

MEGR3116 - INTRODUCTION TO HEAT TRANSFER

Catalog Data	One and two dimensional steady state conduction. Finite difference methods. Radiative heat transfer, emissivity, black body radiation. Heat exchange among two and multi-body systems. Introduction to concepts and applications of convective heat transfer.
References	F. P. Incropera and D. P. DeWitt, Introduction to Heat Transfer, 5th Edition, John Wiley and Sons, Inc. 2001.
Goals	The objective of this course is to provide the students with an understanding of the main modes of heat transfer and their application to engineering systems.
Prerequisite	MATH 2171 and MEGR 3111, both with a grade of “C” or better.
Class Topics	♣ One-dimensional and two-dimensional steady state conduction ♣ Transient conduction/convection analysis ♣ Finite difference numerical solutions ♣ Heat Exchangers ♣ Turbulence and boundary-layer flows
Outcomes	The following should be imparted to the students: 1. An understanding of the principles of the three modes of heat transfer (conduction, convection, and radiation). (assessment by homework and exams) 2. The ability to apply heat transfer analysis to engineering systems. (assessment by homework and exams) 3. Develop an understanding of numerical methods for solving heat transfer problems. (assessment by homework and exams) 4. Understand the global and social implications of engineering heat transfer. (assessment by project)
Computer Usage	Numerical solutions using Excel and Matlab
Laboratory	None
Design Content	None
Grading *	Individual Instructor
Follow-up Courses	This course is a pre-requisite for the following courses: MEGR 3216.
Academic Integrity	Students have the responsibility to know and observe the requirements of the UNCC Code of Student Academic Integrity (2001-2003 UNCC Catalog, p. 275) . This code forbids cheating, fabrication or falsification of information, multiple submission of academic work, plagiarism, abuse of academic materials, and complicity in academic dishonesty.
Prepared by	Dr. J. M. Hill

* Grading policy may be modified by the instructor for each section of the course.