

**Department of Mechanical Engineering
Michigan State University**

Course Syllabus

ME332 Fluid Mechanics – Spring Semester 2007

- Instructor:** Professor Guy Raguin, 2463 Engineering Building, 432-3192.
raguin@msu.edu
- TA:** Mr. Atha Khan, khanatha@egr.msu.edu
- Class Hours:** 3:00 – 3:50 pm MWF
- Classroom:** 1230 Engineering Building
- Office Hours:** 4:00 – 5 pm MW, 2463 EB (tentative)
- The Course:** Introduction to the physical and theoretical description of phenomena related to the flow of fluids.
- Textbook:** Fundamentals of Fluid Mechanics, Fifth Edition, Munson, Young and Okiishi, John Wiley & Sons, Inc., 2006.
- Website:** <http://www.egr.msu.edu/classes/me332/raguin>
- Homework:** Will be assigned on every Friday and collected the following Friday. Each assignment will be spot-graded by a TA. You are permitted to work together to discuss homework and class material. However, you must do your own homework. Copying from each other will be considered a violation of the university policy on honesty and professional integrity. Please also see the attached **Plagiarism Policy**.
- Course Grading:**
- | | |
|---------|-----|
| Lecture | 75% |
| Lab | 25% |
- You must pass the Lab to pass the course!!!**
- Lecture Grading:**
- | | |
|----------|-----|
| Homework | 10% |
| Quizzes | 10% |
| Exam 1 | 20% |
| Exam 2 | 20% |
| Final | 40% |

All the exams will be closed textbook and closed notes, only one 8.5" x 11" cheat sheet allowed. Quizzes will be closed textbook and closed notes, no cheat sheet.

Tentative Course Schedule

Date	Lecture	Subjects and Reading
8 Jan	1	Course Info and Introduction (§1.1-1.10)
10 Jan	2	Introduction (§1.1-1.10)
12 Jan	3	Fluid Statics (§2.1-2.4)
15 Jan		Martin Luther King Day
17 Jan	4	Fluid Statics (§2.5-2.6)
19 Jan	5	Fluid Statics (§2.8-2.10)
22 Jan	6	Problem Session
24 Jan	7	Kinematics of Flows (§4.1-4.2)
26 Jan	8	Bernoulli Equation and Its Uses (§3.1-3.8)
29 Jan	9	Bernoulli Equation and Its Uses (§3.1-3.8)
31 Jan	10	Problem Session
2 Feb	11	System and Control Volume (§4.3-4.4)
5 Feb	12	Mass Conservation (§5.1)
7 Feb	13	Problem Session
9 Feb	14	Linear Momentum Equation (§5.2)
12 Feb	15	Linear Momentum Equation (§5.2)
14 Feb	16	Problem Session
16 Feb	17	Energy Conservation (§5.3)
19 Feb	18	Energy Conservation (§5.3)
21 Feb	19	Problem Session
23 Feb	20	Hourly Exam No. 1
26 Feb	21	Differential Continuity Equation (§6.1-6.2)
28 Feb	22	Euler Equations (§6.3-6.4)
2 March	23	Navier-Stokes Equations (§6.3-6.4)
5 March		Spring Break
7 March		Spring Break
9 March		Spring Break
12 March	24	Exact Solutions (§6.8-6.9)
14 March	25	Problem Session
16 March	26	Dimensional Analysis (§7.1-7.4)
19 March	27	Similitude (§7.6-7.8)
21 March	28	Similitude (§7.6-7.8)
23 March	29	Problem Session
26 March	30	Laminar Flow in a Pipe (§8.1-8.2)
28 March	31	Turbulent Flow in a Pipe (§8.3)
30 March	32	Problem Session
2 April	33	Hourly Exam No. 2
4 April	34	The Moody Chart (§8.4)
6 April	35	Minor Losses (§8.4)
9 April	36	Problem Session
11 April	37	Lift and Drag (§9.1)
13 April	38	Laminar Boundary Layers (§9.2.1-9.2.3)
16 April	39	Turbulent Boundary Layers (§9.2.4-9.2.7)
18 April	40	Problem Session
20 April	41	Problem Session
23 April	42	Overview of Fluid Mechanics
25 April	43	Overview of Fluid Mechanics
27 April		No class

Final Exam: Wednesday, May 2, 3:00 – 5:00 pm.

Rules

Courtesy:

- No eating or drinking during class (unless for documented medical reason).
- Cells phones should be turned off.
- No feet on chairs or tables.

Standards for exams, quizzes, and homework sets:

- All returned exams and homework sets shall be clearly written on clean paper. Those turned in with stains or barely legible handwriting shall receive a grade of zero.
- All equations written in exams, quizzes, and homework sets shall be written as general homogeneous equations (as defined in section 1.2 pp. 3-5 of Munson, Young & Okiishi) under penalty of a score of zero for the problem.
- While conversion from BG units to SI units is highly recommended and preferred, conversion to BG units when SI units are provided will not be tolerated.
- Turning a homework set late will result in the grade being halved, unless the incident is excused.

Others:

- Quizzes can be given at any lecture, at any time of the lecture, and serve to check attendance and assimilation of class material throughout the semester. Any unexcused absence for a quiz will forfeit the 10% for the final grade (i.e., equivalent to a zero for all past and future quizzes so that the maximum grade is 90% for the class instead of 100%).
- The formula for lecture grading is not set in stone. If you have a question about your standing in the class, come see me.
- If you know you are going to be absent for a class, please notify me in advance. If you know you are going to be absent for an exam, please notify at least two weeks in advance. If you have a valid reason, you will be authorized to take the exam at a different date. Failure to notify or invalid reason will lead to a grade of zero for the exam.

Plagiarism Policy
Department of Mechanical Engineering

Plagiarism is not tolerated in the Department of Mechanical Engineering. It shall be punished according to the student conduct code of the University. Integrity and honesty are essential to maintain society's trust in the engineering profession. This policy is intended to reinforce these values.

For the purpose of this policy, plagiarism means presenting, as one's own, without proper citation, the words, work or opinions of someone else.

A. You commit plagiarism if you submit as your own work:

1. Part or all of an assignment copied from another person's assignment, including reports, drawings, web sites, computer files, or hardware.
2. Part or all of an assignment copied or paraphrased from a source, such as a book, magazine, pamphlet, web site, or web posting, without proper citation
3. The sequence of ideas, arrangement of material, pattern or thought of someone else, even though you express them in your own words. Plagiarism occurs when such a sequence of ideas is transferred from a source to a paper without the process of digestion, integration and reorganization in the writer's mind, and without acknowledgement in the paper.

B. You are an accomplice in plagiarism and equally guilty if you:

1. Knowingly allow your work, in preliminary or finished form, to be copied and submitted as the work of another.
2. Prepare an assignment for another student, and allow it to be submitted as his or her own work.
3. Keep or contribute to a file of assignments with the clear intent that these assignments will be copied and submitted as the work of anyone other than the originator of the assignment. (The student who knows that his or her work is being copied is presumed to consent to its being copied.)

(based upon the MSU English Department's policy on plagiarism at:
<http://www.msu.edu/unit/engdept/undergrad/plagiarism.html>)