students will learn the various construction management responsibilities such as the development of daily production reports, daily erosion control reports, safety audits, traffic control inspection etc.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 2430 and AETM 3180

AETM 3460 3D Industrial Production Drafting 3 Credits
Expands 2D drafting concepts using AUTOCAD and provides integration of drafting and design procedures with 3-Dimensional software. Students will explore introductory through intermediate techniques including part model creation, assembly model creation, part drawing documents, geometric dimensioning and tolerancing, and other modeling features related to 3D solid modeling. Students will apply drafting and design principles to component parts toward various applications to meet industry standards.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 1030 and AETM 1230 and Math placement level 15 or MATH 15

AETM 3480 Metalcasting Processes 3 Credits
Technical study and laboratory investigation into processes used in the manufacture of non-ferrous metalcastings. Special emphasis on the following processes: green sand molding and testing, evaporative pattern casting, investment casting, chemically bonded sand, and shell sand. Also, lecture and discussions on the following topics: gating practices, sand technology, coremaking, casting defects, pattern development, metallurgy of aluminum and light alloys, metallurgy of copper base alloys, and cast trends in the metalcasting industry.
Components: Class, Laboratory
Prereqs/Coreqs: P. AETM 1030 and AETM 3050

AETM 3550 Fluid Power and Servo Systems 3 Credits
The study of fluid power theory and their applications to agricultural and industrial processes. The course includes the examination of fluids, pumps, compressors, conditioners, control devices, actuators, symbols, and circuitry. Other course areas include an introduction to electrical, electronics, and fluid servo systems.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 1530 or AGET 1750

AETM 3560 Industrial Control Systems 3 Credits
The course includes the principles of measurement and control fundamentals including relay control systems, ladder logic, programmable controllers, industrial sensors, control software, and computer-controller systems.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 1200 and AETM 1530

AETM 3570 Fleet Safety Management 3 Credits
This course is designed to introduce the students to the potential for loss in fleet operations. Topics discussed will include case studies of fleet related incidents as well as the loss prevention strategies utilized by industry. The student will be introduced to the components of a fleet safety program and be required to develop an actual fleet loss control plan.
Components: Class
Prereqs/Coreqs: P. AETM 1010

AETM 3590 Industrial Hygiene and PPE 3 Credits
This course consists of two major topic areas: industrial hygiene and personal protective equipment. The first is concerned with the chemical and physical hazards that impair the health of workers while on the job. Emphasis in the course is in recognizing, evaluating, and controlling hazards. Students receive experience in monitoring exposure of workers to harmful hazards and harmful physical conditions. The second topic area focuses on personal protective equipment (PPE) requirements and their use.
Components: Class
Prereqs/Coreqs: P. AETM 1010

AETM 3940 Materials Testing and Evaluation 3 Credits
A technical study and evaluation of industrial materials and processes using destructive and nondestructive evaluation methods. The course is designed to increase breadth and depth of knowledge of differing material characteristics and properties. Emphasis is given to understanding and application of processes used in material selection and testing methods.
Components: Class, Laboratory
Prereqs/Coreqs: P. (PHYSICS 1050 or CHEMSTRY 1050) and (AETM 3050 or AETM 1830)

AETM 3950 Industrial Design for Production 3 Credits
Study of design principles, production methods, and simultaneous manufacturing techniques. Emphasis is on understanding and application of the design process. Laboratory activities focus on the design and production of a product.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 1010 and AETM 1030 and AETM 1230 and Math placement level 15 or MATH 15 and ENGLISH 1230

AETM 4020 Topics Course 1-3 Credits
The study of selected topics common to the industrially oriented disciplines. The topic to be covered will be identified in the course title.
Components: Class
Prereqs/Coreqs: P. consent of instructor or department chair

AETM 4030 Electrical Power 3 Credits
A study of the methods and systems of AC and DC power generation, distribution, and motors. Other course areas include motor controllers, mechanical switches, and other industrial control systems.
Components: Class
Prereqs/Coreqs: P. AETM 1200

AETM 4050 Road and Infrastructure Lab 3 Credits
This class is one of three High Impact Courses offered in the program. This course is a hands-on laboratory/field experience in basic site layout and problem solving challenges regarding road and infrastructure construction projects. Including but not limited to: soil grading and compaction techniques, roadway and bridge construction, overhead and underground utilities, site drainage and site erosion control, estimating, scheduling, traffic control and construction heavy equipment safety training. The main goal of this class is to appreciate the importance of accuracy, implementation and urgency of a construction related task relative to the lab project schedule. (This is a live weather site).
Components: Field Studies, Laboratory
Prereqs/Coreqs: P. AETM 2430, AETM 3180, AETM 3350, and instructor consent

AETM 4160 Manufacturing Senior Design 3 Credits
Application of the principles of design, metal cutting theory, CNC programming, metalcasting, and other metals manufacturing methods. In order to complete the semester project students will also apply production tooling methods, cost and time estimating, and quality measurement. An in depth final report and presentation are required.
Components: Laboratory, Class
Prereqs/Coreqs: P. (AETM 3050 and AETM 3160) OR (AETM 3480 and AETM 3460)

AETM 4220 Construction Capstone 3 Credits
This is a High Impact capstone course for the construction management degree. The course provides students with hands-on experience at both a Commercial Construction project site and a Road Infrastructure project site. The commercial construction project site will include: plan reading and interpretation, construction phase/sequence, shop drawing, development of submittals, and basic fabrication, as well as several other important elements. The road and infrastructure project site will expose students to basic site layout and problem-solving challenges. These challenges may include: soil grading and compaction techniques, roadway and bridge construction, site drainage and site erosion control, and elements of traffic control. The main goal of this class is for students to learn the importance of accuracy, implementation, and urgency in relation to real-world construction-related tasks. This lab is a live jobsite and is run in all weather conditions; students should dress accordingly.
Components: Laboratory, Class, Discussion
Prereqs/Coreqs: P. AETM 2430, AETM 3180, AETM 3350, and instructor consent

AETM 4350 Safety Capstone 3 Credits
The course is designed to be the Capstone Class for the students who are seeking a general industry or construction safety management career. The students will be learning the application of the skills and knowledge they have obtained in their prior course work related to safety. The course will include problem solving, presentations, development of organizational performance measurement tools and the development of a written safety program.
Components: Class
Prereqs/Coreqs: P. AETM 1010 (All Majors) P. AETM 4510 (CM Majors Only); C: AETM 4760 (for CM Majors only)

AETM 4360 Specialized Drafting Practices 3 Credits
This course provides an integration of 3-D drafting practices as they are applied to technical drafting problems. Conventional and computer aided drafting and design procedures will be applied to auxiliary and sectional views, geometric dimensioning and tolerancing, gears, cams, fixture layout, applied mechanics, and special fields of drafting to create assembly drawings for production.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 1030 and AETM 1230 and AETM 3460

AETM 4410 Construction Hazard Control Solutions 3 Credits
The course is entirely dedicated to identifying and developing control plans for the hazards associated with the entire construction industry. This course is designed so the student will be able to recognize, evaluate and develop safety management techniques for the control of the hazards associated with the operations of all areas of construction including but not limited to: residential, light commercial, heavy commercial, industrial, heavy industrial and the transportation industry. This class is completely dedicated to current applications in the construction industry.
Components: Class

AETM 4450 Hot Metal Processing 3 Credits
This course will cover the hot processes of metals such as: forging, metal extrusion, welding, powder metallurgy, thermal spray, and advanced heat treatment. Other topics will include emerging materials and refractory metals. This course will also study in-depth, the metal production processes.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 3050 AND (AETM 3310 or AETM 3150)

AETM 4480 Industrial Robotics 3 Credits
Study and application of robotic systems to include: fundamentals, classification, integration in manufacturing systems, end-effectors, sensors, vision systems, auxiliary equipment and control systems, safety and cost justification. Basics of robot programming is applied.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 1200 AND (AETM 1530 or AGET 1750)

AETM 4490 Metalcasting Design 3 Credits
In depth course in cast iron metallurgy and ferrous foundry practice. A semester project is chosen and followed through to completion. To complete the project many skills will be taught: melting practice and furnace operation, calculation of the risering and gating system, verification using computer modeling, patternmaking, molding, and pouring. Metallurgical analysis of the project produced is also necessary and a final report and presentation will be made.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 1030 and AETM 3050 and AETM 3460

AETM 4510 Construction Heavy Equipment Safety 3 Credits
The course is dedicated to the hazards associated with the heavy equipment that is used in the construction industry. This course is designed so the student will be able to recognize, evaluate and develop safety management techniques for the control of the hazards associated with the operation of the heavy equipment.
Components: Class
Prereqs/Coreqs: P. AETM 1010 and AETM 3180

AETM 4520 Construction Technical Certifications 3 Credits
The course will include several nationally recognized professional development modules. They include but are not limited to the following: crane safety, excavation safety, aerial lift safety, forklift safety, fall protection safety, arc flash safety, confined space safety rigging, safety crane signaling. Note: This course may require extra time out side of the normal class room hours to complete.
Components: Class
Prereqs/Coreqs: P. AETM 4510; C: AETM 4910 (for CM majors only)

AETM 4530 Commercial Planning and Design 3 Credits
This course provides students with advanced knowledge of the use of Building Information Modeling (BIM) technology in the construction industry. The course allows students to gain experience in using computer tools such as the Autodesk Revit Family to model building designs.
Components: Class, Laboratory
Prereqs/Coreqs: P. AETM 2430

AETM 4630 Building Systems Analysis 3 Credits
The major building systems which include electrical systems, climate controlling systems, lighting systems, and water supply and drainage systems are studied.
Components: Class
Prereqs/Coreqs: P. AETM 2430

AETM 4660 Construction Management Internship 1-8 Credits
An on-the-job assignment commensurate with the instruction program and approved by the industrial internship coordinator.
Components: Field Studies
Prereqs/Coreqs: P. AETM 1010 and 15 additional credits in AETM (or INDUSTDY)

AETM 4670 Construction Safety Management Internship 1-8 Credits
An on-the-job assignment commensurate with the instruction program and approved by the industrial internship coordinator.
Components: Field Studies
Prereqs/Coreqs: P. AETM 1010 and 15 additional credits in AETM (or INDUSTDY)

AETM 4680 Engineering Technology Management Internship 1-8 Credits
An on-the-job assignment commensurate with the instruction program and approved by the industrial internship coordinator.
Components: Field Studies
Prereqs/Coreqs: P. AETM 1010 and 15 additional credits in AETM (or INDUSTDY)

AETM 4690 Safety Engineering Management Internship 1-8 Credits
An on-the-job assignment commensurate with the instruction program and approved by the industrial internship coordinator.
Components: Field Studies
Prereqs/Coreqs: P. AETM 1010 and 15 additional credits in AETM (or INDUSTDY)

AETM 4710 Hazard Control Solutions 3 Credits
The course is entirely dedicated to identifying and developing control plans for the hazards associated with the general industry and the construction industry. This course is designed so the student will be able to recognize, evaluate and develop safety management techniques for the control of the hazards associated with the operations of all areas of general industry including, but not limited to; manufacturing, production, agriculture, transportation, health and safety and construction including but not limited to; residential, light commercial, heavy commercial, industrial, heavy industrial and the transportation industry.
Components: Class
Prereqs/Coreqs: P. AETM 1010

AETM 4740 Additive Manufacturing and Specialized Processes 3 Credits
The course explores recent technological advancements in manufacturing techniques including laser cutting, electrical discharge machining, and water-jet cutting with an emphasis on additive manufacturing (AM) processes. Students will learn the seven variations of AM and explore every aspect of the process, from general printer operation and use of slicing software to 3D model design, basic PLC logic and G-code programming for CNC, actuator control, and component assembly.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 1830 and AETM 3050 and AETM 3460

AETM 4750 Crisis and Disaster Management 3 Credits
Principles of organization on the local, state, and national levels concerning natural and human disasters. A systematic and realistic approach to hazard analysis and mitigation. An opportunity is provided to participate in a class disaster preparedness project.
Components: Class
Prereqs/Coreqs: P. AETM 1010

AETM 4760 Technical Certifications 3 Credits
The course is designed to enhance the portfolio for Construction Management students. The course will include several nationally recognized professional development modules. These modules may include: overhead crane safety, excavation safety, aerial lift safety, forklift safety, fall protection safety, arc flash safety, confined space safety, rigging safety, robotics safety, crane signaling, and process safety management. Note: This course may require extra time outside of the normal classroom hours.
Components: Class
Prereqs/Coreqs: P. AETM 1010 and AETM 4510 and C: AETM 4350

AETM 4770 Loss Control Safety Management 3 Credits
The role of management involved with principles of organization, implementation, administration, and evaluation of occupational safety programs is provided in the course. Methods of controlling losses, basic risk management theories, behavioral-based safety concepts and others are studied. Emphasis is placed on accountability and measuring safety performance at all levels of industry.
Components: Class
Prereqs/Coreqs: P. AETM 1010

AETM 4800 Mold Design and Production 3 Credits
The course explores the facets of mold design, production, and evaluation. Lectures offer discussion of proper design concepts such as gating, venting, and reinforcement placement, as well as the use of mold flow and heat transfer modeling software. Various lab modules provide a hands-on exploration of lecture topics which allow students to complete a course project that guides them through the design, production, and testing of an injection molding, extrusion, or thermoforming mold of their creation.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 1830 and AETM 3050 and AETM 3460; P. or C: AETM 4850 or AETM 3480

AETM 4820 History & Principles of Career and Technical Education 2 Credits
An examination of the historical roots of Career and Technical education. Readings and research are conducted on the current trends and issues facing Career and Technical education in a high tech society. Satisfies DPI Certification.
Components: Class
Prereqs/Coreqs: P. TEACHING 1230

AETM 4840 Construction Administration 3 Credits
Construction company organization; contract documents; legal, ethical, business, and management procedures; and principles of construction management.
Components: Class
Prereqs/Coreqs: P. AETM 2430

AETM 4850 Plastics Processing I 3 Credits
The course offers an in-depth exploration of extrusion, compression molding, injection molding, and reaction injection molding. Students will learn the history, current status, and projected future of each process in industry, as well as their roles and limitations. Lectures and discussions are supplemented with hands-on lab activities and operation of processing equipment.
Components: Class, Laboratory
Prereqs/Coreqs: P. AETM 1830

AETM 4860 Plastics Processing II 3 Credits
Serving as a continuation of Plastics Processing I, the course explores blow molding, transfer molding, thermoforming, and polymer matrix composite processing techniques. The historical, present, and future industrial status of each process is discusses along with their place in industry. Each process is demonstrated by videos, site tours, and hands-on lab activities using relevant equipment.
Components: Class, Laboratory
Prereqs/Coreqs: P. AETM 1830

AETM 4880 Fire Protection and Environmental Safety 3 Credits
This course consists of two major topics of study: (a) A study of the nature and theory of fire hazards; preplanning to prevent fires; the systems approach to fire protection services; the technology of fire control; and the application of theory and technology to solving fire problems; and (b) developing an understanding of the principles and concepts inherent to the environmental regulatory structure within the United States and the State of Wisconsin. Students will receive an overview of environmental regulations, terminology, and management practices
Components: Class
Prereqs/Coreqs: P. AETM 1010

AETM 4890 Plastics Senior Design 3 Credits
The capstone course provides students with an opportunity to apply the concepts learned and skills developed during the program through a materials research or product design project. Students electing a materials research project will synthesize, process, and evaluate a material based on the conditions of their approved research plan. Students electing a product design project will employ material selection and product design concepts, mold design and production concepts, and evaluate the resulting product in its performance in the intended application. Options for collaborative projects with students from the Metals Processing Technology Minor may also be available.
Components: Laboratory, Class
Prereqs/Coreqs: P. AETM 3460 and AETM 4860

AETM 4900 Work Measurement and Human Factors 3 Credits
A study of methods to improve productivity, efficiency and effectiveness of work methods. This course is intended to provide an understanding of the principles of motion economy and work measurement techniques using graphing and charting tools, process picture mapping, 5S value stream mapping, quantitative analysis methods, lean manufacturing and SixSigma concepts. The course is designed for those responsible for supervising or conducting work measurement in industry, but is also valuable for any business or service organization.
Components: Class
Prereqs/Coreqs: P. AETM 1030 and MATH 1830

AETM 4910 Construction Safety Capstone 3 Credits
This course is designed to provide the senior level student the skill sets for the development of the management tools necessary to be successful in the construction safety management profession. The course will include the development and application of the GAP process. The components of a risk management improvement plan, safety manual, critical incident management process and an organizational performance system will be covered. The students will apply the concepts of the psychology of risk, as well as gaining the experience of communicated within an organization both in written and presentation formats. The student will receive actual tools to take with them to utilize in their new profession.
Components: Class
Prereqs/Coreqs: P. AETM 4510; C: AETM 4520 (for CM majors only)

AETM 4940 Quality Assurance 3 Credits
The study of techniques and procedures of assuring and maintaining the quality of industrial products and services. Statistical process control methods such as variable and attribute control charts, acceptance sampling, process capability and reliability are examined. The course also studies modern quality systems, Six Sigma, industrial experimentation and ISO standards.
Components: Class, Laboratory
Prereqs/Coreqs: P. AETM 1030 and MATH 1830

AETM 4950 Production Planning and Control 3 Credits
An investigation and study of the integrated approach of effective management practices associated with production planning, scheduling, and control. Operations strategy, quality of work life, global competition, lean manufacturing, forecasting methods, supply chain management practices, scheduling and plant facilities layout are stressed.
Components: Class
Prereqs/Coreqs: P. AETM 1030

AETM 4960 Construction Seminar 3 Credits
The construction seminar is designed to provide comprehensive insights and practical knowledge to construction management students as they prepare to enter the professional workforce. The course encompasses a wide range of topics essential for successful career development in the construction industry.
Components: Class
Prereqs/Coreqs: P. AETM 2430 and AETM 3180

AETM 4970 Independent Study in the Department of Applied Engineering Technology Management 1-3 Credits
Independent study is a contractual learning experience resulting in a technical report, research paper, project, or a combination of these. Selection of the area of study is done by the student in consultation with the instructor.
Components: Independent Study
Prereqs/Coreqs: P. Junior standing or consent of instructor

AETM 4980 Training and Supervision 3 Credits
An investigation of the duties and responsibilities of first-line supervisors. Emphasis is given to worker motivation, effective communication with employees, recruiting and selecting employees, supervisory leadership, employee evaluation and discipline, special interests in the workplace, employee training needs, and industrial training programs.
Components: Class
Prereqs/Coreqs: P. Junior standing and 18 credits in AETM or Agriculture and Industrial Engineering Technology minor