

# CH EN 3453 - HEAT TRANSFER

Schedule - Fall 2014

DATE	TOPIC	READING 6th	READING 7th	HW DUE	NOTES
M 25-Aug	Fundamentals of heat transfer - conduction	1.1 - 1.4	1.1 - 1.4		
W 27-Aug	Fundamentals - convection and radiation	1.5 - 1.7	1.5 - 1.7		
F 29-Aug	Introduction to conduction	2.1 - 2.5	2.1 - 2.5	HW 1	
M 01-Sep	<b>HOLIDAY - Labor Day</b>				
W 03-Sep	Conduction: the plane wall	3.1 - 3.2	3.1 - 3.2		Last day to drop classes
F 05-Sep	Conduction in radial, steady state	3.3 - 3.4	3.3 - 3.4	HW 2	
M 08-Sep	Conduction with source terms, steady state	3.5	3.5		TA's teach
W 10-Sep	Conduction with extended surfaces	3.6	3.6		TA's teach
F 12-Sep	Extended surfaces, cont.	3.8	3.10	HW 3	
M 15-Sep	Shape factors	4.1 - 4.3	4.1 - 4.3		
W 17-Sep	Finite difference analysis of temperature distributions	4.4 - 4.5	4.4 - 4.5		
F 19-Sep	Lumped analysis, unsteady problems	5.1 - 5.3	5.1 - 5.3	HW 4	
M 22-Sep	Transient conduction – spatial effects, semi-infinite solids	5.4 - 5.7	5.4 - 5.7		
W 24-Sep	Transient conduction – finite-difference analysis	5.10 - 5.11	5.10 - 5.11		
F 26-Sep	PROJECT: Scientific studies and reporting			HW 5	
M 29-Sep	Review of conduction, potpourri of problems				
W 01-Oct	<b>MIDTERM EXAM #1 - Conduction</b>				
F 03-Oct	Introduction to convection: Flow across a flat plate	6.1 - 6.9	6.1 - 6.8		
M 06-Oct	Forced convection: Correlations for flow across flat plates	7.1 - 7.3	7.1 - 7.3		
W 08-Oct	Forced convection: Cylinders and spheres	7.4 - 7.5	7.4 - 7.5		** Project outline due **
F 10-Oct	Forced convection: Flow around spheres and tube banks	7.6, 7.9	7.6, 7.9	HW 6	
M 13-Oct	<b>FALL BREAK! Go have fun!!</b>				
W 15-Oct	<b>FALL BREAK! Go have fun!!</b>				
F 17-Oct	<b>FALL BREAK! Go have fun!!</b>				
M 20-Oct	Forced convection: Introduction to internal flow	8.1 - 8.3	8.1 - 8.3		TA's teach
W 22-Oct	Forced convection: correlations + PROJECT: Experiments	8.4 - 8.5	8.4 - 8.5		TA's teach
F 24-Oct	<b>** PROJECT LAB **</b> Heat exchangers			HW 7	Last day to withdraw
M 27-Oct	Forced convection: Correlations for internal flow	8.6 - 8.7, 8.10	8.6 - 8.7, 8.10		
W 29-Oct	Introduction to heat exchangers, LMTD approach	11.1 - 11.3	11.1 - 11.3		** Project experimental section due **
F 31-Oct	Heat exchangers: Effectiveness-NTU	11.4	11.4	HW 8	
M 03-Nov	Heat exchanger design + PROJECT: Data analysis	11.5 - 11.7	11.5 - 11.7		TA's teach
W 05-Nov	Heat exchangers: LMTD approach for complex systems	11S.1	11S.1		TA's teach; ** Project theory due **
F 07-Nov	Natural convection, boiling and condensation	9.1-9, 10.3-10	9.1-9, 10.3-10	HW 9	
M 10-Nov	Review of convection + heat exchangers				
W 12-Nov	<b>MIDTERM EXAM #2 - Convection</b>				** Project results section due **
F 14-Nov	Intro. to radiation: Heat flux, intensity and irradiation	12.1 - 12.2	12.1 - 12.3		
M 17-Nov	Blackbody radiation	12.3	12.4		TA's teach
W 19-Nov	Radiation from real surfaces	12.4 - 12.7	12.5 - 12.6		TA's teach
F 21-Nov	Solar and environmental radiation	12.8 - 12.9	12.7 - 12.10	HW 10	** Project Intro + Conclusions due **
M 24-Nov	Radiation between surfaces - the view factor	13.1	13.1		** Project peer reviews begin **
W 26-Nov	Radiation in enclosures and radiation networks	13.2	13.2 - 13.3		
F 28-Nov	<b>HOLIDAY - Thanksgiving</b>				
M 01-Dec	Multimode heat transfer and network representations	13.3	13.4	HW 11	
W 03-Dec	Heat transfer networks, radiation with participating media	13.4	13.5		** Peer-reviewed drafts returned **
F 05-Dec	Radiation to and from high temperature gases	13.5	13.6		
M 08-Dec	Radiation summary and review			HW 12	
W 10-Dec	Review - Conduction				** Project final reports due **
F 12-Dec	Review - Convection				
W 17-Dec	<b>FINAL EXAM</b> (8:00 - 10:00 in WEB 1250)				