

Spring 2021

## **ME 441-102: Computer Simulation and Analysis**

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COURSE OUTLINE

Prerequisites

CIS 101, Math 222

Instructor

Dr. Yazan Manna

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Textbook  
Required

AutoCAD 2019 Tutorial First Level: 2D Fundamentals by Randy H. Shih,  
ISBN: 978-1-63057-188-7 SDC Publications, and Instructor's Lecture  
Notes posted in Canvas

Reference

User's Guide of software packages used in the course  
Computational Fluid Dynamics by T.J. Chung, Cambridge University  
Press, 2002 , ISBN 0-521-59416-2

Course Description

This is a course introducing various concepts of CAD (Computer Aided Design) and CAE (Computer Aided Engineering) as applied to Mechanical Engineering design problems. Topics include 2-D drawings, geometric dimensioning and tolerancing (GD&T), modeling, assembly and animation, static modal, nonlinear, contact, impact, failure, thermal, and multi-physics analyses, and computational fluid dynamics for design. The laboratory component involves use of current CAD/CAE software packages.

Grading Scheme &  
Policies:

Lab Work – Assignments	30%
Projects	30%
Mid-Term Exam	15%
Final Exam	25%

Ground Rules:

1. Attending class, completing assignments on time, and keeping up with the class material is important for success in this course and in college. Generally, late or missed assignments **will not** be accepted except for legitimate (**pre-approved when possible**) reasons as determined by the instructor. Examples of legitimate reasons are: illness, death in family, etc. **The method of handling late or missed work is determined by the instructor.**
2. **Missing more than 4 classes will lead to an 'F' grade in the course.** Exceptions will only be made for cases of excused absences supported by relevant documentation submitted to and verified by the office of Dean of Students.
3. Leaving class early will be marked as an absence, if due to any issues you are not able to attend the listed class duration please register for a different section.

4. **ANY FORM OF CHEATING ON ASSIGNMENTS OR EXAMS WILL RESULT IN AN 'F' FOR THE COURSE.** This includes looking at another person's exam or copying another person's work for exams or assignments.
5. NJIT honor code will be used for all situations that involve cheating, copying, misrepresentation of student work, and misrepresentation of student information and any violations will be brought to the immediate attention of the Dean of Students (visit <https://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>).
6. "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: <https://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"
7. Weekly assignments are to be turned in by the due date and must include the statement "**This assignment represents my work and is not the result of copying or using any other persons work.**" The statement must be signed by the student submitting the work.
8. The **part file** for the assignment **is required** to be submitted to get credit for the assignment. Non submission of the part file will lead to a loss of grade for the assignment.
9. Weekly assignments are due on the first meeting of the class for the week **BEFORE** the start of Lecture. Assignments turned in after the lecture starts are counted as late.
10. **Assignments that are more than 2 weeks late will not be accepted.**
11. Point deduction – Late Assignments: 1-Week-20%, 2-Weeks-30%
12. **At least 60% of the homework has to be submitted for a passing grade.**
13. Not submitting the final project will lead to an 'F' in the course.

14. **For using your smart phone devices during the lecture you are requested to please step out of the class, otherwise you would be asked to leave for the day.**
15. Attendance, attitude, class participation and effort can and will be used to change borderline grades up or down.
16. For special allowances associated with disabilities student must approach the Disability Resource Center.
17. For any modifications or deviations from the syllabus throughout the course of the semester, instructor will consult with students and the students must agree to.

### ***Using Respondus LockDown Browser and a Webcam for Online Exams***

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

**This course requires the use of Respondus LockDown Browser and/or Respondus Monitor with a webcam for online exams.** The webcam can be built into your computer or can be the type that plugs in with a USB cable. Watch this [short video](#) to get a basic understanding of LockDown Browser and the webcam feature. A student [Quick Start Guide \(PDF\)](#) is also available.

1. Download and install LockDown Browser from this link:  
<http://www.respondus.com/lockdown/download.php?id=264548414>
2. Once your download has finished, locate the "LockDown Browser" shortcut on the desktop and double-click it. (For Mac users, launch "LockDown Browser" from the Applications folder.)
3. You will be brought to the Canvas login page within the LockDown Browser, click "Login with your UCID" to log in with your NJIT UCID and password and then click Login.
4. Under "My courses", click on the course in which you have to take the exam that requires the LockDown Browser.
5. After you enter the course, find the exam and click on it.
6. A confirmation prompt will appear, click the "Start attempt" button. Once a quiz has been started with LockDown Browser, you cannot exit until the Submit all and finish 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.

Homework related to the lectures will be assigned, collected and graded.

**SUBMITTED ASSIGNMENT FORMAT:**

Projects / assignments should be submitted with a title sheet as shown below. Also, ANSYS exercises and homework will need a short write up explaining the problem, listing significant results, and making an inference from the results.

