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# MEC 502\_CONDUCTION AND RADIATION HEAT TRANSFER

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**Fall 2018**

**Prof. Lin-Shu Wang**

214 Heavy Engineering

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**Lectures:** Monday 4:00- 6:50PM at Phys.P-112

**Office Hours:** Monday & Wednesday 11:00AM-1:00PM

**Course Description:** Fundamental aspects of heat conduction and radiation will be covered. Lectures will present basic laws and macroscopic equations for heat transfer as well as analytical solution techniques...

Credits: 3 Grading: A-F

**Textbooks:** Y. Yener and S. Kakac *Heat Conduction, 4<sup>th</sup> edition* (Taylor & Francis)  
M.F. Modest *Radiative Heat Transfer, 3<sup>rd</sup> edition* (Academic Press)

## Tentative Lecture Schedule

Date	Topic
08/27	Introduction/General concepts of heat and energy
09/10	Basic Concepts (Yener_Ch. 1; Modest_Ch. 1)/Heat Conduction Equations (Ch. 2)
09/17	1-D, Steady-state Heat Conduction (Ch. 3)
09/24	(Ch. 3)/Scaling Analysis and Lumped Analysis (Ch. 6)
10/01	Characteristic values and functions (Ch. 4)
10/15	Solution techniques #1: Separation of variables (Ch. 5)
10/22	Solution techniques #2: Laplace Transforms (Ch. 8)
11/05	Heat Radiation: Definitions/Basic Concepts (Modest: Ch. 1)
<b>10/29: 4PM-6:30PM</b>	<b>MIDTERM</b>
11/12	Radiation Equations (Ch. 3)
11/19	Ideal (Black/White) Body Radiant Heat Exchange (Ch. 4)
11/26	Real (Gray) Body Radiant Heat Exchange (Ch. 5)
12/03	Special topic: Solar Energy/Solar-Geo-Infrared Entropy Growth Potential (EGP)
<b>12/10: 4PM-6:30PM</b>	<b>FINAL EXAM</b>

**Grade:**

Midterm (Closed book): 40%

Final (Open book): 55%

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HW: 5% (I will collect the homework but will not return them back to you [keep a copy for yourself for each submission]. The solutions from Solution Manual will be made available in due time; you'll get full credit as long as you turn in every home work.)

**Americans with Disabilities Act:** If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC(Educational Communications Center) Building, Room 128, [\(631\)632-6748](tel:6316326748). They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.<http://studentaffairs.stonybrook.edu/dss/index.shtml>.

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