Course Outline and Grading Policy

Course: ME 367 Internal Combustion Engine I

Semester: Fall, 2005

Catalog Data: Introduction to internal combustion engine systems and mechanical design. Consideration of factors affecting engine design using principles of engineering science. Analysis of common engine systems for reciprocating and continuous flow internal combustion engines.

Course Objectives:
1. Develop in students a comprehensive understanding of the factors that influence internal combustion engine performance including comparisons between reciprocating and turbine engines.
2. Develop an understanding of the kinematics of reciprocating engine valve trains and power producing components including multi-cylinder forces and balancing.
3. Expose the students to laboratory testing of combustion engines and their components, data collection and analysis and develop an appreciation for the importance of proper pre-test understanding.

Lect. Hours: Mondays 9:00 - 9:50 AM
            Wednesdays 9:00 – 9:50 AM

Lab Hours:  Tuesday s 9:30 – 12:20 PM (Tuesday Group Call # ) and
            Thursdays 9:30 – 12:20 PM (Thursday Group Call # )

Class Room: Rm: C123 Parkview Campus

Lab Room: Automotive Center, G 114 and Meeting room G113


 "Internal Combustion Engines - applied thermal sciences”, by Ferguson, Wiley Publication.

Prerequisite: MATH 272, ME 258, ME 232.
**Instructor:** Dr. Bade Shrestha, Associate Professor, P. Eng.
Dept. of Mechanical and Aeronautical Engineering,
Western Michigan University
Phone: 269 – 276 3432
Fax: 269 – 276 3421
Email: Bade.Shrestha@wmich.edu

Office: Room G 218, Parkview Campus, Kalamazoo, MI, 49008

**Office Hours:** Mondays – Thursdays: 1:00 – 2:00 PM and by appointments.

**Topics to be covered**

1. Introduction
2. Engine design and operating parameters
3. Ideal model of engine processes and cycles
4. Combustion thermodynamics
5. Spark ignition engine combustion
6. Compression ignition (Diesel) engine combustion
7. Gas turbine engine combustion
8. Engine friction and lubrication
9. Engine heat transfer
10. Alternative energy systems

**GRADING:**

The final grade will be based on the following criteria:

- Homework Assignments ................................................................. 15%
- Laboratory Reports............................................................................ 15%

Examinations
- Mid-Term I on **October 5, Wednesday, 2005** ................................. 20%
- Mid-Term II on **November 9, Wednesday, 2005** ................................ 20%

Final Exam, on **Tuesday, December 6, 2005, 8:00 to 10:00 AM** .......... 30%

The final examination will be a written comprehensive exam and may cover any aspect of the class.
Grading Scale

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<tr>
<th>Grade</th>
<th>Percentage Range</th>
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<tbody>
<tr>
<td>A</td>
<td>Above 90.0 %</td>
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<td>B+</td>
<td>85.0 - 89.9 %</td>
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<td>B</td>
<td>80.0 - 84.9 %</td>
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<td>C+</td>
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General Class Policy:

1. Make-up test will not be provided and the missed test will be graded as “ZERO”. If a student misses a midterm test for a medical reason, the student must provide a doctor’s statement. In that case, the missed test will be transferred and credited toward the Final Examination. Every student must take the Final Examination and no make-up exam will be provided.

2. Home work assignments and laboratory reports are due at the beginning of the class on the due date and no credit will be given for late submission.

Important Notice: You are responsible for making yourself aware of and understanding the policies and procedures in the Undergraduate (pp. 274-276 and pp. 25-27 for Graduate) Catalog that pertain to Academic Integrity. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. If there is reason to believe you have been involved in academic dishonesty, you will be referred to the Office of Student Judicial Affairs. 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 me if you are uncertain about an issue of academic honesty prior to the submission of an assignment or test.