

APPLIED ENGINEERING MANAGEMENT (AEM)

AEM 195. Computer Aided Drafting. (3 Credits)

I, II. An introductory course in freehand sketching and computer-aided drafting/design. Students will be taught basic CAD commands, tools, multi-view drawings and dimensioning techniques. 2 Lec/2 Lab.

View Course Learning Outcomes

1. {}

AEM 201. Metallic Material Processes. (3 Credits)

I, II. Examines manufacturing processes used with metallic materials, including casting, molding, forming, machining (turning, milling, drilling), joining (welding, brazing, soldering), and finishing. Emphasizes the relationship between processes and material properties. 2 Lec/2 Lab.

View Course Learning Outcomes

1. {}

AEM 202. Introduction to Quality. (3 Credits)

I, II. Formerly INT 202. Prerequisites: STA 215 or 270, and MAT 114 or higher. Role of statistical thinking in modern quality control. Methods for problem solving, data collection, and process improvement. Deriving actionable conclusions from data analyses. Understanding, quantifying, and reducing variation to improve business performance.

View Course Learning Outcomes

1. {}

AEM 242. Furniture and Cabinet Construction. (3 Credits)

A. Formerly INT 242. Prerequisite: TEC 141. Principles of furniture and cabinet construction, elements of structural design, advanced woodworking operations; care and sharpening of tools related technical information; furniture and cabinet construction and finishing. 2 Lec/2 Lab.

View Course Learning Outcomes

1. {}

AEM 301. Non-Metallic Material Processes. (3 Credits)

I, II. Examines manufacturing processes used with polymeric, ceramic, and composite materials, including molding, forming, machining, joining, finishing, and testing. Emphasizes the relationship between processes, testing, and material properties. 2 Lec/2 Lab.

View Course Learning Outcomes

1. {}

AEM 308. Methods of Lean Operations. (3 Credits)

I, II. Prerequisite: STA 215 or 270 and MAT 114 or higher. Examination of lean principles, such as value mapping, continuous flow, continuous improvement, determination of customer demand, and standard work. Concepts and implementation of pull, line balancing, lean accounting, FMEA, time studies, and total productive maintenance.

View Course Learning Outcomes

1. {}

AEM 310. Technical Communication. (3 Credits)

I. Formerly INT 310. Prerequisites: ENG 102 and TEC 161. A conceptual approach to computer aided communication systems typically applied in industrial environments. Emphasis will be placed on utilizing computer technology to integrate text and graphics in the preparation of documents and presentation materials. Credit for AEM 310 will not be awarded to students who have credit for AEM 310W.

View Course Learning Outcomes

1. {}

AEM 320. Warehousing and Material Handling. (3 Credits)

A. Pre/Corequisites: AEM 202 or INT 202 and AEM 308 or INT 308. Formerly INT 320. A laboratory oriented course that examines basic warehouse layout configurations, material flow, and a critical evaluation of the application of computers to control material flow, plus the use of computer simulation to analyze various warehouse layout options for scheduling, picking and material tracking. 2 Lec/2 Lab.

View Course Learning Outcomes

1. {}

AEM 330. Material Testing and Metrology. (3 Credits)

A. Prerequisites: AEM 195, 201, and MAT 120. A study of geometric dimensioning and tolerancing as used in detail working drawings and the principles, standards, equipment, and techniques of precision electronic and mechanical measurement. 2 Lec/2 Lab.

View Course Learning Outcomes

1. {}

AEM 332. Process Control and Auditing. (3 Credits)

A. Prerequisite: AEM 202 or INT 202. Formerly INT 332. An advanced study of the Statistical Process Control methods and procedures in industry, and auditing as a method of evaluating the documentation, implementation, and effectiveness of a Quality System.

View Course Learning Outcomes

1. {}

AEM 336. Reliability and Sampling. (3 Credits)

A. Prerequisite: AEM 202 or INT 202. Formerly INT 336. An overview of reliability, testing, and sampling theories. Topics include component and system reliability, product safety, sampling plans, control charts, and standards.

View Course Learning Outcomes

1. {}

AEM 338. Engineered Materials Testing. (4 Credits)

A. Prerequisites: AEM 201, MAT 120 and TEC 190. Structure, composition, properties, tolerances, standards, and common applications of engineering materials. Use of GD&T and techniques for precision electronic and mechanical measurement and testing.

View Course Learning Outcomes

1. {}

AEM 349. Applied Learning in Industrial Technology. (0.5-8 Credits)

I, II. Prerequisite: departmental approval. Formerly INT 349. Work under faculty and field supervisors in placements related to academic studies. One to eight hours credit per semester or summer. Total hours: eight, associate, sixteen, baccalaureate. A minimum of 80 hours work required for each academic credit.

View Course Learning Outcomes

1. {}

AEM 352. Robotics and Automated Systems. (3 Credits)

A. Prerequisite: EET 251. Formerly INT 352. Introduction to fixed and flexible automation equipment with an emphasis placed on industrial robot systems. Topics include robot safety, programming and operation, and effector design, programmable logic controllers, interfacing devices, and sensors. 2 Lec/2 Lab.

View Course Learning Outcomes

1. {}

AEM 371. Hydraulics and Pneumatics. (3 Credits)

II. Formerly INT 371. Principles of the operation, construction, control and application of hydraulic and pneumatic components and circuits. The study of control applications includes manual, mechanical, fluid, electrical, and computer controlled fluid circuits. Credit for AEM 371 will not be awarded for students who have credit for INT 371. 2 Lec/2 Lab.

View Course Learning Outcomes

1. {}

AEM 382. Advanced Material Processing. (3 Credits)

A. Prerequisites: AEM 201 or INT 201 and AEM 301 or INT 301. Formerly INT 382. A laboratory course involving advanced material processing which includes project planning and management, machining, welding, precision layout, and measuring. Students will design and fabricate projects that include two-part mold designs, CNC machining, and multi-process welding. 2 Lec/ 2 Lab.

View Course Learning Outcomes

1. {}

AEM 383. CAD/CAM Integration. (3 Credits)

A. Prerequisites: AEM 201 or INT 201. Formerly INT 383. The use of computer application software to link data bases created with computer aided design software to computer numerical controlled machine tools. 2 Lec/2 Lab.

View Course Learning Outcomes

1. {}

AEM 390. 3-D Parametric Solid Modeling. (3 Credits)

A. Prerequisites: AEM 195 or INT 195. Formerly INT 390. A study of advanced topics in three-dimensional computer aided design. The content will include advanced modeling and rendering. 2 Lec/2 Lab.

View Course Learning Outcomes

1. {}

AEM 392. Computer Aided Machine Drawing. (3 Credits)

I. Prerequisite: AEM 195 or INT 195. Formerly INT 392. Computer generated detail and assembly drawings. Topics include threads and fasteners, gearing and cams, and dimensioning and tolerancing. 2 Lec/2 Lab.

View Course Learning Outcomes

1. {}

AEM 395. Special topics in AEM:__. (2-3 Credits)

Prerequisite: AEM202. Departmental approval, junior or higher standing. Explores emerging technologies in the area of applied engineering. May be repeated up to a maximum of 9 hours provided subject matter is different each time.

View Course Learning Outcomes

1. {}

AEM 397. Advanced Machine Drawing. (3 Credits)

A. Prerequisites: AEM 390 or INT 390 or MFG 390 and AEM 392 or INT 390 or MFG 392. Formerly INT 397. Advanced machine drawing applications to include detail and assembly drawings, threads and fasteners, gearing and cams. Emphasis on shape description. 2 Lec/Lab 2.

View Course Learning Outcomes

1. {}

AEM 406. Integrated Materials Mgmt.. (3 Credits)

I, II. Prerequisites: AEM 202. Formerly INT 406. A senior course which examines consumer demand characteristics, product bill materials, establishing sales and operations plans, planning and controlling inventory in the supply chain.

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1. {}

AEM 407. Fundamentals of Project Management. (3 Credits)

I. Prerequisite: AEM 202. Introduction to project selection, life cycle, planning using scope of work, WBS, CPM, scheduling, execution, resource allocation, expediting and closing.

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1. {}

AEM 408. Human Resource Development. (3 Credits)

I, II. Formerly INT 408. Topics in human relations and production management. To be scheduled the semester before graduation.

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1. {}

AEM 499. Senior Capstone Project. (3 Credits)

A. Prerequisite: AEM 310, 352, 407 and Senior Standing. Formerly INT 499. A synthesis experience involving the application of theory in solving a realistic industrial problem. Emphasis is placed upon project setup, solution, justification, report and presentation. 2 Lec/2 Lab.

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1. {}

AEM 506. Six Sigma Quality. (3 Credits)

A. Formerly INT 506. Prerequisite: AEM 202. A study of six sigma methodology and current practices with an emphasis on key quality drivers and statistical methods for world-class products and companies.

View Course Learning Outcomes

1. {}

AEM 530. Design of Experiments. (3 Credits)

A. Formerly INT 530. Prerequisite: AEM 202. Principles and practices of efficient experiment design for industry. Topics include the philosophy of experiment design, comparison of various designs, hypothesis testing, and the analysis of data.

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1. {}

AEM 706. Six Sigma Quality. (3 Credits)

A. Formerly INT 706. Prerequisite: AEM 202. A study of six sigma methodology and current practices with an emphasis on key quality drivers and statistical methods for world-class products and companies.

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1. {}

AEM 730. Design of Experiments. (3 Credits)

A. Formerly INT 730. Prerequisite: AEM 202. Principles and practices of efficient experiment design for industry. Topics include the philosophy of experiment design, comparison of various designs, hypothesis testing, and the analysis of data.

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1. {}

AEM 801. Economics for Lean Operations. (3 Credits)

A. Cost management, budgeting, accounting, capital planning, and other topics necessary for making effective economics decisions from a lean perspective. Quantitative methods and computer applications used to formulate decisions relating to operations.

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1. {}

AEM 802. Product Assess & Analysis. (3 Credits)

A. A study of industrial productivity; its assessment, measurement, analysis and improvements with emphasis upon human productivity, and machine, material, and process productivity.

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AEM 804. Project Management. (3 Credits)

A. Elements of managing projects including the use of modern project management software.

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1. {}

AEM 805. Operations Research. (3 Credits)

A. Concepts and applications of analytical models in decision-making. Includes general concepts of models and simulation, linear programming, transportation and assignment problems, forecasting and network flow in determining optimal industrial strategies.

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1. {}

AEM 820. Industrial Technology Proposal. (3 Credits)

A. Formerly INT 820. Prerequisite: departmental approval. An individually developed proposal related to a project typically encountered by a manager in a technical environment. The project proposal is to be approved by the student's graduate advisor.

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1. {}

AEM 821. Industrial Technology Project. (3 Credits)

A. Formerly INT 821. Prerequisite: INT 820 or departmental approval. An individually developed project related to the solution of a typical problem encountered by a manager in a technical environment. The problem is to be approved by the student's graduate advisor and the results presented in open forum.

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1. {}

AEM 822. Manufacturing Internship. (3-6 Credits)

A. Formerly INT 822. Prerequisite: departmental approval. Planned and supervised experience in industry in which the students will have the opportunity to observe and participate in manufacturing management activities. The experience must be for at least one semester and the plan of activities should be approved by the student's graduate committee.

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1. {}

AEM 839. Applied Learning in Tech Mgmt. (3-6 Credits)

(3-6) A. Prerequisite: Departmental approval. Planned and supervised experience in industry. The experience must be for at least one semester and the plan of activities must be approved by the student's graduate committee. Minimum of 80 hours work required for each academic credit.

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1. {}