- **Course Number and Title:** M E 341. Heat Transfer
- **Catalog Description:** Heat balance equation. Fundamentals of conduction, convection, and radiation. Design of heat transfer systems.
- **Credit Hours:** 3 Credits (3)
- **Prerequisite(s) / Corequisite(s)** Prerequisite(s): M E 240 and (M E 338 or A E 339)
  Corequisite(s): None
- **Required:** Required for BSME and BSAE Degrees
- **Course Availability:** Fall and Spring Semesters (+ Summer)
- **Instructor (Usual):** Dr. Krishna Kota (See https://mae.nmsu.edu/people/faculty.html)
- **Textbook:** Kreith, F., and Manglik, R.M., *Principles of Heat Transfer*, 8th Ed., Cengage Learning, 2017 (ISBN-10: 1305387104 or ISBN-13: 978-1305387102)
- **Course Learning Objectives:**

  <u>After completing this course, a student should be able to:</u>

  1) Thoroughly understand the three modes of heat transfer (conduction, convection, and radiation).
  2) Gain basic knowledge required to apply heat transfer principles to practical and contemporary engineering problems (primarily in thermal management of electronics such as in data centers and smart phones, buildings, automobiles, and energy and power generation systems).
  3) Obtain the skills necessary to be successful in their professional duties in employment or further educational pursuits and be able to clearly identify, communicate, formulate, analyze, and deduce solutions to technical problems in the field of heat transfer.
- **Topics Covered:** Chapters 1, 2, 3, 5, 6, 7, 10, and 11 in the textbook, including the topics:
  - Basic modes of heat transfer
  - Steady-state conduction
  - Transient heat conduction
  - Convection heat transfer
  - Forced convection over exterior surfaces
  - Forced convection inside tubes and ducts
  - Heat exchangers
  - Heat transfer by radiation.