

ME 414/614
Intermediate Heat Transfer
Fall 2008

Tuesday & Thursday 9:30~10:45AM, OSN202

Objective: Introduce classical methods of analysis of heat transfer to MS-level graduate students and undergraduate majors interested in pursuing Heat Transfer at a more advanced level. The course uses mathematically based application packages such as MathCad to de-emphasize detailed mathematical manipulations so that the student can address realistic problems in an expeditious manner.

Instructor: Chanwoo Park, Rm: PE 209, Tel.: 682-6301 (office), email: chanwoo@unr.edu

Prerequisites: ME 314 (360) or equivalent

Office Hours: Tuesday & Thursday 2 ~ 4PM, or by appointment

Text: Intermediate Heat Transfer, A.F. Mills, 2nd ed., Prentice Hall, 1999

Grading Policy: The grade is based on a mid-term exam and a final exam, short quizzes, homework and a project (ME614)

	ME 414	ME 614	
Mid-Term Exam	25%	25%	Thursday, October 23, 9:00~11:00AM
Final Exam (comprehensive)	30%	30%	Friday, December 12, 7:30~9:30AM
Short Quizzes	15%	15%	
Homework	30%	20%	
Project		10%	

Exam: The exams are open book and one page open sheet. Short quizzes on reading assignments and lectures will be in-class, closed book and notes, 20 minutes format. ME 414 and ME614 students will take different hourly and Final Exams; and they may be assigned different homework sets. Make-up exams are not given.

Homework: Please review the ME Department policy on home work. Homework must be turned in at the BEGINNING of the lecture. Homework is not accepted late. It is our expectation that students will discuss assignments with each other. However, we also expect that students will submit work that is only their own. Misrepresentation in this context is a violation of both the University and Engineering Codes of Ethics.

Project: The ME 614 Project requirements will be given to graduate students. Topic selection deadline is October30, Presentation are Friday, 12/17, 7:30~ 9:30, OSN 202. Attendance is mandatory for ALL students (ME414/614).

Letter grades will be assigned according to the following schedule.

$$A \geq 90, \quad 87 \leq B+ < 90, \quad 80 \leq B < 87, \quad 70 \leq C < 80, \quad 60 \leq D < 70, \quad F < 60$$

Laboratory: There is a 1-credit laboratory course (ME414L) associated with ME414. ME414 is a co-requisite for ME414L and ME322 R is the prerequisite. ME414L class meets: Tuesday, 3:00~ 6:00pm, OSN202

Topic	Course Coverage	Reading (Ch.)
1. Introduction		1
2. Steady Conduction		2
3. Transient Conduction		3
4. Forced Convection (Internal and External)		4,5
5. Natural Convection		4
6. Turbulence		5
7. Convection in Porous Media		
8. Phase Change (Condensation and Boiling)		7
9. Heat Pipes		7

References:

1. Glen E. Myers, "Analytical Methods in Conduction Heat Transfer", 1st ed., McGraw-Hill, 1971.
2. W.M. Kays and M.E. Crawford, "Convective Heat and Mass Transfer," 4th ed., McGraw-Hill, 2004.
3. V.S. Aparchi and P.S. Larsen, "Convection Heat Transfer," Prentice-Hall, 1984.
4. J.A. Schetz, "Foundation of Boundary Layer-Theory," Prentice-Hall, 1984.
5. H. Schlichting and K. Gersten, "Boundary-Layer Theory," 8th ed., Springer, 2000.
6. M. Kaviany, "Principles of Heat Transfer in Porous Media, 2 ed., 1995, 2nd corr. 2nd printing, 1999, Springer-Verlag.
7. J.G. Collier and J.R. Thome, "Convective Boiling and Condensation," 3rd ed., Oxford University Press, 1996.
8. G.P. Peterson, "An introduction to Heat Pipes: Modeling, Testing, and Applications", 1st ed., Wiley-Interscience, 1994.