

### Basic Course Information

Semester	<b>Fall 2016</b>	Instructor's Name	<b>Manuel M. Sanchez</b>
Course Title & #	<b>Computational Procedures for Water Plant Operators II</b>	Instructor's Email	<b>manuel.sanchez@imperial.edu</b>
CRN #	<b>10829</b>	Telephone	<b>(760) 259-3834</b>
Room	<b>2711</b>	Office	<b>809</b>
Class Dates	<b>15 August 2016 9 December 2016</b>	Office Hours	<b>n/a</b>
Class Days	<b>Thursdays</b>	Office Phone #	<b>(760) 355-6217</b>
Class Times	<b>06:00-9:10 pm</b>	Who students should contact if emergency or other absence	<b>Department Secretary: Frances Arce (760) 355-6361</b>
Units	<b>3.0</b>		

### Course Description

This course provides instruction in entry-level to advanced-level mathematical calculations used in the operation and evaluation of conventional water/wastewater treatment processes and water distribution systems. Course will cover basic geometry, metric conversions, flows, pressure, and chemical dosage as it relates to the water/wastewater industry. Material will parallel some of the problems found on State Certification examinations. (Formerly WT 220) (CSU).

### Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Apply mathematical principles to address and solve problems related to water and wastewater treatment technologies. (IL02, IL03, IL04)
2. Enhance treatment systems by interpretation of hydraulic volumes, dimensional analysis, primary and secondary sewage treatment, calculations and chemical dose rates as it relates to water/wastewater technology. (IL02, IL03, IL04)
3. Understand and evaluate issues concerning the proper use and distribution of the water natural resources. (IL01, IL02, IL03, IL04, IL05)
4. Effectively attain grades III/IV/V in both water and wastewater State certifications. (IL02, IL04)

### Course Objectives

Upon satisfactory completion of the course, students will be able to:

1. Demonstrate knowledge of volume calculations.
2. Demonstrate knowledge of flow and velocity.
3. Demonstrate the ability to calculate milligrams per liter to pounds per day.
4. Demonstrate the ability to calculate loading rates.
5. Demonstrate the ability to calculate detention and retention times.
6. Demonstrate the ability to calculate efficiency and percentages.
7. Demonstrate knowledge of pumping calculations.
8. Demonstrate knowledge of source and storage volumes.
9. Demonstrate knowledge of coagulation and flocculation rates.
10. Demonstrate the ability to calculate sedimentation times.
11. Demonstrate the ability to calculate filtration rates.
12. Demonstrate the ability to calculate chlorination rates.
13. Demonstrate the ability to calculate flouridation rates.

### Textbooks & Other Resources or Links

**Textbook:**

- “Applied Math for Water Operators” by Joanne Kirkpatrick Price. CRC Press Taylor and Francis Group, LLC. ISBN-13: 978-0877628743

**Workbook:**

- “Applied Math for Water Operators” by Joanne Kirkpatrick Price. CRC Press Kirkpatrick Price, Joanne (1991). ISBN-13: 978-0877628750

**Course Requirements and Instructional Methods**

**Readings and exercises projects:** Students are required to complete the necessary reading and exercises assignments prior to the session as reflected in the schedule and are encouraged to bring the textbook to class. Homework assignments shall be delivered every class to the Instructor’s desk until 06:35 pm and will not be accepted late. Assignments will be both individual and group work, and will include presentations. Field trips may be scheduled.

**Drop Classes:** The Instructor will not drop students from the class. Students are responsible for dropping classes. Failure to drop the class will result in an “F” for the semester.

**Calculator:** Each student is responsible to bring their own scientific or non-scientific calculator to every class session. No personal telephones or any other type of electronic devices shall be used in lieu of a regular calculator.

**Course Grading Based on Course Objectives**

<b>Class Participation and assignments:</b>	<b>30%</b>
<b>Homework</b>	<b>20%</b>
<b>Quizzes</b>	<b>40%</b>
<b>Final Exam:</b>	<b>10%</b>
	<b>100%</b>

**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.

- 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, no one who is not enrolled in the class may attend, including children.

### Academic Honesty

- Plagiarism is to take and present 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 correctly 'cite a source', 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, or assisting others in using materials, which are prohibited or inappropriate in the context of the academic assignment in question.

Anyone caught cheating or 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 School 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) use of a commercial term paper service

### Additional Help –

- Blackboard support center: <http://bbcrm.edusupportcenter.com/ics/support/default.asp?deptID=8543>
- Learning Labs: There are several 'labs' on campus to assist you through the use of computers, tutors, or a combination. Please consult your college map for the Math Lab, Reading & Writing Lab, and Learning Services (library). Please speak to the instructor about labs unique to your specific program
- Library Services: There is more to our library than just books. You have access to tutors in the learning 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. If you feel you need to be evaluated for educational accommodations, the DSP&S office is located in Building 2100, telephone 760-355-6313.

### Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee. We now also have a fulltime mental health counselor. For information see <http://www.imperial.edu/students/student-health-center/>. The IVC Student Health Center is located in the Health Science building in Room 2109, telephone 760-355-6310.

### Student Rights and Responsibilities

Students have the right to experience a positive learning environment and due process. For further information regarding student rights and responsibilities please refer to the IVC General Catalog available online at [http://www.imperial.edu/index.php?option=com\\_docman&task=doc\\_download&gid=4516&Itemid=762](http://www.imperial.edu/index.php?option=com_docman&task=doc_download&gid=4516&Itemid=762)

### Information Literacy

Imperial Valley College is dedicated to help students skillfully discover, evaluate, and use information from all sources. Students can access tutorials at <http://www.imperial.edu/courses-and-programs/divisions/arts-and-letters/library-department/info-lit-tutorials/>

### Anticipated Class Schedule / Calendar

The following provides a tentative, provisional overview of the reading, assignments, tests, or other activity for the duration of the course. The Instructor reserves the right to modify it as necessary.

Date	Chapter	Topic	Workbook Assignment
Aug. 18	1	Introduction and Overview of Treatment Technologies, applied volume calculations	None.
Aug. 25	2	Flow and Velocity Calculations	Pages 3- 9
Sept. 1	3	Milligrams Per Liter	Study for Quiz #1 Pages 15-23
Sept. 8	4	Loading Rate Calculations, <b>Quiz #1</b>	Pages 29-39
Sept. 15	5	Detention Time Calculations	Pages 45-57
Sept. 22	6	Efficiency and Percent Calculations	Pages 59-69 and 77-83
Sept. 29	7	Pumping Calculations	Pages 89-105, Study for Quiz #2,
Oct. 6	8	Water Sources & Storage, <b>Quiz #2</b>	Pages 111-123
Oct. 13	9	Coagulation and flocculation	Pages 129-145
Oct. 20	10	Sedimentation, <b>Midterm</b>	Pages 153-161; Study for Quiz #3
Oct. 27	11	Filtration, <b>Quiz #3</b>	Pages 163-175; and 183-201
Nov. 3	12	Chlorination, <b>Water Science Project Due</b>	Pages 209-227
Nov. 10	13	Fluoridation	Pages 235-249
Nov. 17	14	Softening, <b>Term Paper Due</b>	Pages 257-273
<b>Nov. 24</b>	<b>WINTER BREAK</b>		
Dec. 1	15	Laboratory <b>Quiz #4</b>	Pages 283-311 Pages 323-333 Study for Final Exam
Dec. 8	All	<b>Final Examination</b>	Good luck on your State Exam!