



ME 3701 / 001 Manufacturing Engineering

Instructor: Muhammad Salman

Mechanical Engineering Department Kennesaw State University ME 3701 / 001 Manufacturing Engineering

Instructor: **Muhammad Salman (PhD)**, *Assistant Professor Mechanical Engineering*

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Class Time: MW- 5:00 pm - 7:45 pm
Engineering Technology Center Q-315

Office Hours: Monday Wednesday
11:30 am -2:00 pm 11:30 am -2:00 pm
by appointment or Walk in

Text Book: No formal textbook required. Follow the slides uploaded on D2L.

Reference: *Manufacturing Processes for Engineering Materials (6th Edition) 6th Edition*
by [Serope Kalpakjian](#) (Author), [Steven Schmid](#) (Author)

ISBN-13: 978-0134290553

ISBN-10: 0134290550

Course Description (Catalog Description)

This course introduces the fundamentals and applications of major manufacturing processes and engineering along with their capabilities, analyses, selection and economics. It establishes the technical knowledge for processes such as casting, deformation, material removal and polymer processes. Modern rapid prototyping processes such as 3D printing is also covered. Laboratory demonstrations and exercises compliment the topics covered in lectures.

Prerequisites

ENGR 3131, ME 3101, and Engineering Standing.

Required or Elective

Required

ME 3701 / 001 Manufacturing Engineering*Instructor: Muhammad Salman***Learning Outcomes**

Upon completion of the course, the students should be able to:

- Understand capabilities of various manufacturing processes (a, e)
- Select suitable process (or sequence of processes) to manufacture a given part design (a, e)
- Calculate force and power required for commonly used manufacturing processes (a, e)
- Relevant Performance Indicators
- Upon completion of the course, the students should have:
 - e. an ability to identify, formulate, and solve engineering problems
- Identify a mechanical engineering problem and devise an approach to solve the problem
- Convert a complex mechanical engineering problem into a simplified model
- Solve a mechanical engineering problem and report an accurate solution

Topics Covered

- Casting: solidification, fluid flow and heat transfer.
- Stress, strain, tension test, torsion test, yield criterion.
- Bulk deformation processes: forging, extrusion and drawing.
- Sheet metal forming: bending, deep drawing
- Material removal processes: mechanics of chip formation, type of chips, cutting forces and energy, tool life
- Plastics: design with plastics, structure of plastics, reinforced plastics, polymer processing

HW & Tests:

Class Participation plus HWs: 15% (Group HWs)

2 Quizzes: 25%

3 Tests: 20 % each

Grading:

Grades will be assigned as follows:

A = 90-100

B = 80-89

C = 70-79

D = 60-69

F = 0-59

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W = Withdrawal by mid-term

WF = Student-initiated withdrawal after mid-term

Homework assignments will be assigned after certain modules have been completed. The format for the tests and the exams will be proctored and will be announced well before each test and exam.

- Late homework and reports will NOT be accepted for credit. Work turned in late may be evaluated to provide you with feedback, but will not be graded / given credit except in cases of emergency.
- HWs will be collected in the class.
- Show all your work for full credit! Write your name on every page. Present your work neatly!

WEB ACCESSIBILITY:

Kennesaw State University follows the guidelines of the Universal Design for Learning standard of web accessibility. Faculty use Word, PDF, and HTML formats when communicating electronic information to students whenever possible and appropriate in light of the goals of the course. Faculty are trained to use Web Accessibility Evaluation tools, e.g., WAVE (www.wave.webaim.org), and make adjustments as possible and appropriate in light of the goals of the course. For free resources available to students on web accessibility, please visit the Web Accessibility Resources page at the Distance Learning Center: <http://www.kennesaw.edu/dlc/facultyresources/index.php#>

KSU SEXUAL MISCONDUCT POLICY:

Kennesaw State University adheres to KSU's policy prohibiting sexual misconduct both in and out of the classroom. Questions about this policy should be directed to the KSU Equal Employment Opportunity (EEO) and Title IX officer by telephone at (470) 578-2614. You may also visit the University's EEO website <http://www.kennesaw.edu/eoo/index.html> for more information.

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[http://www.usg.edu/information technology handbook/section9/tech/9.5 privacy and security](http://www.usg.edu/information_technology_handbook/section9/tech/9.5_privacy_and_security)

ELECTRONIC RECORDING AND SOCIAL MEDIA:

Electronic recording performed without the consent of the people being recorded chills the free exchange of ideas. Academic freedom, free inquiry, and freedom of expression should not be limited by the fear that one's brainstorming, polemic discourse, speculative inquiry, or any other kind of expressed curiosity made within the space of a university classroom will be made public without one's consent. This fear is unacceptable regardless of whether one is in an online, hybrid, or face-to-face classroom setting. Accordingly, no person shall make public any electronically recorded class discussion without the written permission of the instructor. This policy is not intended to discourage electronic recording in the classroom or the use of social media when such actions are performed with the written consent of the instructor, and others as appropriate. Note: Faculty accommodate all reasonable requests to electronically record a class discussion; these requests must be documented by the DisAbled Student Support Services available at: http://www.kennesaw.edu/stu_dev/dsss/prospect.shtml

DISRUPTION OF CAMPUS LIFE STATEMENT:

It is the purpose of the institution to provide a campus environment, which encourages academic accomplishment, personal growth, and a spirit of understanding and cooperation. An important part of maintaining such an environment is the commitment to protect the health and safety of every member of the campus community. Belligerent, abusive, profane, threatening and/or inappropriate behavior on the part of students is a violation of the Kennesaw State University Student Conduct Regulations. Students who are found guilty of such misconduct may be subject to immediate dismissal from the institution. In addition, these violations of state law may also be subject to criminal action beyond the university disciplinary process.

COURSE ENROLLMENT POLICY:

Students are solely responsible for managing their enrollment status in a class; nonattendance does not constitute a withdrawal.

STUDENT SUPPORT RESOURCES

The following resources and policies are found under this link: <http://learnonline.kennesaw.edu/resources/index.php>



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DISABLED STUDENT SUPPORT SERVICES

In compliance with applicable disability law, qualified students with a disability may be entitled to reasonable accommodation. Any student with a documented disability (hidden or visible) needing academic adjustments, including classroom or test accommodations is requested to notify the instructor within the first two weeks of the course. **Verification from KSU Disabled Student Support Services is required. All discussions and documentation will remain confidential.**

Disabled Student Support Services

James V. Carmichael Student Center Addition – 2nd Floor, Suite 267

470.578.6443

http://www.kennesaw.edu/stu_dev/dsss/prospect.shtml

Please visit the Student Disabilities Services website at

www.kennesaw.edu/stu_dev/sds for more information

Student Rights and Responsibilities

Students of Kennesaw State University are entitled to an environment that is conducive to learning and individual growth. To this end, students enrolling at Kennesaw State University assume a responsibility to abide by the policies and regulations expressed in this section. By doing so, students may fulfill their responsibilities and enjoy the exercise of their own rights while also respecting the rights of others.

All rights and responsibilities may be found in the University Catalog at catalog.kennesaw.edu.