

# MANAGEMENT AND ENGINEERING FOR MANUFACTURING (MEM)

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## **MEM 1151. Introduction to the Management and Engineering for Manufacturing Program. (3 Credits)**

Introduction to the goals of engineering and management for manufacturing enterprises, including lean concepts in business and engineering. Review of the history of technological development, including its effects on new products and processes. Written and oral communication skills will be developed.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=MEM%201151>)

## **MEM 2211. Introduction to Manufacturing Systems. (3 Credits)**

Fundamental engineering aspects of manufacturing. Students become familiar with common processes in manufacturing such as cutting, casting, and bending and are introduced to advanced techniques such as additive manufacturing. Overview of manufacturing operations management, production optimization, and the systems used in controlling manufacturing enterprises including the concepts of global competition, and manufacturing as a competitive weapon.

**Enrollment Requirements:** STAT 1000Q or 1100Q or 3025Q or 3345Q or 3375Q, or CE 2210 or 2251, or MATH 3160.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=MEM%202211>)

## **MEM 2212. Introduction to Manufacturing Systems Lab. (1 Credit)**

Introduction to the steps required for manufacturing. Students will move from a part sketch, to an engineering drawing, to a drawing using state-of-the-art CAD software. Students will build both a prototype and an improved final model of the part, which are required to be of different materials. One or more site visits are included as parts of this laboratory, for students to gain exposure to operational manufacturing facilities.

**Enrollment Requirements:** MEM 2211, which may be taken concurrently; enrollment restricted to Management and Engineering for Manufacturing majors.

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## **MEM 2213. Introduction to Manufacturing Systems Lab. (3 Credits)**

Introduction to the steps required for manufacturing: preparation of a part sketch, an engineering drawing, and drawing using state-of-the-art CAD software; building prototype and improved final model of the parts. Hands-on experience with subtractive manufacturing and additive manufacturing, and product outcome analysis. Site visits to operational manufacturing facilities.

**Enrollment Requirements:** Corequisite: MEM 2211.

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## **MEM 3221. Introduction to Products and Processes. (3 Credits)**

Overview of the factors affecting the design of products and the various processes used in their manufacture. An introduction to manufacturing processes and their capabilities and limitations. Value engineering, methods improvement and simplification techniques will be covered.

**Enrollment Requirements:** MEM 2211.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=MEM%203221>)

## **MEM 3231. Computers in Manufacturing. (3 Credits)**

The utilization of computers and information systems in manufacturing, with special emphasis placed on decision support systems and operations analytics.

**Enrollment Requirements:** MEM 2211, which may be taken concurrently. View Classes (<https://catalog.uconn.edu/course-search/?details&code=MEM%203231>)

## **MEM 3263. Manufacturing Sensing. (2 Credits)**

Introduction to the design and behavior of common sensors employed in manufacturing processes, highlighting their proper use and physical limitations. In the lab, each type of sensor is used in a practical engineering problem, with data being taken via data acquisition software. Data analysis techniques, including Gaussian statistics, uncertainty analysis, frequency domain studies, are also covered and used on the acquired data.

**Enrollment Requirements:** ME 2233 or ME 2232E; PHYS 1230 or PHYS 1402Q or PHYS 1502Q or PHYS 1530; CE 3110.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=MEM%203263>)

## **MEM 3281. Manufacturing Internship. (0 Credits)**

Designed to educate students in the MEM program with the realities of the manufacturing environment and to provide them with the opportunity to exercise problem solving skills while fulfilling a need of the internship sponsor. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

May be repeated for a total of 0 credits

View Classes (<https://catalog.uconn.edu/course-search/?details&code=MEM%203281>)

## **MEM 3293. Foreign Study. (1-6 Credits)**

These credits must be awarded for regularly scheduled course work at a recognized foreign university in a clearly defined technical area of Business or Engineering. Credits used towards the technical elective credits must be approved by the specific MEM program director from the appropriate school, Business or Engineering.

**Enrollment Requirements:** Open to juniors or higher.

May be repeated for a total of 6 credits

View Classes (<https://catalog.uconn.edu/course-search/?details&code=MEM%203293>)

## **MEM 3295. Special Topics in Management and Engineering for Manufacturing. (1-16 Credits)**

A classroom course on special topics as announced. Credits and hours by arrangement or as announced.

**Enrollment Requirements:** Prerequisites and/or consent as announced for each offering.

May be repeated for credit

View Classes (<https://catalog.uconn.edu/course-search/?details&code=MEM%203295>)

## **MEM 3299. Problems in Management and Engineering for Manufacturing. (1-4 Credits)**

Designed primarily for students who wish to pursue a special line of study or investigation.

**Enrollment Requirements:** Open only to junior and senior Management and Engineering for Manufacturing majors. Program of study is to be approved by a program co-director and by instructor before registration is completed.

May be repeated for credit

View Classes (<https://catalog.uconn.edu/course-search/?details&code=MEM%203299>)

**MEM 4225. Advanced Products and Processes. (3 Credits)**

Introduction to advanced topics relevant to the design and manufacture of products. Special emphasis on the relationship between manufacturing products and processes. Student projects.

**Enrollment Requirements:** MEM 3221.

View Classes (<https://catalog.uconn.edu/course-search/?details&code=MEM%204225>)

**MEM 4296. Honors Research. (1-6 Credits)**

Research programs of students' choice in areas of Management and Engineering for Manufacturing. Research work will be directed by an MEM faculty member who serves as the research advisor for the course. Projects will provide significant independent problem solving experience to supplement the classroom experience obtained from traditional coursework. May be used to convert independent research into course credit that may be applied toward the Honors Program requirements and will count as a technical elective.

**Enrollment Requirements:** Open to Honors students.

May be repeated for a total of 6 credits

**Grading Basis:** Honors Credit

View Classes (<https://catalog.uconn.edu/course-search/?details&code=MEM%204296>)

**MEM 4971W. Senior Design Project I. (2 Credits)**

Part 1 of the capstone design course for the MEM Program. This semester will cover manufacturing and production cases in preparation for the senior design experience. Both written and oral reports are required. Students will also complete the first phase of their two-semester engineering design project focused on product/process creation or improvement, including problem definition, background, and a preliminary proposal. The Business and Engineering faculty will be jointly involved.

**Enrollment Requirements:** MEM 2211; ENGL 1007 or 1010 or 1011 or 2011. Not open to students who have passed MEM 4915W.

**Skill Codes:** COMP. Writing Competency

View Classes (<https://catalog.uconn.edu/course-search/?details&code=MEM%204971W>)

**MEM 4972W. Senior Design Project II. (2 Credits)**

Part 2 of the capstone design course for the MEM Program. Students will perform the design, fabrication, and testing of their product design; or implementation, testing, and procedure writing for their process design. The proposal from MEM 4971W will guide the fabrication, or implementation, and testing, to meet a detailed specification of engineering requirements. Both written and oral reports will be required. The Business and Engineering faculty will be jointly involved.

**Enrollment Requirements:** MEM 4971W. Not open to students who have passed MEM 4915W.

**Skill Codes:** COMP. Writing Competency

View Classes (<https://catalog.uconn.edu/course-search/?details&code=MEM%204972W>)