Semester:	**Fall 2019**	Instructor Name:	**Octavio Ortiz**
Course Title & #:	**ENGR 210 - Statics**	Email:	**octavio.ortiz@imperial.edu**
CRN #:	**11364**	Webpage (optional):	**Canvas Course ENGR-210**
Classroom:	**2731**	Office #:	**2731**
Class Dates:	**8/21/19 – 12/11/19**	Office Hours:	**W 5:15 – 6:15 PM**
Class Days:	**Wednesdays**	Office Phone #:	**Email me**
Class Times:	**18:30 – 21:40**		
Units:	**3.0**		

Course Description

Force systems, equilibrium, structures, distributed forces, friction, virtual work, moments of inertia, vector algebra. (CSU, UC)

Course Prerequisite(s) and/or Corequisite(s)

PHYS 200 with a grade of "C" or better, and credit or concurrent enrollment in MATH 194.

Student Learning Outcomes

The subject of Statics deals with forces acting on rigid bodies at rest covering coplanar and noncoplanar forces, concurrent and non-concurrent forces, friction forces, centroids and moments of inertia. Class time will be spent finding resultant forces for a variety of force systems, as well as analyzing forces acting on bodies to find the reacting forces supporting those bodies. Students will develop critical thinking skills necessary to formulate appropriate approaches to problem solutions.

Course Objectives

Throughout the semester students will develop an understanding of, and demonstrate their proficiency in the following concepts and principles pertaining to vector mechanics, statics:

1. Components of a force and the resultant force for a system of forces
2. Moment caused by a force acting on a rigid body
3. Principle of transmissibility and the line of action
4. Moment due to several concurrent forces
5. Force and moment reactions at the supports and connections of a rigid body
6. Force in members of a truss using the Method of Joints and the Method of Sections
7. Applications dealing with the equilibrium of bodies subjected to dry frictional forces
8. Centroid and center of gravity for an area and a rigid body
9. Moment of inertia and radius of gyration of a composite area

Textbooks & Other Resources or Links

Engineering Mechanics: Statics (w/out Mastering Access)
Author: Hibbeler
Edition: 13th
ISBN: 9780132915540
Copyright Year: 2013
Publisher: Pearson

Course Requirements and Instructional Methods

Each session will consist of a combination of lectures, group discussions, problem solving and reflecting on the concepts covered. Students will be encouraged to share their ideas with each other and with the class to promote active engagement. Homework will be assigned weekly and checked for completion. Although homework will not be collected for grading, it will serve as the primary source for quiz problems administered at the beginning of class on selected dates. Three midterms (the last being the final) will be administered to gauge student understanding of the concepts covered.

Out of Class Assignments: The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement.

Course Grading Based on Course Objectives

The semester will consist of three midterms, each of which will account for 30% of your overall grade. Homework assignments will account for the remaining 10% of the overall grade. It is crucial that you do all homework assignments as they will be the primary source for midterm problems.

CATEGORY	PERCENT OF GRADE
Midterm 1	33%
Midterm 2	33%
Midterm 3	34%

A =	90 – 100%
B =	80 – 89%
C =	70 – 79%
D =	60 – 69%
F =	0 – 59%

Attendance

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See General Catalog for details.
- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. For

online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.

- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.

Classroom Etiquette

- Electronic Devices: Cell phones and electronic devices must be turned off and put away during class, unless otherwise directed by the instructor.
- Food and Drink are prohibited in all classrooms.   Water bottles with lids/caps are the only exception. Additional restrictions will apply in labs. Please comply as directed by the instructor.
- Disruptive Students: Students who disrupt or interfere with a class may be sent out of the room and told to meet with the Campus Disciplinary Officer before returning to continue with coursework. Disciplinary procedures will be followed as outlined in the General Catalog.
- Children in the classroom: Due to college rules and state laws, only students enrolled in the class may attend; children are not allowed.

Online Netiquette

- What is netiquette? Netiquette is internet manners, online etiquette, and digital etiquette all rolled into one word. Basically, netiquette is a set of rules for behaving properly online.
- Students are to comply with the following rules of netiquette: (1) identify yourself, (2) include a subject line, (3) avoid sarcasm, (4) respect others' opinions and privacy, (5) acknowledge and return messages promptly, (6) copy with caution, (7) do not spam or junk mail, (8) be concise, (9) use appropriate language, (10) use appropriate emoticons (emotional icons) to help convey meaning, and (11) use appropriate intensifiers to help convey meaning [do not use ALL CAPS or multiple exclamation marks (!!!!)].

Academic Honesty

Academic honesty in the advancement of knowledge requires that all students and instructors respect the integrity of one another's work and recognize the important of acknowledging and safeguarding intellectual property.

There are many different forms of academic dishonesty. The following kinds of honesty violations and their definitions are not meant to be exhaustive. Rather, they are intended to serve as examples of unacceptable academic conduct.

- Plagiarism is taking and presenting as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to "cite a source" correctly, you must ask for help.
- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question.

Anyone caught cheating or plagiarizing will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the General Catalog for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to, the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment; (c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment; (e) using a commercial term paper service.

Additional Student Services

Imperial Valley College offers various services in support of student success. The following are some of the services available for students. Please speak to your instructor about additional services which may be available.

- CANVAS LMS. Canvas is Imperial Valley College's main Learning Management System. To log onto Canvas, use this link: Canvas Student Login. The Canvas Student Guides Site provides a variety of support available to students 24 hours per day. Additionally, a 24/7 Canvas Support Hotline is available for students to use: 877-893-9853.
- Learning Services.   There are several learning labs on campus to assist students through the use of computers and tutors. Please consult your Campus Map for the Math Lab; Reading, Writing & Language Labs; and the Study Skills Center.
- Library Services.   There is more to our library than just books. You have access to tutors in the Study Skills Center, study rooms for small groups, and online access to a wealth of resources.

Disabled Student Programs and Services (DSPS)

Any student with a documented disability who may need educational accommodations should notify the instructor or the Disabled Student Programs and Services (DSP&S) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6313. Please contact them if you feel you need to be evaluated for educational accommodations.

Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee.
- **Student Health Center**. A Student Health Nurse is available on campus. In addition, Pioneers Memorial Healthcare District provide basic health services for students, such as first aid and care for minor illnesses. Contact the IVC Student Health Center at 760-355-6128 in Room 1536 for more information.
- **Mental Health Counseling Services**. Short-term individual, couples, family and group counseling services are available for currently enrolled students. Services are provided in a confidential, supportive, and culturally sensitive environment. Please contact the IVC Mental Health Counseling Services at 760-355-6310 or in the building 1536 for appointments or more information.

Veteran's Center

The mission of the IVC Military and Veteran Success Center is to provide a holistic approach to serving military/veteran students on three key areas: 1) Academics, 2) Health and Wellness, and 3) Camaraderie; to serve as a central hub that connects military/veteran students, as well as their families, to campus and community resources. Their goal is to ensure a seamless transition from military to civilian life. The Center is located in Building 600 (Office 624), telephone 760-355-6141.

Extended Opportunity Program and Services (EOPS)

The Extended Opportunity Program and Services (EOPS) offers services such as priority registration, personal/academic counseling, tutoring, book vouchers, and community referrals to qualifying low-income students. EOPS is composed of a group of professionals ready to assist you with the resolution of both academic and personal issues. Our staff is set up to understand the problems of our culturally diverse population and strives to meet student needs that are as diverse as our student population.

Also under the umbrella of EOPS our CARE (Cooperative Agency Resources for Education) Program for single parents is specifically designed to provide support services and assist with the resolution of issues that are particular to this population. Students that are single parents receiving TANF/Cash Aid assistance may qualify for our CARE program, for additional information on CARE please contact Lourdes Mercado, 760-355- 6448, lourdes.mercado@imperial.edu.

EOPS provides additional support and services that may identify with one of the following experiences:

- Current and former foster youth students that were in the foster care system at any point in their lives
- Students experiencing homelessness
- Formerly incarcerated students

To apply for EOPS and for additional information on EOPS services, please contact Alexis Ayala, 760-355-5713, alexis.ayala@imperial.edu.

Student Equity Program

- The Student Equity Program strives to improve Imperial Valley College's success outcomes, particularly for students who have been historically underrepresented and underserved. The college identifies strategies to monitor and address equity issues, making efforts to mitigate any disproportionate impact on student success and achievement. Our institutional data provides insight surrounding student populations who historically, are not fully represented. Student Equity addresses disparities and/or disproportionate impact in student success across disaggregated student equity groups including gender, ethnicity, disability status, financial need, Veterans, foster youth, homelessness, and formerly incarcerated students. The Student Equity

Program provides direct supportive services to empower students experiencing insecurities related to food, housing, transportation, textbooks, and shower access. We recognize that students who struggle meeting their basic needs are also at an academic and economic disadvantage, creating barriers to academic success and wellness. We strive to remove barriers that affect IVC students' access to education, degree and certificate completion, successful completion of developmental math and English courses, and the ability to transfer to a university. Contact: 760.355.5736 or 760.355.5733 Building 100.

- The Student Equity Program also houses IVC's Homeless Liaison, who provides direct services, campus, and community referrals to students experiencing homelessness as defined by the McKinney-Vento Act. Contact: 760.355.5736 Building 100.

Student Rights and Responsibilities

Students have the right to experience a positive learning environment and to due process of law. For more information regarding student rights and responsibilities, please refer to the IVC General Catalog.

Information Literacy

Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. The IVC Library Department provides numerous Information Literacy Tutorials to assist students in this endeavor.

Tentative Class Schedule/Calendar

The following is a tentative calendar of the semester. Its purpose is to provide you with a general overview of chapters, homework assignments, tests and corresponding due dates that will be administered henceforth. The instructor will try to adhere to the calendar, however, he reserves the right to make adjustments to the calendar based on the progression of each session.

Date or Week	Activity, Assignment, and/or Topic	Pages/ Due Dates/Tests
Week 1 August 19 – 23	Syllabus & Introduction Chapter 1 – General Principles • Models of Analysis: Point-mass, rigid body, concentrated force • Newton's Laws, Law of Gravitation and Weight • SI & U.S. Customary Units Chapter 2 – Force Vectors • Scalar & vector quantities • Scalar & vector operations (dot product) • Resultant forces (coplanar, Cartesian components)	TBD
Week 2 August 26 – 30	Chapter 3 – Equilibrium of a Particle • Free-body diagrams (point mass) • $\sum F = 0$ • Springs ($F = ks$), cables & pulleys • 2D & 3D Force Systems Chapter 4 – Force System Resultants • Moments, moment arm • Cross Product	TBD
Week 3 September 3 – 7	Chapter 4 – Force System Resultants • Moment Vector • Varignon's theorem (principle of moments) • F_R for distributed loads	TBD
Week 4 September 9 – 13	Review Chapters 1-4	TBD
Week 5 September 16 – 20	**Midterm: Chapters 1-4**	TBD
Week 6 September 23 – 27	Chapter 5 – Equilibrium of a Rigid Body • Free-Body diagrams (rigid body) • $\sum F = 0, \sum M_O = 0$ • Equations of equilibrium • Two & three force moments Review Midterm	TBD
Week 7 September 30 – October 4	Chapter 5 – Equilibrium of a Rigid Body • Free-Body diagrams (rigid body) • $\sum F = 0, \sum M_O = 0$	TBD

Date or Week	Activity, Assignment, and/or Topic	Pages/ Due Dates/Tests
	• Equations of equilibrium • Two & three force moments	

Week 8
October 7 – 11
	Chapter 6 – Structural Analysis
	  • Simple trusses (tension, compression, joints)
	  • Zero-Force members
	  • Frames & machines
	Chapter 7 – Internal Forces
	  • Shear force & bending moments
	  • Cables
		TBD

Week 9 October 14 – 18	Review Chapters 1-7	TBD
Week 10 October 21 – 25	**Midterm: Chapters 1-7**	TBD

Week 11
October 28 –
November 1
	Chapter 8 – Friction
	  • Limiting static frictional force
	  • Wedges
	Chapter 9 – Center of Gravity and Centroid
	  • Center of gravity, center of mass & centroid
	  • Composite bodies
		TBD

Week 12
November 4 –8
	Chapter 10 – Moments of Inertia
	  • Inertia
	  • Parallel-Axis Theorem
	  • Radius of Gyration
	  • Composite areas & moments of inertia
	  • Mass moment of inertia
		TBD

Week 13
November 12 – 15
	Chapter 10 – Moments of Inertia
	  • Inertia
	  • Parallel-Axis Theorem
	  • Radius of Gyration
	  • Composite areas & moments of inertia
	  • Mass moment of inertia
		TBD

Week 14
November 18 – 22
	Chapter 11 – Virtual Work
	  • Principle of virtual work
	  • Gravitation and elastic potential energy
		TBD

Week 15 December 2 – 6	Review Chapters 1-11	TBD
Week 16 December 9 – 13	**Midterm: Chapters 1-11**	

Tentative, subject to change without prior notice