

COURSE SYLLABUS
Southern Illinois University College of Engineering
ME 405 Internal Combustion Engines and Gas Turbines
Spring 2014
Monday, Wednesday, and Friday 11:00AM -11:50AM
(Jan 13, 2014 – May 19, 2014)

FACULTY:

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Office Hours: 12PM – 1PM, and by appointment.

Catalog Description: 405-3 Internal Combustion Engines and Gas Turbines. Operation and performance characteristics of Otto, Diesel, Wankel engines and gas turbines. Methods of engine testing, types of fuels and their characteristics, fuel metering systems, engine combustion analysis as related to engine performance, fuel characteristics and air pollution, exhaust gas analysis, and air pollution control. 3.000 Credit hours
3.000 Lecture hours

Prerequisite: ME300 Thermodynamics

Textbook: Internal Combustion Engine Fundamentals, J.B. Heywood

Reference Textbook: Internal Combustion Engines and Air Pollution, E.F. Orbert

Course Objectives: Give students an understanding of the principles of operation of combustion engines and their relation to ideal processes and cycle analyses. Teach students about important engine operation characteristics and the value of engine testing. Develop an understanding of engine exhaust air pollution and factors responsible for it. Familiarize students with factors controlling engine performance and design through computer programs; provides hands-on raining of engine test procedures.

Topics:

- Basic Engine Types and Design Features
- Engine Operation Characteristics
- Fuels
- Exhaust Gas Analysis
- Engine Air Pollution and it's Effects on the Environment
- Computer Analysis of Engine Cycles, Heat Loss, and Engine Performance
- Engine Laboratory Test
- Review of Idealized Engine Cycles and Processes
- Engine Testing
- Fuel Metering

Grading: Grading will follow the traditional 90-80-70-60-50% scale. The total will be broken down as 15% - Homework, 3 Tests at 20% each, 5% - Quizzes, 1 Laboratory Report at 10%, and one project at 10%.

Homework: Homework will assigned weekly, and be due 1 week later. Late assignments will be penalized 5%. Additionally, assignments that are more than 1 page long must be stapled. Unstapled papers will not be accepted. Please remember you are upper level engineering students, your homework should reflect that. Work neatly so that you can be understood.

Plagiarism/Cheating: Plagiarism and Cheating will be taken very seriously, and responded to per university guidelines. Keep in mind that using solution manuals will only hurt yourself, as you can only learn the materials by working the problems, not by copying the solutions.

