

MECH3300 Energy Conversion

Course Code: MECH3300	Course Title: Energy Conversion						
Required Course Or Elective Course: Elective	Terms Offered (Credits): Spring (3 credits)						
Faculty In Charge: Jianbo XU	Pre/Co-Requisites: MECH2310						
Course Structure: Lecture: 2 days per week, 1.5 hours; Tutorial: 1 day per week, 1 hour							
Textbook/Required Material: Thermodynamics-An Engineering Approach							
Course Description: <ol style="list-style-type: none"> 1. Extend the students' knowledge of the fundamentals of thermodynamics. 2. Enable students to apply fundamental laws to the study of various energy conversion systems. 3. Develop the students' creativity and capability in the design of energy conversion system. 							
Course Topics: <ol style="list-style-type: none"> 1. Review of Thermodynamics 2. Exergy 3. Gas Power Cycles 4. Jet Propulsion Cycle 5. Vapor and Combined Power Cycles 6. Refrigeration Cycles 7. Heat Pumps 8. Gas Mixtures 9. Gas-Vapor Mixtures and Air-Conditioning 							
Course Objectives:	<ol style="list-style-type: none"> 1. Extend the students' knowledge of the fundamentals of thermodynamics. 2. Enable students to apply fundamental laws to the study of various energy conversion systems. 3. Develop the students' creativity and capability in the design of energy conversion system. 						
Course Outcomes:	<ol style="list-style-type: none"> A. Define the useful work potential of a given amount of energy at some specified state. B. For a given energy system, define the correct control volume, and identify the system energy and the forms of energy that cross the boundary of the control volume. C. Propose and justify assumptions and simplifications and formulate appropriate equations. D. Apply the principles of mass and energy conservation to solve a range of energy conversion systems' problems, and interpret and evaluate the results. 						
Assessment Tools:	<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">Homework</td> <td style="text-align: right;">15%</td> </tr> <tr> <td>Midterm</td> <td style="text-align: right;">35%</td> </tr> <tr> <td>Final examination</td> <td style="text-align: right;">50%</td> </tr> </table>	Homework	15%	Midterm	35%	Final examination	50%
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