“With every passing hour our solar system comes forty-three thousand miles closer to globular cluster M13 in the constellation Hercules, and still there are some misfits who continue to insist that there is no such thing as progress.”
Ransom K. Ferm

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**Syllabus Information**

- **Prerequisites:** MATH 1920 and PHYS 2110 and PHYS 2111
- **Course Meetings:** Lecture: MWF; 8:00 to 8:55 AM; ES 220
- **Instructor:** Dr. Paul Palazolo; Office ES 108 A 678-3275
Syllabus Information

- email: ppalazol@memphis.edu
- Office Hours: “Open Door” or by appointment
- CourseWeb: www.ce.memphis.edu/2131

Course Learning Objectives

- These are a set of things that you should be able to do correctly by the end of this class
- Each of them will be evaluated a number of times during the semester
Course Learning Objectives

- These are the minimum outcomes that you must be able to accomplish to pass the class.

Syllabus

- The final grade for the class will be based on the following:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Composite Average</th>
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<tbody>
<tr>
<td>A</td>
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<tr>
<td>B-</td>
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<tr>
<td>C+</td>
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<tr>
<td>C</td>
<td>&gt;=70</td>
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<tr>
<td>D</td>
<td>&gt;=60</td>
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The Who

- Paul Palazolo
  - BSCE – University of Memphis (Memphis State University)
  - MSCE – University of Memphis (Memphis State University)
  - PhD – Georgia Tech (Environmental Engineering)
- Most folks just wind up calling me Dr. P or Dr. Paul

The When

- Class starts at 8 AM
- Just like a job, you are expected to be on time
- It may seem like a pain to you but that is the way “real” jobs are and this is your current job
- I know all about traffic, trains, and alarm clocks
The Why

- We are going to be considering mechanical systems that we know are not moving or that is moving at a constant velocity.
- This is probably the simplest form of mechanical system.
- From our assumption that the system is in equilibrium, we will work back to see all the forces that are causing the system to remain so.

The Why

- You cannot predict the behavior of a mechanical system unless you can correctly identify all of the forces acting on the system
- This is a fundamental course in the engineering problem solving method
- Statics questions are some of the easiest on the Fundamentals of Engineering exam
What Tools You Should Have

- Algebra
- Trig (Sine, Cosine, Tangent)
- Simple Integration
- Some geometry (no proofs necessary)
- Vectors
- Cross Product
- Dot Product
- Unit Vector

Homework and Course Support Site

- [www.masteringengineering.com](http://www.masteringengineering.com)
- Course ID: CIVL2131S10

This is the site where you will submit your homework.
A Bit of Review

The force that is aligned along B is perpendicular to the force that is aligned along A, what is the value for the angle \( \theta \)?

![Diagram showing forces and angles](image1)

A Bit of Review

What are the horizontal and vertical components of the force \( F_1 \)?

![Diagram showing force components](image2)
A Bit of Review

What is the angle between the vector $F_1$ and the line parallel to $F_2$ at the top of the drawing?

What is the unit vector along the force $F_1$?
A Bit of Review

What is the length of the vector $r$?

![Diagram showing vector $r$ with components 4 m, 4 m, and 8 m.]

A Bit of Review

What values of $x$ and $y$ solve the system of equations?

$$3x - 4y = 22$$

$$-2x + 11y = 7$$