

1. Course number and name: **MEEN 3110 – Thermodynamics II**

2. Credits and contact hours: **3 credits**

3. Instructor's or course coordinator's name: **Dr. Xiaohua Li**

4. Text book, title, author, and year:

**Fundamentals of Engineering Thermodynamics, 8<sup>th</sup>. Wiley, 2014. M. J. Moran, H. N. Shapiro, D. D. Boettner and M.B. Bailey**

5. Specific course information

a. brief description of the content of the course (catalog description): **3 hours.**

**Thermodynamics II is the applications of fundamental thermodynamics laws and concepts. Course will discuss exergy analysis, vapor power system (Rankine cycle), gas power system (Otto cycle, Diesel cycle, Brayton cycle), refrigeration system/cycle, ideal gas mixture and psychrometric applications (air conditioning system).**

b. prerequisites or co-requisites: **Prerequisite(s): MEEN 2210 Thermodynamics I**

c. indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program: **Required**

6. Specific goals for the course:

MEEN 3110 Course Learning Outcomes	ABET EAC Student Outcomes						
	1	2	3	4	5	6	7
Demonstrate an ability to correctly apply the 1st and 2nd laws of thermodynamics	X						
Demonstrate an ability to analyze exergy and exergy destruction for different thermodynamics systems	X						
Demonstrate an understanding on how to improve thermal efficiency for different thermodynamics systems based on 1st and 2nd law of thermodynamics	X			X			
Demonstrate an ability to model and analyze various vapor power and gas power cycles/systems	X			X			
Demonstrate an understanding of refrigeration system	X						
Demonstrate an understanding of gas mixtures and psychrometrics, and be able to analyze A/C systems	X						

7. Brief list of topics to be covered:

Topics to Be Covered	
Exergy Analysis	Rankine Cycle
Otto Cycle	Diesel Cycle
Brayton cycle	Refrigeration cycle
Psychrometric Application	