New Jersey Institute of Technology

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Spring 2021

ENE 664-102: Physical and Chemical Treatment

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NJIT
New Jersey's Science & Technology University

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

EnE 664   Physical and Chemical Treatment   Spring 2021

Course Description (from the course catalog):

Physical and chemical quality of water for human consumption, with focus on design aspects of physical and chemical operations and processes employed in the treatment of water and wastewater. Topics include coagulation, flocculation, solid-liquid separation, filtration, precipitation, adsorption, gas transfer, and disinfection. Includes a brief overview of key principles from physics and chemistry.

Co-requisite or Pre-requisite:

Prerequisite: ENE 663. (May be taken concurrently.)

Course Section: 102

Canvas: ENE 664102

Lectures: Tuesdays, 6:00 PM – 8:50 PM EST/EDT

Instructor: Dr. William Pennock

Office: Colton 268

Office Hours: Mondays 1:30-3:00 PM, Thursdays 3:00-4:30 PM (scheduled through Canvas), or by appointment (scheduled by e-mail)

Email: whp3@njit.edu

Text: J. C. Crittenden et al., *MWH's Water Treatment: Principles and Design,* 3rd Edition, Wiley, Print ISBN: 9780470405390, Online ISBN: 9781118131473

References:
M. M. Benjamin & D. F. Lawler, *Water Quality Engineering: Physical / Chemical Treatment Processes*, Wiley, ISBN: 978-1-118-16965-0

M. L. Weber-Shirk et al., *The AguaClara Textbook*, v0.070, https://aguaclara.github.io/Textbook/

Communication:

All communication by the Instructor will be done through Canvas. It is your responsibility to check e-mail, and the course page on Canvas regularly.

Items Required for this Course:

1. **Computer with microphone and webcam**
2. **Scanner (or phone with ability to scan)**
3. **Calculator**

Week	Topic	Reading
1	Introduction	1-1—1-5
2	Water Quality	2-1—2-8 3-1,3-2,3-8 (3-3—3-7 optional)
3	Regulations	4-1—4-3
4	Water Treatment Overview	4-4—4-6
5	Coagulation	9-1—9-5
6	Mixing and Flocculation	6-10 9-6—9-7
7	Sedimentation and Flotation	10-1—10-9
8	**Midterm Exam (March 9)**	
9	Media Filtration	11-1—11-8
10	Membrane Filtration & Reverse Osmosis	12-1—12-8 17-1—17-7
11	Activated Carbon Adsorption	15-1—15-6
12	Ion Exchange	16-1—16-8
13	Disinfection and Oxidation	13-1—13-9 18-1—18-5
14	Final Presentations	
Exam Period	Final Exam	See NJIT website for date

Grading Policy:

- **Homework:** 15%
- **Midterm Exam:** 25%
- **Project:** 30%
- **Final Exam:** 30%
- **Attendance/Participation:** Students within 2% of a letter grade can be promoted up to the next highest grade level or demoted to the next lowest grade level based on their attendance and participation in class (both during lectures and in online discussions).

Grading Scale:

A: 100-90
B+: 89.9-85
B: 84.9-80
C+: 79.9-75

C: **74.9-70**
F: **Below 70**

Attendance and Participation:

Due to the converged nature of this course and the semester, attendance is especially important to remain engaged with your courses and your learning community. Please do your best to be fully present during lectures and avoid distractions for yourself and for fellow students, especially when online. As noted above, attendance and participation is a non-negligible component of your grade. If a student must miss a class or an exam, please contact the professor to discuss the issue at least **24 hours prior to** the class or exam. Students will not be allowed to make up exams or quizzes if the professor is not contacted prior to the class. If a student had a serious medical issue, death in the family, or other excusable emergency absence, the student is required to obtain an excused absence from the Dean of Students prior to asking for a make-up.

Assignment Policy:

All assignments are due by 11:59:59 PM on Tuesdays, unless otherwise specified. Late assignments will automatically be deducted 10% per day they are late and will not be accepted after 48 hours.

Students with Disabilities:

NJIT is committed to providing students with documented disabilities equal access to programs and activities. If you have, or believe that you may have, a physical, medical, psychological, or learning disability that may require accommodations, please contact the Office of Accessibility Resources and Services.

Additional Support:

Even without the uncertainty this year has brought, college studies provide many new challenges and opportunities, and many students experience some form of distress as a result. If you feel overwhelmed or would like to talk with someone about your mental or emotional state, please reach out to C-CAPS or the Dean of Students.

Withdrawals:

In order to insure consistency and fairness in application of the NJIT policy on withdrawals, student requests for withdrawals after the deadline will not be permitted unless extenuating circumstances (e.g., major family emergency or substantial medical difficulty) are documented. The course Professors and the Dean of Students are the principal points of contact for students considering withdrawals.

Exam Policy:

Exams will be proctored the Lockdown Browser and Webex. Both the midterm and the final exam are cumulative.

NJIT policy requires that all midterm and final exams must be proctored, regardless of delivery mode, in order to increase academic integrity. Note that this does not apply to essay or authentic based assessments. Effective beginning Fall semester 2019, students registered for a fully online course section (e.g., online or Hyflex mode) must be given the option to take their exam in a completely online format, with appropriate proctoring.

In this course you will be required to use the following proctoring method to ensure academic integrity for exams. Please see NJIT's response to questions about online proctoring [here (Links to an external site.)](). See below for more information about how exams will be proctored in this course.

Respondus LockDown Browser and Monitor

Respondus LockDown Browser is a locked browser for taking assessments or quizzes in Canvas. It prevents students from printing, copying, going to another URL, or accessing other applications during a quiz. If a Canvas quiz requires that LockDown Browser be used, students will not be able to take the assessment or quiz with a standard web browser. Students may be required to use LockDown Browser with a webcam (Respondus Monitor), which will record students during an online exam.

The webcam can be built into your computer or can be the type that plugs in with a USB cable. Watch this [short video (Links to an external site.)]() to get a basic understanding of LockDown Browser and the webcam feature. A student [Quick Start Guide (PDF) (Links to an external site.)]() is also available.

Respondus Lockdown Browser and Monitor does not work with Linux and Chromebooks at this time. Please visit the [Respondus Knowledge Base article on computer requirements (Links to an external site.)]() for additional information.

There are two quizzing engines currently available in Canvas, "classic" quizzes and "new" quizzes. Respondus works with both.

For "New" Quizzes in Canvas (used in this course):

If a New Quizzes assessment requires the use of LockDown Browser, it will automatically launch from the student's regular browser session. At the end of the quiz, LockDown Browser will close, allowing the student to continue with their standard browser. To be clear, the LockDown Browser application must first be installed to the computer or device. But once installed, it will automatically launch (and close) as needed with New Quizzes.

1. *Download and install LockDown Browser from this link: [http://www.respondus.com/lockdown/download.php?id=264548414 (Links to an external site.)]()*

2. *Once your download and installation has finished, log into Canvas using your standard browser.*

3. *From your Dashboard or under "Courses", click on the course in which you have to take the exam that requires LockDown Browser.*

4. *After you enter the course, find the exam and click on it.*

5. *A new tab will open with a message stating "Assessment Loading". You will also see a pop-up window asking you to open Lockdown Browser. Click "Open Lockdown Browser".*

6. *Lockdown Browser will automatically launch and your quiz will be loaded into Lockdown Browser. Click "Begin" to take the quiz. Once a quiz has been started with LockDown Browser, you cannot exit until the "Submit Quiz" button is clicked.*

7. *If you are required to use a webcam (Respondus Monitor), you will be prompted to complete a Webcam Check and other Startup Sequence steps.*

Webex

Webex can be used to allow instructors to proctor exams themselves. Your instructor will schedule a Webex exam session and share the meeting information with you ahead of time. The exam in Canvas will be password-protected. You can connect to the Webex session with either your phone or computer. You can find links to download the mobile app from the App Store or Google Play Store at the bottom of [njit.webex.com (Links to an external site.)](njit.webex.com).

When your instructor is ready to start the exam, they will provide the exam password in the meeting so all students can begin the Canvas quiz. Your instructor will then watch you, via the web camera, as you take the exam. Students are expected to remain connected to the Webex session until their exam is submitted. The session may also be recorded by your instructor.

In order to use Webex for proctored exams, you will need the following:

- *High-speed internet connection*

- *Webcam (internal or external) and/or smartphone with camera (instructor's preference)*

- *The process for connecting to Webex will be the same as when you connect for a class.*

Tips for ensuring a smooth experience while using Webex:

- *Connect to your Webex session before class starts.*

- *Log into Canvas before connecting to Webex.*

Questions or problems can be submitted via web form by going to: [https://servicedesk.njit.edu (Links to an external site.)](https://servicedesk.njit.edu) and clicking on the "Report your issue online" link. You may also call the IST Service Desk with any questions at 973-596-2900.

Academic Integrity:

"Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf.

*Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. **Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university.** If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu"*

Syllabus Information:

The dates and topics of the syllabus are subject to change at the discretion of the professor.

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