UTTyler ENGINEERING

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MENG 4320 – Design for Manufacturing
Course Syllabus

Semester / Year	Spring / 2026
Catalog Description	Design principles for achieving quick, low cost product introduction through consideration of cost, quality, reliability, maintainability, appearance and ergonomics; consideration of the interaction between design, materials, and method of production. Three hours of lecture per week.
Prerequisites	MENG 3319: Materials Science and Manufacturing.
Section Number	001 and 051
Instructor Name	Dr. Shih-Feng Chou
Contact Information	3900 University Blvd., RBN 3005, Tyler TX. 75799 Phone: 903-566-6209 Email: schou@uttyler.edu
Class Type / Instruction Mode / Location	001: f-2-f / RBN 3040 051: synchronized Zoom / HEC B210
Class Time	MoWe 2:00 – 3:20 PM
Office Hours	MoWe 3:30 – 4:30 PM and Tu 11:00 AM – 12:00 PM or by appointment. Zoom: 843-9631-4485 (#871683).
No. of Credits	3
Required Textbook	N/A
Optional References	1. Manufacturing and design: Understanding the principles of how things are made, E. Tempelman, H. Shercliff, and B.N. van Eyber, 1st Edition. 2. Product Design for Manufacture and Assembly, G. Boothroyd, P. Dewhurst, and W.A. Knight, 3rd Edition. 3. Class Handouts via Canvas.
Additional Rules and Requirements	1. Since the mechanical engineering program is designed to prepare students for professional practice, all submitted work (e.g., homework, lab reports, projects, presentations) is expected to meet professional standards. Work that does not reflect professional quality may be subject to grade reductions, even if professionalism is not explicitly listed in the grading rubric. 2. This course allows the use AI tools (such as ChatGPT, Copilot, Gemini, etc.) only in case study. Students will be notified as to when these tools should be used, along

	with guidance on how to use them. Using AI tools outside of these parameters violates UT Tyler's Honor Code, constitutes plagiarism, and will be treated as such.
Evaluation Method	Homework: 40% Exams: 60%
Grading Policy / Scale	Letter grades, scale: A: 90 – 100, B: 80 – 89, C: 70 – 79, D: 60 – 69, F: < 60
Important Events / Dates	1/26/2026 (Mo): Census Date. 2/9/2026 ~ 2/11/2026: 1st Exam. 3/16/2026 ~ 3/18/2026: 2nd Exam. 3/30/2026 (Mo): Last day to withdraw from one or more classes. 4/20/2026 ~ 4/22/2026: 3rd Exam. 4/27/2026 (Mo): Final Exam week: Case Study.
Attendance / Makeup policy / other rules	1. Attendance will be recorded throughout the semester. 2. Students with SAR status should contact the UT Tyler Office of Student for accommodations. 3. All assignments must be submitted to Canvas for grading.
Course Learning Objectives / ABET & PEOs Relation	By the end of this course, students will be able to: 1. Identify features that drive costs in casting, sheet metal forming, extrusion, forging, machining, and injection molding of parts. 2. Estimate the relative tooling costs for injection molded, die cast and stamped parts. 3. Estimate the relative production costs for injection molded, die cast and stamped parts. 4. Determine if a part is suitable for additive manufacturing.
Tentative Topics / Course Plans	Product Disassembly Study; Shape Casting; Sheet Metal Forming; Extrusion; Forging; Machining; Injection Molding; Thermoforming; Fiber, Resin, and Composites; Additive Manufacturing; Joining and Assembly.

	Course Plan: Week (Date) | Topic 1 (1/12, 1/14) (Mo) Syllabus (We) Introduction 2 (1/19, 1/21) **(Mo) MLK day – No Class** (We) Product Disassembly Study 3 (1/26, 1/28) (Mo) Materials Selection (We) Shape Casting, HW#1 4 (2/2, 2/4) (Mo) Die Casting Analysis, HW#2 (We) Sand Casting Analysis, HW#3 5 (2/9, 2/11) **Take-home Exam#1** 6 (2/16, 2/18) (Mo) Sheet Metal Forming (We) Sheet Metal Analysis, HW#4 7 (2/23, 2/25) (Mo) Forging (We) Hot Forging Analysis, HW#5 8 (3/2, 3/4) (Mo) Extrusion (We) Machining, HW#6 9 (3/9, 3/11) **Spring Break** 10 (3/16, 3/18) **Take-home Exam#2** 11 (3/23, 3/25) (Mo) Additive Manufacturing (We) AM Design Analysis, HW#7 12 (3/30, 4/1) (Mo) Injection Molding (We) Injection Molding Analysis, HW#8 13 (4/6, 4/8) (Mo) Thermoforming (We) Fiber, Resin, and Composites 14 (4/13, 4/15) (Mo) Joining and Assembly (We) Design for Assembly 15 (4/20, 4/22) **Take-home Exam#3** 16 (4/27) **Final Exam Week: DfM Case Study** (Dr. Chou reserves the right to change schedule in course plan.)
University Policies	https://www.uttyler.edu/offices/academic-affairs/files/syllabus-information-rev122025.pdf