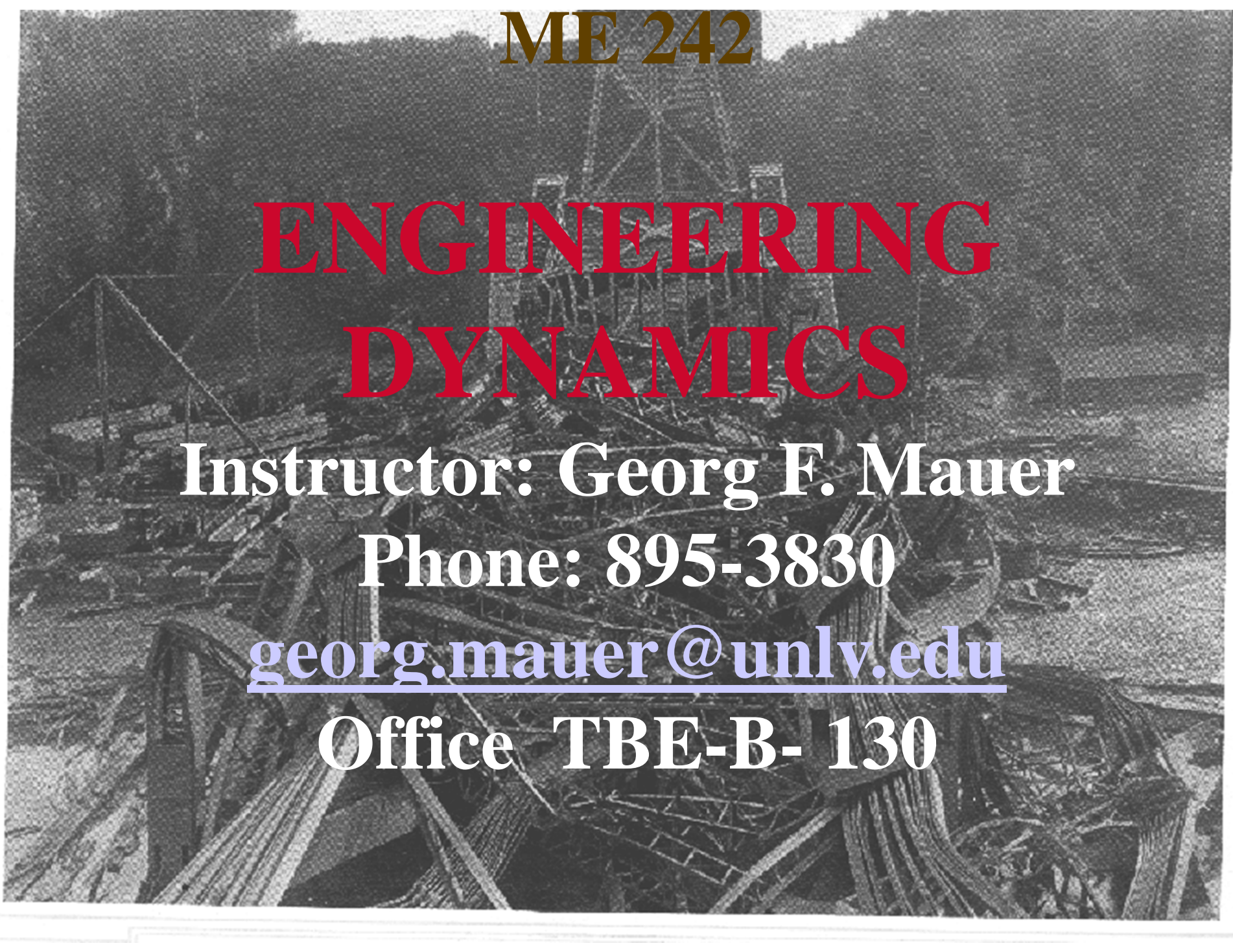


ME 242

ENGINEERING DYNAMICS

<http://www.me.unlv.edu/coursenotes/>





ME 242

ENGINEERING DYNAMICS

Instructor: Georg F. Mauer

Phone: 895-3830

georg.mauer@unlv.edu

Office TBE-B- 130



ME 242

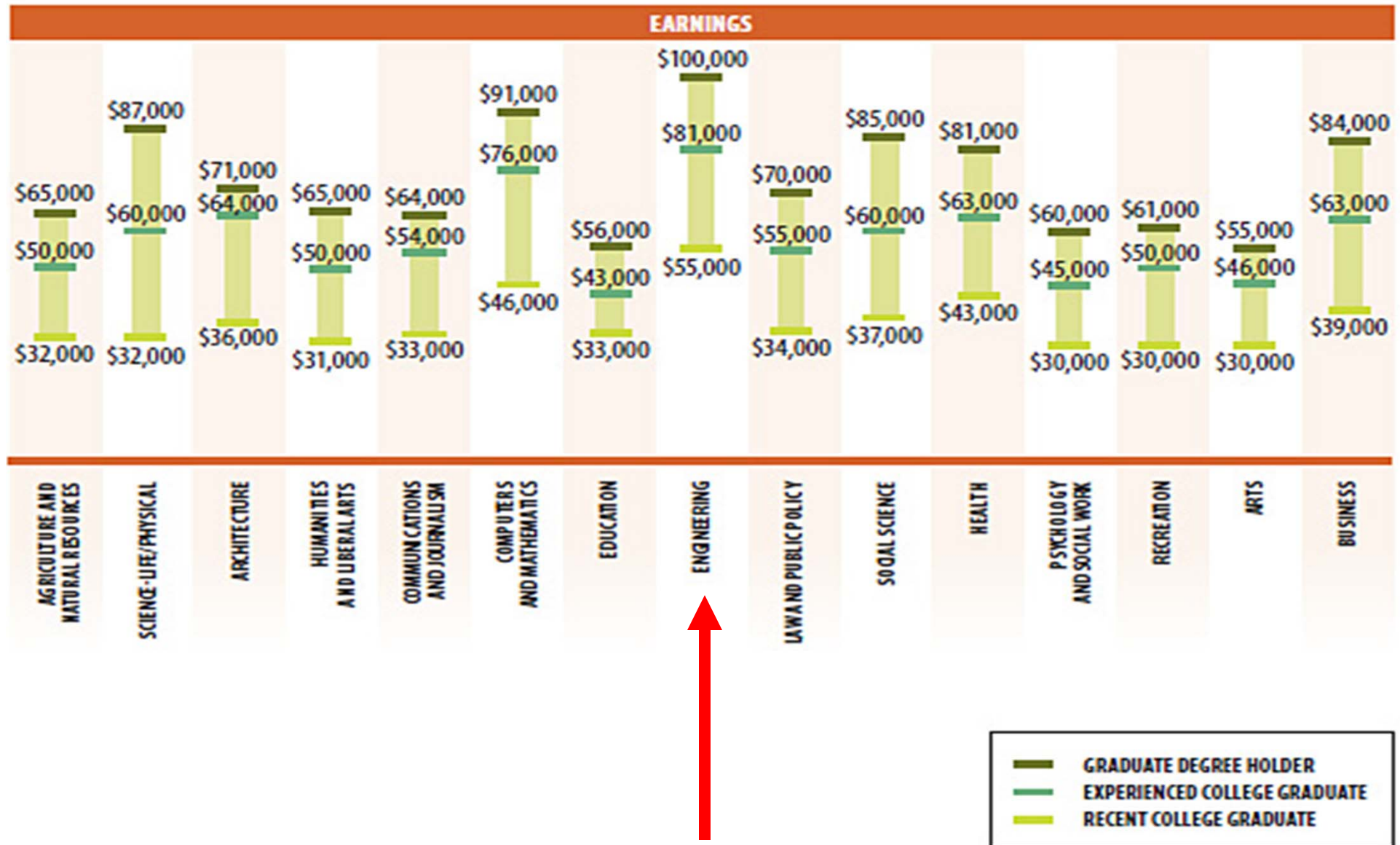
ENGINEERING DYNAMICS

Expectations:

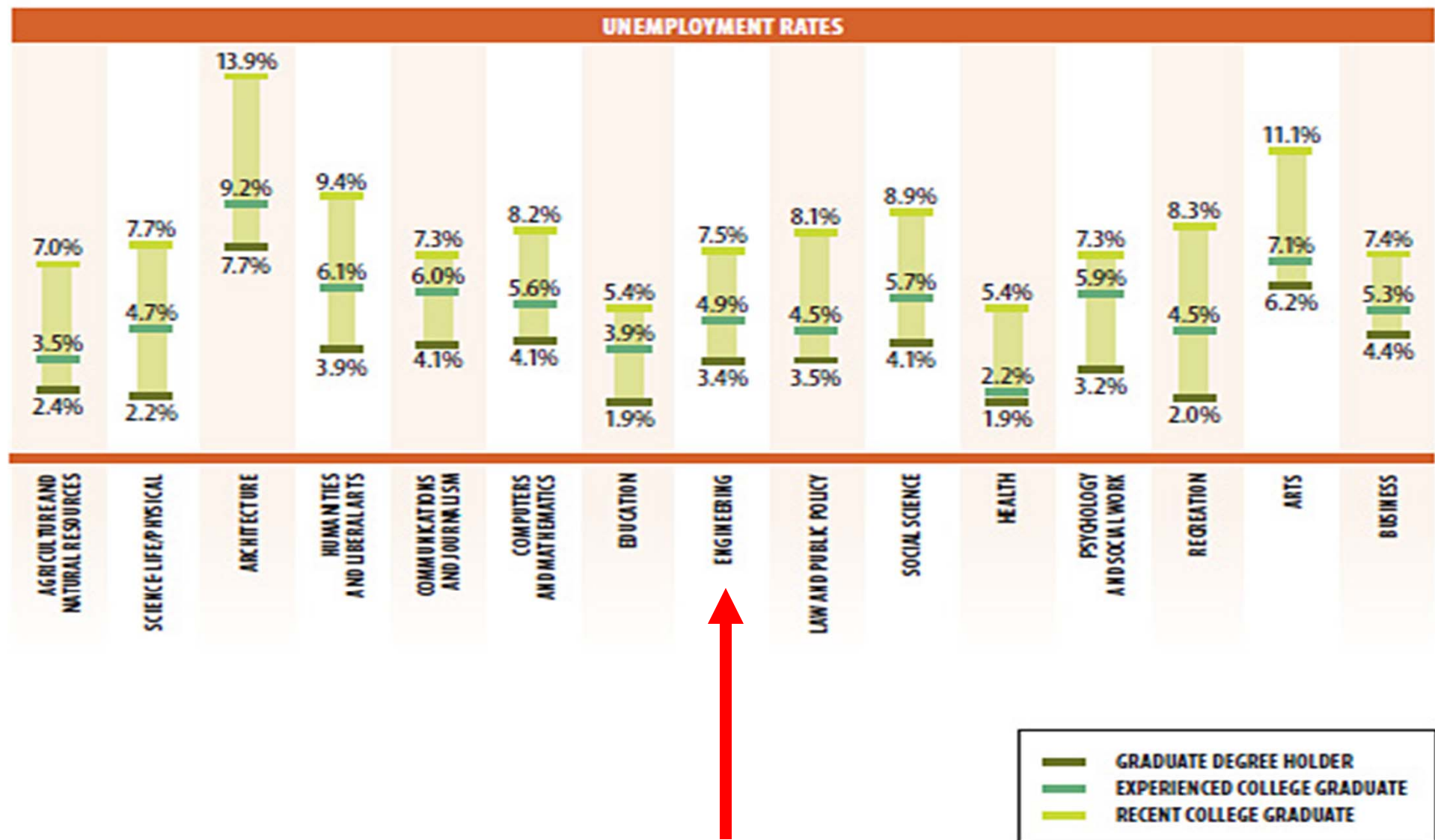
- Regular Attendance and Submission of EVERY Homework on *Mastering Engineering*
- Mastering will not give you partial credit, but you can submit multiple times until you find the correct answer.
- No late exams will be given
- Details: see syllabus (Web and paper copy).

EARNINGS INCREASE AS RECENT COLLEGE GRADUATES GAIN EXPERIENCE AND OBTAIN POSTGRADUATE EDUCATION

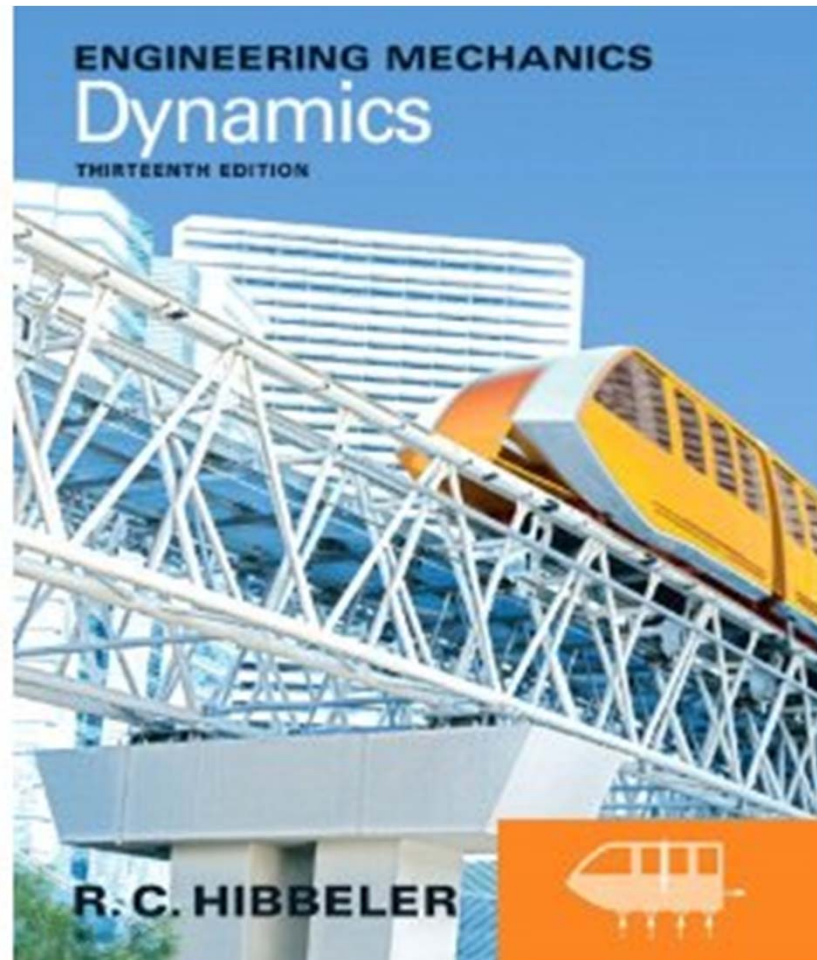
You think it's tough. Consider the rewards



Better Opportunities. Better Pay



The Textbook



Engineering Mechanics: Dynamics, 13/E

Russell C. Hibbeler ISBN-13: 9780133009569

Publisher: Prentice Hall

Homework

MasteringEngineering: File Edit View History

MasteringEngineering: Cour: session.masteringengineering.com/myct/courseHome?start=1

MasteringENGINEERING Logged in as **Georg Mauer, Instructor** | [Help](#) | [Log Out](#)

ME242 Dynamics Spring 2012 (MEMAUER77255)

[My Courses](#) | [Course Settings](#)

Engineering Mechanics: Dynamics, 12e Hibbeler

[Course Home](#) [Assignments](#) [Roster](#) [Gradebook](#) [Item Library](#) [Instructor Resources](#) [eText](#) [Study Area](#)

Recent and Upcoming Assignments

TITLE	DUE DATE/TIME
Introduction to MasteringEngineering	01/18/12 at 09:00am
Homework 1	01/23/12 at 09:11am
Homework 2	01/25/12 at 09:00am
Homework 3	01/30/12 at 09:00am
Homework 18	04/16/12 at 09:18am

[+ Create Assignment](#) Showing 5 of 29 - [View All](#)

Announcements

SUBJECT	DATE POSTED
Reading Assignment for the Weeks of January 17 and 20	01/17/12 at 01:53pm

[+ Create Announcement](#) Showing 1 of 1 - [View All](#)

Course Materials

Post and manage documents and other files for students in your course.

- [Manage Documents](#)
- [Manage/Record Lecture Video](#)

Learn More

- [Getting Started](#)
- [How-To Video Tours](#)
- [FAQs](#)
- [Best Practices](#)
- [Ask an Expert Mastering User](#)

I-Clickers, see ME 242 page

The screenshot displays the i>clicker web interface. At the top, there is a header for 'Your Institution UNIVERSITY' with navigation links for Home, Help, and Logout, and a 'Developer Copy' button. Below this is a secondary navigation bar with tabs for My Institution, Courses, Community, and Services. The left sidebar contains a list of links: Announcements, Course Information, Staff Information, Course Documents, Assignments, Communication, Discussion Board, External Links, and Tools. The Tools section is expanded, showing Communication, Course Tools, and Course Map. The main content area shows a table with the following data:

i>clicker Remote ID	Registered
1718A5AA	Oct/27/2008

Below the table, there is a section for 'Register additional clickers' with an input field and a 'Register' button. A congratulatory message follows: 'Congratulations; you've successfully registered your i>clicker! All of your voting data (previously recorded and future votes) will now be tied to your ID.' An image of an i>clicker device is shown, with a red circle highlighting the barcode and the text '11A4C277'.

Register in class or at:

<http://www.iclicker.com/support/registeryourclicker/>

I-Clickers, see ME 242 page

If you registered your clicker on the web, please ‘answer’ the Clicker Test Question (will not be graded)

The statement


Epimenides, the liar from Crete, says that all Cretans are liars.

is

- (A) True
- (B) False
- (C) Neither true nor False

Register in class or at:

<http://www.iclicker.com/support/registeryourclicker/>



ME 242 ENGINEERING DYNAMICS

PREVIEW

- What will I learn?
- Benefits: What will I gain?
- Effort: What will it take?

**This is a course in Problem
Solving.**

We use the tools of science:

- **Mathematics**
- **Rigorous Logic**
- **Scientific Discovery**

Galileo Galilei (1564-1642)

- Scientific Experiments
- Earth rotates about the sun

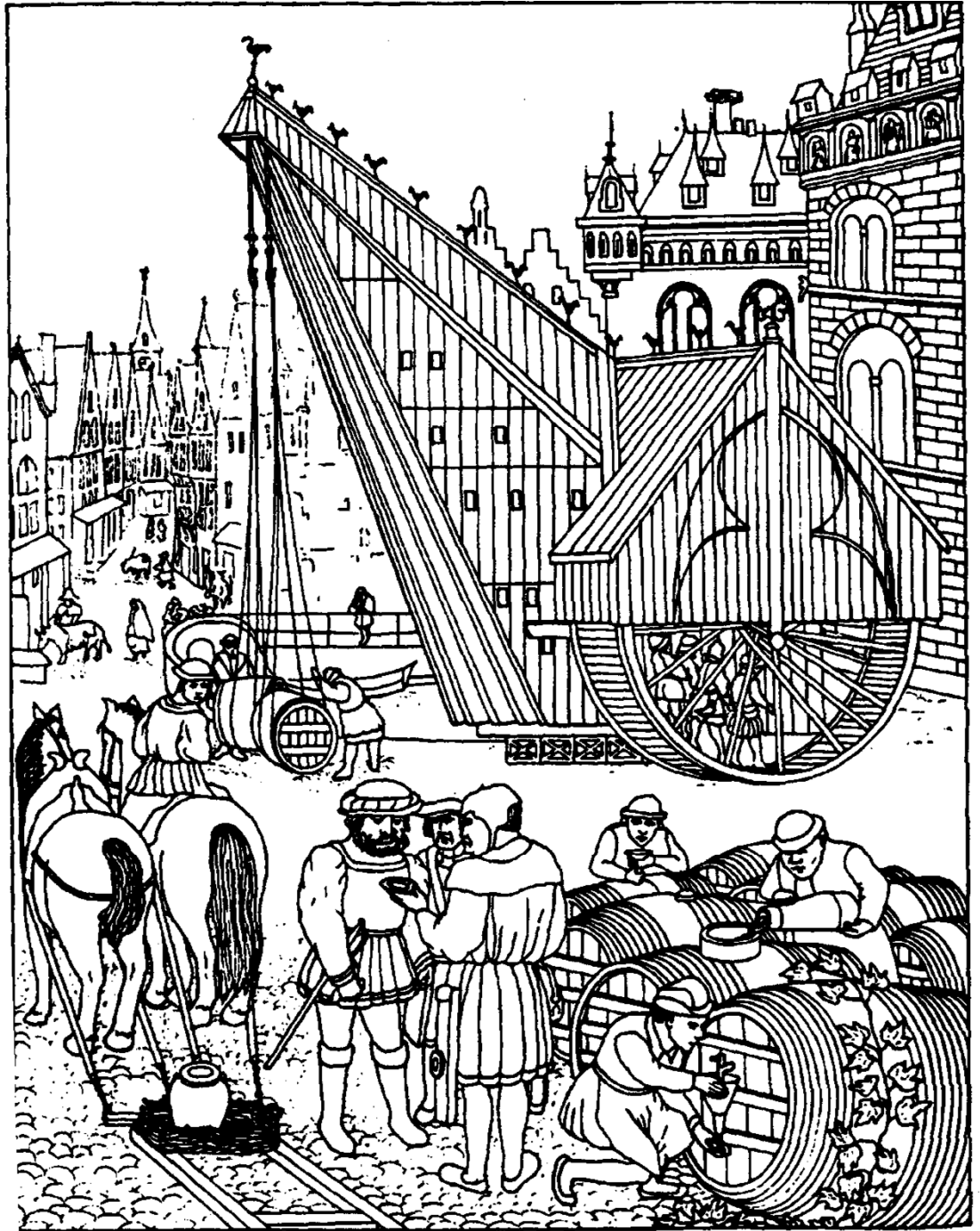


Science is:

“systematic knowledge derived from observation, study, and experimentation carried on in order to determine the nature of what is being studied.”

*Look how far we
have come:*

Treadmill in Leiden, Netherlands



**Scientific Inquiry takes time
and effort. This course is about
Newton's law:**

$$\mathbf{F = m * a}$$

- **From Galileo's fall experiments in Pisa, it took 100 years until Newton finally formulated it.**
- **Your textbook summarizes about 150 years of Mechanics research that followed after Newton.**
- **Newtonian Science is analytical and systematic, but NOT intuitive**

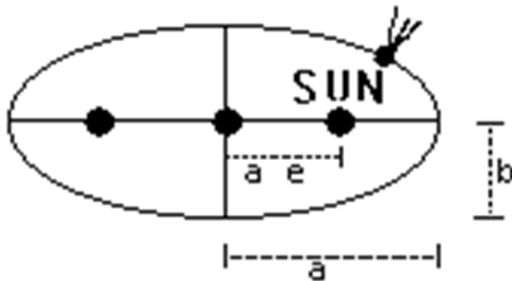
**Johannes
Kepler**
1572-1630



Kepler's Laws

See: <http://www.cvc.org/science/kepler.htm>

LAW 1: The orbit of a planet/comet about the Sun is an ellipse with the Sun's center of mass at one focus



This is the equation for an ellipse:

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

How should I Learn?

•Student: “I don’t like having to teach myself topics, that’s the professor’s job”

My answer: I can present concepts. The difficulty lies not in the concepts themselves, but in their application. Mastering requires practice and lots of time.

The Only Route to Success: **Practice!**

- **Study the examples carefully.**
- **Analyze the problem (Create a road map) before attempting a solution!**
- **Attend every class! Ask questions!**

Practice- Part II

- **Work continuously. This material cannot be crammed before the exam.**
- **Complete and submit All Assignments on schedule!**
- **Success builds confidence!**

Practice- Part III

Look at principles and methods!

Be patient. This material is NOT intuitive.

A frequently heard complaint:

“I worked on my assignment for three hours and didn’t get anywhere”

If you feel stuck, please go back to your book and look at the methods and examples for the chapter.

- **Consult your Tutor.**

Benefits of Mastering Engineering

Electronic Submission

Mastering checks your answer and lets you try again

Instant Grading

The Scientific Method

How do I solve a scientific problem?

Step 1: Understand the problem statement

Step 2: Conceptually map the solution path.

Step 3: Enter the relevant data into the laws required for the solution.

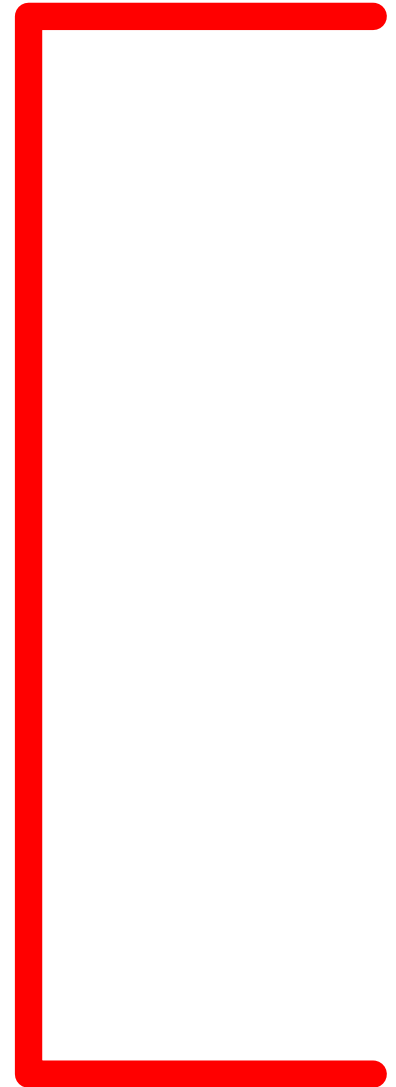
Step 4: Solve.

The Road Map

Start



Goal



The Road Map

Start

**1. Enter
Problem
Info:**

e.g.
Initial Conditions,
Geometry

Goal

The Road Map

Start

1. Enter Problem

Info:

e.g.
Initial Conditions,
Geometry

Law(s)

e.g.
 $a = dv/dt$

Goal

Desired Solution

e.g.
Speed,
Acceleration,
End position



Advice for Homework

- Read the problem statement for data and clues
- Map a solution path so that the given data lead to intermediate and then final results.
- Plug in the numbers only at the end!

Reading Assignments

- Read and understand the assigned chapters before class. Reading assignments are posted on Mastering.
- You will be quizzed on each reading assignment
- Answers will be graded.

How to Learn

- Understanding: Train yourself to solve problems.
- Understand the method
- Contact me immediately with questions you can't resolve. Don't wait!

End of Introduction



"Nothing yet. ...How about you, Newton?"