

## Thermal, Fluids and Energy Concentration

### Woodruff School of Mechanical Engineering, Georgia Institute of Technology

#### Introduction

- Concentrations are optional, not required.
- Concentrations are 15 hours and the classes satisfy the Design Elective, the ME Elective and 9 hours of free electives.
- Concentrations are different than minors because they allow students to specialize in a particular area within ME.
- Classes used for a concentration may not also be used towards a minor, an additional concentration, or a second degree.
- This concentration is only available to ME majors who are following the 2012-2013 Catalog Year or later.

**Concentration Requirements** - To satisfy a concentration, students must do each of the following:

- If necessary, change your curriculum to the latest Catalog Year. This is done by [filling out a change of major form](#).
- Declare your concentration in OSCAR. [http://www.degreeworks.gatech.edu/images/training/concentration\\_mgt.pdf](http://www.degreeworks.gatech.edu/images/training/concentration_mgt.pdf)
- Complete all of the required classes and the correct number of elective classes in the table listed below. The classes required for the concentration will satisfy the Design Elective, an ME Elective and 9 hours free electives.

Course Number and Name	Credit Hours	Lab <sup>3</sup>	Pre-Requisites and Co-Requisites*	ME Elective	Projected Offering (Fall, Spring or Summer) <sup>1</sup>		
					Fall	Spr	Sum
<b>Required Class</b>							
<b>ME 4315</b> Energy Systems Analysis & Design	3		ME 2110, ME 3345	Design	X	X	
<b>Elective Classes (Choose 4, one must be an ME Elective)</b>							
<b>ME 4011</b> Internal Combustion Engines	3		ME 3322, ME 3345*	X	X	X <sup>2</sup>	
<b>ME 4321</b> Refrigeration and Air Conditioning	3		ME 3345	X		X	
<b>ME 4325</b> Fuel Cells <sup>4</sup>	3		ME 3322	X	X <sup>7</sup>		
<b>ME 4340</b> Applied Fluid Dynamics <sup>4</sup>	3		ME 3322, ME 3340	X			
<b>ME 4342</b> Computational Fluid Dynamics <sup>4</sup>	3		ME 3322, ME 3340	X			
<b>ME 4701</b> Wind Engineering <sup>4</sup>	3		MATH 2551, PHYS 2211	X			
<b>ME/CHBE 4759</b> Electrochemical Energy Storage and Conversion <sup>6</sup>	3		MSE 2001, Senior Standing	X			
<b>ME 4823</b> Renewable Energy Systems <sup>4</sup>	3		ME 3322, ME 3340, ME 3345*	X	X <sup>7</sup>		
<b>ME 4803</b> Multiscale Thermal Engineering <sup>4,5</sup>	3		ME 3322, ME 3345*	X	X <sup>2</sup>		

#### Notes

1. This chart is a projected schedule of class offerings and may change at any time. Students should check OSCAR for exact class offerings during each semester. This table should only be used as a guide.
2. This class is sometimes offered during this semester.
3. This indicates that the course contains a lab component.
4. These classes are not offered on a regular basis. Students need to check OSCAR to see if the classes are offered.
5. ME 4803 Multiscale Thermal Engineering was previously taught as both ME 4803 Nano-engineering Energy Technologies and ME 4803 Nanoscale Heat Transfer. Students can only receive credit for one of the ME 4803 classes.
6. In fall 2016 this course was taught as ME/CHBE 4803, Electrochemical Energy Storage & Conversion. Students can only receive credit for ME/CHBE 4803 or ME/CHBE 4759, not both.
7. ME 4325, Fuel Cells, is usually offered fall of even years. ME 4823, Renewable Energy Systems, is usually offered fall of odd years.