KOÇ
ÜNİVERSİTESİ

KOÇ UNIVERSITY

http://www.ku.edu.tr

KEY FIGURES

- **5850 Students (4700 UG+700 MS/MA+450 PhD)**
- **527 Faculty Members**
  - **(304 Professoriate + Instructors)**
- **9,320 Alumni**
- **7 Colleges + 4 Graduate Schools**
- **18 Doctoral Degree Programs**
- **32 Masters Degree Programs**
- **22 Undergraduate Degree Programs**
- **>272 Student Exchange Partners**
- **77 Laboratories**
- **2,786 student dormitory capacity**
- **73% of students on scholarship**

A LIBERAL ARTS EDUCATION

- **KU liberal arts program reflects a progressive, expansive, and student-oriented approach to education,**

- **Students receive a diverse and comprehensive education while concurrently gaining expertise in a specific academic discipline**

- **According to the definition of the Association for American Colleges and Universities, a liberal education "is an approach to learning that empowers individuals and prepares them to deal with complexity, diversity, and change. It provides students with broad knowledge of the wider world (e.g. science, culture, and society) as well as in-depth study in a specific area of interest [1]." Liberal education, thus, helps students investigate the world from different perspectives.**

[1]: http://www.aacu.org/leap/what_is_liberal_education.cfm

UNDERGRADUATE DEGREE PROGRAMS

**College of Administrative Sciences
& Economics**
Business Administration
Economics
International Relations

**College of Social Sciences &
Humanities**
Archeology and Art History
English & Comparative Literature
Media and Visual Arts
History
Philosophy
Psychology
Sociology

School of Law
Law

College of Sciences
Chemistry
Physics
Mathematics
Molecular Biology and Genetics

College of Engineering
Chemical & Biological Engineering
Computer Engineering
Electrical & Electronics Engineering
Industrial Engineering
Mechanical Engineering

School of Medicine
Medicine

School of Nursing
Nursing

GRADUATE DEGREE PROGRAMS

Graduate School of Engineering and Sciences (GSSE)
- Ph.D. in Chemical and Biological Engineering
- Ph.D. in Computational Sciences and Engineering
- Ph.D. in Computer Science and Engineering
- Ph.D. in Electrical and Electronics Engineering
- Ph.D. in Industrial Engineering and Operations Management
- Ph.D. in Materials Science and Engineering
- Ph.D. in Mathematics
- Ph.D. in Mechanical Engineering
- Ph.D. in Physics
- Ph.D. in Molecular Biology and Genetics **(with GSHS)**
- Ph.D. in Biomedical Sciences and Engineering **(with GSHS)**
- M.Sc. in Chemical and Biological Engineering
- M.Sc. in Computational Sciences and Engineering
- M.Sc. in Computer Sciences and Engineering
- M.Sc. in Electrical and Electronics Engineering
- M.Sc. in Industrial Engineering
- M.Sc. in Materials Science and Engineering
- M.Sc. in Mathematics
- M.Sc. in Mechanical Engineering
- M.Sc. in Molecular Biology and Genetics
- M.Sc. in Optoelectronic and Photonic Engineering
- M.Sc. in Physics
- M.Sc. in Biomedical Sciences and Engineering **(with GSHS)**

Graduate School of Health Sciences (GSHS)
- Ph.D. in Nursing
- MSc. in Medical Physiology
- MSc. in Medical Microbiology
- MSc. in Reproductive Biology
- MSc. in Critical Care Nursing
- MSc. in Nursing

Graduate School of Social Sciences and Humanities (GSSSH)
- Ph.D. in Political Science and International Relations
- Ph.D. in Psychology
- Ph.D. İn Sociology
- Ph.D. in Archaeology and History of Art
- Ph.D. in Economics
- Ph.D. in Design, Technology and Society
- MA in Archaeology and History of Art
- MA in Comparative Studies in History and Society
- MA in Design, Technology and Society
- MA in Economics
- MA in International Relations
- MA in Psychology
- LL.M in Private Law
- LL.M in Public Law
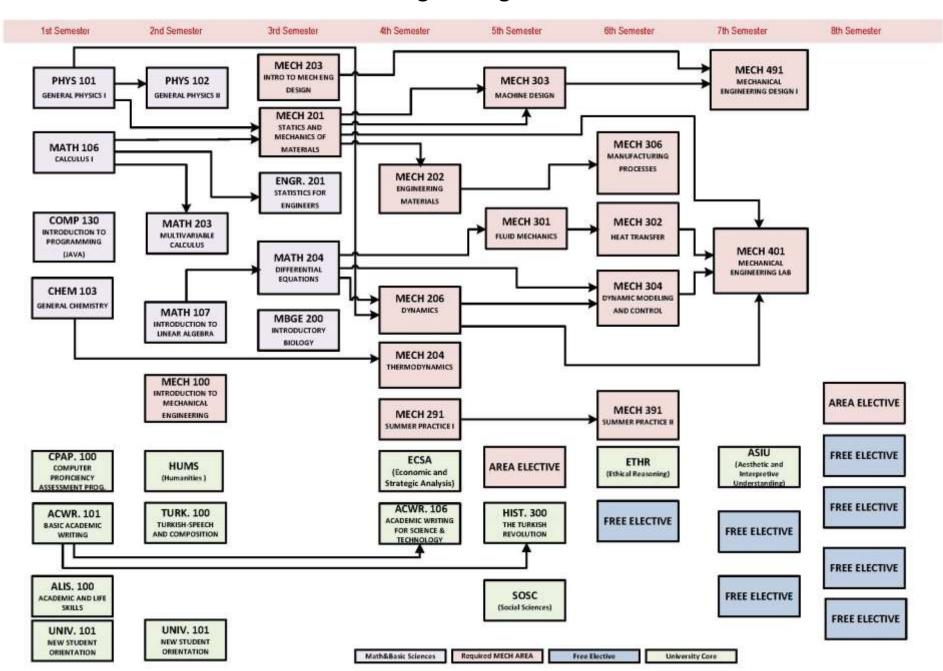- Non-Thesis MA Program in Museum Studies and Cultural Heritage Management

Graduate School of Business (GSB)
- PhD in Business Administration
- MBA
- CEMS Master in International Management
- Executive MBA
- KOÇ Master of International Management
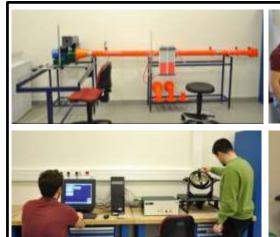- Modular MBA
- MSc in Finance

Mechanical Engineering @ KU

Mechanical Engineering Curriculum

1st Semester	2nd Semester	3rd Semester	4th Semester	5th Semester	6th Semester	7th Semester	8th Semester

PHYS 101 GENERAL PHYSICS I

PHYS 102 GENERAL PHYSICS II

MECH 203 INTRO TO MECH ENG DESIGN

MECH 303 MACHINE DESIGN

MECH 491 MECHANICAL ENGINEERING DESIGN I

MECH 201 STATICS AND MECHANICS OF MATERIALS

MATH 106 CALCULUS I

MECH 306 MANUFACTURING PROCESSES

ENGR. 201 STATISTICS FOR ENGINEERS

MECH 202 ENGINEERING MATERIALS

COMP 130 INTRODUCTION TO PROGRAMMING (JAVA)

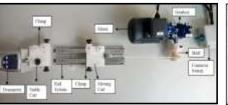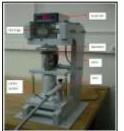**MATH 203** MULTIVARIABLE CALCULUS

MECH 301 FLUID MECHANICS

MECH 302 HEAT TRANSFER

MECH 401 MECHANICAL ENGINEERING LAB

MATH 204 DIFFERENTIAL EQUATIONS

CHEM 103 GENERAL CHEMISTRY

MECH 304 DYNAMIC MODELING AND CONTROL

MATH 107 INTRODUCTION TO LINEAR ALGEBRA

MECH 206 DYNAMICS

MBGE 200 INTRODUCTORY BIOLOGY

MECH 204 THERMODYNAMICS

MECH 100 INTRODUCTION TO MECHANICAL ENGINEERING

MECH 291 SUMMER PRACTICE I

MECH 391 SUMMER PRACTICE II

AREA ELECTIVE

CPAP. 100 COMPUTER PROFICIENCY ASSESSMENT PROG.

HUMS (Humanities)

ECSA (Economic and Strategic Analysis)

AREA ELECTIVE

ETHR (Ethical Reasoning)

ASIU (Aesthetic and Interpretive Understanding)

FREE ELECTIVE

ACWR. 101 BASIC ACADEMIC WRITING

TURK. 100 TURKISH-SPEECH AND COMPOSITION

ACWR. 106 ACADEMIC WRITING FOR SCIENCE & TECHNOLOGY

HIST. 300 THE TURKISH REVOLUTION

FREE ELECTIVE

FREE ELECTIVE

FREE ELECTIVE

ALIS. 100 ACADEMIC AND LIFE SKILLS

SOSC (Social Sciences)

FREE ELECTIVE

FREE ELECTIVE

UNIV. 101 NEW STUDENT ORIENTATION

UNIV. 101 NEW STUDENT ORIENTATION

FREE ELECTIVE

Math&Basic Sciences   Required MECH AREA   Free Elective   University Core

Teaching Labs

Machine Shop

Mechanical Engineering Lab

Manufacturing Processes Lab

Some of Our Students

Koç University, MECH306 Manufacturing Processes
May 09, 2012, İstanbul

Koç University,   MECH 307 Numerical Methods for Mechanical Engineering
Fall 2011,   Murat Sözer,   December 28, 2011,   Istanbul

Koç University,   MECH201 Statics and Mechanics of Materials
Fall 2011, Murat Sözer,   December, 2011,   Istanbul

Koç University, MECH306 Manufacturing Processes
May 13, 2011, İstanbul
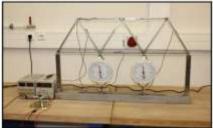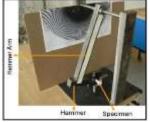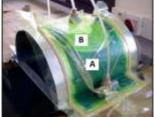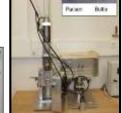
Faculty (Mechanical Engineering at KU)

Assoc. Prof. Erdem Alaca

Research Interests:
Micro and nanofabrication
Micro and nano electromechanical sytems (MEMS / NEMS)
Materials behaviour
Engineering mechanics

Asst. Prof. Arif Karabeyoğlu

Research Interests:
Rocket propulsion
Air breathing propulsion/gas turbines
Design and optimization of launch systems
Green energy
Failure analysis of energetic systems

Prof. Çağatay Başdoğan

Research Interests:
Man-machine interfaces and robotics
Control and mechatronics applications
Computer graphics and virtual reality
Medical imaging and simulation
Biomechanical modeling

Prof. İsmail Lazoğlu

Research Interests:
Automation and Mechatronics
Sensor and Signal Based Process Monitoring and Diagnostics
Computer Aided Numerical Control (CNC) and Machine Tools
CAD/CAE/CAM; Industrial Robotics
Reverse Engineering; Rapid Prototyping; Alternative Energy
Bio-Mechanics; Medical Assist Systems and Artificial Organs

Assoc. Prof. İpek Başdoğan

Research Interests:
Opto-mechanical systems
Dynamics and structural analysis
Vibration isolation and vibro-acoustic interactions
Vibration testing and experimental analysis
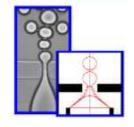
Prof. Metin Muradoğlu

Research Interests:
Multiphase Flows in Bio/Microfluidic Systems
Turbulent Combustion
Computational Fluid Dynamics (CFD)
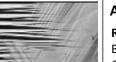Scientific Computing

Assoc. Prof. Demircan Canadinç

Research Interests:
Materials Behavior
Computational Mechanics of Materials
Mechanically Active Materials and Shape Memory Alloys
Ultrafine-grained Materials; Biomaterials
High-strength Steels; Computational Materials Science
Crystal Plasticity and Multiscale Modeling of Materials' Behavior
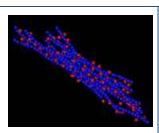
Assoc. Prof. Kerem Pekkan

Research Interests:
Biological and Bio-inspired Fluid Dynamics
Cardiovascular Biology, Mechanics and Engineering
Biomechanics of Embryonic Cardiovascular Development
Computational/Experimental Fluid Dynamics
Jet/Rocket Propulsion; Bio-engineering Design
Fluid Mechanics of High-Performance Sail Boats

Faculty (Mechanical Engineering at KU)

Assoc. Prof. Mehmet Sayar

Research Interests:
Computational Materials Science
Polymer Physics
Polyelectrolytes
Biomaterials
Self-organization into Nanostructures

Assoc. Prof. Murat Sözer

Research Interests:
Composite Materials
Fluid dynamics
Material characterization
Porous media flows
Free surface flows

Asst. Prof. Melis Şerefoğlu
Research Interests:
Solidification science
Crystal growth dynamics
Multi-phase growth-front dynamics
Crystal-melt and crystal-crystal interfacial phenomena
Phase transformations
Effect of anisotropy on pattern formation

How to Use Educational Technologies to Increase Student Engagement

Murat Sözer
Koç University Office of Teaching and Learning (KOLT)

Thursday, 13 April 2017
14:00-16:00

Koç University
Office of Teaching and Learning (KOLT)

KOLT Advisory Board
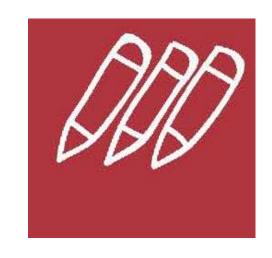
- ▪ **Barış Tan (VPAA)**
- ▪ **Murat Sözer (KOLT)**
- ▪ **Şuhnaz Yılmaz (CASE)**
- ▪ **Ayşegül Buğra (Law School)**
- ▪ **Alper Uzun (CE)**
- ▪ **Nathan Bertelsen (SOM)**
- ▪ **Aygül Akyüz (SON)**
- ▪ **Lemi Baruh (CSSH)**
- ▪ **Kazım Büyükboduk (CS)**

❑ **Meets peridically,**

❑ **Reviews KOLT services,**

❑ **Offers feedback and suggestions for future expansion and growth plans,**

❑ **Bridges between all colleges/schools and KOLT.**

KOLT SERVICES

For 3 Target Groups:

❑ **Faculty**

❑ **Teaching Assistants**

❑ **Students**

KOLT SUPPORT FOR THE

FACULTY

NEW-COMING FACULTY ORIENTATION

❑ **Introduction to KOLT services**

❑ **General tips for effective teaching and good practices**

- ✓ **101 Things that you can do first three weeks of class (J.P.Lunde)**

- ✓ **Enhancing your teaching effectiveness (Hawaii.edu)**

- ✓ **7 principles for good practice (Chickering and Gamson)**

- ✓ **General tips for teaching (McKeachie, and others)**

- ✓ **General tips for grading (McKeachie, and others)**

❑ **KU rules and regulations**

❑ **Syllabus and content preparation & samples**

❑ **Use of technology items (LMS, clickers, smart pads and tablets, etc. at KU)**

❑ **Teaching experiences of faculty members with outstanding teaching awards**

TEACHING WORKSHOPS

TEACHING WORKSHOPS

TEACHING WORKSHOPS

Outstanding Teaching Awards

Academic Year	Koç University	CASE	CE	CSSH	CS	Law School	SOM	SON	ELC
2011-2012	Murat Sözer	Şuhnaz Yılmaz	Serdar Taşıran	Yonca Köksal	Burak Özbağcı	Murat Önok			Ken Arnold
2012-2013	Burak Özbağcı	Murat Usman	Demircan Canadiç	Figen Ecer	Kazım Büyükboduk	Zeynep Derya Tarman			Melinda Moss Şenel
2013-2014	Murat Usman	Özlem Olgu	Deniz Yüret	Lemi Baruh	Varga Kalantarov	Yiğit Sayın	Özgür Çakmak	Emine Türkmen	Zeynep Oğul
2014-2015	Cüneyt Demirgüreş	Lale Güler	Alper Erdoğan	Tilbe Göksun	Alkan Kabakçıoğlu			Aygül Akyüz	Ayça Plancılar
2015-2016	Şuhnaz Yılmaz	Seda Ertaç	Alper Uzun	Alexis Rappas	Tekin Dereli	Işık Onay	Arzu Ruacan	Ayfer Elçigil	Özge Dağlıoğlu

TEACHING WORKSHOPS

https://kolt.ku.edu.tr

Since 2002, I have taught 16 different courses in 35 sections at Koc University, both at the undergraduate and graduate level. I have lectured both in small classes with 8-10 students and large classes with 70-80 students. I wrote these in order to share my experiences.

THE FIRST WEEK

I place a lot of importance on the first class and I prepare well for it. I try to earn students' respect and attract their attention when I first meet them. Students will definitely feel how eager and prepared I am to give a lecture in the first class. The atmosphere I create in the first few classes determines the tone of the course for the rest of the term.

At the beginning of each semester, before going to the first class, I check the student list on KUAIS. I memorize at least a couple of students' names by looking at their pictures. With large classes, for the first few weeks I take a class list with pictures with me to class and try to learn students' names. Students become happy when they are called by their names.

I introduce myself in the first lecture and talk about the education I had along with my experiences both in the USA and at Koc University. I tell my students that the courses at Koc University

will be rec...
explain the...

— Stud...
Of c...
nam...

Prof. BURAK ÖZBAĞCI
Faculty of Science, Mathematics
Koç University Outstanding Teaching Award, 2013

I started teaching at Koç University in 2002. Since then, I have taught more than 50 courses in the Graduate School of Business.

The first impact is always extremely crucial. Make sure to be well-prepared before the first class and tell about yourself & the course as much as possible. Ask them to introduce themselves and try to initiate a conversation whenever possible.

Adj. Prof. Cüneyt Demirgüreş
Graduate School of Business
Koç University Outstanding Award, 2015

At the beginning of each session, I try to raise some questions that create curiosity about the lecture. These questions generally touch upon their daily life. Raising some questions about their personal habits establish a ground for understanding the relevance of finance in their day-to-day living. In that way, they understand how to use theoretical knowledge gained from this course in other settings.
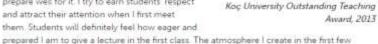
I always go to my classes early. I want to be sure that the class equipment works well, so that in the case it does not, I have time to tackle any technical issues.
I prefer to use a touch screen computer not to waste time with technology. It makes my job easier; I can open datasets and zoom in and out easily.

I have adapted a variety of techniques while teaching my course. In general, I teach mostly using the board; however, I always wrap up on PowerPoint. At the end of the day, for the last 5 minutes, I summarize the main points on the PowerPoint so students understand the clear transition of thought. I always provide concept related exercises.

From time to time, I invite some experts to my class. This practice encourages students to

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PART 1: My Personal Experience at Koç University

I started teaching at Koç University in 1998 after getting my PhD in economics. Since then I have taught mostly core/required area courses in the undergraduate economics program. Most of my classes were large. I have limited experience teaching graduate level courses.

As far as my teaching performance was concerned, my first two years at Koç University were not very successful. I suspect that I have been called the worst / most hated instructor at that time. Of course people were very polite so I was never told to my face that I was the worst instructor. Surprisingly (for me) the first semester (Fall term) of my second year was even worse than my first year. I tried to be very strict in the classroom and it didn't work out.

Then quite suddenly, in the Spring term of the...

ASSOC. PROF. MURAT USMAN
College of Administrative Sciences and Economics
Koç University Outstanding Teaching Award, 2014

...ened but in...
...cs, it is no...
...okingly but it...
...so anything...

I have been teaching at Koç University (KU) since 2000. I have taught 8 different courses at KU since then. I also taught 2 different courses at University of Delaware as a visiting professor. I am writing this letter to share my teaching experiences.

When I was a student, I usually felt like I was a secretary copying the lecturer's handwriting from the board to my notebook. I was always lagging behind at least a few lines on the board. It was almost impossible for me to read, write, think, understand and answer lecturer's questions simultaneously. I could understand the subject only when I went through the notebook later. That means, to understand a subject. I needed to eliminate tedious lecture note taking, but just concentrate on the subject. Most of the lecturers faced the board as they had to write and draw continuously (theory, derivations, proofs, graphs and problem solutions). Knowing

Assoc. Prof. E. Murat Sözer
College of Engineering, Mechanical Engineering
Koç University Outstanding Teaching Award, 2012

that lecturing alone does not ensure learning, I focus on varying my teaching methods through integrating educational technologies and innovative pedagogies in my courses that I will describe below.

First day: On the first day of a semester, I talk about major outcomes of the 4-year curriculum and how my course contributes to the attainment of these outcomes. I draw students' attention to the knowledge and skills that they gain by completing my course. Students should get motivated and see the big picture in a way that all courses are integrated

FACULTY DISCUSSION

http://kolt.ku.edu.tr/faculty/discussion

CLASS OBSERVATIONS*
Upon request, confidential, feedback report

KOLT Class Observation Form

Pre-Class	Keep	Improve
Arrive early		
Talk with students		
Prepare the materials and tools ready (e.g. make PPT ready for use)		
Write the topic of the day on board		
Start class on time		
Beginning of the class	**Keep**	**Improve**
Make a quick review of previous session		
Outline the purpose of the class		
Establish links bwt the prior knowledge and new knowledge		
During class	**Keep**	**Improve**
Explain clearly		
Move from simple to complex		
Demonstrate content knowledge		
Use of board and slides		
Respond students' questions precisely		
Check students' understanding		
Make the class interactive and engaging		
Stimulate thinking		
Be enthusiastic and energetic		
Deal with disruptive students		
Use of verbal and non-verbal communication (choice of words, body language, eye contact, voice, volume, speed/breaks, intonation, etc.)		
End of class	**Keep**	**Improve**
Summarize the session		
Manage class time effectively		

* The observation session can be video recorded upon request.
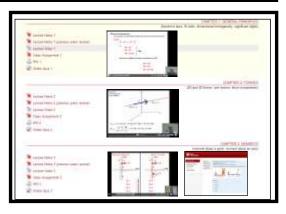
BLENDED LEARNING

Face to Face Teaching   **+**   **Supplementary Course Material in LMS**
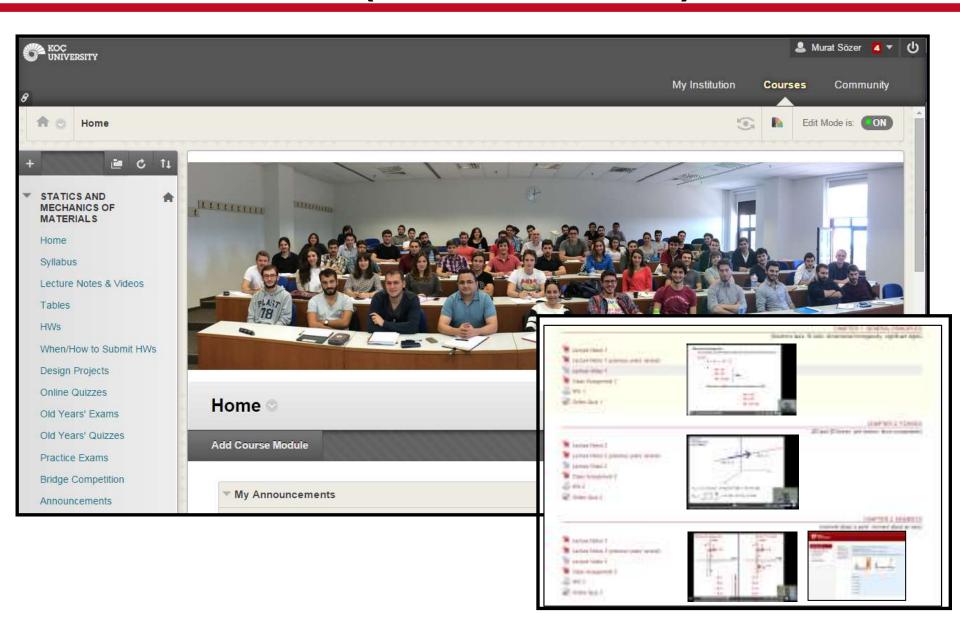
LEARNING MANAGEMENT SYSTEM (BLACKBOARD)

SUPPORT FOR BLACKBOARD

- **Regular workshops (once in a month)**

- **1-1 (on demand)**

by KOLT Educational Technologists
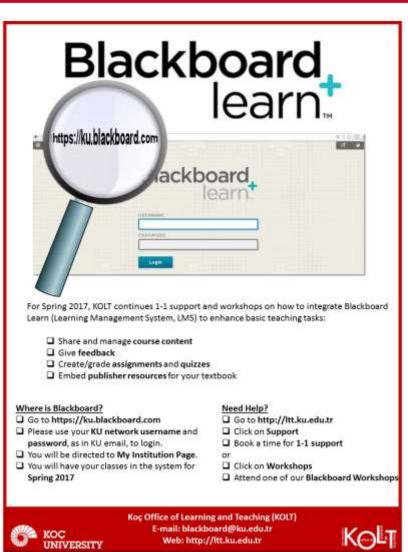
http://ltt.ku.edu.tr

blackboard@ku.edu.tr

x1059 (Ferhat) & x7060 (Ozan)

For Spring 2017, KOLT continues 1-1 support and workshops on how to integrate Blackboard Learn (Learning Management System, LMS) to enhance basic teaching tasks:

- ☐ Share and manage **course content**
- ☐ Give **feedback**
- ☐ Create/grade **assignments** and **quizzes**
- ☐ Embed **publisher resources** for your textbook

Where is Blackboard?
- ☐ Go to https://ku.blackboard.com
- ☐ Please use your **KU network username** and **password**, as in KU email, to login.
- ☐ You will be directed to **My Institution Page.**
- ☐ You will have your classes in the system for **Spring 2017**

Need Help?
- ☐ Go to http://ltt.ku.edu.tr
- ☐ Click on **Support**
- ☐ Book a time for **1-1 support**
or
- ☐ Click on **Workshops**
- ☐ Attend one of our **Blackboard Workshops**

Koç Office of Learning and Teaching (KOLT)
E-mail: blackboard@ku.edu.tr
Web: http://ltt.ku.edu.tr

KOÇ UNIVERSITY

LECTURE CAPTURING

by using Panopto;
can record your own lectures in class or in your office; automatically upload it to Blackboard

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PUBLISHER RESOURCES

MECH201-Fall16-1-CE (STATICS AND MECHANICS OF MATERIALS-1)

Home
Syllabus
Lecture Notes & Videos
Quizzes
Online Quizzes
Textbook Resources
PS
HWs
Design Projects
Old Years' Exams
Old Years' Quizzes
Practice Exams
Bridge Competition
Common Mistakes
Discussion Forum
When/How to Submit HWs
How to Study MECH201
Tables
Tools
Grades

My Announcements

No Course or Organization Announcements have been posted in the last 7 days.

more announcements... →

Textbook Resources

PEARSON

MasteringEngineering Course Home

Access your MasteringEngineering course for additional content and assignments.

PUBLISHER RESOURCES

PUBLISHER RESOURCES E-book

Browse   My Searches   Search...   Go

Page 75   82%

Statics &
Mechanics
of Materials
FOURTH EDITION

Table of Contents

Index

Notes

Bookmarks

Force System Resultants

CHAPTER OBJECTIVES

- To discuss the concept of the moment of a force and show how to calculate it in two and three dimensions.
- To provide a method for finding the moment of a force about a specified axis.
- To define the moment of a couple.
- To present methods for determining the resultants of nonconcurrent force systems.
- To indicate how to reduce a simple distributed loading to a resultant force having a specified location.

3.1 Moment of a Force—Scalar Formulation

When a force is applied to a body it will produce a tendency for the body to rotate about a point that is not on the line of action of the force. This tendency to rotate is sometimes called a *torque*, but most often it is called the moment of a force or simply the *moment*. For example, consider a wrench used to unscrew the bolt in Fig. 3–1a. If a force is applied to the handle of the wrench it will tend to turn the bolt about point O (or the z axis). The magnitude of the moment is directly proportional to the magnitude of F and the perpendicular distance or *moment arm d*. The larger the force or the longer the moment arm, the greater the moment or turning effect. Note that if the force F is applied at an angle $\theta \neq 90°$, Fig. 3–1b, then it will be more difficult to turn the bolt since the moment arm $d' = d \sin\theta$ will be smaller than d. If F is applied along the wrench, Fig. 3–1c, its moment arm will be zero since the line of action of F will intersect point O (the z axis). As a result, the moment of F about O is also zero and no turning can occur.

(a)

(b)

(c)

Fig. 3–1

PUBLISHER RESOURCES Question Bank

Online Practice Quiz 3 > Problem 4.23

Item Type: End-of-Section EOS | Difficulty: 1 | Time: 10m | ✉ Contact the Publisher   Manage this Item: Standard View ▼

Problem 4.23

The towline exerts a force of $P = 4$ kN at the end of the 20-m-long crane boom(Figure 1).

Figure 1 ▼ of 1   < >

Part A

What is the magnitude of the maximum moment about point O?

Express your answer with the appropriate units.

x^a x_b $\frac{a}{b}$ • $x \cdot 10^n$

$M = $ 80.0   kN • m

Submit   My Answers   Give Up

Part B

What is the direction of this moment?

◯ counterclockwise

◉ clockwise

Submit   My Answers   Give Up

Part A

What is the magnitude of the maximum moment about point O?

Express your answer with the appropriate units.

$M = $ 80.0 kN·m

Submit   My Answers   Give Up

Correct

Part B

What is the direction of this moment?

◯ counterclockwise

◉ clockwise

Submit   My Answers   Give Up

Correct

PUBLISHER RESOURCES   Question Bank

Item Type: End-of-Section **EOS** | Difficulty: 3 | Time: 7m | ✉ Contact the Publisher   Manage this Item: Standard View ▼

Fundamental Problem 4.13

Figure 1 ▼ of 1   ⟨   ⟩

Part A

Determine the magnitude of the moment of the force $\mathbf{F} = \{320\mathbf{i} - 210\mathbf{j} + 160\mathbf{k}\}$ N about the x axis. (Figure 1)

Express your answer to three significant figures and include the appropriate units.

$M_x =$ 22.0 N·m

Submit   My Answers Give Up

Correct

Provide Feedback   Continue

Randomized Parameters

ASSESSMENT USING EDUCATIONAL TECHNOLOGY

(ONLINE QUIZ @ BLACKBOARD)

QUESTION 1
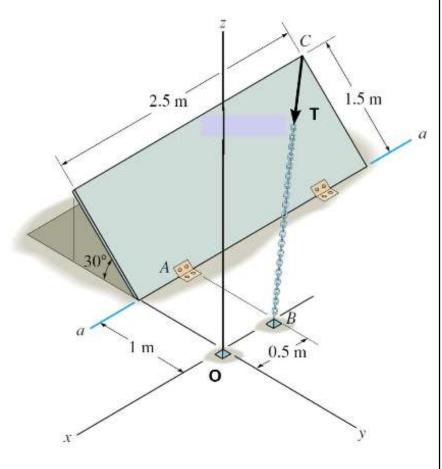
The moment about point O due to force T is computed with $M_O = r_{OB} \times T$.

True or false?

- ◉ True
- ○ False

QUESTION 5

10 points ✓ Saved
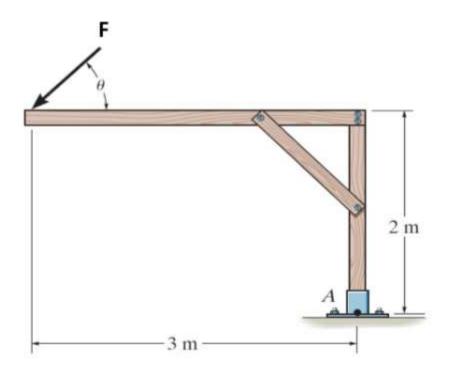
What is the maximum magnitude of the moment created about point A (in N) if F has a magnitude of 1000 N and θ is allowed to be oriented in 2D space?
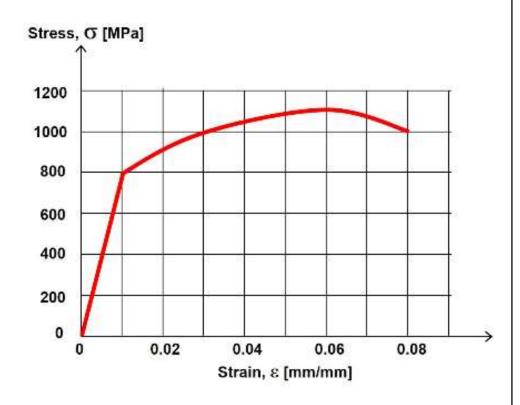

- ○ 2000
- ○ 3000
- ● 3606
- ○ 4318
- ○ 5297

QUESTION 3

The area under stress-strain curve is called modulus of _____ .
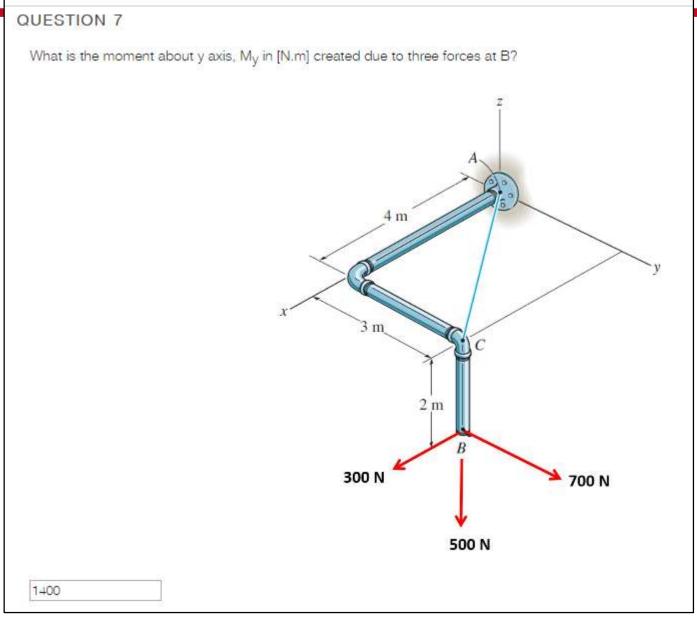
It is the amount of work per unit volume (in J/m^3) to fracture a specimen during a tensile test.

toughness

QUESTION 7

What is the moment about y axis, M_y in [N.m] created due to three forces at B?

300 N

700 N

500 N

1400

Calculated Formula

F

6. Calculated Formula: P6: Please consider the force and points ...

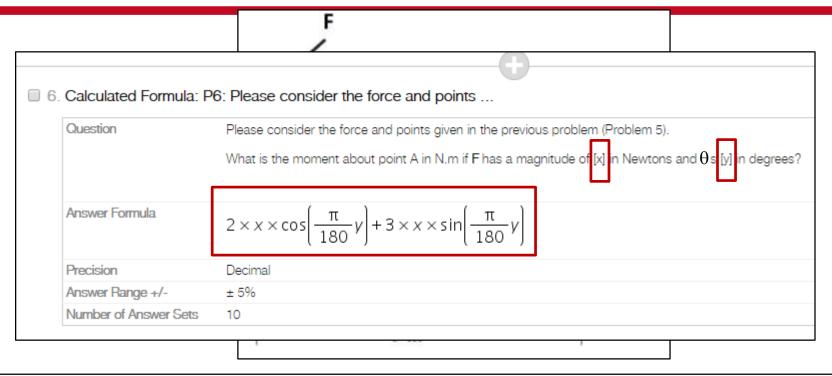| Question	Please consider the force and points given in the previous problem (Problem 5).
	What is the moment about point A in N.m if **F** has a magnitude of [x] in Newtons and θ s [y] in degrees?
Answer Formula	$$2 \times x \times \cos\left(\frac{\pi}{180} y\right) + 3 \times x \times \sin\left(\frac{\pi}{180} y\right)$$
Precision	Decimal
Answer Range +/-	± 5%
Number of Answer Sets	10

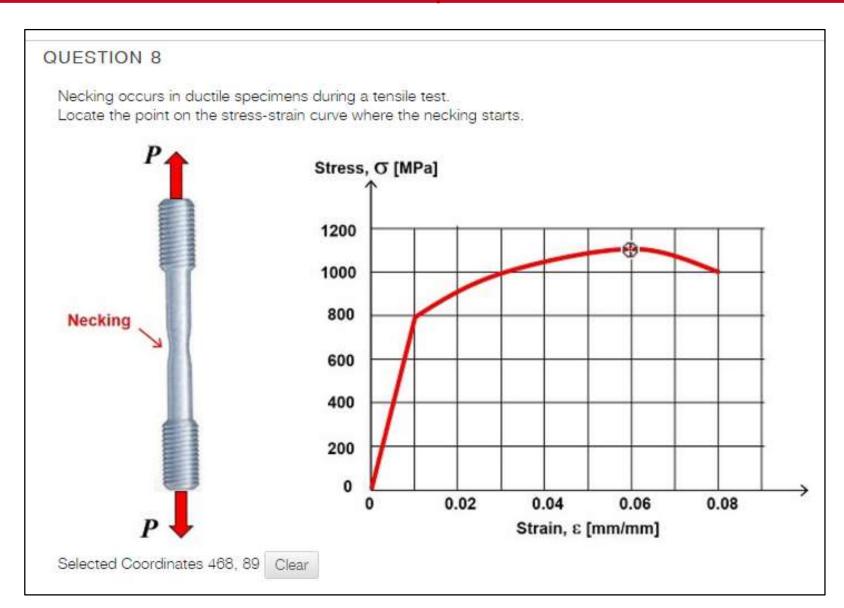## QUESTION 6

Please consider the force and points given in the previous problem (Problem 5).

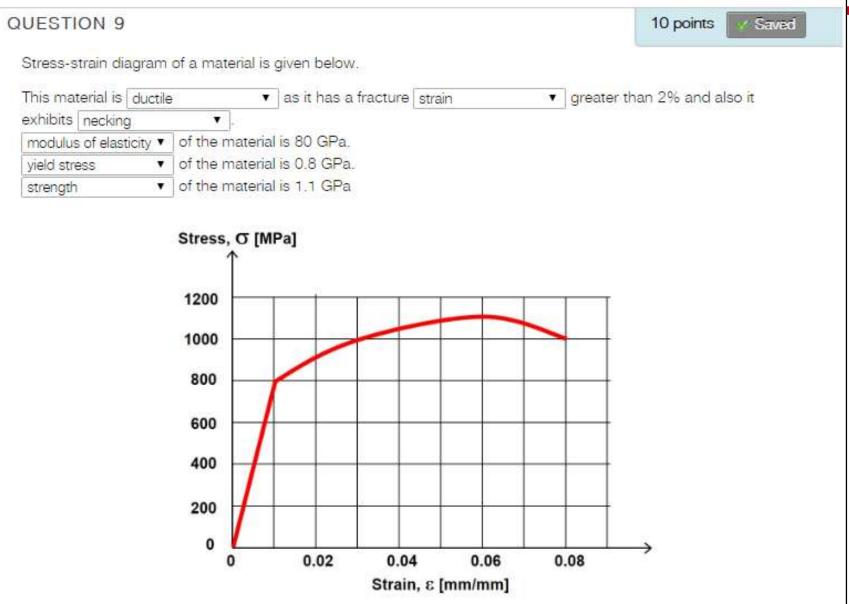What is the moment about point A in N.m if **F** has a magnitude of 239 in Newtons and θ is 42 in degrees?

835

QUESTION 8

Necking occurs in ductile specimens during a tensile test.
Locate the point on the stress-strain curve where the necking starts.

Selected Coordinates 468, 89 [Clear]

QUESTION 9

10 points ✔ Saved

Stress-strain diagram of a material is given below.

This material is [ductile ▼] as it has a fracture [strain ▼] greater than 2% and also it exhibits [necking ▼].

[modulus of elasticity ▼] of the material is 80 GPa.

[yield stress ▼] of the material is 0.8 GPa.

[strength ▼] of the material is 1.1 GPa

Stress-strain diagram: Stress, σ [MPa] (vertical axis, 0 to 1200) vs Strain, ε [mm/mm] (horizontal axis, 0 to 0.08)

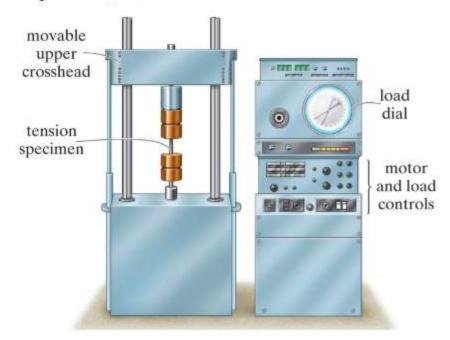## QUESTION 10

Which properties can be measured by conducting a universal tensile test?

☑ a. Modulus of elasticity

☑ b. Percentage elongation just before fracture

☑ c. Yield stress

☐ d. Machinability

☐ e. Hardness

☑ f. Modulus of toughness

☑ g. Strength

☐ h. Thermal expansion coefficient

Matching

QUESTION 11
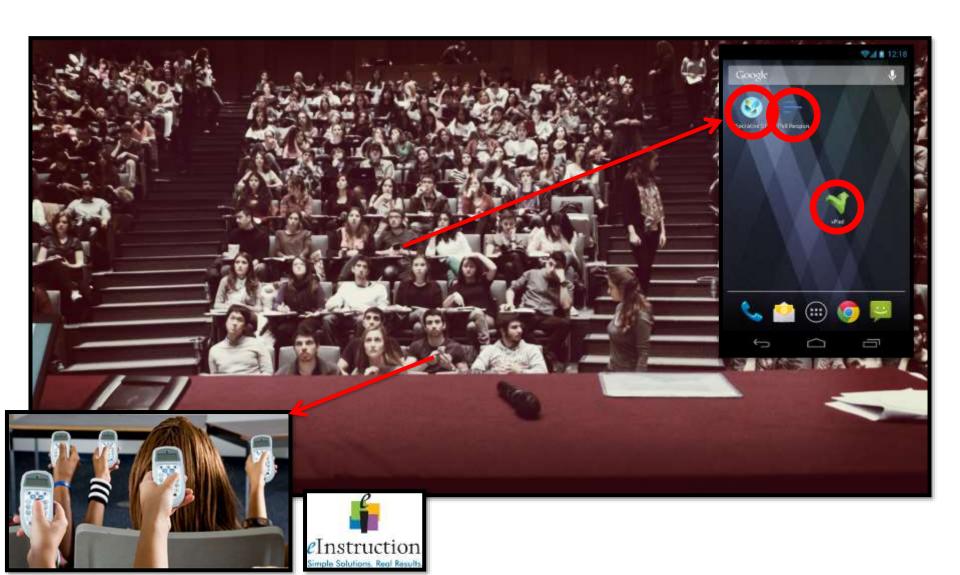
Match the following materials with features:

C. ▼ Plastics   A. High thermal conductivity

E. ▼ High carbon steels   B. Brittle

B. ▼ Cast iron   C. High ductility

A. ▼ Copper   D. High hardness
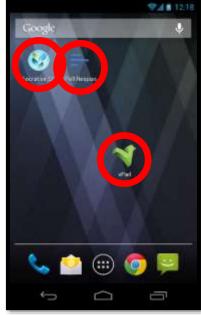
D. ▼ Diamond   E. High strength

CLICKERS OR VPADS

STUDENT RESPONSE SYSTEMS (CLICKERS & VPADS)

STUDENT RESPONSE SYSTEMS (CLICKERS & VPADS)

Exercise 4-7.

What is the magnitude of the reaction at D (i.e., the resultant of D_x and D_y) in N?

A. 65.2

B. 104

C. 233

D. 287

E. 330

C

100 N

0.5 m

0.2 m

B

0.2 m

A

D

0.1 m
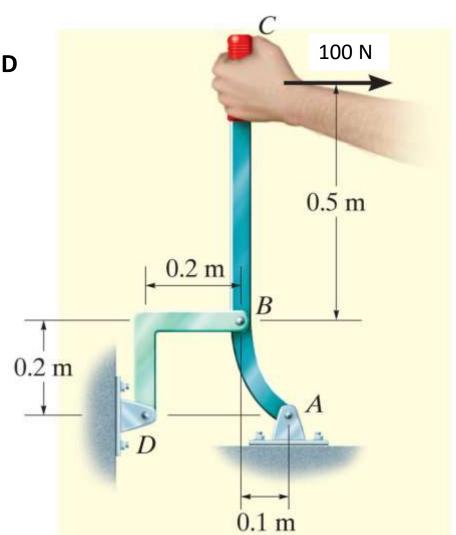
4-7.

What is the magnitude of the reaction at D (i.e., the resultant of D_x and D_y) in N?

A. 65.2

B. 104

C. 233

D. 287

E. 330

C

100 N

0.5 m

0.2 m

B

0.2 m

A

D

0.1 m

Summary

Total students:	51
Total questions:	8
Max score:	8
Average score:	4.84
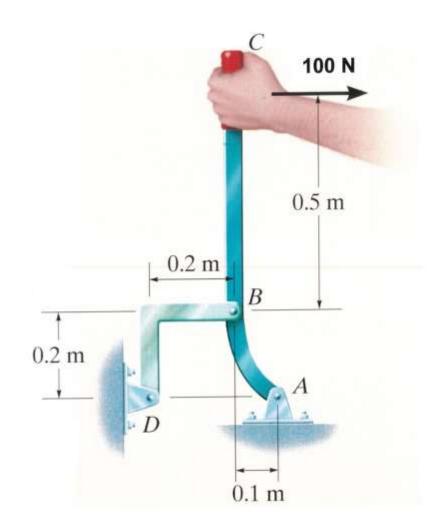
Student ID	First name	Last name	Device ID	Score	Grade
			10C6-3D0E	7.0	88
			33E1-24AC	6.0	75
			4616-57AE	8.0	100

Student ID	First name	Last name	1 1	2 2	3 3	4 4	5 5	6 6	9 7	10 8	Score	Grade
			1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	7.0	88
			0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	6.0	75
			1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	8.0	100
										0.0	4.0	50
										0.0	5.0	63

Summary

Question	44
Title	3
Type	Multiple Choice
Right answ	C
Penalty	0 %
Total answ	5
Average s	42

Answer	Votes	%
C	42	89.4 %
E	1	2.1 %
D	3	6.4 %
B	1	2.1 %

Q3. What is the common initial process to produce an engine block?

Summary

Question	58
Title	10
Type	Multiple Choice
Right answ	D
Penalty	0 %
Total answ	5
Average s	9

Answer	Votes	%
C	14	34.1 %
E	7	17.1 %
D	9	22 %
B	4	9.8 %
A	7	17.1 %

Q10. Which process should be used to produce ONLY 10 OF THIS PART?

Hint: any of the following process can be used to manufacture the part;

However, select the most feasible process by considering the cost and time needed.

A. Casting
B. Forging
C. Powder Metallurgy
D. Turning
E. Milling

Summary	Detailed grades	Detailed answers	1	2	3	4

DESIGNING AND IMPROVING LEARNING ENVIRONMENTS

Engineering Auditorium

(ENG Z50)

Podium

Switcher

Laptop

Tablet

Document Camera

DESIGNING AND IMPROVING LEARNING ENVIRONMENTS

Engineering Auditorium

(ENG Z50)

Document Camera

KU EDUCATIONAL TECHNOLOGY DEMO HOURS (EXHIBITION)

Stand 1	Stand 2	Stand 3	Stand 4
- Blackboard - Clickers - Panopto*	- Zoom** - Solstice***	- Google Apps For Education - Office 365	- Information Security - IT Orientation

Facilitators		
Ferhat Çağan	Çetin Tunca	İkbal Barışkan
Ozan Varlı	Osman Abanoz	Ramadan Cesur

*   Panopto is a video platform that it enables KU faculty to record and share video content through Blackboard.

**   Zoom is an online video conferencing tool.

*** Solstice is a wireless screen share tool that allows up to 10 screen to be shared at once.

Koç University Office of Learning and Teaching (KOLT)
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E-mail: kolt@ku.edu.tr
For details: http://kolt.ku.edu.tr

KOÇ UNIVERSITY INFORMATION TECHNOLOGY

INDIVIDUAL CONSULTATIONS*

To faculty who request them

- **syllabus** and **content design**,

- discuss and resolve **instructional issues**,

- **student coaching**,

- **video recording** of classes,

- **improve** their **courses** and **teaching skills**,

- **educational technology** (LMS, clickers, …).

* All these items are CONFIDENTIAL

between KOLT Director and the individual faculty member.

TEACHING INNOVATION GRANTS

- **Innovative teaching** activities and materials,

- **Course redesign**,

- Promote **active learning**,

- **Collaborative teaching** projects,

- Effective use of educational technologies,

- Offer **Coursera** (MOOCs) courses.

TEACHING INNOVATION GRANTS FALL 2015

Instructor	Course Name	College / Department	Objective of the Teaching Innovation Initiative
Murat Önok	Law 201 (3) Ceza Hukuku Genel Hükümler	Law School	To redesign the course to create a **flipped classroom** by using **clickers**, creating **online quizzes** and student discussion forum, applying mood **court simulation in class** and **visiting a court** with students.
Kemal S. Türker	MEDI 201, MSKL 202, CIRC 204, NUTI 205, ERUS 206, NRVS 207, MEDI 200	School of Medicine	To participate in **physiology laboratory simulation** teaching in New Zealand in order to gain valuable information about material and their application that can be used by SOM students.
Melike Mermercioğlu	PROJ 501 and PROJ 502 Business Project	School of Business	To **revise the design of the Business Project** course to enhance its structure and to **improve curriculum** by getting into contact with other CEMS university academic advisors and project managers
Mark R. Baker	HIST 350-1 A History of Rock and Roll	Department of History	To **redesign the course** named A History of Rock and Roll to create a **flipped classroom** by using **Blackboard intensively** in order to facilitate the use of classroom for discussion and **critical analysis** of texts and media.
Serpil Sayın	MGIS 301 Basic Academic Writing	College of Administrative Sciences and Economics	To **improve** the quality of **in-class activities** by means of developing a **task-based peer evaluation** mechanism and implementing it throughout the class.

TEACHING INNOVATION GRANTS SPRING 2016

Instructor	Course Name	College / Department	Objective of the Teaching Innovation Initiative
Aykut Coşkun	MAVA 209 Advanced Topics in Basic Design	CSSH Media & Visual Arts Department	To integrate an **innovative and collaborative design project** focusing on 'edible design', an emerging area for design research and practice into the MAVA 209 course in collaboration with Ülker.
Alptekin Küpçü	COMP 443/543 Modern Cryptography	CE Computer Engineering	To redesign the COMP 443/543 course into a fully **flipped classroom** model.
Mehmet Gönen	INDR 252 Applied Statistics	CE Industrial Engineering	To teach INDR 252 Applied Statistics course in an **interactive** manner using R Markdown documents, which will help students **see the concepts** they learn during the lecture in action.
Birgül Arslan	MGMT 351 Strategy in a Global Environment	CASE Management	To use a well-designed, time-proved strategy **simulation** in class to achieve **deeper learning** about the two fundamental pillars of business strategy.
Nilgün Göktepe	HEKL 404 Leadership in Nursing	SON School of Nursing	To enable students to **transform the theoretical concepts** learned throughout the course **into practice** through **team based learning** and educational Technologies.
Yeliz Utku Konca	CHEM 102 Lab General Chemistry	CS Chemistry	To use educational technologies to inspire the students to **think critically** on the concepts or techniques covered in class.
Alan Alper Sağ & Nathan Bertelsen	Breaking Bad News	SOM School of Medicine	To **design the Breaking Bad News module** as part of the KUSOM OSCE program, which is innovative by placing the student in the position of a physician delivering bad news.

TEACHING INNOVATION GRANTS FALL 2016

Instructor	Course Name	College / Department	Objective of the Teaching Innovation Initiative
Durata Haciu	CHEM 301 & 302 Laboratory	CS Chemistry	To **replace the traditional laboratory** teaching with an **interactive student approach** by employing **pair work** activities that trigger more analytical thinking and analysis.
Gizem Erdem, Asım EvrenYantaç, Ali Vatansever	PSYC 390-490 Independent Study	CSSH Psychology & Media and Visual Arts	To design and test a **Virtual Reality (VR) based immersive video** in abnormal psychology through an independent study where students will research about, design, and develop a virtual environment that simulates day-to-day experiences of having a selected psychiatric disorder.
Özen Nergis Dolcerocca	ASIU 102 Imagining the Other	CSSH English Language and Comparative Literature	To redesign the ASIU 102 course in order to incorporate **digital pedagogy** to equip and induce the students to do course readings and facilitate the participation of students that have not been trained in literature.
Öznur Özkasap	COMP/ELEC 416 Computer Networks	CE Computer Engineering	To **enhance the course design** and components to fulfill the requirements and the learning outcomes of the course when offered to a **large number of students** by incorporating educational technologies and developing **online supplementary course resources**.
Patricia Ann Ramey Balcı	SCIE 102 Introduction to Ecology	CS Molecular Biology	To redesign the SCIE 102 course to promote **active learning** and **critical thinking** while using educational technologies. The revisions will be made by taking into account the non-science students' needs and interests.
Safiye Çavdar	Anatomy	SOM School of Medicine	To learn about the resource facilities and techniques being used in **teaching Anatomy** to **improve assessment methods** of theoretical and practical Anatomy teaching at KU by visiting the Anatomy Department of Dunedin Medical Faculty in New Zealand.

TEACHING INNOVATION GRANTS SPRING 2017

Instructor	Course Name	College / Department	Objective of the Teaching Innovation Initiative
Megan MacDonald	LITR 432 Postcolonial Theory and Practice	CSSH English Language and Comparative Literature	To **redesign** the LITR 432 course in order to incorporate **digital mapping technologies** with literary archives and location based analysis. This will be done through the use of ArcGIS and Omeka "Neatline" platforms.
Mehmet Cengiz Onbaşlı	ELEC 550 Selected Topics in Electrical and Electronics Engineering	CE Electrical and Electronics Engineering	To design a course that combines computer architecture, software and hardware of old, current and emerging data in order to prepare the essential materials for an **edX/Coursera course**.
Öznur Özkasap	COMP 132 Advanced Programming	CE Computer Engineering	To **enhance the course design** and components of the course by using **flipped learning methods in PS/lab** sessions in order to promote active learning and criti**cal thinking**.

KOLT WORKSHOPS
CELEBRATING TEACHING INNOVATION

INGENUITY CREATIVITY DEVELOPMENT VISION
INNOVATION

Date	Time	Place	Teaching Innovation Grant Projects	Facilitator
May 3	12:00-13:30	KOLT Z06 L	Is Flipped Classroom a Myth?	Alptekin Küpçü
May 4	12:00-13:30	KOLT Z06 L	Collaborative Design Project with Industry: MAVA 209	Aykut Coşkun
May 4	12:00-13:30	SON 2nd Floor 2359	Lisans Eğitimde Takım Bazlı Öğrenme ve Eğitim Teknolojilerinin Kullanımı: Hemşirelikte Liderlik Dersi Örneği*	Nilgün Göktepe
May 5	12:00-13:30	KOLT Z06 L	Using TBL in Active Learning Classroom: A Case Study-MGMT 351	Birgül Arslan
May 6	12:00-13:30	KOLT Z06 L	Bringing Interactivity into Applied Statistics	Mehmet Gönen

Please RSVP via email to kolt@ku.edu.tr or calling x1755

KOÇ UNIVERSITY

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For details: http://kolt.ku.edu.tr

SUPPORT IN CURRICULUM DEVELOPMENT

- **Evaluation of the CORE Program**
  - **Interviews and surveys with students**
  - **Workshops for instructors/faculty**

- **Program Reviews**
  - **Focus group studies and surveys with juniors, seniors, alumni, employers**

Focus Groups
(for Program Review & Accreditation)

- **Used to get feedback about educational programs**

- **Stimulate thinking**

- **Trigger discussion**

- **Produce more in-depth with prompts**

- **Enable the facilitator to dig into issues raised by participants during focus group**

Course and Instructor Evaluation (End-of-Semester)

KOÇ ÜNİVERSİTESİ

Course and

Instructor's Name and Surname | College of the Course

Course Code and Number | Instructor Kusis ID

Please fill the circles with pencil or black/blue pen without spilling over.
Sample coding:

1. The level of instructor's preparedness for classes was

2. The instructor's ability to communicate and explain effectively was

3. The instructor's willingness to provide help when needed was

4. The instructor's use of class time effectively was

5. The instructor's enthusiasm (e.g., energy, encouragement, motivation, etc.) was

6. The level of instructor's concern for students' learning and progress was

7. The instructor's attitude towards students was

8. The amount of knowledge gained from the course was

9. The materials used in the course (including books, handouts, readings, etc.) were

10. In terms of helping me learn the subject matter, the teaching methods (e.g., lecturing, in-class activities, group work, discussions, etc.) were

11. The methods used to measure learning (e.g., exams, papers, reports, projects, e...

12. The course's organization (e.g., structure, completeness, logical flow) was

13. The instructor's content knowledge was

14. Overall, the instructor was

15. Overall, the course was

16. What grade do you think you will get from this course at the end of this semester?
   A) A+   B) A to B+   C) B to C+   D) C to D+

17. During the semester, about how many hours per week did you study for this cour... outside of the official class meetings (e.g., lectures labs, problem or discussion sessi...
   A) Less than 1 hr   B) 1-2 hours   C) 2-3 hours   D) 3-4 hours

18. How many classes of this course did you miss during this semester?
   A) None   B) 1 to 2   C) 3 to 5   D) 6 to 9

19. The level of difficulty in this course was
   A) Extremely Difficult   B) Difficult   C) Neither Easy nor Difficult   D) Easy

Please use the back of the page for your com...
Comments written on this page will not be sc...

COURSE UNIQUE NUMBER

Comments:

MID-SEMESTER COURSE EVALUATIONS

For Course Development:

- **Students' feedback,**

- **The faculty receives a detailed report,**

- **Faculty may request individual consultation afterwards,**

- **It is online starting Fall 2015.**

Course Code & Title:	Date:
Instructor:	Time:
Number of Students:	Room:

1. What is going well in this class?

2. What suggestions do you have on how to improve this class?

ONLINE COURSE EXCHANGE

ONLINE LECTURING (ASYNCHRONOUS)
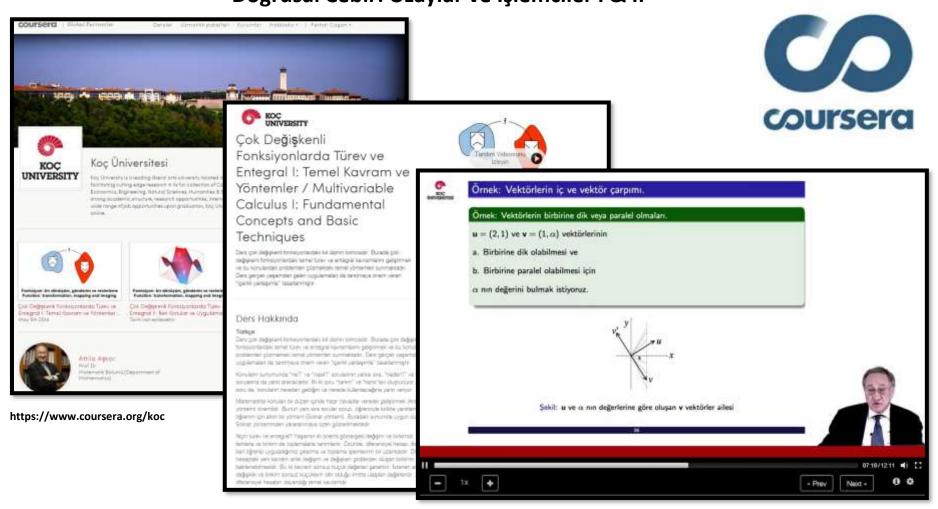
MOOCs (COURSERA)
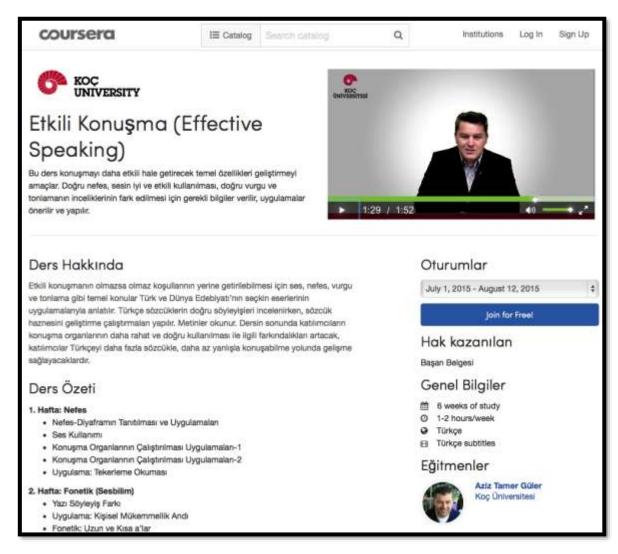
- Started in June, 2014
- Çok Değişkenli Fonksiyonlarda Türev ve Entegral I & II
- Doğrusal Cebir: Uzaylar ve İşlemciler I & II

https://www.coursera.org/koc

MOOCs (COURSERA)

❑ **Etkili Konuşma (Effective Speaking)**

MOOCs (COURSERA)

❑ **Infertilite Hemşireliği**

About this Course

İnfertilite tanı ve tedavi aşamasında bireylere verilecek hemşirelik bakım sürecinin uygulaması aşamasında ihtiyaç duyulan temel bilgiyi sağlar. İnfertilitenin nedenleri, tanı ve tedavi yöntemleri, bu süreçlerde çiftlerin yaşadıkları fiziksel ve psikososyal sorunları ve önlemeye yönelik hemşirelik girişimlerini içerir.
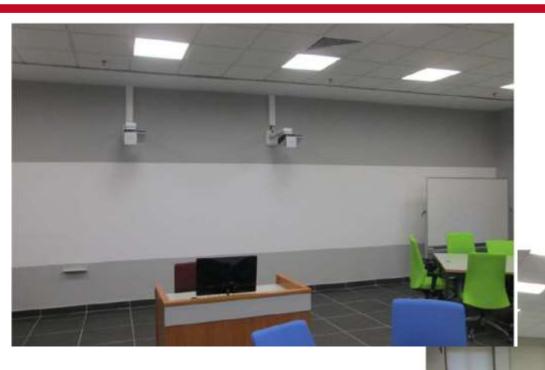
🌐 Subtitles available in **Turkish**

İnfertilite
Hemşireliği

Profesör Aygül Akyüz, RN, PhD

Instructors

Aygül Akyüz

Professor
Koç University School of Nursing

Current session:

November 23 - January 25

Enrollment ends November 28

Enroll

DESIGNING AND IMPROVING LEARNING ENVIRONMENTS
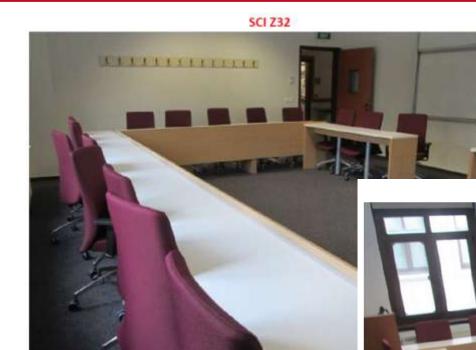
Active Learning Classroom

DESIGNING AND IMPROVING LEARNING ENVIRONMENTS

SCI Z32

SCI Z32

Seminar Room

Blackboard Workshops

Workshop Title	Description	Tools
Blackboard: Getting Started	**Navigation, the course style, and the process of planning, adding and organizing content and links on the course menu.**	**Blackboard Learn**
Blackboard: Tests, Quizzes, Online exams	**Tests (quiz) in Blackboard Learn. The main focus is on creating tests and questions, choosing appropriate settings, and adding tests to course areas. Along the way, you will learn some best practices for using tests as teaching tools and encouraging academic honesty.**	**Tests**
Blackboard: Assignments	**Create, manage and distribute activities that assess students in different ways.**	**Assignment** **Turnitin Direct Assignment** **Self and Peer Assignments**
Blackboard: Student Collaboration and Discussions	**Discussion boards to create asynchronous online discussions to post ideas in the classroom. This will enable students take some time to think before posting ideas and involve more thoughtful conversations.**	**Discussion Board**
Blackboard: Groups	**Facilitate collaboration among students by setting up groups. In Blackboard Learn, groups can have their own discussion board, blog, journals, wikis and live chats. Group members can exchange documents, submit group assignments, send email to other group members, and distribute tasks to keep the group on track.**	**Groups**
Blackboard: Grade Center	**Blackboard Learn Grade Center. We will show you how to set up grade center using different features of Blackboard Learn such as creating columns (grade fields), entering and editing grades, downloading and uploading grade data, entering manual overrides to grades and creating feedback for students.**	**Grade Center**

Educational Technologies Workshops

Workshop Title	Description	Tools
Clickers, **live polling** and quizzes.	Various audience polling tools (Clickers) like seen on television shows in which audience members vote, using a transmitter about the size of a remote control, for an answer to a question. The audience polling tools facilitate student engagement with course content and provide a snapshot view of learner understanding during class.	**Flow Polleverywhere** Kahoot
Video Recording and Sharing	Panopto Recorder to record your PowerPoint presentations or Screencasts from your personal computers at anywhere. You will also learn about how you can use "Lecture Capture" tools with Blackboard.	**Panopto Recorder**
Educational Technology **Demo Days**	Guest speakers from faculty, staff or companies to share their expertise in using different educational technology tools and software. Follow our announcements to learn about guest speakers and the content of each workshop.	Ed-Tech Tools and Software

KOLT SUPPORT FOR THE

TAs:

TA TEACHING TRAINING WORKSHOPS

- **Effective Teaching Tips and Good Practices**

- **Microteaching Workshop (for PS and Lab)**

Required

- **Learning and Teaching Methods**

- **Grading**

- **Learning Management System (LMS, Blackboard)**

- **Classroom Management**

Electives (min. 1)

MICROTEACHING WORKSHOPS

KOLT Data (TAs)

KOLT Activity		# of participants	
		Fall 2009-present	2016- present
1.	Effective Teaching Workshops	837	105
2.	Microteaching	795	105
3.	Elective workshops	371	105
4.	Proofreading	40	-

KOLT SUPPORT FOR THE

STUDENTS:

PEER-SUPPORTED TUTORING
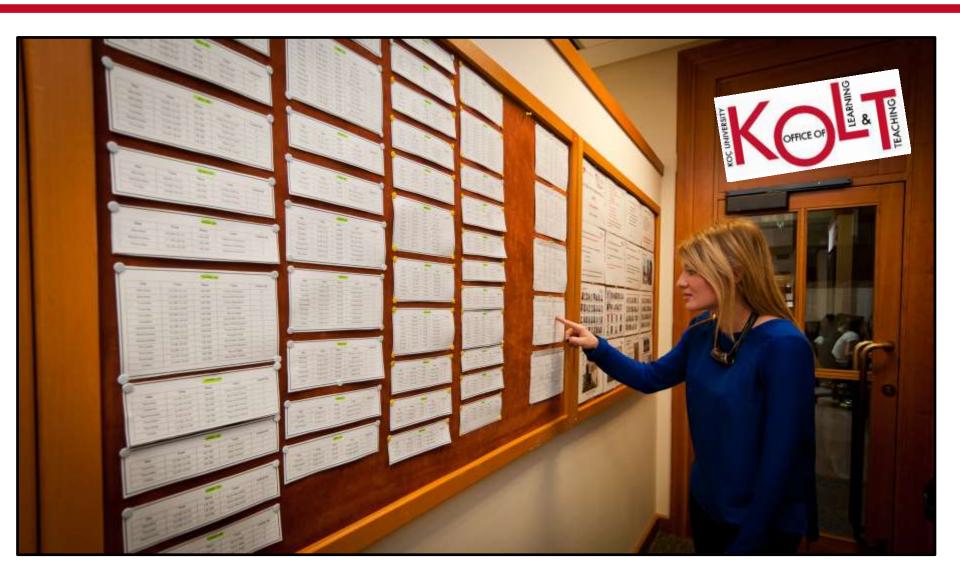
TUTORING

- **KOLT tutoring is better than private lessons offered. Why?**

- **Tutors …**
    - **are nominated by the instructors,**
    - **have already taken the same courses,**
    - **know the content and exams,**
    - **got a good grade: A+/A/A-**
    - **have good communication skills.**

COURSES THAT WE PROVIDE TUTORING SUPPORT (FALL 2016)

CASE	CS		CE		CSSH	
ACCT 201	CHBI 201	MATH 204	COMP 106	ELEC 310	ACWR 101	INTL 203
ACCT 202	CHEM 101	MATH 211	COMP 110	ELEC 317	ACWR 103	MAVA 406
BLAW 202	CHEM 103	PHYS 101	COMP 130	ENGR 200	ACWR 104	PSYC 100
ECON 100	EQUR 121	PHYS 102	COMP 131	INDR100	ACWR 105	SOCI 312
ECON 201	MATH 101	SCIE 103	COMP 200	INDR 343	ACWR 106	SOSC 108
ECON 202	MATH 102	SCIE 107	COMP 301	INDR 363	ACWR 107	
ECON 311	MATH 106		COMP 302	INDR 371	ASIU 100	LAW
ECON 330	MATH 107		COMP 303	MECH 201	ASIU 102	LAW 201
ECON 340	MATH 201		ELEC 201	INDR 301	ETHR 107	LAW 221
QMBU 301	MATH 202		ELEC 204	INDR 303	HUMS 101	
	MATH 203		ELEC 304		HUMS 117	CPAP 100

67 Courses

COURSES THAT WE PROVIDE TUTORING SUPPORT (SPRING 2017)

CASE	CS		CE		CSSH	
ACCT 201	CHBI 308	MATH 204	COMP 110	ENGR 200	ACWR 101	ETHR 107
ACCT 202	CHEM 102	MATH 206	COMP 130	INDR 202	ACWR 103	HUMS 101
ECON 100	CHEM 103	MATH 211	COMP 132	INDR 252	ACWR 104	HUMS 108
ECON 201	EQUR 102	PHYS 101	COMP 202	INDR 262	ACWR 106	INTL 203
ECON 202	EQUR 121	PHYS 102	ELEC 100	INDR 344	ACWR 107	LITR 111
ECON 311	MATH 101	SCIE 103	ELEC 201	INDR 372	ASIU 100	MAVA 203
ECON 330	MATH 102		ELEC 202	MBGE 200	ASIU 102	MAVA 340
ECON 340	MATH 106		ELEC 204	MECH 100	ASIU 107	PSYC 100
ECON 360	MATH 107	LAW	ELEC 206	MECH 202	ETHR 101	PSYC 410
QMBU 301	MATH 201	LAW 212	ELEC 303	MECH 204	ETHR 105	
	MATH 202	LAW 222	ELEC 311	MECH 206	FREN 201	CPAP 100
	MATH 203		ELEC 316	MECH 307	FREN 202	76 Courses

FALL 2016

SPRING 2017

GROUP STUDIES & REVIEWS

Please follow our announcements for

weekly/monthly studies and reviews before exams.

ENGLISH CONVERSATION CIRCLES

Join to practice your listening and speaking skills with native speakers

(18 hours / week)

FALL 2016

English Conversation Circles

| Ana Cazares | Bala Tabak | Hussein Shayto | Kenzy El Kalamawy | Leon Osbourne | Sumaiyyah Patel |

	Monday	Tuesday	Wednesday	Thursday
13:30- 14:30	Hussein	Kenzy	Hussein	
14:30- 15:30	Ana	Kenzy	Bala (beginner)	Sumaiyyah
15:30- 16:30	Bala (beginner)	Leon	Bala (beginner)	Hussein
16:30- 17:30	Kenzy	Leon		Leon
17:30- 18:30	Sumaiyyah	Ana	Sumaiyyah	
18:30- 19:30		Ana		

Come and join KOLT Conversation Circles
to practice your language skills
with Exchange students.

Foreign Language Conversation Circles

| Bastien Rambaud French | Florentin Blanchon French | Jost Arndt German | Alessa Flores Vela Spanish |

	Monday	Tuesday	Wednesday	Thursday
17:30- 18:30	Alessa Spanish	Florentin French	Jost German	Bastien French

ACADEMIC SKILLS SEMINARS
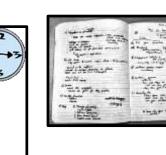
- **Being a university student,**

- **Effective reading,**

- **Effective lecture note-taking,**

- **Plagiarism,**

- **Taking an exam,**

- **Presentation skills,**

- **Time management and how to avoid procrastination.**

Also offered as a 1-credit course in Turkish: KOLT 101 ACADEMIC SKILL DEVELOPMENT

Computer Proficiency Assessment Program (CPAP)

CPAP 100 is a mandatory program for all Koç University undergraduates, except for college of science and school of medicine to improve computer proficiency.

Its aims are to develop and evaluate the skills of students in Microsoft Office Word (word processing) and Excel (spreadsheets).

Courses in which CPAP 100 is a prerequisite:

Course Code	Course Title
ECON 311	Introduction to Econometrics
INTL 201	Research Methods in Social Sciences
MFIN 202	Introduction to Financial Management
MGIS 301	Management Information Systems
MKTG 201	Marketing Management
OPSM 301	Operations Management
QMBU 301	Quantitative Methods in Business
QMBU 310	Introduction to Management Science

Computer Proficiency Assessment Program (CPAP)

CPAP 100 MS Word Workshop Content:
Creating, opening, saving, and managing documents, text basics, formatting, styles, page layout, spacing, tables, pictures, shapes, lists, breaks, headers, footers, page numbers, spelling and grammar, track changes and comments.

CPAP 100 MS Excel Workshop Content:
Creating, opening, saving, and managing workbooks, cell basics, modifying data, formating cells, simple formulas (SUM, AVERAGE, MIN, etc.), logical formulas (AND, OR, etc.), complex formulas, embedded formulas, string formulas (CONCATENATE, LOWER, LEFT, etc.), cell references, sorting and filtering data, charts (bar charts, line charts, etc.), viewing options.

Tips and strategies for CPAP 100 exam.

Complex formulas and embedded formulas. String formulas. Excel viewing options.

KOLT STAFF

KoⓁT Tutors Spring 2017

http://kolt.ku.edu.tr

kolt@ku.edu.tr

(90) 212 338 1468

How to Use Educational Technologies to Increase Student Engagement

Assoc. Prof. E. Murat Sözer

Koç University Office of Learning and Teaching (KOLT)

TED University

Ankara

April 13, 207

Outline

Use of **Educational Technologies** to Increase Student Engagement

- ✓ **Effective Use of PowerPoint & Tablet & Board**

- ✓ **Tips and Good Practices**

- ✓ Learning Management System (**LMS**): **Blended Learning**

- ✓ **Student Response Systems** for Immediate Feedback and Assessment

The Use of Information Technology Among Turkish University Students

E. Murat Sözer, Zuhal Zeybekoğlu and Ferhat Çağan
Koç University, Istanbul, Turkey

KOÇ UNIVERSITY

KOLT OFFICE OF LEARNING & TEACHING

INTRODUCTION

This study intends to understand how university students perceive the new technological changes and their effect on learning and teaching, their preferences that facilitate academic success. This poster presents only qualitative findings.

METHOD

The survey study that was undertaken at a non-profit English-medium Turkish university, Koç University in Istanbul, Turkey. The survey was taken by a total of 286 undergraduate and graduate students from different disciplines.

The survey was adapted from EDUCAUSE Center for Analysis and Research (ECAR) Study of Undergraduate Students and Information Technology Survey, 2013 with the permission of EDUCAUSE Center for Applied Research.

EDUCAUSE

Content analysis was carried out to make sense of qualitative data that came from the open-ended questions.
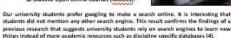
The most cited comments were identified and categories were created to organize and make sense of the large data.

Online resources that students use

Q: "What online resource do you go first to learn about a new topic?" (N = 215)

Some of the common responses:

- Google;
- Wikipedia;
- Search Engine of the University Library;
- Google Scholar;
- Massive Open Online Courses (MOOCs).

Our university students prefer googling to make a search online. It is interesting that students did not mention any other search engine. This result confirms the findings of a previous research that suggests university students rely on search engines to learn new things instead of more academic resources such as discipline specific databases [4].

New, better, cutting-edge technologies in university experience

Q: "What type of new, better, or cutting-edge technologies would be useful for your university experience? (N = 144)

Categories	Most Cited Responses
iPads, tablets and smartphones	• Making iPads or tablets available in public places
	• Providing iPad, tablet and smartphone applications
Computers and laptops available on campus use	• Increasing the speed of internet connection
	• Renewing computers and laptops for use on campus
Printer and scanner services	• Enabling access to printers from mobile devices
	• 3D printers with reasonable prices
Online teaching	• Having access to videos of lectures from ITUNES
	• Designing course materials compatible with mobile devices
Miscellaneous	• Creating technology zone to present newest technologies such as Google Glass
	• Using smart boards, podcasts, etc.

Most of the suggested technologies are relevant to traditional technologies and their improvement with a little emphasis on emerging technologies. Saeed and Sinnappan (2009) exemplify emerging technologies with blogs, wikis, instant messaging (IM), social bookmarks, podcasts, vodcasts and many other new technologies that enable students experience interactive and collaborative learning opportunities [5].

Our students seem to be ambivalent about the conception of these "new or cutting-edge technologies". This may be attributed to students' limited knowledge about the educational value of emerging or new technologies. In other words, they may follow the recent trends in technology without paying attention to their implications on education.

The facilitative role of faculty in technology use for academic success

Q: "Write one thing that your instructors could do better with technology to facilitate or support your academic success at the university." (N =195)

Some of the common responses:

- Using visual materials including videos, presentations, etc. that are interesting and instructive;
- Posting course materials online;
- Lecture capturing to enable students watch videos of class lectures;
- Creating more online courses and materials;
- Sharing online lectures that were made online by other universities;
- Assessing student learning via online quizzes;
- Replying students' e-mails promptly;
- Holding virtual office hours;
- Using mobile devices more effectively;
- Using Learning Management System (LMS) more effectively.

University students' expectations from the faculty reflect their traditional view that they hold for technology and its integration into their courses. Students seem to be willing to protect their "passive" role by avoiding experimenting with the learning-focused features of aforementioned emerging technologies.

The facilitative role of the university in technology use for academic success

Q: "Write one thing that the university could do better with technology to facilitate or support your academic success at the university." (N =195)

Some of the common responses:

- Providing better internet connection;
- Renewing computers;
- Launching an open courseware system;
- Providing digital versions of textbooks;
- Video recording lectures and building an archive of lecture videos.

Students' expectations from faculty and the university in terms of technology use are largely shaped by their confined conception of technology for educational purposes.

CONCLUSION

Understanding students' perspectives on technology use for academic purposes is essential if we would like to create valuable learning experiences that accommodate their learning needs.

However, our knowledge about university students' perspectives on technology use was limited with EDUCAUSE studies in which majority of the data came from American context [6].

Recent additions to this study have provided multiple views from different parts of the world. Our study is of value as it brings new lenses to technology use in higher education from a developing country.

These new lenses can help academics in instructional design and course delivery.

Also, the results have implications for information technology services in higher education institutions.

REFERENCES

[1] Selwyn, N., Journal of Computer Assisted Learning, 2007, 23, 83-94.
[2] Hew, F. K., Cheung, S. W., Educational Research Review, 2013, 9, 47-64.
[3] EDUCAUSE, 2013, http://www.educause.edu
[4] Hughes, H., Journal of Further and Higher Education 2013, 37(1), 126-146.
[5] Saeed, N., Yang, Y., Sinnappan, S., Educational Tech. & Society 2009, 12(4), 98-109.
[6] Waycott, J., Bennett, S., Kennedy, G., Dalgarno, B., Gray, Computers & Technology, 2010, 54, 1202-1211.

THE USE OF INFORMATION TECHNOLOGY AMONG TURKISH UNIVERSITY STUDENTS

The facilitative role of faculty in technology use for academic success

Q: "Write one thing that your **instructors could do better** with technology to facilitate or support your academic success at the university." (N =195)

- Using **visual materials** (videos, presentations, etc.) that are **interesting and instructive**;

- Posting **course materials online**;

- **Lecture capturing** to enable students watch videos of class lectures;

- Creating more **online courses** and materials;

- Sharing online lectures that were made online by other universities;

- Assessing student learning via **online quizzes**;

- Replying students' **e-mails** promptly;

- Holding **virtual office hours**;

- Using mobile devices more effectively;

- Using Learning Management System (**LMS**) **more effectively**

How to Use Slides Effectively to Increase Student Engagement

Some Cliches

Use **fonts 24 points** for the text.

- Use fonts **9** points for the text.
- Use fonts **10** points for the text.
- Use fonts **12** points for the text.
- Use fonts **14** points for the text.
- Use fonts **16** points for the text.
- Use fonts **18** points for the text.
- Use fonts **20** points for the text.
- Use fonts **24** points for the text.
- Use fonts **32** points for the text.

Underlining makes some characters difficult to read.

KOLT's Teaching Innovation Grants (up to 5.000 TL each) for

❑ innovative teaching activities and materials,

❑ course redesign,

❑ promote active learning,

❑ attending conferences with professional development sessions.

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Don't use acronyms unless all members of the audience are familiar with them.

E.g., in computer-related literature, **DC** means 6 different things:

DC =   Direct Couple (hook 2 computers or pieces together directly)

DC =   Data Conversion

DC =   Direct Cycle

DC =   Direct Current (110 V house electricity)

DC =   Display Console (monitor)
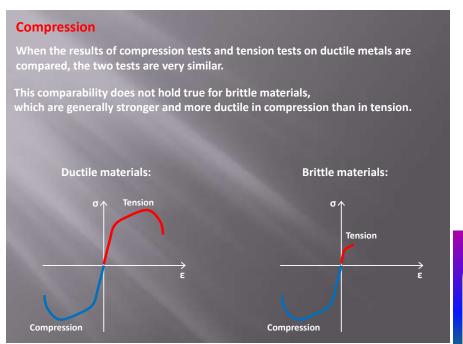
DC =   Design Change
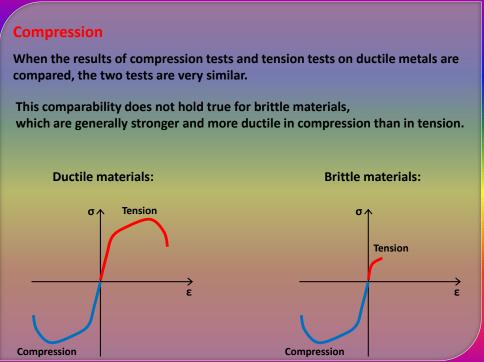
Use spell-checker.

Whne yuo use PowrePiont, yuo may use ist speeel-cheeckre.

Ensure that your slides are legible

(e.g. watch your color choices for fonts and background).

Compression

When the results of compression tests and tension tests on ductile metals are compared, the two tests are very similar.

This comparability does not hold true for brittle materials, which are generally stronger and more ductile in compression than in tension.

Ductile materials:

Brittle materials:

Tension

Tension

Compression

Compression

Compression

When the results of compression tests and tension tests on ductile metals are compared, the two tests are very similar.

This comparability does not hold true for brittle materials, which are generally stronger and more ductile in compression than in tension.

Ductile materials:

Brittle materials:

Tension

Tension

Compression

Compression

Avoid Yellow Text.

Keep the room **lights on**, and

avoid showing slides **in a dark room** for more than **15 minutes**.

The Following

Are More **Important**
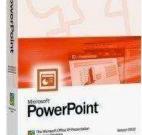
For **Student Engagement**

History
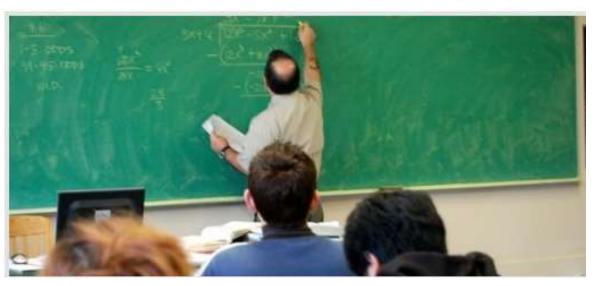
Microsoft Windows include:

1990	**PowerPoint 2.0 for Windows 3.0**
1992	**PowerPoint 3.0 for Windows 3.1**
1993	**PowerPoint 4.0 (Office 4.x)**
1995	**PowerPoint for Windows 95 (version 7.0; Office 95)**
1997	**PowerPoint 97 (version 8.0; Office 97)**
1999	**PowerPoint 2000 (version 9.0; Office 2000)**
2001	**PowerPoint 2002 (version 10; Office XP)**
2003	**Office PowerPoint 2003 (version 11; Office 2003)**
2007	**Office PowerPoint 2007 (version 12; Office 2007)**
2010	**PowerPoint 2010 (version 14; Office 2010)**

Linear

Non-Linear

Conventional Board Work

Overhead Projectors

Face the audience when showing the slide.

Use of Slides

What if not designed well

Avoid putting students in a passive mode by **combining** the slide presentation with …

- ✓ **board use,**

- ✓ other **learning activities (clickers, discussions, group work, …).**

Use of PowerPoint

+ Positive aspects:

❑ It is easy to update.

❑ It **saves time** and **energy**.

❑ It allows for "**portability**" of materials.

❑ Professors can take slides from one lecture, update them, and include them in another lecture.

❑ It can be **shared with students**.

❑ It provides a platform for **incorporating images**, **video**, **audio**, and **animations**.

❑ Allows **facing** the audience (**eye contact**).

❑ The students may **focus** on the **listening** instead of heavy **note taking** → **comprehension**.

— Drawbacks (if used incorrectly):
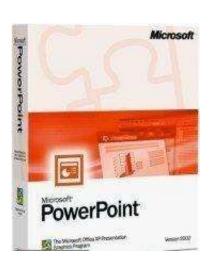
❑ Can **cause passivity** by discouraging interaction between the students and instructor.

❑ Professors **often overload** slides with information, **forcing them to move through the material too quickly** while **overwhelming** students with details.

❑ This can sometimes **discourage students** and lead them to **stop listening** to the lecture altogether.

University of Minnesota , Center for Teaching and Learning
http://www1.umn.edu/ohr/teachlearn/tutorials/powerpoint/lecturing/index.html

[1]:

❑ "PowerPoint has made it possible to **convey ideas more quickly** than ever before."

❑ "The purpose of a presentation is to **extract** and **summarize key issues** in a way that **engages the audience -- sparking new thinking and dialogue**."

❑ "The problem is that these tools (**PowerPoint** and others) **are often misused**."

❑ "A PowerPoint presentation should be **entertaining and thought provoking**; what it **shouldn't be** is a **data dump**."

---

[1]: Ron Ashkenas, Simply Effective, Harvard Business Review online.

[2]: Cristobal Conde, President and CEO of software services firm SunGard.

[3]: David R. Butcher, http://news.thomasnet.com/IMT/2010/09/14/avoid-death-by-powerpoint-tips-for-effective-presentations/

Use

But, how?

Pace of a lecture should be **slow enough** so that the audience can **follow you**.

rabbit and tortoise story

Limit 7 words per line and 8 lines per slide.

Too strict rule!

However, you get the message

Sample →

[*]: McKeachie's Teaching Tips, Svinicki and McKeachie

Web 1.0 ve Web 2.0 nedir, aralarındaki farklılıklar*

"Web 1.0, Tim Berners-Lee tarafından geliştirilen World Wide Web (WWW), yani Dünya Çapında Ağ teknolojisinin ilk zamanlarında oluşturulan Web sitelerine atıfta bulunmak için kullanılmaktadır (Berners-Lee, 2011, para. 1). İnternetin toplumla buluşmasının ertesinde dünyayı saran bu dünya çapındaki ağın başlarda böyle özel bir ismi yoktu. Fakat günümüz WWW teknolojisindeki ilerlemeler sonucunda bu isim yaygın olarak kullanılmaya başlanmıştır. Web 1.0 olarak nitelendirilen Web sitelerindeki temel amaç, sadece, kullanıcıya bilgiyi sunmaktır. Başka bir deyişle, web tasarımcısı siteyi hazırlar ve yayımlar; kullanıcılar ise bu siteye erişip, bilgiyi sadece okuyabilirler. Bu en temel özelliğin dışında Web 1.0 olarak nitelendirilen sitelerin diğer özellikleri şöyledir: Bu Web sitelerinde etkileşim kullanıcının sadece sayfalar arasındaki bağlantılar aracılığıyla gezinmesiyle sınırlıdır. Kullanıcının sitedeki içeriğe katkıda bulunma hakkı yoktur. Yani, kullanıcının pasif bir rolü vardır ve kullanıcı tümdengelim yaklaşımıyla bir bütün halinde sunulan bilgileri okuyabilen bir tüketici rolündedir (Horzum, 2007, s. 104). Bu siteler genellikle HTML (HyperText Markup Language) tabanlı olduğundan, bahsettiğimiz zamanlarda bir Web sitesi yapmak HTML kodlama bilgisi gerektirmekteydi.

Web 2.0 terimi ilk olarak O'Reilly ve MediaLive International arasında düzenleyecekleri bir konferans için yaptıkları bir beyin fırtınası oturumu sırasında ortaya atılmıştır. Oturumun amacı, gelişen teknolojiyle birlikte Web sitelerine gelen yenilikleri ve ortaya attıkları bu yeni kavramla Web sitelerindeki hangi özelliklerin kastedildiğini belirlemekti (O'Reilly, 2005, para. 2). Web 2.0 olarak nitelendirilen sitelerin Web 1.0 sitelerinden ayrıldığı en önemli nokta kullanıcının rolüdür desek herhalde yanlış olmaz. Web 2.0 sitelerinde kullanıcıların rolü Web 1.0 sitelerinde olduğu gibi sadece okuyabilen pasif bir tüketici değil tam tersine, içerik üzerinde söz hakkı bulunan, içeriğe katkıda bulunan, geliştiren ve paylaşan aktif bir üreticidir. Web 2.0 uygulamalarının temel amacı, kullanıcıların teknik sorunlarla yüzleşmeden içerik geliştirmesini ve paylaşmasını sağlamaktır. Bu uygulamalar aynı zamanda kullanıcıların İnternet'in işbirliği ve sosyal etkileşim olanaklarından faydalanmasını da sağlamaktadır. Bu nedenle Web 2.0 için "Sosyal Devrim" diyenler de vardır (Downes, 2005, para. 25; Ebner, Holzinger, & Maurer, 2007, s. 560). Benzer şekilde Web 2.0 araçlarına "sosyal yazılımlar" ya da "sosyal medya (ortamlar)" da denilmektedir. Facebook, Twitter, Flickr, Youtube, vb. gibi sitelerin Web 2.0'a örnek olarak gösterilen ilk uygulamalar olduğu gözönüne alındığında bu yakıştırmanın nereden kaynaklandığı da açıkça görülebilmektedir."

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Web 1.0, World Wide Web (WWW), yani Dünya Çapında Ağ teknolojisinin ilk zamanlarında oluşturulan Web sitelerine atıfta bulunmak için kullanılmaktadır (Berners-Lee, 2011, para. 1)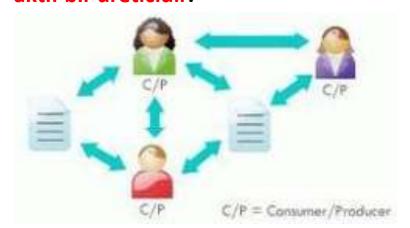. Web sitelerindeki temel amaç, sadece, kullanıcıya bilgiyi sunmaktır. Web tasarımcısı siteyi hazırlar ve yayımlar; kullanıcılar ise bu siteye erişip, bilgiyi sadece okuyabilirler. Kullanıcının sitedeki içeriğe katkıda bulunma hakkı yoktur.

Web 2.0 terimi ilk olarak O'Reilly ve MediaLive International'ın yaptıkları bir beyin fırtınası oturumu sırasında ortaya atılmıştır. Web 2.0 sitelerinde kullanıcıların rolü sadece okuyabilen pasif bir tüketici değil tam tersine, içerik üzerinde söz hakkı bulunan, içeriğe katkıda bulunan, geliştiren ve paylaşan aktif bir üreticidir. Web 2.0 uygulamalarının temel amacı, kullanıcıların teknik sorunlarla yüzleşmeden içerik geliştirmesini ve paylaşmasını sağlamaktır. Web 2.0 araçlarına "sosyal yazılımlar" ya da "sosyal medya (ortamlar)" da denilmektedir. Facebook, Twitter, Flickr, Youtube, vb. gibi siteler.

Web 1.0 ve Web 2.0 nedir, aralarındaki farklılıklar*

Web 1.0

- ❑ World Wide Web (WWW, Dünya Çapında Ağ) teknolojisinin ilk zamanlarında oluşturulan Web sitelerine atıfta bulunmak için kullanılmaktadır (Berners-Lee, 2011, para. 1).

- ❑ Web sitelerindeki temel amaç, sadece, kullanıcıya bilgiyi sunmaktır.

- ❑ Web tasarımcısı siteyi hazırlar ve yayımlar; kullanıcılar ise bu siteye erişip, bilgiyi sadece okuyabilirler.

- ❑ Kullanıcının sitedeki içeriğe katkıda bulunma hakkı yoktur.

Web 2.0

- ❑ Web 2.0 sitelerinde kullanıcıların rolü sadece okuyabilen pasif bir tüketici değil tam tersine, içerik üzerinde söz hakkı bulunan, içeriğe katkıda bulunan, geliştiren ve paylaşan aktif bir üreticidir.

- ❑ Web 2.0 uygulamalarının temel amacı, kullanıcıların teknik sorunlarla yüzleşmeden içerik geliştirmesini ve paylaşmasını sağlamaktır.

- ❑ Web 2.0 araçlarına "sosyal yazılımlar" ya da "sosyal medya (ortamlar)" da denilmektedir.

- ❑ Örnekler: Facebook, Twitter, Flickr, Youtube, vb. gibi siteler.

Web 1.0 ve Web 2.0 nedir, aralarındaki farklılıklar*

Web 1.0

❑ **World Wide Web (WWW, Dünya Çapında Ağ)** teknolojisinin **ilk zamanlarında** oluşturulan **Web sitelerine atıfta** bulunmak için kullanılmaktadır (Berners-Lee, 2011, para. 1).

❑ **Temel amaç:** sadece **kullanıcıya bilgiyi sunmak.**

❑ **Web tasarımcısı siteyi hazırlar ve yayımlar.**

❑ **Kullanıcılar ise bu siteye erişip, bilgiyi sadece okuyabilirler.**

❑ **Kullanıcının sitedeki içeriğe katkıda bulunma hakkı yoktur.**

Web 1.0 ve Web 2.0 nedir, aralarındaki farklılıklar*

Web 2.0

❑ **Web 2.0 sitelerinde kullanıcıların rolü sadece okuyabilen pasif bir tüketici değil tam tersine, içerik üzerinde söz hakkı bulunan, içeriğe katkıda bulunan, geliştiren ve paylaşan aktif bir üreticidir.**

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❑ **Web 2.0 araçlarına "sosyal yazılımlar" ya da "sosyal medya (ortamlar)" da denilmektedir.**

❑ **Örnekler: Facebook, Twitter, Flickr, Youtube,..., bloglar, Wikipedia, …**

"Web 1.0"

- **Statik** → **Dinamik**
- **Katılıma kapalı** → **Etkileşimli**
- **Belirgin otorite** → **Dağınık otorite**
- **Pasif kullanıcı** → **Katılımcı site ziyaretçisi**

"Web 2.0"
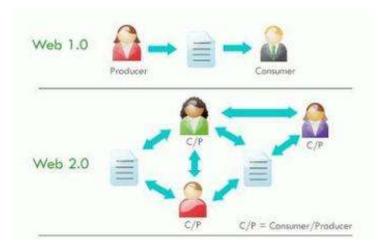
- **Dinamik**
- **Etkileşimli**
- **Dağınık otorite**
- **Katılımcı site ziyaretçisi**

Örnek :
- **Geleneksel web siteleri**

Örnek :
- **Blog**lar
- **Sosyal iletişim siteleri (Facebook, youtube, …)**
- **Wikipedia**

Use images if it helps.

"A picture is worth a thousand words"

This phrase refers to the notion that a complex idea can be conveyed with just a single still image.

One Look Is Worth A Thousand Words--

One look at our line of Republic, Firestone, Miller and United States tires can tell you more than a hundred personal letters or advertisements.

WE WILL PROVE THEIR VALUE BEFORE YOU INVEST ONE DOLLAR IN THEM.

Ever consider buying Supplies from a catalog?
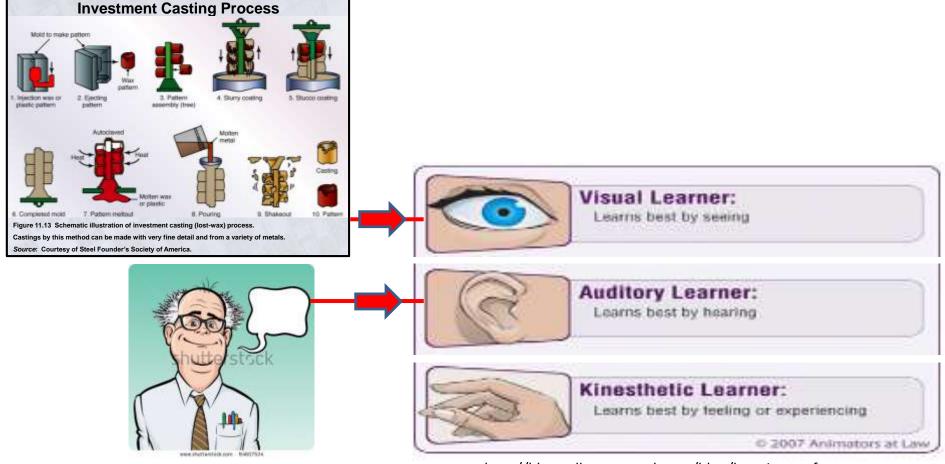
What's the use! Call and see what you are buying. One look at our display of automobile and motorcycle accessories will convince you of the fact.

THAT WE HAVE EVERYTHING FOR THE AUTO

Piqua Auto Supply House

133 N. Main St.—Piqua, O.

Appeared in a 1913 newspaper advertisement for the Piqua Auto Supply House of Piqua, Ohio.
http://en.wikipedia.org

❑ **Visual aids** (charts, graphs, images and movies) help

non-auditory learners grasp concepts that they may **not understand** well

during a **verbal lecture**.

Investment Casting Process

Figure 11.13 Schematic illustration of investment casting (lost-wax) process.
Castings by this method can be made with very fine detail and from a variety of metals.
Source: Courtesy of Steel Founder's Society of America.

Visual Learner:
Learns best by seeing

Auditory Learner:
Learns best by hearing

Kinesthetic Learner:
Learns best by feeling or experiencing

© 2007 Animators at Law

http://blog.collegenetwork.com/blog/learning-preferences

Instead of fitting as much as you can on the screen,
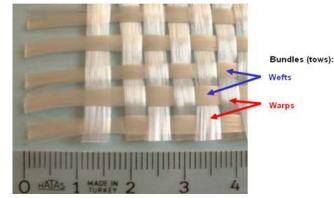
it is suggested not to crowd the page and use the space effectively.

An example is given on the next 3 pages:

Glass Fabrics

Fabrics are formed from a network of continuous fibers. One large class of fabrics is manufactured by either weaving or stitching together bundles ("tows") of fibers. These tows are generally elliptical in cross section, and may contain from 100 to 48000 single fibers. The cross sectional width and thickness of tows are of the order of millimeters. Another large class of preform fabrics include "chopped" and "continuous strand" random mat. These fabrics are typically formed from low cost E-glass fibers, cheaper than woven and stitched fabrics, and used for low-strength applications. These fabrics are formed using smaller tows (approximately 100 fibers), and have a structure which is more random in nature than woven or stitched fabrics. Random mats are typically isotropic in their structural and flow properties, which is often untrue for woven or stitched fabrics. These yarns or tows can be combined in various forms to create a preform by utilizing appropriate fabrication methods, e.g. weaving, braiding, knitting, or stitching, shaped into 2-D or 3-D reinforcing fabrics before being embedded.

Glass Fabrics

Fabrics are formed from a **network of continuous fibers**. One large class of fabrics is manufactured by either **weaving** or **stitching** together **bundles** ("tows") of fibers. These tows are generally elliptical in cross section, and may contain from 100 to **48000 single fibers**. The cross sectional width and thickness of tows are of the order of **millimeters**. Another large class of preform fabrics include "**chopped**" and "**continuous strand**" random mat. These fabrics are typically formed from low cost E-glass fibers, cheaper than woven and stitched fabrics, and used for low-strength applications. These fabrics are formed using smaller tows (approximately 100 fibers), and have a structure which is more random in nature than woven or stitched fabrics. **Random mats** are typically isotropic in their structural and flow properties, which is often untrue for woven or stitched fabrics. These yarns or tows can be combined in various forms to create a preform by utilizing appropriate fabrication methods, e.g. weaving, braiding, knitting, or stitching, shaped into 2-D or 3-D reinforcing fabrics before being embedded.

Glass Fabrics

E-Glass Fabric

- **Tows** are formed from a **network of continuous fibers**.

- **Tows** cross section: elliptical.

- **Each tow may contain from 100 to 48000 single fibers**.

- **Width and thickness of tows are of the order of millimeters**.

| (a) Chopped Strand Mat (Short Fiber Random Fabric) | (b) Continuous Filament Random Mat (CFRM) | (c) Woven Fabric (Plain Weave) | (d) Non-Crimp Fabric (NCF) (Stitched Bi-Axial Fabric) |

- **Fabrics are manufactured by either weaving or stitching together bundles ("tows") of fibers.**

- **Another large class of preform fabrics include "chopped" random mat.**

- **Random mats are typically isotropic in their structural and flow properties.**

Glass Fabrics

E-Glass Fabric

Bundles (tows):
Wefts
Warps

❑ **Tows** are formed from a **network of continuous fibers**.

❑ Tows cross section: elliptical.

❑ Each tow may contain from 100 to **48000 single fibers**.

❑ Width and thickness of tows are of the order of **millimeters**.

(a) Chopped Strand Mat (Short Fiber Random Fabric)	(b) Continuous Filament Random Mat (CFRM)	(c) Woven Fabric (Plain Weave)	(d) Non-Crimp Fabric (NCF) (Stitched Bi-Axial Fabric)

❑ Fabrics are manufactured by either **weaving** or **stitching** together **bundles** ("tows") of fibers.

❑ Another large class of preform fabrics include "**chopped**" **random mat**.

❑ **Random mats** are typically isotropic in their structural and flow properties.

Animations

❑ **To emphasize your points without overwhelming your audience, limit animation to key points** and use consistent animation choices throughout the presentation.

❑ Animations can be rather **powerful tools to visualize and explain complicated matters.**

❑ A good animation can not only improve understanding, but can also **make the message stick with your audience.**

?

http://www.microsoft.com/atwork/skills/presentations.aspx#fbid=alsrOroz5dS

http://www.makeuseof.com/tag/10-tips-for-preparing-a-professional-presentation/

Investment Casting Process
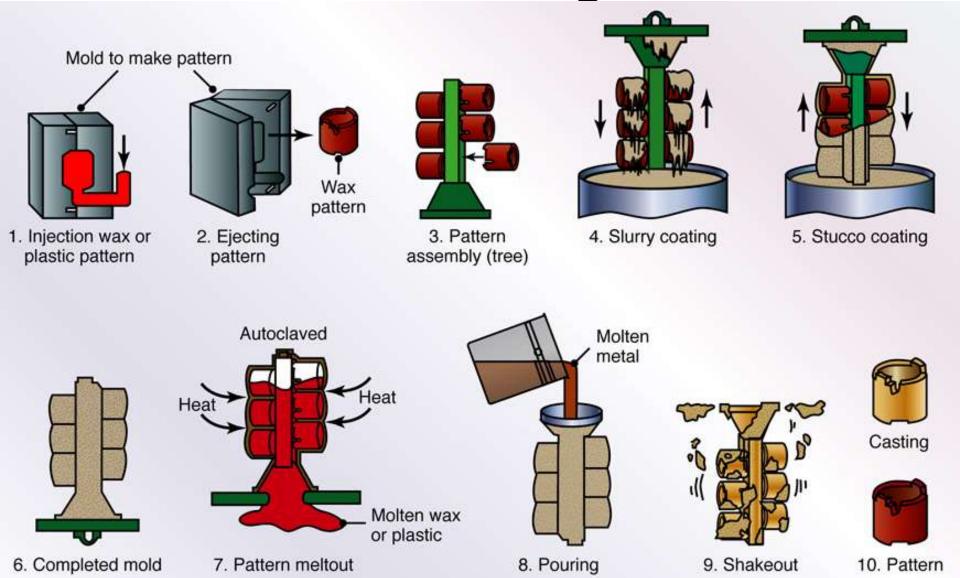
Figure 11.13 Schematic illustration of investment casting (lost-wax) process.

Castings by this method can be made with very fine detail and from a variety of metals.

Source: **Courtesy of Steel Founder's Society of America.**

Investment Casting Process

Figure 11.13 Schematic illustration of investment casting (lost-wax) process.

Castings by this method can be made with very fine detail and from a variety of metals.

Source: Courtesy of Steel Founder's Society of America.

Addition of 2 vectors:

A

B

y

B

A

R = A + B

x

y

R = B + A

A

B

x

Addition of 2 vectors:

A

B

y

B

A

R = A + B

x

y

R = B + A

A

B

x

Experimental Procedure

Experimental Procedure

Experimental Procedure

$P_{comp} \approx 100$ kPa

$P_{comp} = 10$ kPa

F_2

F_1
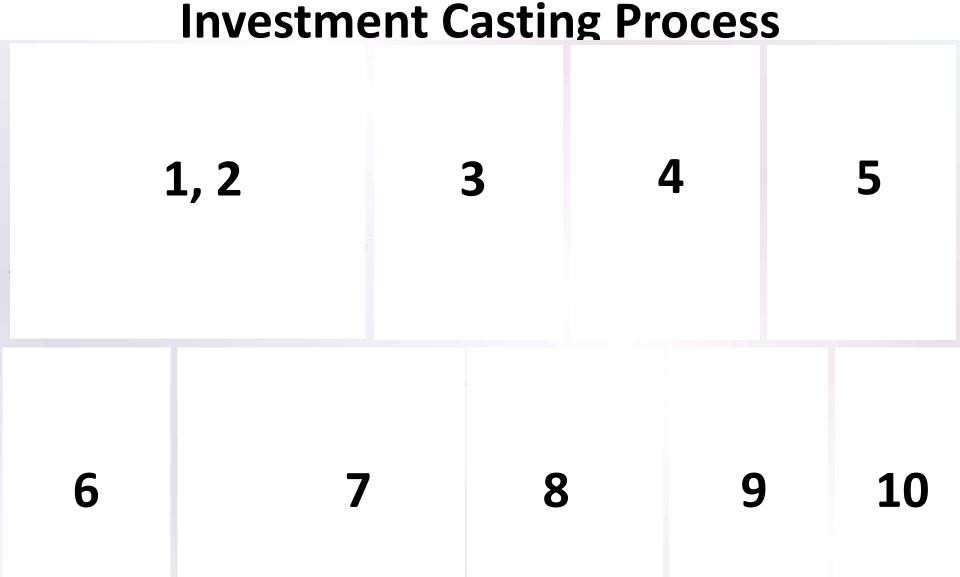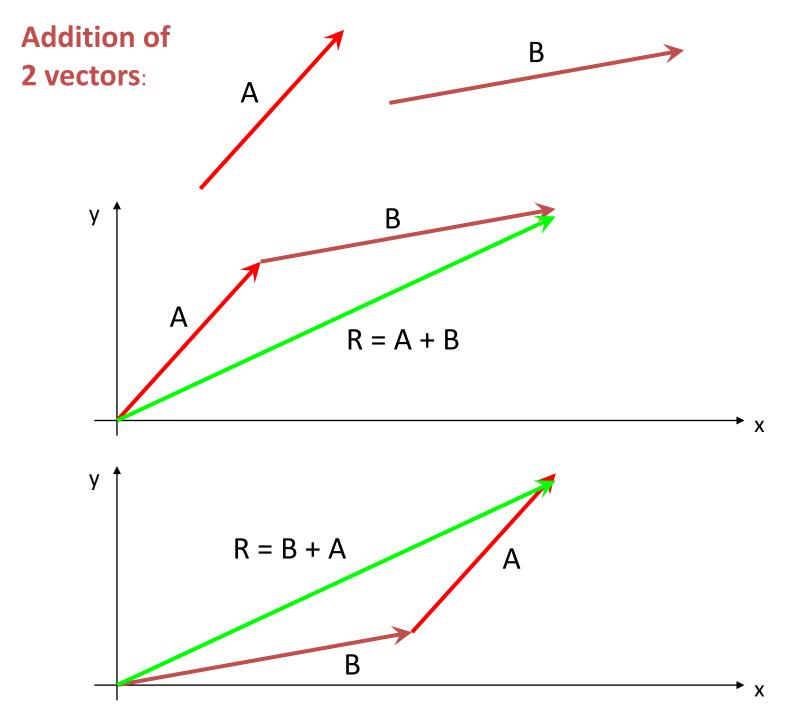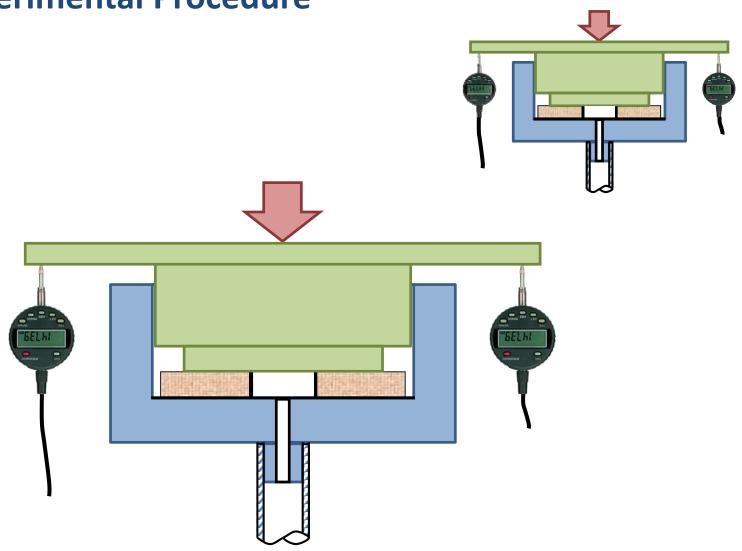
2 Layers of Random
1 Layer of Core
2 Layers of Random
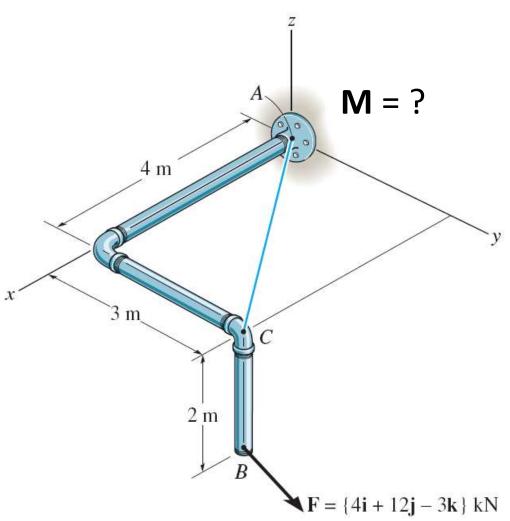
1. Fabric placed in the setup
2. Minor load applied
3. Load increased in steps
4. Wait for 30 min for compaction (to resemble the actual manufacturing condition)
5. Unload in steps
6. Wait for 30 min for relaxation

Lecturing Sample 1
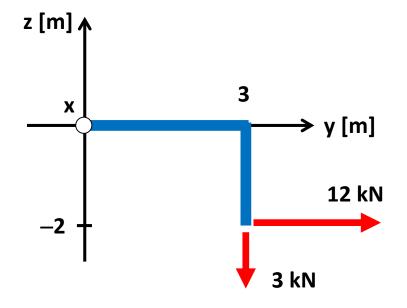
Problem 1:
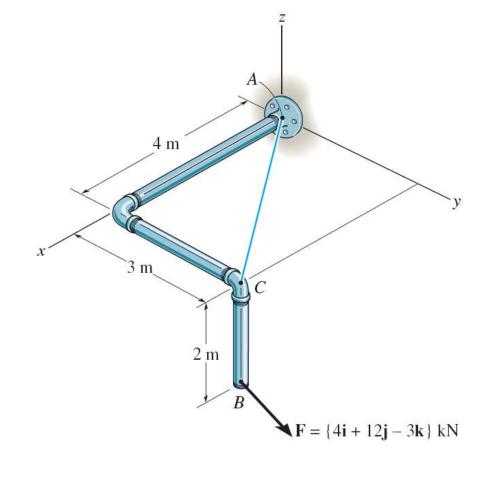
Determine **the moment about x-axis** due to the force F.

Use **scalar approach**.

M = ?

z

A

4 m

x

3 m

2 m

y

C

B

$F = \{4i + 12j - 3k\}$ kN

View from x → + ∞

$M_x = (12)(2) - (3)(3) = 15$ kN.m

CCW (+)   CW (–)

Lecturing Sample 2

Problem 1 Calculate the two roots of the following equation:
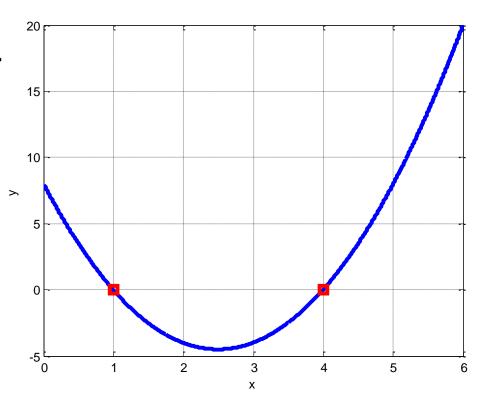
$$y = 2x^2 - 10x + 8$$

That means, find *x* value(s) at which *y(x)* = 0.

Do you recall the famous quadratic formula for the two roots? Here it is:

$$y = ax^2 + bx + c$$

$$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x_{1,2} = \frac{-(-10) \pm \sqrt{(-10)^2 - 4(2)(8)}}{2(2)}$$

$$x_1 = 1$$

$$x_2 = 4$$

Problem 4 Calculate the **smallest positive root** of the following equation:

(you are told that there is only one root in 0 < x < 2)

$$y = 3x^4 - 5x^2 + 2x - 10$$

Do you remember any useful formula or method to solve the roots?
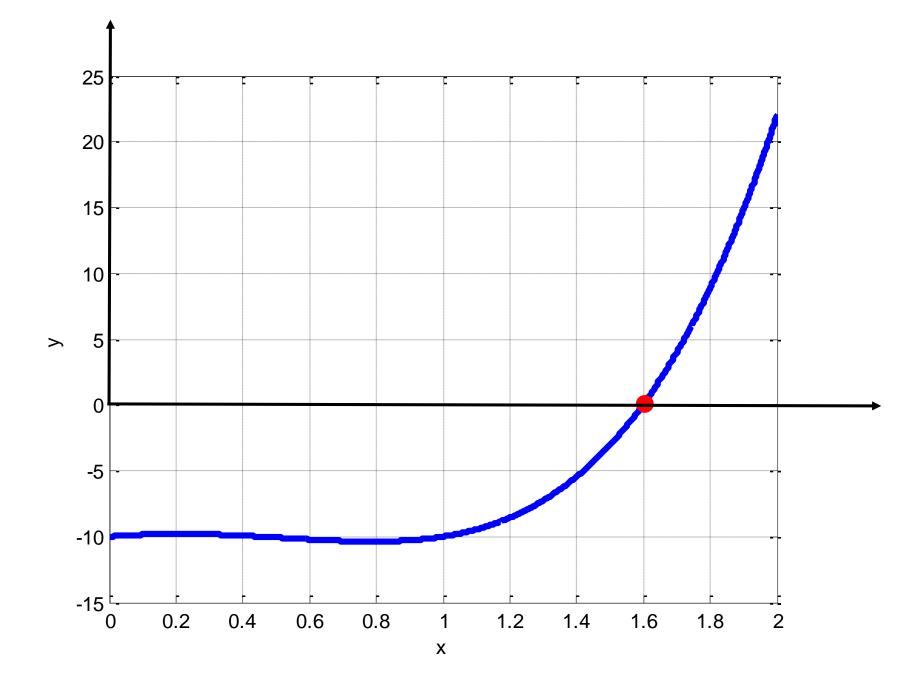
If you are not allowed to 'plot and zoom', do you feel stuck?

Let's recall what we have just learned in class this week: **bi-section method**.

Bi-section method:

$$y = 3x^4 - 5x^2 + 2x - 10$$

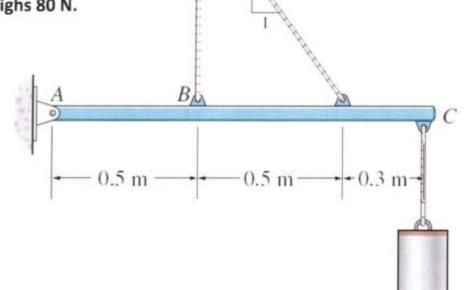| x_{left}	x_{mid}	x_{right}	$y(x_{left})$	$y(x_{mid})$	$y(x_{right})$
0	1	2	-10	-10	22
1	1.5	2	-10	-3.0625	22
1.5000	1.7500	2.0000	-3.0625	6.3242	22.0000
1.5000	1.6250	1.7500	-3.0625	0.9656	6.3242
1.5000	1.5625	1.6250	-3.0625	-1.2006	0.9656
1.5625	1.5938	1.6250	-1.2006	-0.1573	0.9656
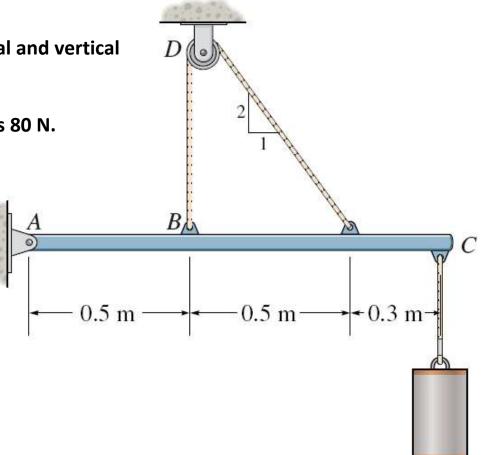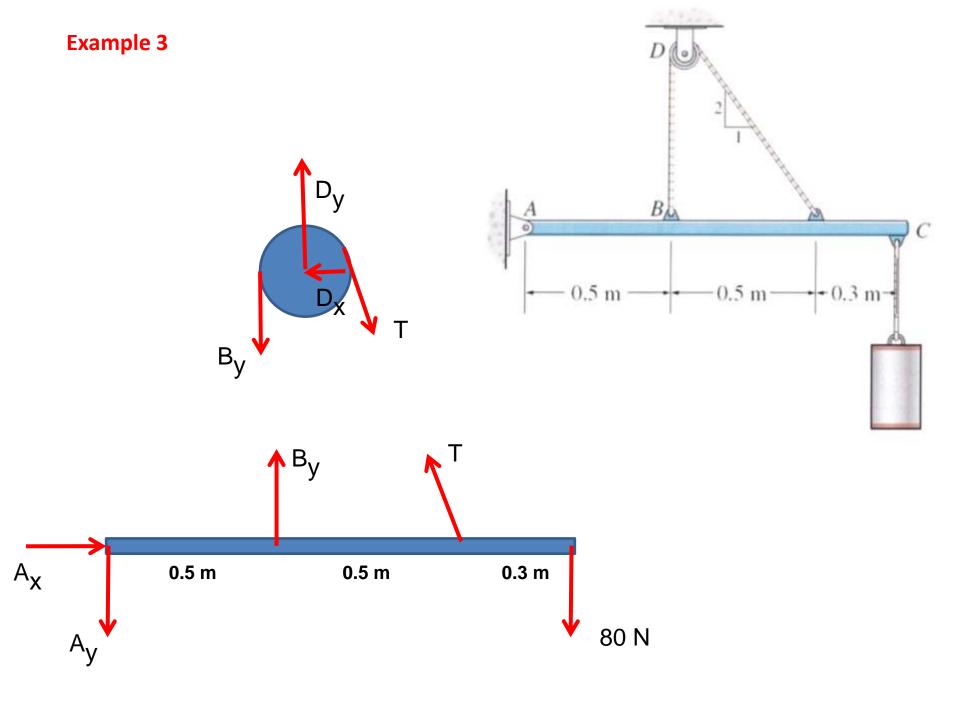
Lecturing Sample 3

Example 3

Determine the tension in the cable and the horizontal and vertical components of reaction of the pin A.

The pulley at D is frictionless and the cylinder weighs 80 N.

Example 3

D_y

D_x

B_y

T

0.5 m

0.5 m

0.3 m

A_x

A_y

B_y

T

0.5 m

0.5 m

0.3 m

80 N

Example 3

Determine the tension in the cable and the horizontal and vertical components of reaction of the pin A.

The pulley at D is frictionless and the cylinder weighs 80 N.

Example 3

Determine the tension in the cable and the horizontal and vertical components of reaction of the pin A.

The pulley at D is frictionless and the cylinder weighs 80 N.

$$\zeta + \sum M_D = 0:$$

$$(R) B_y - (R) T = 0$$

$$\boxed{T = B_y}$$

0.5 m ——— 0.5 m ——— 0.3 m

$$\frac{2}{\sqrt{5}} T = 0.894 T$$

$$\frac{1}{\sqrt{5}} T = 0.447 T$$

80 N
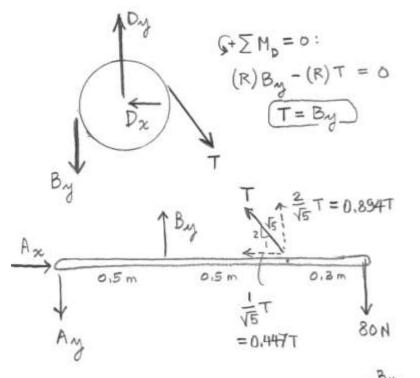
$$\zeta + \sum M_A = 0: \qquad (0.5) B_y + (1.0)(0.894\,T) - (1.3)(80) = 0 \quad \rightarrow \quad \boxed{B_y = \dfrac{(1.3)\,80}{0.5 + (1.0)(0.894)} = 74.6\ N}$$

$$\xrightarrow{+} \sum F_x = 0: \qquad A_x - 0.447\,T = 0 \quad \rightarrow \quad \boxed{A_x = 33.3\ N}$$

$$+\uparrow \sum F_y = 0: \qquad -A_y + B_y + 0.894\,T - 80 = 0 \quad \rightarrow \quad \boxed{A_y = 61.3\ N}$$

$$\boxed{A = \sqrt{33.3^2 + 61.3^2} = 69.8\ N}$$

Start With a ... (Surprise)

- **Question**

- **Simulation & Video**

- **Data & Its Analysis**

- **Debate**

Manufacturing Processes of
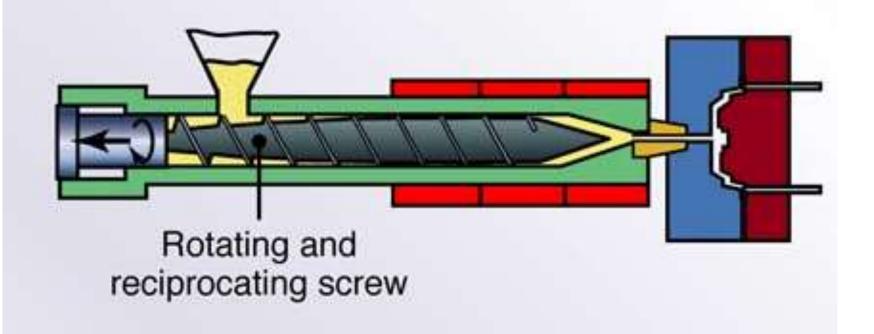
Plastics Materials

Do you know how these products are manufactured?

Mouse

Bottle

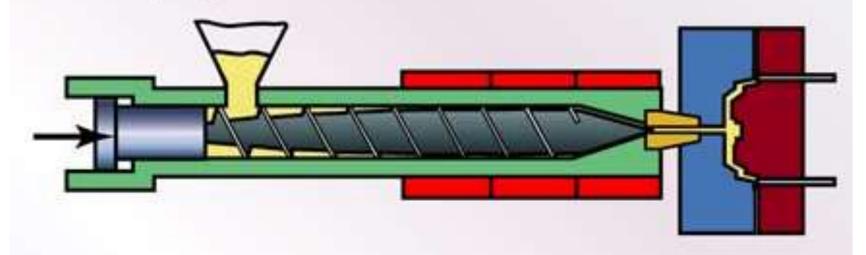**Water cup**

Yogurt cup

Injection Molding Sequence

1. Build up polymer in front of sprue bushing; pressure pushes the screw backwards. When sufficient polymer has built-up, rotation stops.
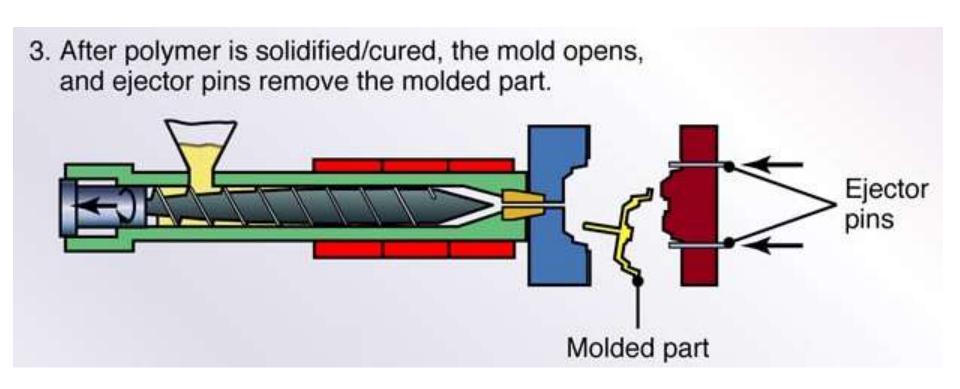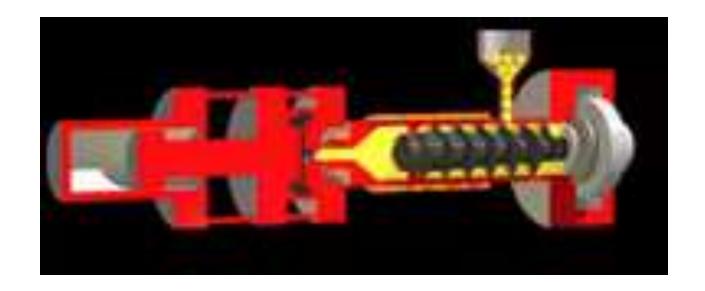

Rotating and reciprocating screw

Injection Molding Sequence

2. When the mold is ready, the screw is pushed forward by a hydraulic cylinder, filling the sprue bushing, sprue and mold cavity with polymer. The screw begins rotating again to build up more polymer.
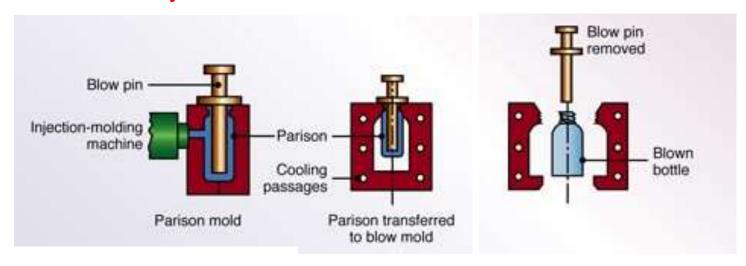
Injection Molding Sequence

3. After polymer is solidified/cured, the mold opens, and ejector pins remove the molded part.

Ejector pins

Molded part

Injection Molding

Which one(s) is manufactured with Injection Molding?

Mouse

Bottle

Water cup

Yogurt cup

Blow Molding
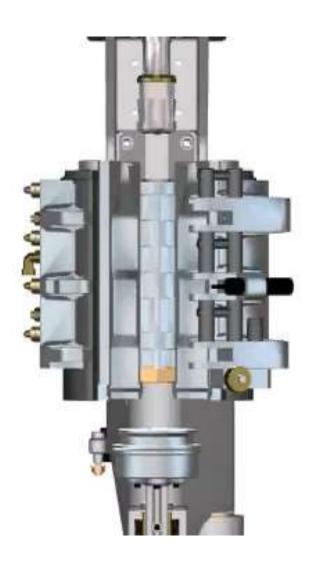
❑ A tube is first **injection-molded.**

❑ It is **heated** and clamped into a mold.

❑ It is **blown** (with air) to **fill the mold cavity**.

❑ The part is **cooled** and then **ejected**.

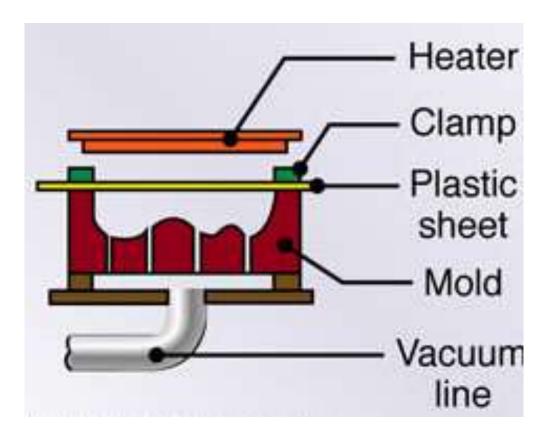❑ Typical products are plastic **containers** and **beverage bottles**.

Blow Molding

Which one(s) is manufactured with Blow Molding?

Mouse

Bottle

Water cup

Yogurt cup

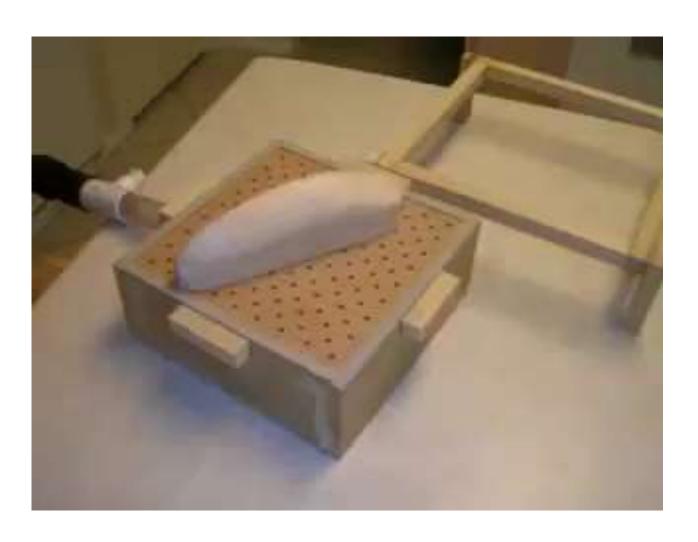# Thermoforming

❑ **A thermoplastic sheet is heated and placed over a mold.**

❑ **Vacuum is applied to form the sheet on the mold surface.**

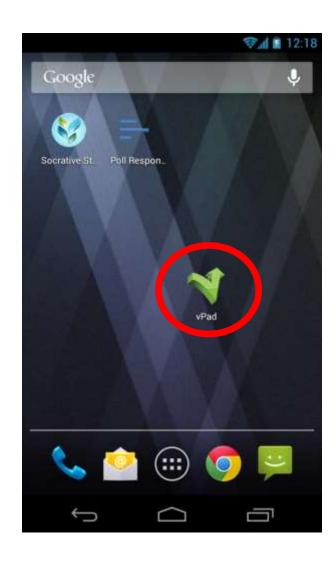❑ **Tooling is inexpensive.**

Thermoforming

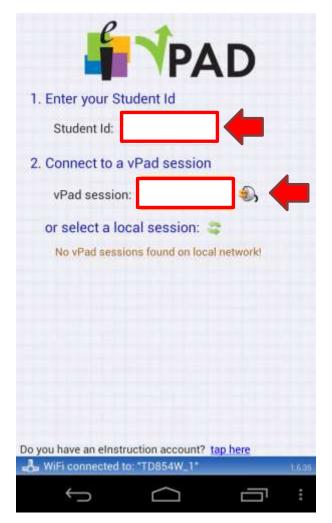# Which one(s) is manufactured with Thermoforming?

Mouse   **Bottle**   **Water cup**   **Yogurt cup**

Anonymous or Graded Quiz with Clickers
(Instant Feedback to Instructor)

Mobile Users – vPad Installation

A	B
C	D

Q1. Which process is used to produce all of these plastic parts shown?

A. Injection molding

B. Thermoforming

C. Blow molding

D. Forging

E. Milling

Q2. **In which process, the raw material is a sheet (film) plastic?**

    A. **Injection Molding**

    B. **Blow Molding**

    C. **Thermoforming**

Q3. A plastic bottle is made by _____ Molding?

Q4. In which process, the raw material's phase changes from solid to liquid, and then liquid to solid?

    A. Injection Molding

    B. Blow Molding

    C. Thermoforming

    D. All of the above

    E. None of the above

Q5. Which process is used to produce plastic detergent container?
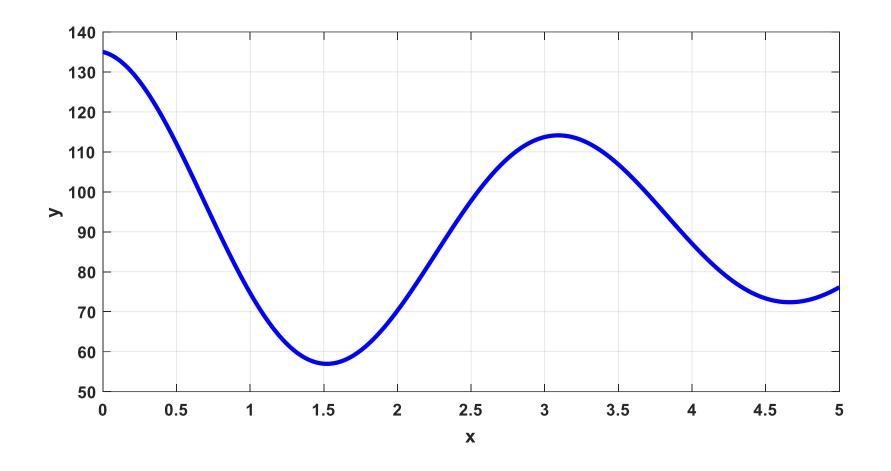

A. Injection Molding

B. Thermoforming

C. Blow molding

D. Forging

E. Extrusion

Q6. What is the value of the following integral? $\quad I = \int_0^5 y(x)\, dx = ?$

Predict it as close to the exact value as possible.

POLLEVERYWHERE

STUDENT RESPONSE SYSTEMS

Ask the audience a question.
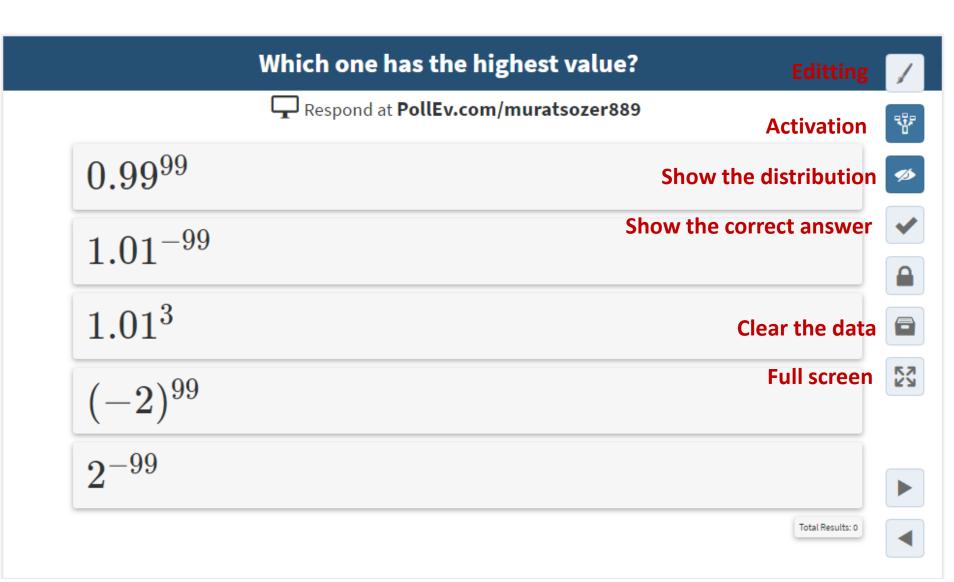**Then watch their answers come to life on the screen.**

Step 1

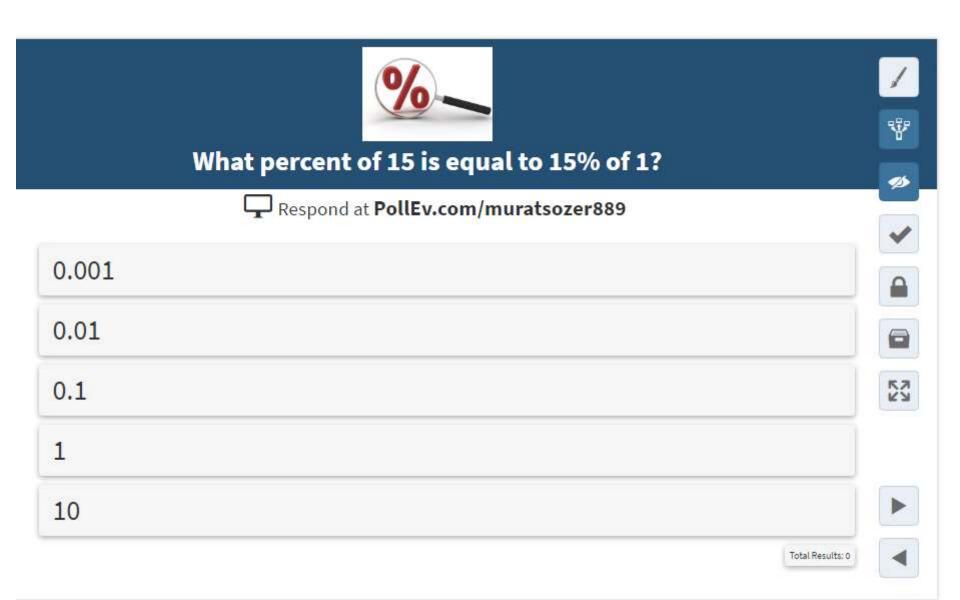Ask your audience a question with the Poll Everywhere app

Step 2

Audience answers in real time using mobile phones, Twitter, or web browsers

Step 3

See your response live on the web or in a PowerPoint presentation

https://www.polleverywhere.com

Which one has the highest value?

0.99^{99}

1.01^{-99}

1.01^{3}

$(-2)^{99}$

2^{-99}

Editting

Activation

Show the distribution

Show the correct answer

Clear the data

Full screen

Total Results: 0

What percent of 15 is equal to 15% of 1?

🖥 Respond at **PollEv.com/muratsozer889**

0.001

0.01

0.1

1

10

Total Results: 0
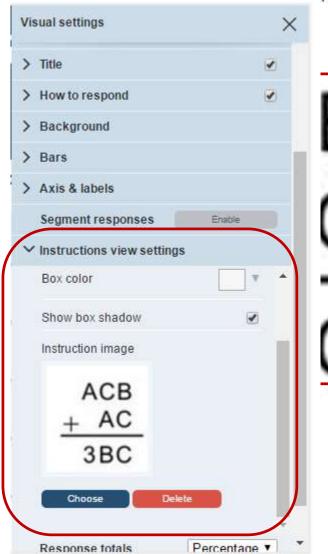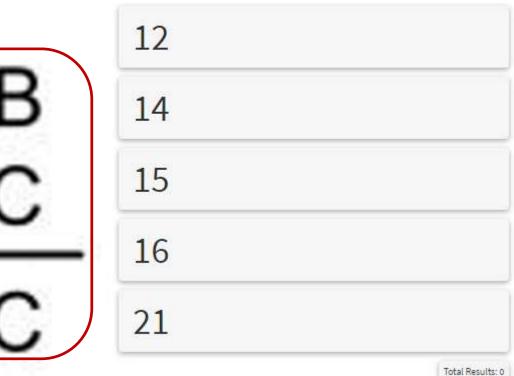
YGS 2016 Math 05: What is A*C ?

Visual settings ✕

> Title ☑

> How to respond ☑

> Background

> Bars

> Axis & labels

Segment responses   Enable

∨ Instructions view settings

Box color   ▼

Show box shadow ☑

Instruction image

$$\begin{array}{r} ACB \\ + \ AC \\ \hline 3BC \end{array}$$

Choose   Delete

Response totals   Percentage ▼

B

C

—

C

12

14

15

16

21

Total Results: 0

Thank You

Any Question?