AE4793A Syllabus

Course Name: Composite Materials and Processes

Section A, CRN 58038, and Credits: 3-0-3

Summer 2026

Instructor Information

Instructor: Youjiang Wang

General Course Information

Description

Basic principles of selecting component materials and manufacturing composites are presented. Polymeric, metallic, and ceramic systems are considered. Crosslisted with AE, CEE, CHE, ME and MSE 4793.

Course Learning Outcomes

1. Understand property enhancement mechanisms in composites.
2. Understand capabilities and limitations of existing materials and processes.
3. Understand the characteristics of fibers, fabrics and matrix materials, and their effect on composites processing and properties.
4. Understand the characteristics and limitations of different manufacturing methods.
5. Develop a capability for selecting materials and processes to best suit specific applications.

Required Course Materials

1. Textbook: "COMPOSITES MANUFACTURING: Materials, Product, and Process Engineering", by S.K. Mazumdar, CRC Press, ISBN 0-8493-0585-3 1. 2001.
2. Reference Book: "Fundamentals of Composites Manufacturing: Materials, Methods, and Applications (2nd Ed)", A. Brent Strong, ISBN 13: 978-087263854-9, 2008.
3.

Grading Policy:

Test 1	(25%)
Test 2	(25%)
Test 3	(25%)
Project	(15%)
Homework	(10%)

Grading Scale: A 90-100; B 80- 89; C 70-79; D 60-69

Description of Graded Components:

1. Exams cover the basic principles included in lectures and homework.
2. Homework problems are assigned regularly via Canas.
3. Term Project focuses on case studies of composites applications by student teams (3- 4 members) to study and present how a composite with tailored properties and for a specific application is designed and manufactured. Each team will submit an abstract and give a presentation via a YouTube video.

Course Policies

Attendance and/or Participation

Class attendance is required and enforced. Students are not only expected to attend class, but to participate. Participation includes asking questions, engaging in class discussion, and working on examples during lectures. Attendance polls will be taken throughout the semester. Poor attendance will negatively impact the final grade.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review Georgia Tech's Honor Code and the student Code of Conduct.

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Core IMPACTS

Core IMPACTS is the University System of Georgia's General Education curriculum. If you are teaching a course that counts towards Core IMPACTS, you should include a syllabus statement about the Core area and associated career competencies. This resource developed by the Center for Excellence in Teaching and Learning and Online Education at Georgia State University includes template syllabus statements for each of the Core IMPACTS areas that you may adapt for your course.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. The Student-Faculty Expectations articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Pre-requisites

Chemistry 1310 or Chemistry 1211K; and Physics 2212

Collaboration, Group Work, and Use of Generative AI

You are allowed to work in groups on all homework and out-of-class assignments (and you may use my solutions), but any work you turn in (exams and homework) must be written in your own hand.

Extensions, Late Assignments, & Re-Scheduled/Missed Exams

Late homework and other assignments will be penalized accordingly. Make-up exams are given for illness, approved Institute activities or religious observances.