

Department of Materials Science and Engineering
MSE 487 Materials Science & Engineering
Laboratory in Electronic Packaging and Materials (1 credit)

Catalog Description: Laboratory course to accompany ME 485 Experiments related to design, processing and reliability of electronic packaging used in consumer electronics Offered jointly with Mechanical Engineering.

Prerequisites: Registration in MSE 485 is a co-requisite

Text (required): none

Course Objectives: By the end of this course, the student will be able to:

- 1) Measure and evaluate the temperature distribution and heat flow in an electronic package
- 2) Measure and evaluate the electromagnetic behavior of an electronic package
- 3) Empirically evaluate circuits and transmission line
- 4) Test interconnects for performance and reliability
- 5) Process rudimentary materials for electronic packages.

Topics Covered: Tests procedures for thermal management in electronic packages, Test procedures for electromagnetic performance in electronic packages, Tests for circuits and transmission lines, Reliability and performance tests for interconnects, Processing methods for for electronic packaging materials.

Class/laboratory schedule: Each week: One 3-hr lab per week

Contribution of Course to Professional Component: Satisfies preparation for engineering practice by incorporating experimental work, basic engineering science, engineering/professional standards, technical communication, and economic, environmental, manufacturability, and health/safety constraints

Relationship of Course to Program Objectives: Directly addresses the following Programmatic Outcomes:

- Background in mathematics, science and engineering principles
- Ability to apply this knowledge to the formulation and solution of packaging problems
- Ability to develop, conduct, and analyze experiments or tests that may aid in this design process
- Understanding of the necessary professional abilities of a practicing engineer including ethical conduct, teamwork in the pursuit of a goal and effective communication.
- Realization of the business environment in which engineering is practiced.

Prepared by: M. Taya, May 15, 2001