

- Course Number and Title: ENGR 217 / 217L. Manufacturing Processes / Lab
- Catalog Description: (ENGR 217) An introduction to modern manufacturing processes and their application. Students will be introduced to manufacturing concepts such as traditional and non-traditional machining operations, tooling, material selection, thermal joining, geometric dimensioning & tolerancing, metrology, additive manufacturing, assembly and inspection, g-code, and automated manufacturing using CAM packages.
(ENGR 217L) A hands-on application of the concepts introduced in ENGR 217. This lab will expose the students to hands-on exercises and manufacturing methods used in industry.
- Credit Hours: 3 Credits (3) / 1 Credit (3P)
- Prerequisite(s) / Corequisite(s): (ENGR 217) Prerequisite(s) - ENGR 110 and (MATH 1220G or higher)
(ENGR 217L) Corequisite(s) - ENGR 217
- Required: Required for BSME and BSAE Degrees
- Course Availability: Fall and Spring Semesters + Summer
- Instructor (Usual): Eduardo Gamillo (See <https://et.nmsu.edu/people/people-directory.html>)
- Textbook: None
- Course Learning Objectives: After completing this course, a student should be able to:
 - 1) Identify the different manufacturing processes and their applications.
 - 2) Use, set up, and calibrate measuring tools.
 - 3) Apply geometric tolerances to engineering drawings.
 - 4) Demonstrate basic knowledge of materials and material properties
 - 5) Demonstrate basic knowledge of G&M codes and their application.
 - 6) Proficiently use CAM packages such as SolidWorks CAM.
 - 7) Identify different tooling, their use, and manufacturing application.
- Topics Covered: Metrology, Engineering Drawings, Geometric Dimensioning & Tolerancing, Milling Operations: (i) Feeds & Speeds, (ii) Machining & Material Properties, (iii) Material Selection, (iv) Drilling & Hole Operations, (v) Threaded Hole Specifications; Lathe Operations, CNC Computer Numerical Control Machines, SolidWorks CAM, Introduction to G-Code, Introduction to FEA Simulation, Thermal Joining