

**Instructor:** Xiaohua Li  
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**Lecture Time:** Tuesday & Thursday 2:30 p.m.-4:20 p.m. room NTDP B155  
**Office Hours:** T/TH: 9:00-10:00 plus open office policy

**Required Textbook:** Introduction to Heat Transfer, 6th edition  
Incropera, DeWitt, Berman, & Lavine  
ISBN-13: 978-0-470-50196-2

**Course Description:**

3 hours. A basic course covers the fundamentals of heat transfer by conduction, convection and radiation, together with applications to typical engineering systems. Topics include one- and Two-dimensional steady state heat conduction, transient heat conduction, internal convection, external convection, and natural convection

**Pre-requisites:** MEEN 3120 Fluid Mechanics.

**Course Learning Outcomes (CLO):**

Upon successful completion of this course, students will able to:

1. Apply conservation of mass, momentum, and energy to heat transfer problems.
2. Understand the concepts of one-dimensional steady-state heat conduction.
3. Understand the concepts of multi-dimensional steady-state heat conduction.
4. Understand the concepts of transient heat conduction.
5. Use thermal Ohm's law (thermal circuits) to solve heat transfer problems.
6. Understand the concepts of internal forced convection for both laminar and turbulent flows.
7. Understand the concepts of external forced convection for both laminar and turbulent flows.
8. Understand the concepts of natural convection.
9. Understand the basic theory behind radiation heat transfer.

**ABET Student Learning Outcomes (SO)**

- a Ability to apply mathematics, science and engineering principles.
- b Ability to design and conduct experiments, analyze and interpret data.
- c Ability to design a system, component, or process to meet desired needs.
- d Ability to function on multidisciplinary teams.
- e Ability to identify, formulate and solve engineering problems.
- f Understanding of professional and ethical responsibility.
- g Ability to communicate effectively.
- h The broad education necessary to understand the impact of engineering solutions in a global and societal context.
- i Recognition of the need for and an ability to engage in life-long learning.
- j Knowledge of contemporary issues.
- k Ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

CLO	ABET Student Outcomes (SO)										
	SO1	SO2	SO3	SO4	SO5	SO6	SO7	SO8	SO9	SO10	SO11
1	X		X		X			X			
2	X				X			X			
3	X		X		X			X			
4	X		X		X			X			
5	X		X		X			X			
6	X				X				X		X

<b>Grades:</b> Homework (10)	10%	≥ 90	A
Quizzes (highest 3/5)	10%	80-89.9	B
Exam #1 (Ch1, 2&3)	25%	70-79.9	C
Exam #2 (Ch4, 5&6)	25%	60-69.9	D
Final (Exam #3) (Ch 7, 8 &9)	25%	< 60	F
Attendance (5/6)	5%		
<b>Total</b>	<b>100%</b>		

### Homework Policy:

1. “**Homework Day**”: **Thursday**. the day new homework will be assigned (HW will be posted in Blackboard only) and previous homework will be collected;
2. Homework should be turned in on the due day before the lecture starts. **NO late homework will be collected. Exceptions:** medical emergence (student and important ones), transportation/traffic emergency; religious holidays/duty, jury duty and military duty. **Documentary evidences** must be submitted.
3. Definition of “**late**”: when class is over and instructor steps outside the classroom, homework turned in thereafter will be considered as “**late**” and will not be collected
4. Solutions to Homework will be posted in Blackboard after 4:30 pm Thursday
5. Having no textbook is not a valid excuse for not doing homework. It is the student’s responsibility to acquire textbook for his/her study
6. Homework can be turned in earlier than the due day
7. Homework dropped in the instructor’s departmental mailbox will NOT be collected
8. Homework slid through the door into the instructor’s office will NOT be collected
9. Homework dropped in the “homework dropbox” in front of the department door will NOT be collected
10. Homework turned in other than the due day or outside classroom must be turned in to instructor either IN PERSON or through EMAIL.
11. If homework is turned in through email, it should be scanned (or pictured by a smart phone) and emailed to instructor before the class ends (4:20p.m)
12. Homework should be stapled. Instructor or TA will not be responsible for lost loose homework pages.

### Exam and Quiz Policy:

- (1) **Quizzes are open book and open notes.**
- (2) **Exams are closed book and closed notes with formula sheets**
- (3) Formula sheets could be maximum 5 pages **on top of** instructor’s handouts, A4 or letter size, both sides
- (4) **Student is responsible for preparing his/her own formula sheets. Instructor will NOT provide any formula sheets for the exam**

- (5) Formula sheets could include anything **BUT: solutions of any kind/format** (numerical or symbolic) to homework problem or lecture/textbook examples. Student who failed to follow this rule will score zero in the exam and this cheating matter will be reported to MEE department and University.
- (6) Formula sheets must be turned in with the exam papers (in the case of formula sheets were not checked by the instructor during the exam). Student who failed to follow this rule will score zero in the exam and this cheating matter will be reported to MEE department and university
- (7) **There will be NO make-up quiz. Exceptions:** medical emergence (student and important ones), transportation/traffic emergency; religious holidays/duty, jury duty and military duty. **Documentary evidences** must be submitted.
- (8) **There will be NO make-up exam. Exceptions:** medical emergence (student and important ones), transportation/traffic emergency; religious holidays/duty, jury duty and military duty. **Documentary evidences** must be submitted.
- (9) **All make-up quizzes and exams should be completed within one week after the regular quizzes and exams.**
- (10) **Exchanging anything without the approval from the proctor, including but not limited to, calculators/scratch papers/formula sheets/writing tools during the exam between/among students is prohibited**
- (11) **Using cell phone for whatever purpose during the exam is prohibited.**
- (12) **Using Internet through whatever devices during the exam is prohibited.**
- (13) **Peeking, talking & discussing (either by oral/written/sign language) between/among students during the exam is prohibited**
- (14) **Using any unauthorized/unapproved materials during the exam is prohibited**
- (15) **Using any type of earpiece/earbuds/earphone/Bluetooth/Stereo Headset (unless a with doctor's prescription/notes) during the exam is prohibited**
- (16) **Using any type of smart glasses (unless a with doctor's prescription/notes) during the exam is prohibited**
- (17) **Using any type of smart watches during the exam is prohibited**

**Disability Accommodations:** If you need academic accommodations for disability you must have document which verifies the disability and makes you eligible for accommodations, then you can schedule an appointment with the instructor to make appropriate arrangements.

**Academic Dishonesty:**

There is a zero tolerance policy for academic dishonesty. Cheating of whatsoever will result in an automatic 'F' in this course and the matter will be turned over to the appropriate student disciplinary committee.

## IMPORTANT EXAM DATES

**Exam #1** (tentative; depends on whenever chapter 3 is finished; Covers Ch 1, 2 & 3):  
**July 6<sup>th</sup>, 2017, Thursday, 2:30 p.m.-4:20 p.m. room B155**

**Exam #2** (tentative; depends on whenever chapter 6 is finished; Covers Ch 4, 5 & 6):  
**July 25<sup>th</sup>, 2017, Tuesday, 2:30 p.m.-4:20 p.m. room B155**

**Exam #3** (UNT official final exam schedule, Covers Ch 7, 8 & 9):  
**August 11<sup>th</sup>, 2017, Friday, 2:30 p.m.-4:20 p.m. room B155**

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### UNT Official Academic Calendar: Summer 2017 - 10W Term

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Date	Event
June 5, 2017	First Class Day
July 4, 2017	Independence Day (no classes: university closed)
August 10, 2017	Last Class Day
August 11, 2017	Finals

### UNT Official Summer 2017 Final Exams

<i>This session...</i>	<i>Has final exams on this date...</i>
3W1	June 1, 2017
8W1	July 7, 2017
SUM	August 11, 2017
5W1	July 7, 2017
<b>10W</b>	<b>August 11, 2017</b>
8W2	July 28, 2017
5W2	August 11, 2017

**Exams will meet at the same time and location assigned to the class unless other arrangements have been made.**

**MEEN 3210 Heat Transfer  
Schedule Overview**

(Please note the schedule may change based on the needs during the semester)

Week	Date	Topic
#1	Jun. 5 Jun. 9	<b>Overview of syllabus; Ch.1: introduction Ch.1: introduction to heat transfer: three modes of heat transfer</b>
#2	Jun. 12 Jun. 16	<b>Ch.1: introduction to heat transfer: Thermodynamics &amp; Heat Transfer Ch 2: introduction to conduction: Thermal Conductivities</b>
#3	Jun. 19 Jun. 23	<b>Ch 2: introduction to conduction: The Heat Equation; Quiz#1 (Ch1 &amp; 2) Ch 3: One Dimensional, Steady-State Conduction: Plain Wall and Thermal Resistance Concept</b>
#4	Jun. 26 Jun. 30	<b>Ch 3: One Dimensional, Steady-State Conduction: Thermal Circuit Method; Quiz#2(Thermal circuit method) Ch 3: One Dimensional, Steady-State Conduction: Extended Surface</b>
#5	Jul. 3 Jul. 7	<b>-Jul. 4th 2017. Tuesday; Independence Day (no classes: university closed) -Exam #1: covers Ch 1,2 and 3</b>
#6	Jul. 10 Jul. 14	<b>Ch 4: Two-dimensional Steady State Conduction: Finite Difference Method Ch 5: Transient conduction: LCM method</b>
#7	Jul. 17 Jul. 21	<b>Ch 5: Transient conduction: Exact Solution &amp; one term approximation Quiz#3(Ch 4 &amp; 5) Ch 6: Introduction to convection: Convection Boundary Layers</b>
#8	Jul. 24 Jul. 28	<b>Exam #2: covers Ch 4, 5 and 6 Ch 7: External Flow: Flat Plate in Parallel Flow</b>
#9	Jul. 31 Aug. 4	<b>Ch 7: External Flow: Cylinder &amp; Sphere in Cross Flow Quiz#4 (Ch7) Ch 8: Internal Flow : Hydrodynamic &amp; thermal considerations</b>
#10	Aug. 7 Aug. 11	<b>Ch 8: Internal Flow : Energy Balance Quiz#5 (Ch 8) Ch 9: Free convection</b>
	Aug. 11	<b>Exam #3 (Final): covers Ch 7, 8, 9</b>

**Document History:**

Dr. Xiaohua Li prepared on 08/01/2011, last updated on 05/28/2017