- **Course Number and Title:** M E 540. Intermediate Heat Transfer

- **Catalog Description:** Fundamentals of conduction, convection, and radiation heat transfer. Emphasis on the application of combined heat transfer to the solution of problems not accessible at the undergraduate level.

- **Credit Hours:** 3 Credits (3)

- **Prerequisite(s) / Corequisite(s)** Prerequisite(s): (M E 341 and M E 570) or Consent of Instructor
Corequisite(s): None

- **Required:** Graduate Core

- **Course Availability:** Spring Semester

- **Instructor (Usual):** Dr. Krishna Kota (See https://mae.nmsu.edu/people/faculty.html)

- **Textbook:** Heat Transfer (10th Edition) by J.P. Holman, McGraw-Hill, ISBN-10: 0073529362, ISBN-13: 978-0073529363

- **Course Learning Objectives:**

  After completing this course, a student should be able to:

  1) Solve heat transfer problems involving conduction, convection, and radiation.
  2) Use algebra and differential and integral calculus to obtain solutions to heat transfer problems.
  3) Understand the final solution for a heat transfer problem and predict its correctness using fundamental heat transfer principles.

- **Topics Covered:**
  - Introduction & Basic Concepts
  - Integral Approach in Conduction, Convection, and Radiation
  - Study of 1D Conduction using Differential Approach
  - Study of 2D Conduction using Differential Approach
  - Study of 3D Conduction using Differential Approach
  - External and Internal Forced Convection Correlations
  - Study of External Forced Convection using Integral Equation Approach
  - Study of Internal Forced Convection using Differential Approach
  - Forced Convection with Phase Change
  - Black Body Radiation
  - Simple and Complex Shape Factors in Radiation
  - Real Body Radiation