

East Tennessee State University
Engineering Technology, Surveying & Mapping and Digital Media
ENTC 1120: Manufacturing Processes & Specifications
Spring 2013

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I Course Description, Credit Hours, and Prerequisites

Manufacturing Processes & Specifications (3 hours)—the study of engineering manufacturing processes and development of engineering documentation with particular emphasis on the information processes required in a modern manufacturing environment and the physical processes involved in the manufacture of goods.

Prerequisites: None.

II Course Objectives

Upon the successful completion of the course, the student will be able to

1. Display &/or articulate his/her knowledge and understanding of the basic engineering design and manufacturing processes (physical and information-based) used in the manufacturing of products.
2. Choose appropriate manufacturing processes and product design features and specifications for manufacturability.
3. Make appropriate materials choices (e.g., metals, polymers, ceramics, composites, etc.) based upon requirements and properties.
4. Develop and maintain appropriate engineering specifications and documentation.
5. Develop a basic understanding of the necessity for proper dimensioning, size and position tolerancing and geometric specification.

Note: Course outcomes are in alignment with ABET Criterion 2 a. (appropriate mastery of the knowledge, techniques, skills, and modern tools of the discipline); b. (an ability to apply current knowledge [of] ... engineering and technology); and f. (an ability to identify, analyze, and solve technical problems. Additionally, aspects of ABET Criterion 2 c. (an ability to conduct, analyze, and interpret experiments and apply experimental results to improve processes); e. (an ability to function effectively on teams); g. (an ability to communicate effectively); h. (a recognition of the need for and an ability to engage in lifelong learning); i. (an ability to understand professional, ethical, and social responsibility); and k. (a commitment to quality, timeliness, and continuous improvement) are impacted.

III Texts

Required:

Benhabib, B. (2003). *Manufacturing: Design, Production, Automation, and Integration*. Boca Raton, FL: CRC Press.

eBook available on chapter-by-chapter basis via **free*** downloads

URL: <http://www.crcnetbase.com/isbn/978-0-8247-4273-7>

(eBook ISBN: 978-0-203-91120-4; print version ISBN: 978-0-8247-4273-7).

Campbell, R.G., & Roth, E.S. (2002). *Integrated product design and manufacturing using geometric dimensioning and tolerancing*. Boca Raton, FL: CRC Press.

eBook available on chapter-by-chapter basis via **free*** downloads

URL: <http://www.crcnetbase.com/isbn/9780824788902>

- * The required E-texts are accessible via ETSU Library from any device logged into the ETSU domain or you may go through the Sherrod Library ENGnetBASE gateway: <https://login.ezproxy.etsu.edu:3443/login?url=http://www.crcnetbase.com>
Log in with your ETSU ID and PW when prompted.

Recommended Textbooks:

Kalpakjian, S. & Schmid, S. (2010). *Manufacturing Engineering & Technology*, (6th Ed.). Upper Saddle River, NJ: Prentice Hall. ISBN-13: 9780136081685.

Note #1: A new or used 5th Edition (ISBN-13: 9780131489653) of this text may be a much better buy.

Note #2: It is strongly recommended that you purchase this hardback book and **plan on keeping this textbook as a reference text throughout your professional career**. While it might seem to be an expensive acquisition, this text is encyclopedic and somewhat timeless.

An Engineering Design Graphics textbook or similar manual drawing/drafting textbook.

Note #3: Check local used bookstores, typically in the Technology or Science sections. Also, don't be shy if you find a book published decades ago.

IV Attendance Policy

Attendance will be taken at some time during class meeting. This semester, we will only meet about 30 times; each meeting represents a little over 3% of the available instruction time. Your presence and participation is very important. As an integral member of a project team, you will be expected to be present for all team meetings.

Two or more **unexcused** absences will result in reducing your grade; i.e., an A becomes a A-, a A- becomes a B+, and so on. If you know you are going to be absent from class for an authorized University activity, please let the instructor know before hand. If unique, individual problems arise, consult with the instructor as soon as possible.

Snow/ice: Classes are seldom canceled; cancellation announcements will be made using local television or radio media. The University radio station is WETS, 89.5 FM.

A test, exercise, or paper may be given (or submitted) early for a University sponsored absence (please provide suitable notice, if possible). Make-up tests will be given at the discretion of the instructor **if** a student presents suitable documentation (evidence) explaining the emergency absence to the instructor.

Students are responsible for the material covered in all class sessions as well as all assignments. Quizzes and exams may include any material covered in the lectures, assigned readings, videos, classroom discussions or exercises.

V Academic Misconduct

ETSU Policy No. 3.13, October 1 , 1979:

“All students in attendance at East Tennessee State University are expected to be honorable.

“Academic misconduct will be subject to disciplinary action. Any act of dishonesty in academic work constitutes academic misconduct. This includes plagiarism, the changing or falsifying of any academic documents or materials, cheating, and the giving or receiving of unauthorized aid in tests, examinations, or other assigned school work. Penalties for academic misconduct will vary with the seriousness of the offense and may include, but are not limited to: a grade of *F* on the work in question, a grade of *F* for the course, reprimand, probation, suspension, and expulsion. For a second academic offense, the penalty is permanent expulsion.”

VI Evaluation and Grading

Assignment	Percent
Examinations (2 or 3 major)	55%
Attendance & Active Participation ..	10%
Materials Report	10%
Term Project/Presentation	<u>25%</u>
Total	100%

Minimum Score to Receive

	A 93	A- 90
B+ 87	B 83	B- 80
C+ 77	C 73	C- 70
D+ 67	D 60	F Below 60%

Students with documented needs for note taking, test taking, or other classroom accommodations should make arrangements with the instructor early in the term.
 Contact ETSU Disability Services at (423) 439-8346
 Fax: (423) 439-8489; TDD: (423) 439-8370
 URL: <http://www.etsu.edu/students/disable/>

VII Access to Departmental and University Facilities & Services

Departmental computer labs are generally open (with permission of appropriate faculty) for your use when other classes are not in session, on weekdays (M-F) until 10:00 p.m., and on many weekends (as posted in the department). Certain labs may require special permission from an instructor.

As access to the department's high use computer labs (esp. Wilson-Wallis Room 203) may be limited, it is suggested that you consider using the various University PC labs on campus, especially the large PC lab in the D. P. Culp center. Computer lab hours are posted.

For information on location and operating hours of other University computer labs, contact the Office of Information Technology (439-4648) . Hours of operation of the University's library are posted at the library and online.

The ETSU Office of the Registrar makes available a wealth of information of important dates, deadlines, contact information, operational hours, phone numbers, etc. via the semester's Syllabus Attachment. The PDF document is available from <http://www.etsu.edu/reg/academics/syllabus.aspx>.

Mental Health: Students often have questions about mental health resources, whether for themselves or a friend or family member. There are many resources available for students on or off the ETSU main campus including:

- If you or a friend are in **immediate crisis, call 911**
- ETSU Counseling Center (423) 439-4841
- ETSU Behavioral Health & Wellness Clinic (423) 439-7777
- ETSU Community Counseling Clinic: (423) 439-4187
- National Suicide Prevention Lifeline: 1-800-273-TALK (8255).

VIII Food, Drinks, and Tobacco Products

Food and drinks are not permitted in any of the University labs. In certain lecture-type classrooms, food and lidded or screw-capped beverages may be permitted by the instructor as long as the facilities are appropriately policed after use (i.e., clean up after yourselves). Heavily caffeinated beverages may be consumed during the really boring lectures; but please be careful (Contents may be hot!). If you &/or your parent(s) can afford the \$55k to \$220k cash replacement cost, feel free to place beverages on CNC equipment; otherwise, keep them the heck away.

ETSU is a tobacco-free campus.

The use of any type of tobacco products (repeating: **any type**) is completely prohibited in and around all University buildings including doorways, sidewalks, and pretty much everywhere else except in personally-owned vehicles. Since the University doesn't want you to litter or foul our neighborhood, please park your butts and spittle receptacles in your parked car, truck, or SUV. It is recommended that you get with the plan and quit using all forms of tobacco products as soon as you can (i.e., before they kill you). You've been warned; don't play cute