

The University of New Mexico
 Department of Mechanical Engineering
 ME 522, Heat Conduction

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Text: M.N. Ozisik, Heat Conduction, John Wiley & Sons, 2nd ed. (1993)

Tentative Course Outline:

<u>Topics</u>	<u>No. of Lectures</u>	<u>Chapters</u>
Intro. to Cond. Heat Transfer	2	1 + notes
Analytical Solutions	20	
a. Separation of Variables	11	2 to 5 + notes
b. Transform Methods	5	13 + notes
c. Duhamel's Theorem & Green's Func.	4	5&6 + notes
Midterm	1 hour	
Approximate Solutions	2	9 + notes
Numerical Methods of Solution	6	
a. Finite Difference	3	12 + notes
b. Finite Element	1	notes
c. Boundary Element	1	notes
d. Monte Carlo	1	notes
Miscellaneous Topics	13	
a. Moving Heat Source Problems	1	10
b. Phase-Change Problems	4	11 + notes
c. Perturbation Method	1	notes
d. Inverse Heat Conduction	1	14 + notes
e. Hyperbolic Heat Conduction	1	notes
f. Sensitivity Analysis and Uncertainty Propagation*	5	notes
Final Exam	2 hours	

Grading policy: The final grade in the course will be based on homework assignments, one midterm, project (analytical and numerical solutions of heat conduction problems), and a final.

These will be weighted as follows:

Homework	20%
Project	20%
Midterm Exam	25%
Final Exam	35%

* This topic will be presented by guest lecturer, Dr. B. Blackwell of Sandia National Laboratories.