COURSE NUMBER & TITLE: ENVT 1560 - 70 Water Treatment Plant Operation I

SEMESTER/YEAR: Fall 2006

LECTURE HOURS: 3 LABORATORY HOURS: 0 CREDITS HOURS: 3

CLASS TIME: Internet Class

INSTRUCTOR’S NAME: Bill Mixer
INSTRUCTOR’S OFFICE: N/A
INSTRUCTOR’S PHONE: 1-800-442-2963 (X 2670) or 268-2670
OFFICE HOURS: By appointment only

COURSE DESCRIPTION: The course is an introduction to the basics of water treatment plant operation and key system components. Includes water sources, coagulation, flocculation, sedimentation, filtration, disinfection, Safe Drinking Water Act rules and regulations, fluoridation and iron and manganese removal.

METHODOLOGY: This course will be taught entirely over the internet. You will be expected to use the Internet extensively for this class. All quizzes and exams will be done on computer. All of the project research will be internet based as well. Therefore, the student must have access to the Internet. A Pentium class computer is recommended, but not required. The preferred software browser is the most current version of Netscape Communicator or Internet Explorer. If this information causes you concerns then you probably should not be taking the Internet based section of this class. The course includes reading assignments, quizzes, exams, online projects and discussions and a summary final.

Specific Course Information
You will need the course texts: Water Treatment plant Operation I 4th edition and II 4th edition for the reading assignments in this course. This book may be obtained from the Casper College book store by calling 1-800-442-2963 ex 2963 or online from the CSUS Office of Water Programs at www.owp.csus.edu Please have this book prior to beginning the class.
Once you are enrolled you will need to login to the course on the Casper College WebCT site. It can be accessed from our webpage: www.caspercollege.edu Once you have accessed our homepage you will need to click on the Distance ed. link on the right hand side of the page and follow the instructions to create your Casper College WebCT account. The course you want to enroll in is ENVT 1560. Once you have created your
account you will access the course website from the link on our WebCT page entitled “Kirkwood Link”. We will send you your login information for the Kirkwood site once your are registered for the course on Casper College WebCT site. Be sure to check the Casper College WebCT site weekly for email and check the course WebCT calendar for specific due dates.

STATEMENT OF PERQUISITES: None

ATTENDANCE: This course begins on Monday August 28th and ends December 20th. All assignments, projects, chapter quizzes and exams and the course final must be completed by December 20th, 2006. Please note that the ENVT 1560 WebCT course calendar contains deadlines for projects discussion questions and tentative due dates for all units. These should be followed if you want to finish the course on time.

Course Goal: The student will obtain basic knowledge and skills necessary to operate specific water treatment unit processes and be knowledgeable regarding the federal Safe Drinking Water Act that regulates quality of drinking water delivered to the consumer. The topic areas to be covered are:

- Filtration
- Safe Drinking Water Act Regulations
- Disinfection
- Fluoridation
- Coagulation/Flocculation
- Iron and Manganese Removal
- Sedimentation
- Introduction to water treatment

SPECIFIC OUTCOMES:

Introduction to Water treatment: Outline the procedure for a sanitary survey and identify water quality problems and treatment processes to solve them.

Sedimentation: Describe the sedimentation process and calculate detention times and identify factors that affect the sedimentation processes performance,

Coagulation/Flocculation: Understand and describe coagulation and flocculation process

Filtration: Understand and describe the water filtration process and the various types of filtration process and describe how they work, understand how plant operation impacts filter operation, be able to perform filtration rate and backwash calculations and set up a jar test and use results to adjust chemical feed rates to improve filter operation.
**Disinfection:** Understand and describe the purpose of disinfection and theory of operation for ozone, ultraviolet light and chlorine and chloramines and calculate chemical feed rates and be able to describe the operation of each process.

**Fluoridation:** Describe the fluoridation process and calculate fluoride dosages, work safely with fluoride and understand its health effects.

**Iron and Manganese Removal:** Describe the various processes used for iron and manganese removal.

**Safe Drinking Water Act (SDWA) Regulations:** Describe the primary and secondary drinking water standards, identify proper sampling techniques for the SDWA, find SDWA information on the EPA website and understand how the SDWA impacts plant operations.

**EVALUATION CRITERIA:**
Students will be evaluated in regards to class attendance and exercises and exams.

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<thead>
<tr>
<th>Quizzes / Exams / Final</th>
<th>1182 points</th>
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<tbody>
<tr>
<td>Participation in discussion boards 8 @25</td>
<td>200 points</td>
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<tr>
<td>Online Class Assignments</td>
<td>200 points</td>
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<tr>
<td>Total</td>
<td>1582 points</td>
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*Grades will be determined on the following point system:*

- **A:** 1582 - 1455
- **B:** 1454 - 1329
- **C:** 1328 - 1202
- **D:** 1201 - 1076

Note: grade scale is subject to change if Kirkwood makes changes on their grading scale or if assignments change.

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**Discussion Board**
During the semester I will be posting questions on the discussion board. These will be based on what your studying or a website I have directed you to. I plan on posting 8 questions during the semester and you will have a specific length of time to respond. You can definitely respond more than once to each question however the max points are 25 per question.

Below is the grading rubric I will use to grade your use of the discussion board portion of the class.

If a team discussion question is posted the same rubric will be used. I expect each team
member to participate and the same rubric will be used. Please respond to a team question even if you are not seeing your team mate respond. I will grade your work if necessary. I may waive the outside resource requirement depending on the assignment.

### Discussion Board Assignment Participation Grading Rubrics

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<th>Unsatisfactory 0 points</th>
<th>Needs work 2-6 points 1-3 points</th>
<th>Satisfactory 8-12 points 4-6 points</th>
<th>Very Good 14-18 points 7-9 points</th>
<th>Excellent 20 -25 points 10 - 12.5 points</th>
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<td>25 points per discussion question if no reply is required if reply is required then only half of the points are given.</td>
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<td>Threaded discussion posting (1/2 of total points)</td>
<td>No postings are made on the Discussion board</td>
<td>An entry is posted on the discussion assignment and is brief and lacking in detail. The response shows not much thought given to the assignment or the course materials.</td>
<td>At least one entry is made. The message is insightful and shows that the student has read the course material concerning the assignment and/or has course content related to the posting. The response is in the student’s own words and demonstrates good writing skills with attention to grammar, spelling and punctuation.</td>
<td>The entry meets the requirement for the satisfactory grade and the student uses a reference(s) from another source, an example or reference to real life experience.</td>
<td>The posting meets all of the very good requirements and is a thoughtful attempt at trying to engage fellow students in a meaningful dialog/discussion in regards to the topic.</td>
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<td><strong>Threaded Discussion</strong></td>
<td>No reply postings are made on the discussion board in regard to the discussion posting.</td>
<td>Posting fails to respond to fellow student(s); it is trite, inane, or else quite simple and just a personal remark not a substantive reply. (ex - &quot;Good. I really liked your comment.&quot;).</td>
<td>It's responsive to at least one fellow student in a personalized, meaningful way. The response demonstrates good writing skills with attention to grammar, spelling and punctuation.</td>
<td>The response to fellow student(s) clearly indicates your position in relation to what fellow student(s) said e.g. agreeing, disagreeing, adding to, modifying, extending or questioning it and/or providing additional references.</td>
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<td><strong>Reply</strong> (the other 1/2 of the points)</td>
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<td><strong>Team Threaded discussion</strong></td>
<td>No postings are made on the discussion board by a team member</td>
<td>One posting is made by a team member but it is brief and lacking in detail. The response shows not much thought given to the assignment or the course materials.</td>
<td>One posting is made to the discussion and shows some thought in regards to the project and responds to at least one team member. The response demonstrates good writing skills with attention to grammar, spelling and punctuation.</td>
<td>Team member posts more than one entry and shows thought in regards to the project and is responsive to all members of the team and indicates their willingness to work as a team member to answer the question posted. Team member posts more than one entry and shows thought in regards to the project and is responsive to all members of the team and indicates their willingness to work as a team member to answer the question posted and provides useful reference(s) from another source, an example or reference to</td>
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Online Projects: There will be several online research projects that will require students to find specific information on Safe Drinking Water Act Regulations that impact distribution system operations or perform specific calculations. Each project will be worth a set amount of points.

Late Projects/Postings: Online projects and discussions that are late will lose 10% of the available points for each day that they are late unless you have spoken with me prior to the deadline and arranged a new due date. Weekends will count as one day. I will also expect you to be following the milestones for progress in the WebCT calendar. This is a self paced class but you need to keep up with the calendar. There are no extensions past December 20th 2006 for assignments or the final.

Auditing: Should you chose to audit this class you will be responsible for completing all of the Kirkwood quizzes and final exam. You will also must participate in the class discussion questions. You will not be responsible for online projects. You must switch to audit by October 31st. Audit means you are taking the class for informational purposes and will not be getting a grade for the class.
**Netiquette**: What this you ask? In a nutshell, it is having respect for each other in class and being able to accept and discuss differences in opinion in an online environment without being offensive. You can do a Google search if you like on the topic for a more in-depth explanation. I will watch our email and discussions that are public and assume you are all being courteous to each other in any private email you send. Please notify me if you feel someone is not living up to this responsibility.

**Final Exam**: You must arrange to take the final exam as it is a timed exam. You will have two hours for the 50 question final. So contact me at least twenty four hours in advance and we will make the arrangements. If you are looking at a weekend date contact me no later than Thursday of that week.

**Course Schedule**
See course calendar on the Casper College ENVT 1560 WEB CT course site. Any changes will be announced in via class email.

**REQUIRED TEXT, READINGS, MATERIALS:**
- Water Treatment Plant Operation Volume I
- Water Treatment Plant Operation Volume II

**LAST DATE TO CHANGE TO AUDIT STATUS:**

**LAST DATE TO WITHDRAW WITH A "W" GRADE:**

**STUDENT RIGHTS AND RESPONSIBILITIES**: Refer to the Casper College Student Conduct and Judicial Code for information regarding your rights and responsibilities.

*Casper College demands intellectual honesty. Proven cheating, plagiarism, or any other form of dishonesty, may result in the offender failing the course or expulsion from the college.*

*ADA Accommodations Policy*: It is the policy of Casper College to provide appropriate accommodations to any student with a documented disability. It is the policy of Casper College to provide appropriate accommodations for any students with a documented disability. More information may be found at the following location: Disability Services. You may also contact the instructor or the following people for any questions that may arise.
Email Ann Loader: aloader@caspercollege.edu, Individual Learning Specialist or by telephone 307-268-2557

Email Kim Byrd: kbyrd@caspercollege.edu, Specialist in Testing, Advisement & Retention or by telephone 307-268-2255