Revised Spring 2007

Santa Barbara City College

ENGR 116

Dynamics

Bookstore Packet

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ENGR 116, Dynamics Bookstore Packet

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SECTION 1: READING QUESTIONS

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ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 2/1-2/2, **Kinematics of Particles** and **Rectilinear Motion**, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. **Kinematics** is the **branch** of **dynamics** which describes the _____ of bodies without reference to the _____ which either cause the motion or are generated as a result of the motion.

2. Simply stated, a particle is a body whose physical dimensions are (circle one of answers below):

   SMALL or **LARGE**

3. a) If the motion of a particle is confined to a specified path, the motion is said to be _____.

   b) If the motion of a particle is **not** confined to a specified path, the motion is said to be _____.

4. True/False: Rectilinear motion is motion along a curved path.

5. True/False: From the relationship: $v = \frac{ds}{dt}$, we can solve for $dt = \frac{ds}{v}$. Then we can substitute this expression for dt into the relationship: $a = \frac{dv}{dt}$, and rearrange the terms to get $v \cdot dv = a \cdot ds$.

6. Rework the calculation of the x-coordinate of the particle in Sample Problem 2/2 on page 28 using the graph of v_x vs. t, and the graphical equation:

   $x_2 - x_1$ = (area under v-t curve)

   a) for t_2 = 8 sec.

   b) for t_2 = 12 sec.

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 2/3-2/4, **Plane Curvilinear Motion** and **Rectangular Coordinates (x-y)**, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. True/False: When using **vector analysis** to describe the **curvilinear motion** of a particle, the results are **independent** of any particular **coordinate system** (e.g., rectangular vs. polar vs. normal-tangential coordinate system)

2. True/False: One of the most fundamental **concepts** in **dynamics** is the **time derivative** of a **scalar** quantity.

3. A particle is **located** by the _____ **vector**, $\vec{r}$, measured from some convenient fixed _____ .

4. If a particle is at position $\vec{r}_1$ at time t_1, and later it is at position $\vec{r}_2$ at time t_2, the displacement is the vector difference: _____ .

5. True/False: $\left|\frac{d\vec{r}}{dt}\right| = \frac{d|\vec{r}|}{dt}$.

6. Under which conditions is the use of the x-y coordinate system particularly useful?

7. For Sample Problem 2/5 on page 46, find the rectangular expressions for the velocity and acceleration at time t = 0 sec.

$\vec{v}$ = _____

$\vec{a}$ = _____

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 2/5, **Normal and Tangential Coordinates (n-t)**, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. Calculate the linear acceleration (in units of feet/sec^2) of a car that moves in a straight line from 0 miles per hour to 60 miles per hour in 7 seconds.

2. Calculate the centripetal (normal) acceleration (in units of feet/sec^2) of a car that moves at a constant speed of 60 miles per around a curve of radius 500 feet.

3. Calculate the magnitude of the total acceleration (in units of feet/sec^2) of a car that is accelerating at a rate of 0 miles per hour to 60 miles per hour in 7 seconds, and is currently moving at 30 miles per hour and traveling around a curve of radius 250 feet.

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 2/6, **Polar Coordinates (r-θ)**, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. The expression for position in polar coordinates is $\vec{r}$ = _____

2. The expression for velocity in polar coordinates is $\vec{v}$ = _____

3. The expression for acceleration in polar coordinates is $\vec{a}$ = _____

4. If an object is moving in a circular path of radius 100m at a speed of 50m/s, find the following values:
   a) $\dot{r}$

   b) $\dot{\theta}$

   c) $\ddot{r}$

   d) $\ddot{\theta}$

   e) v_r

   f) v_θ

   g) a_r

   h) a_θ

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 2/7, **Space Curvilinear Motion**, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. The expressions for position, velocity, and acceleration in 3-D rectangular coordinates are:

   $\vec{r}$ = _____

   $\vec{v}$ = _____

   $\vec{a}$ = _____

2. The expressions for position, velocity, and acceleration in 3-D cylindrical coordinates are:

   $\vec{r}$ = _____

   $\vec{v}$ = _____

   $\vec{a}$ = _____

3. The expressions for position, velocity, and acceleration in 3-D spherical coordinates are:

   $\vec{r}$ = _____

   $\vec{v}$ = _____

   $\vec{a}$ = _____

4. If a particle is moving at a speed of 5 m/s up a circular staircase (a helix) of radius 2 m and pitch angle $20°$, find the following quantities:

   a) $\dot{r}$ = _____ $\ddot{r}$ = _____

   b) $\dot{\theta}$ = _____ $\ddot{\theta}$ = _____

   c) $\dot{z}$ = _____ $\ddot{z}$ = _____

   d) v_r = _____ v_θ = _____ v_z = _____

   e) a_r = _____ a_θ = _____ a_z = _____

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 2/8, **Relative Motion**, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. True/False: For most problems in mechanics, the earth can be considered as a fixed reference frame:

2. A translating reference system which has no acceleration is called an _____

   _____

3. If a boat is moving north at a speed of 20 miles per hour, and a person is walking toward the front of the boat at 3 miles per hour, what is the velocity of the person with respect to the earth?

4. If a boat is moving north at a speed of 20 miles per hour, and a person is walking toward the port side (left side) of the boat at 5 miles per hour, what is the velocity of the person with respect to the earth?

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 2/9, **Constrained Motion of Connected Particles**, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. True/False: For the motion of interconnected particles, it is convenient to measure the position coordinates relative to one of the particles.

2. True/False: For the motion of 2 particles interconnected by one rope, the system is said to have two degrees of freedom.

3. For Sample Problem 2/15 on page 103, find the velocity $\vec{v}_a$ if cylinder B has a downward velocity of 0.5 m/s.

   $\vec{v}_a$ = _____ UPWARD or DOWNWARD (circle one)

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 3/1 to 3/4, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. In Newton's 2nd Law equation, $\vec{F} = m\vec{a}$, circle the quantities below that are considered base units?

   $\vec{F}$

   m

   $\vec{a}$

2. a) The unit of **mass** in the US Customary system is the _____.

   b) Convert a weight of 100 pounds to **mass** in the US Customary system _____.

3. List the two types of problems that are encountered when applying the more general form of Newton's 2nd Law:

   $\sum \vec{F} = m\vec{a}$

   1)

   2)

4. List the two types of physically distinct motion that are described by Newton's 2nd Law:

   $\sum \vec{F} = m\vec{a}$

   and give an example of each:

   1)

   example:

   2)

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 3/5, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. Solve Sample Problem 3/8 on page 142 if the speed as it passes point C is 75 km/hr.

At A, F = _____

At B, F = _____

At C, F = _____

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 3/6, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. True/False: To derive the Work-Energy Theorem, Newton's second law equation $\vec{F} = m\vec{a}$ is integrated with respect to time.

2. True/False: The work done by a spring whose deformation changes from x_1 to x_2 to is given by:

$$U_{1-2} = \frac{1}{2}k(x_2 - x_1)^2$$

3. True/False: The Work-Energy Theorem is derived from the simple kinematic relationship:

$$v \cdot dv = a_t \cdot ds$$

4. Re-work (no pun intended) Sample Problem 3/11 on page 165 if the initial speed of the 50-kg block is changed to 6 m/s down the chute at point A, and the coefficient of static friction is changed to $\mu_k = 0.25$.

At point B, v = _____

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 3/7, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. List the two types of mechanical potential energies:

   _____ and _____.

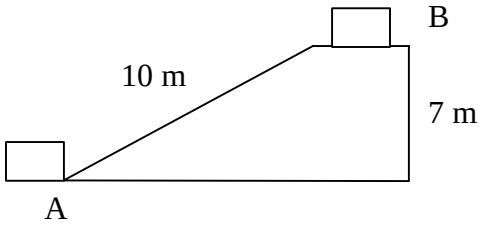
2. True/False: The gravitationl potential energy is the work done by the earth's gravitational field on a particle as the particle moves from height h_1 to height h_2.

3. True/False: The Work done by a conservative force field is independent of the path of the particle moving in that force field.

4. True/False: The Work done by a conservative force field is always zero around a closed path.

5. Calculate the change in gravitational potential energy of the 100 kg block as it is moved from point A to point B:

   _____



Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 3/8 to 3.9, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

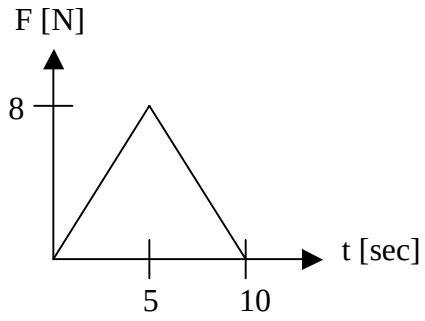
1. True/False: To derive the Impulse-Momentum Theorem, Newton's second law equation $\vec{F} = m\vec{a}$ is integrated with respect to distance.

2. The momentum of a particle of mass m moving with a velocity $\vec{v}$ is defined as:

3. True/False: Momentum is a scalar quantity.

4. A linear force versus time is shown below. Find the impulse of this force over the 10 second time interval.

Impulse = _____



Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 3/10, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. True/False: The angular momentum of a particle is a scalar quantity.

2. The direction of the angular momentum about the origin O of a particle of mass m moving with a velocity $\vec{v}$ is defined as $\vec{H}_O = \vec{r} \times m\vec{v}$. Describe the direction of $\vec{H}_O$:

3. True/False: The angular momentum of a particle is always changed when a force is applied to the particle.

4. State the definition of angular impulse:

5. Under what conditions is the angular momentum of a particle conserved?

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 3/12, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. True/False: Direct central impact is the condition when collision occurs at any angle.

2. In words, the coefficient of restitution is defined as the ratio of 2 kinds of impulse:

   _____impulse / _____ impulse

   and this ratio can be expressed in terms of the relative velocities:

   _____ / _____

3. In impacts, state the 3 ways that kinetic energy is reduced (lost):

   1)

   2)

   3)

4. True/False: During an impact, momentum is always conserved.

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 4/1 – 4/5, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. True/False: For a system of particles, both the external and internal forces affect the acceleration of the center of mass of the system.

2. True/False: For a system of particles, the kinetic energy of the system is the sum of the kinetic energies of the individual particles.

3. If $\vec{\rho}_i$ is the position of the i'th particle relative to the (moving) center of mass of a system of particles, why is the sum below equal to zero?

$$\sum m_i \vec{\rho}_i = \vec{0}$$

4. True/False: For a system of particles, the **absolute angular momentum about the center of mass** is equal to the **relative angular momentum about the center of mass**.

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 5/1-5/2, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. For the case of plane kinematics of rigid bodies, list the 4 types of motion:

   1)
   2)
   3)
   4)

2. For the case of rotational motion of a rigid body, list the 4 rotational kinematic equations of angular motion for the case of constant angular acceleration:

   1)
   2)
   3)
   4)

3. Repeat Sample Problem 5/3, page 338, for the case where $\vec{\omega} = +3\hat{k}$ rad/s:

   $\vec{v}$ = _____

   $\vec{a}$ = _____

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 5/3, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. True/False: For a wheel rolling without slipping, the kinematic relationships are:

   $s = r\,\theta$

   $v_O = r^2\,\omega$

   $a_O = r^2\,\alpha$

3. Repeat Sample Problem 5/6, Page 347, for the case where the piston rod in the cylinder is moving downward at the constant rate of 0.2 m/s:

v_b = _____

a_b = _____

ω = _____

α = _____

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 5/4, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. True/False: For a rigid body, the relative motion between 2 points on the rigid body is due strictly to rotation, since the distance r between 2 points A and B remains constant.

2. Repeat Sample Problem 5/7, Page 359, for point C directly below point O, and for a point D (not shown on the diagram) directly above point O:

$\vec{v}_C$ = _____

$\vec{v}_D$ = _____

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 5/5, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. True/False: For motion of a rigid body, the rigid body can be considered to be rotating about an instantaneous axis of zero velocity.

2. Repeat Sample Problem 5/11 for point D (not shown on the diagram) directly above point O:

$\vec{v}_D$ = _____

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 5/6, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. The relative acceleration equation is:

   $\vec{a}_A = \vec{a}_B + \vec{a}_{A/B}$

   where the $\vec{a}_{A/B}$ has 2 components. Write the scalar expressions for the 2 components:

2. For Sample Problem 5/13, draw the directions of the following vectors:

   $\vec{a}_O$

   $(\vec{a}_{C/O})_t$

   $(\vec{a}_{C/O})_n$

   $\vec{a}_C$

Does your direction for $\vec{a}_C$ make sense in terms of the cycloid motion of a point on the rim?

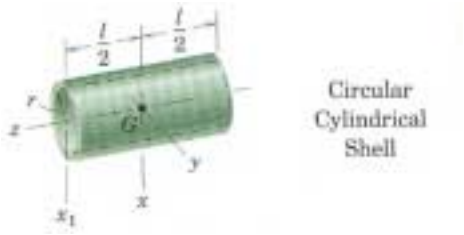
Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Appendix B/1, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. a) Calculate the resultant tangential force F_t to make the "circular cylindrical shell" of mass m = 2 kg and radius r = 6m have an angular acceleration of α = 3 rad/s^2 about the cylindrical, z-axis. Hint: the resultant linear acceleration tangent to the path is $a_t = r\alpha$ and $F_t = ma_t$.

F_t = _____



b) Calculate the moment of the tangential force F_t about the cylindrical, z-axis.

$M_{z\text{-axis}}$ = _____

c) Calculate the moment of inertia of the circular cylindrical shell about the z-axis. Hint: this requires no calculation – it is a result of the definition of the moment of inertia.

$I_{z\text{-axis}}$ = _____

d) Calculate the product of $I_{z\text{-axis}} \cdot \alpha$:

$I_{z\text{-axis}} \cdot \alpha$ = _____

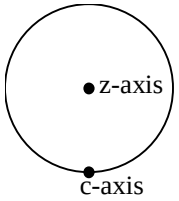
e) Does $M_{z\text{-axis}} = I_{z\text{-axis}} \cdot \alpha$: YES or NO
(circle one)

f) Calculate the radius of gyration of the cylinder:

k = _____

g) Using the Transfer of Axes Theorem, calculate the moment of inertia of the circular cylindrical shell about the c-axis, an axis parallel to the z-axis, but through the bottom of the cylinder (as shown on edge view below).

$I_{c\text{-axis}}$ = _____



Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 6.1-6.3, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. Write the kinetic force and moment equations for general plane motion:

2. Write the kinetic force and moment equations for the case of 2-D translation:

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 6.4, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. Write the kinetic force and moment (about G) equations for the case of 2-D fixed axis rotation:

2. Write the alternative moment (about the fixed axis) equation for the case of 2-D fixed axis rotation:

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 6.5, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. In Sample Problem 6/5, it was determined that the metal hoop slips as it rolls. Determine the minimum coefficient of static friction, μ_s, such that the metal hoop rolls without slipping (show your work).

μ_s = _____

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 6.6, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. Write the general expressions for the Kinetic Energy of a rigid body for the following 3 cases:

   a) Translation

   b) Fixed-axis Rotation

   c) General Plane Motion

   d) General Plane Motion about the instantaneous axis of rotation

2. Calculate the work done by a constant couple M = 2.25 N-m that is applied as a rigid body rotates through an angle of $45°$.

3. Write the general expressions for the Work - Energy relationship of a rigid body using Potential Energy terms:

4. True/False: $\vec{P} = \vec{F} \bullet \vec{a}$

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

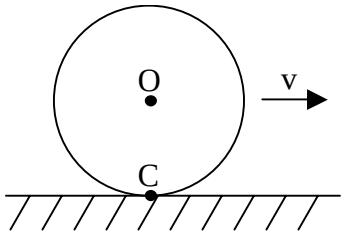
As you read Section(s) 6.8, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. True/False: The linear momentum of any mass system, rigid or non rigid is

$$\vec{p} = m\vec{\bar{v}}$$

2. True/False: $\int \vec{F}_{net} dt = m\vec{\bar{v}}_f + m\vec{\bar{v}}_i$

3. Calculate the angular momentum of the wheel about the following points (the mass of the wheel is 0.5 kg, radius 300 mm, and it is rolling to the right without slipping with velocity 6 m/sec):



a) Point O (the centroid)
b) Point C (the instantaneous axis of rotation)

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 8.1-8.2, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. For undamped free vibration, write below the expression for the natural circular frequency:

   ω_n = _____

2. For damped free vibration, write below the three categories of damped motion:

   1) _____

   2) _____

   3) _____

3. True/False: The damped natural frequency (ω_d) is equal to the undamped natural frequency (ω_n).

Name _____

ENGR 116, Reading Questions, Due at the **START** of the next class.

As you read Section(s) 8.3, answer these questions. For True/False questions, if your response is False, give a reason or a counterexample (you may use a diagram to make your argument).

1. Write below the general expression for the harmonic forcing function:

   F(t) = _____

2. True/False: The complete solution to forced vibration of a particle is the sum of the complementary solution and the particular solution.

3. True/False: For **damped** forced vibration with the driving frequency ω near the natural (or resonant) frequency ω_n, the magnification factor M is always greater than 1.

4. True/False: For **undamped** forced vibration (i.e., $\varsigma = 0$), the phase angle is always 0 rad (radians) for any value of the driving frequency ω.

SECTION 2: CLASS HANDOUTS

Helpful Hints

1. Use large quantities of paper (it can be recycled). Much time (and paper) is wasted by doing several steps at one time and trying to cram ones work into a small space. Write clearly, leave plenty of space between lines as you attempt to solve problems, do only one step per line (or at most a few steps), and box solutions.

2. Read the textbook before class. It will make the course much easier.

3. Do your homework promptly (soon after the lecture). It can make the homework assignment much easier.

4. If you do poorly on an exam, try to understand the material as soon as you can. Understanding the old material is necessary to understanding new material. Also, you will do better on the final if you don't wait until the last minute to understand old material.

5. Attend every class.

Hints for Taking a College Exam

1. Take a quick look at all of the problems to see how long the exam is. This will give you some idea of how fast you need to work to complete the test.

2. Start working on the "easiest" problems first by either:
   A) Look through the test and solve only the problems that are easy for you;
   or,
   B) Attempt to do the problems in the order given, but only solve the problems that are easy for you.

(Note: a problem is "easy" if you are confident that you can solve it and it will take a short amount of time.)

3. After doing the "easiest" problems on the first pass through the test, do a second pass through the test doing problems that are the "second easiest".

4. After doing the "second easiest" problems on the second pass through the test, do a third pass through the test doing problems that are the "third easiest"; etc.

5. You should not spend a long time trying to solve a problem; if a problem is turning out to be difficult to solve, move on to another problem and go back to the more difficult problems later (by the time you go back to a problem you may have remembered how to solve it).

6. Be sure to write down something for every problem on the test (just writing down the first steps, a relevant equation, or an explanation of the method to be used to solve a problem can yield partial, or nearly full, credit).

7. Do not erase your work. If you wish to try another method or approach, attach additional sheets of paper. You may discover later that your first method was correct (many times students erase the correct answer).

8. On a physics or engineering exam, begin all calculations with a defining equation (this step is necessary in order to receive full credit on my exams).

9. Ask questions if you are stuck — the instructor may help you to get started or remember something.

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Summer Undergraduate Research Experience for Community College Students

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- The stipend for undergraduate interns is $2,800 total for 8 weeks at 35 hrs/week.
- Free housing and travel costs to and from the UCSB campus will be provided.
- Program dates are June 25th - August 17th 2007

Visit our web site for complete information and to download the application form:

http://education.cnsi.ucsb.edu/inset.html

Or email Samantha Freeman at samantha@cnsi.ucsb.edu

Application Deadline is February 28th 2007

EPSEM

Expanding Pathways to Science, Engineering & Mathematics

July 15 – July 28, 2007

The *California NanoSystems Institute (CNSI)* is a science and engineering research center at UC Santa Barbara. Research at CNSI includes faculty, students and postdocs from 11 different academic departments, including chemistry and biochemistry, physics, biology, engineering, materials science, and computer science. CNSI research determines new ways of integrating nanometer-scale building blocks into new materials, devices and systems with capabilities far exceeding those found in nature.

The EPSEM program brings science, engineering, and mathematics college students to the UC Santa Barbara campus for the EPSEM Summer Institute, a 2-week science intensive residential program hosted by CNSI. EPSEM will provide university housing and meals on campus. You will have the opportunity to interact with science, engineering, and mathematics researchers through social, academic, and professional development activities such as...

- Work in teams on lab projects
- Team Project design/problem solving
- Discuss career options with professionals
- Develop leadership skills
- Participate in field trips to industry and the university reserve system
- Practice your public speaking skills
- Learn new strategies for academic and transfer success

For more information: **www.epsem.ucsb.edu**
M. Ofelia Aguirre – EPSEM Coordinator
Phone: (805) 893-7472 Email: aguirre@cnsi.ucsb.edu

Application Deadline: Friday, April 13, 2007

Nicholas Arnold - Seymour Duncan job

From: Deborah Gentry
To: Arnold, Nicholas; Young, Michael
Date: 3/30/2005 1:51 PM
Subject: Seymour Duncan job

Hi folks,
Seymour Duncan is hiring part-time job 3:30-6 pm M-F temp job testing electronic pick up gear (guitars) student should have tech expertise with audio generator, oscilloscicpe, mulitmeter, voltmeter, ohmmeter, gauss meter and distortion analyzers. pay is $12-14 hr. Second bench opening up in April and student could work more hours at that time.
students shoudl e-mail resumes to sabinam@seymourduncan.com
Hope you had a swell break!
Deborah

Deborah Gentry, Worksite Coordinator
Career Advancement Center
Santa Barbara City College
gentry@sbcc.edu
805.965.0581 x 2333

Short Course

SANTA BARBARA CITY COLLEGE

Short Course

INTRODUCTION TO ENGINEERING

WHO SHOULD TAKE THIS CLASS?

- **Anyone considering engineering, science, or mathematics as a potential career field.**
- **Anyone interested in learning more about engineering, science and success skills.**
- **Class also open to high school juniors and seniors.**

Get to know other students in a relaxed environment while learning valuable skills to greatly increase your chances of success as a student and as a professional. You'll learn:

- The **rewards and opportunities** of a career in engineering, science, or mathematics, including an overview of various professions, guest speakers, optional field trips to local industries, projected employment opportunities, career duties, and employer requirements and expectations.
- **Academic success strategies** needed to excel in mathematics, science, and engineering courses.
- How to **get the most out of your education experience**, including **having fun** in the process.
- **Ways to enhance the quality of your education** through participation in internships, student organizations, and science projects.
- **Effective study habits**, including group study methods, and techniques to help you study from class-to-class instead of test-to-test.
- **Personal development skills**, including balancing work and play, maintaining good health, managing stress, communicating effectively.

Engineering 101, 2-units, Short Course (12-week class – ends 3 weeks before finals week).
Wednesdays and Fridays from 12:45-2:05 PM.
Questions? Contact Engineering Professor Dr. Nick Arnold at arnold@sbcc.edu, or call 965-0581 x4253.

ENGR 101, Introduction to Engineering, is a **helpful course for students in all of the science, math and engineering majors.**

Actual comments from students who recently took the course include:

- **"This was a very motivating and empowering class."**
- **"Now I know what classes I really need to take and what to expect."**
- **"It made me really understand what engineering is about."**
- **"It is a very helpful class – I would recommend it to anyone."**
- **"Very helpful – made me sure about my decision to go into engineering."**
- **"I liked the guest speakers – they were interesting and offered a lot of insight."**
- **"Good information on how to succeed in college."**
- **"I'm very glad I took this class – the information I learned confirmed that I am on a path to a rewarding career."**
- **"Very good for non-traditional students and students who are the first in their families to attend college."**
- **Great course! There is a lot of information in this course.**
- **Fun class!**

Actual comments from students taking the course previous semesters include:

- **"I wish that they had a course like this when I first tried to attend college – now I know how to be a successful student."**
- **"This is a very valuable course with information that you won't get in your other classes."**
- **"Everyone should take this course."**

The syllabus may be viewed on line at the ENGR web page:
http://cs.sbcc.edu/physics/engineering/.

Name _____

ENGR 101 www.ASSIST.org Assignment, Spring 2007
For Transfer to UC Santa Barbara

(NOTE: You must attach the ASSIST.org printouts. Be sure to fill out the back – Page 2)

1) Go the ASSIST web page at www.ASSIST.org.
   - Click on the area labeled "Start Assist"
   - Select an Institution and Academic Year: → UC Santa Barbara, 06-07-06 → Continue
   - Agreements Between Two Campuses: → Santa Barbara City College → Continue
   - By Major: → Electrical Engineering, B.S. (or other major) → Continue

   Click on the link "Printer Friendly Version". Print out the transfer agreement and use it to help you fill in the table of Major courses you are planning to take at SBCC.

   NOTE: UCSB and SBCC have a Transfer Admission Agreement (**TAA**) that **guarantees** admission when you transfer from SBCC to UCSB if you complete all of the core engineering courses (the courses that you just printed out) and a few General Education (G.E.) requirements (see step 3 below) with a GPA of 3.2 (for transfer Fall 2006).

   NOTE: IGETC is **NOT** appropriate for engineering majors.

2) Go back one web page. Change the major to:
   - By Major: → College of Engineering General Education Requirements → Continue

   Click on the link "Printer Friendly Version". Print out the transfer agreement and use it to help you fill in the table of General Education (GE) courses you are planning to take at SBCC.

3) **EXTRA CREDIT** (It is highly recommended that you do this step)

   If you don't already have an IEP (Individual Education Plan), make an appointment at the Counseling and Guidance Center, in the Student Services (SS) building, to see a counselor to plan which courses you will take while at SBCC. The designated counselors for engineering majors are: Armando Segura, Maria Morales, Chris Pagliaro, and Lydia Aguirre-Fuentes. Please go to the front desk of counseling and ask for an appointment with an Engineering Counselor. The SBCC Transfer Center is also an excellent resource.

   Staple a COPY of your IEP (keep the original for yourself) to this assignment. The IEP should agree with the courses that you listed on your www.ASSIST.org assignment.

   Taking the right courses at the right time is ultimately your responsibility.

OVER →

Name _____

ENGR 101 ASSIST Assignment, UCSB

Major: **Mech. E** ☐ **Elec. E** ☐ **Comp. E** ☐ **Other** _____ ☐

SBCC Major Course	Check the box for each Engineering Major course you plan to take at SBCC								
	Already Taken	S07	F07	S08	F08	S09	F09	S10	F10
MATH 111									
MATH 137									
MATH 138									
MATH 150									
MATH 160									
MATH 250									
MATH 260									
PHYS 102									
PHYS 121									
PHYS 122 (Fall Only)									
PHYS 123 (Spring Only)									
CHEM 101									
CHEM 155									
CHEM 156									
CHEM 211/221									
CHEM 212/222									
ENGR 101									
ENGR 105									
ENGR 115 (Fall Only)									
ENGR 116 (Spring Only)									
ENGR 117 (Fall Only)									
ENGR 117L (Fall Only)									
ENGR 118 (Spring Only)									
ENGR 118L (Spring Only)									
COMSC 101									
COMSC 119									
COMSC 120									
COMSC 130									
COMSC 131									
COMSC 135									
COMSC 137									
COMSC 140									
COMSC 145J									
COMSC 145P									

SBCC GE Courses	Check the box for each GE course you plan to take at SBCC								
(Write In)	Already Taken	S07	F07	S08	F08	S09	F09	S10	F10

Name _____

ENGR 101 www.ASSIST.org Assignment, Spring 2007
For Transfer to Cal Poly San Luis Obispo and Other Universities

(NOTE: You must attach the ASSIST.org printout. Be sure to fill out the back – Page 2)

1) Go the ASSIST web page at www.ASSIST.org.
   - Click on the area labeled "Start Assist"
   - Select an Institution and Academic Year: → Cal Poly SLO (or other university), 06-07 → Continue
   - Agreements Between Two Campuses: → Santa Barbara City College → Continue
   - By Major: → Electrical Engineering, B.S. (or other major) → Continue

   Click on the link "Printer Friendly Version". Print out the transfer agreement and use it to help you fill in the table of Major courses you are planning to take at SBCC.

   NOTE: IGETC is **NOT** appropriate for engineering majors.

2) To verify your G.E. requirements, use the Cal Poly (or other university) catalog and/or catalog web site. For Cal Poly, the catalog web site is located at:
   - http://www.calpoly.edu/~acadprog/ , and then to the curriculum displays:
   - http://www.calpoly.edu/~acadprog/currdisplay2003-05.html,
   - Then go to your major (e.g., Electrical Engineering, B.S.) and print out the list of required Cal Poly courses.

   Note that at a minimum you need to take the Golden 4 GE courses to transfer to a CSU:
   1) Math (no problem for engineering majors)
   2) Critical Thinking (no longer required at Cal Poly for engineering majors)
   3) English Composition
   4) Public Speaking

3) **EXTRA CREDIT** (It is highly recommended that you do this step)

   If you don't already have an IEP (Individual Education Plan), make an appointment at the Counseling and Guidance Center, in the Student Services (SS) building, to see a counselor to plan which courses you will take while at SBCC. The designated counselors for engineering majors are: Armando Segura, Maria Morales, Chris Pagliaro, and Lydia Aguirre-Fuentes. Please go to the front desk of counseling and ask for an appointment with an Engineering Counselor. The SBCC Transfer Center is also an excellent resource.

   Staple a COPY of your IEP (keep the original for yourself) to this assignment. The IEP should agree with the courses that you listed on your www.ASSIST.org assignment.

   Taking the right courses at the right time is ultimately your responsibility.

OVER →

Name _____

ENGR 101 IEP and ASSIST Assignment, Cal Poly San Luis Obispo or Other University

Major: **Mech. E** ☐ **Elec. E** ☐ **Comp. E** ☐ **Other _____** ☐

SBCC Major Course	Check the box for each Engineering Major course you plan to take at SBCC								
	Already Taken	S07	F07	S08	F08	S09	F09	S10	F10
MATH 111									
MATH 137									
MATH 138									
MATH 150									
MATH 160									
MATH 250									
MATH 260									
PHYS 102									
PHYS 121									
PHYS 122 (Fall Only)									
PHYS 123 (Spring Only)									
CHEM 101									
CHEM 155									
CHEM 156									
ENGR 101									
ENGR 105									
ENGR 115									
ENGR 116									
ENGR 117									
ENGR 117L									
ENGR 118									
ENGR 118L									
Life Science Course (_____)									
ENG 113									
CNEE 162									
COMSC 101									
COMSC 119									
COMSC 120									
COMSC 125									
COMSC 131									
COMSC 137									
COMSC 140									
COMSC 145J									
COMSC 170									

SBCC GE Courses	Check the box for each GE course you plan to take at SBCC								
(Write In)	Already Taken	S07	F07	S08	F08	S09	F09	S10	F10