

**Minor in**  
**Manufacturing Systems**  
**Engineering**

For information call:

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 www.csun.edu/msem

**Academic Advisement:**

Almost half of all engineering positions are in or related to Manufacturing. This minor is designed to augment undergraduate studies in engineering and closely related fields to facilitate student opportunities for achievement in a manufacturing environment. Some students may find it necessary to complete selected prerequisite courses in mathematics, chemistry, physics, and/or engineering.

**STUDENT LEARNING OUTCOMES:**

Students who complete the Minor in Manufacturing Systems Engineering at California State University, Northridge will demonstrate:

1. An understanding of the behavior and properties of materials as they are altered and influenced by processing in manufacturing;
2. An understanding of the design of products and the equipment, tooling, and environment necessary for their manufacture;
3. An understanding of the creation of competitive advantage through effective management of contemporary manufacturing enterprises;
4. An ability to apply advanced methods to the analysis, synthesis and control of manufacturing systems; and
5. An ability to measure manufacturing process variables and draw credible technical inferences.

These student learning outcomes for the minor are consistent with proficiency area criteria assessed in accord with ABET (Accreditation Board for Engineering and Technology) requirements for Manufacturing and similarly named engineering Programs.

**REQUIRED COURSES (12 UNITS)**

MSE 362	Engineering Statistical Applications .....	3
MSE 407	Manufacturing Systems .....	3
MSE 409/L	Fundamentals of Computer-Aided Manufacturing and Lab .....	2/1
MSE 412/L	Manufacturing Processes and Lab .....	2/1

**ELECTIVE COURSES (6 UNITS)**

Each student must complete 2 courses selected from the list provided below. In some circumstances, other elective selections may be suitable when approved in advance by the Department.

MSE 402	Engineering Project Management .....	3
MSE 403CS	Facilities Planning and Design .....	3
MSE 410/L	Manufacturing Systems Modeling and Lab .....	2/1
MSE 415	Product Design .....	3

**TOTAL UNITS REQUIRED FOR THE MINOR: 18**

