WT 105 Computational Procedures for Water and Wastewater Treatment Plant Operators

Semester	**Spring 2015**	Instructor Name	**Manuel M. Sanchez**
Course Title & #	**WT 105 Comp. Procedures**	Email	**manuel.sanchez@imperial.edu**
CRN #	**20027**	Phone	**(760 259-3834**
Room	**2711**	Office	**Room 809**
Class Dates	**From:2/17/2014 To:5/12/2014**	Office Hours	**n/a**
Class Days	**Tuesdays**	Office Phone #	**(760) 355-6361**
Class Times Units	**05:30-08:40 PM** **3.0**	Office contact if student will be out or emergency	**Frances Arce-Gomez** **(760) 355-6361**

Course Description

Basic Mathematical principles used in the treatment of potable water and wastewater form the basis for many approaches to the remediation of contaminated water ways as well as proper techniques of water treatment for human consumption. In addition, these principles can be used in designing, developing and tailoring industrial processes to minimize detrimental environmental effects. This course presents the student with a basic understanding of the hydrologic cycle and how the human interface alters this process and creates an artificial cycle. The chemical and biological elements of treatment will be presented as well as theory of hydrology and treatment technologies. Design engineering of processes will be stressed. Finally, federal and state regulations will be covered which directly impact various treatment technologies. This course may include the academic support of Blackboard such shall be considered an integral part only, and students are required to physically attend all classes as scheduled.

Student Learning Outcomes

To build and strengthen a student's math ability to complete the Water and Wastewater Treatment Technology science programs at IVC and to successfully pass various mandated licensing examinations. To assist the student in analyzing word problems, to communicate the various aspects of the California Department of Health Services licensing programs, and to provide a strong mathematical base for concepts encountered in the Water Utility Science program.

Course Objectives

After accomplishing this course, it is expected that students will...

1. Retain some foundational knowledge: remember basic terms associated with Water and Wastewater Treatment Technologies, environmental issues, recognize potential cross-media impacts, acknowledge linkages between technology and environmental and human health impacts, identify sources of uncertainty in environmental problems, estimate costs and benefits (even qualitatively) of technology and associated environmental impacts. 2. Apply knowledge to other areas: enhance critical thinking in relation to complex problems, find appropriate data sources and use and cite them correctly, assess statistics and scientific information objectively, evaluate options from various viewpoints (e.g., technological feasibility, environmental impact, policy implications, everyday operations' strategy, etc.)
2. Integrate knowledge: combine knowledge of everyday consumer choices with basic engineering principles and environmental impacts, see the connectedness of human activities with environmental impacts on a global scale.

3. Reflect on the human dimension: remain conscious of their personal impact on the environment via their choices, educate others on the impact of decisions, realize that decision making is difficult and often doesn't have one right answer.
4. Remain motivated: feel that environmental issues are accessible to their general comprehension; be knowledgeable, not intimidated, by statistics, estimations, calculations, and general scientific information
5. Learn how to learn: ask questions to develop a more robust understanding, collaborate with others with different backgrounds, find good data and identify weak data.

Textbooks & Other Resources or Links

Title: "**Basic Math Concepts for Water & Wastewater Operators"**
By: Joanne Kirkpatrick Price.
ISBN 0-87762-808-4

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. Assignments will be made in class and will not be accepted late. Assignments will be both individual and group work, and will include presentations. Field trips may be scheduled.

Attendance: Class attendance is strongly encouraged. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week will be dropped. Imperial Valley College's policy will be strictly adhered to regarding absenteeism (General Catalog, page 23). Absences attributed to the representation of the college at officially approved events (conferences, contests, and fieldtrips) will be counted as excused absences. It is the responsibility of the student to make-up the missed assignments when is absent. Students who are habitually late to class or leave early more than three times will be dropped. Three tardies will equal 1 absence.

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.

Example of calculator.

Water Science Project: Each student will be expected to complete work in groups of three. Topics must be approved by the instructor. Students must use an approved form and style for the project involved. Directions will be given by instructor.

Homework Assignments: Must be delivered at the beginning of the class session at the Instructor's desk. Homework will not be accepted late.

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

Class Participation and assignments:	**30%**
Water Science Project	**10%**
Quizzes	**30%**
Final Exam:	**30%**
	100%

***Note: Grading criteria are guides only. Instructor retains the right to modify these criteria.**

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. The DSP&S office is located in Building 2100, telephone 760-355-6313 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. 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

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

Tentative, provisional overview of the reading, assignments, tests, and/or other activity for the duration of the course. **Instructor retains the right to modify these criteria.**

DATE	CHAPTER	DESCRIPTION	HOMEWORK DEADLINE
Feb. 17th	1	Introduction and Overview of Treatment Technologies, Solving Math Problems	None
Feb. 24th	2	Solving for the unknown	Pages 7,8, 9
Mar. 3rd	3	Decimals.	None Study for Quiz #1
Mar. 10th	4	Fractions. **Quiz #1**	Pages 27,29, and 32
Mar. 17th	5	Percent	Pages 36, 56,74
Mar. 24th	6	Averages.	Study for Quiz #2
Mar. 31th	7	Ratios and Proportions. **Quiz #2**	Pages 118,120, and136
Apr. 14th	8	Conversions. **MIDTERM**	Pages 138,144, and 154
Apr. 21th	9	Linear Measurements.	Study for Quiz #3
Apr. 28th	10	Area Measurement. **Quiz #3**	Pages 176,184, 192, and 202
May 5th	11	Volume Measurement.	Pages 204,208,and 212
May 12th	12	Scale & graphs. **Water Science Project Due.**	Pages 259,270, and 281
May 19th	13	Power, roots, and scientific notations.	Pages 283, 300,308,
May 26th	14	Rounding and Estimating	Study for Quiz #3
Jun 2nd	15	Dimensional Analysis **Quiz #4**	Study for Final.
Jun 9th	**Final Examination**		