ME/ECE 6779: Thermal Engineering for Packaging of Micro and Nano Systems

Course Syllabus

ME/ECE 6779: Thermal Engineering for Packaging of Micro and Nano Systems
Credits: 3
Fall, 2026

Instructor Information

Instructor: Dr. Yogendra Joshi
Office: Love 324
Email: yogendra.joshi@me.gatech.edu
Office Hours: By appointment

Course Description

This course examines thermal engineering principles applied to the packaging of micro and nano scale systems. Topics include conduction, convection, and combined-mode heat transfer modeling; thermal characterization; and analytical modeling techniques. Emphasis is placed on passive and active thermal management solutions for electronic packages and data center systems, explored through case studies and an individual term paper.

Course Learning Outcomes

Upon successful completion of this course, students will be able to:

- Apply heat transfer principles to thermal challenges in micro- and nano-system packaging
- Develop and analyze thermal models for electronic components and packages
- Evaluate passive and active thermal management technologies
- Communicate technical analyses through written reports and presentations

Required and Recommended Course Materials

Course Site: Canvas

Recommended References:

- Selected journal and conference papers (posted on Canvas)
- *Energy Efficient Thermal Management of Data Centers*, Y. Joshi and P. Kumar (Eds.), Springer, 2012

Grading Policy and Weighting

Component	Weight
Homework Assignments	10%
Mid-Term Examination	30%
Two Case Study Reports and Presentations	30%
Individual Term Paper	30%
Total	**100%**

Attendance Policy

Students are responsible for all material covered in lectures, readings, homework assignments, case studies, presentations, and the term paper. Attendance is expected to support successful completion of course requirements.

Additional Criteria for Successful Completion

To successfully complete the course, students must:

- Complete homework assignments, case studies, and the individual term paper
- Participate in case study presentations
- Demonstrate mastery of course material on the mid-term examination

Academic Integrity

All students are expected to comply with the Georgia Tech Academic Honor Code (link). Any student suspected of cheating or plagiarism on an assignment, exam, presentation, or paper will be reported to the Office of Student Integrity for investigation and appropriate action.

Student Conduct (Student-Faculty Expectations Agreement)

Students are expected to maintain a respectful and professional learning environment. The Student-Faculty Expectations Agreement outlines mutual responsibilities and expectations for faculty and students.

Accommodations for Students with Disabilities

Students who require accommodations should contact the **Office of Disability Services (ODS)** at 404-894-2563 or disabilityservices.gatech.edu as early as possible and provide the instructor with an accommodations letter.