

Course Outline and Grading Policy

Course: Fuel Cell and Alternative Energy

Course No: **ME 5770**

Credit hours: 3 Hr. (Lecture/Lab (2-3)).

Semester: Fall 2009

Catalog Data: This course introduces the fundamentals of fuel cells, its working principle, and types of fuel cells. Function of main components, basic chemistry and thermodynamics, electrochemistry. Alternative fuels and emerging energy technologies. Fuel cell and hydrogen era.

Class Hour: 4:00 - 6:30 PM

Class Room: F210 Parkview Campus

Text: Class notes and hand-outs by the instructor
Reference “**Fuel cell engine**” by Mathhew M. Mench
“**Alternative Energy Recourses**” by Kruger
“Fuel Cell Systems Explained” by Larminie and Dicks
“PEM Fuel Cells – Theory and Practice”, by Barbir
“The Hydrogen Energy Transition”, by Sperling and Cannon

Prerequisite: ME 367 or ME 432, and ME 356.

Instructor: Dr. Bade Shrestha, Associate Professor, P.Eng.
Department of Mechanical and Aeronautical Engineering
College of Engineering and Applied Sciences
Western Michigan University
Parkview Campus, Kalamazoo, MI, 49008

Office: Room G 218, Parkview Campus

Office Hours: Tuesdays and Thursdays: 10:00 – 12:00 PM

Topics to be covered:

1. Introduction to the fundamentals
2. Fuel cell basic chemistry and thermodynamics
3. Fuel cell electrochemistry
4. Types of fuel cells

5. Main component of fuel cell systems
6. Alternative and renewable fuels
7. Sustainable energy resources
8. Emerging energy technologies
9. Hydrogen era and fuel cell

GRADING: The final grade will be based on the following criteria:

1. Projects (Mid Term Presentation carries 10%, Final Presentation - 10% and Final Report - 20%) 40%
2. Lab work and reports 20%
3. Final Examination (**Thursday, December, 17 2009, 5:00 – 7:00 PM**) 40%

The final examination will be a written exam and may cover any aspect of the class including lecture materials, experimental investigations and projects.

Grading Scale

A:	Above 90.0 %
B+:	85.0 -89.9 %
B:	80.0 - 84.9 %
C+:	75.0 - 79.9 %
C:	70.0 - 74.9 %
D+:	65.0 - 69.9 %
D:	60.0 - 64.9 %
E:	Below 60.0 %

Important Notice:

“You are responsible for making yourself aware of and understanding the policies and procedures in the Undergraduate and Graduate Catalogs that pertain to Academic Honesty. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. [The policies can be found at <http://catalog.wmich.edu> under Academic Policies, Student Rights and Responsibilities.] If there is reason to believe you have been involved in academic dishonesty, you will be referred to the Office of Student Conduct. You will be given the opportunity to review the charge(s). If you believe you are not responsible, you will have the opportunity for a hearing. You should consult with your instructor if you are uncertain about an issue of academic honesty prior to the submission of an assignment or test.”