

Homework guidelines

ME 274 – Spring 2024

- The two problems of each homework set must be written on separate pages, with each problem starting on a new sheet of paper. These pages should be scanned together into a single PDF file and uploaded to Gradescope. Each scanned page must be assigned to the correct problem in chronological order within Gradescope. And, we suggest that, in order to make your record keeping easier, you name the file “ME274_Problem Number_Your Name”.
- While homework is due just before midnight, you should set yourself a goal of submitting it between 6:00-7:00 pm, at the latest, so that internet challenges can be identified soon enough to develop other strategies for uploading on time. If you have problems uploading your homework to Gradescope for a homework set, be sure to email your homework submission to your instructor before the 11:59 pm deadline. Late homework is not accepted.
- If you use multiple sheets of paper to solve a problem repeat the *DATE/PROBLEM NUMBER/PAGE/NAME* header on each sheet.
- Before scanning, put the pages in order and scan from the first to the last sheet of paper. Be sure that all scans are appropriately aligned on a “portrait” page alignment.
- Before uploading to Gradescope, check the quality of the scanned problem. You do not want to lose points because the grader is unable to read your solution. If it is hard to read, you need to rescan and make sure the result is better.
- Your writing needs to be large enough so that when the problem is scanned, it does not require the grader to do high levels of magnification to be able to read your solution.
- If you are using a pencil in writing your solution, you need to use a pencil that is on the soft side (HB at a minimum or 2B ideally) so that the writing is dark enough so that the scan works well. Make sure that the pencil is sharpened, too.
- You must use the unit vector and other standard notation used in this class. Do not use the “bracket notation” for vectors. For example, use $\vec{F} = (10\hat{i} + 20\hat{j})\text{lb}$ instead of $\vec{F} = \langle 10, 20 \rangle \text{lb}$. You must specify co-ordinate systems, associated reference points, draw the unit vectors that you are using on the diagrams, and include units in your answers.
- For all problems, you must include statements of “Given” and “Find”, and include a figure for the problem.
- For kinetics problems, you must also clearly indicate the four steps in your solution: 1) *Free body diagrams*; 2) *Kinetics equations*; 3) *Kinematics*; 4) *Solve*.
- It is recommended that you solve the homework problems in symbolic form, and then substitute in numerical values for parameters (when provided) in the final steps of your solution. It is required that your final numerical solution be written in decimal form using no more than three significant figures.
- It is important to follow all formatting guidelines above. Failure to do any of these things will result in a loss of points. Failure to do all of these things will result in a large loss of points.

Homework format

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Please use paper for your homework problem solutions that allow for clear scans. For example, avoid using paper with grid markings as this often produces poor, illegible scans.

DUE DATE (month, day, year) **PROBLEM NO.** (H#.#) **PAGE NO.** (# of #) **NAME** (last, first)

Given: A concise statement (in your own words) of the information given.

Find: A concise statement (in your own words) of the information sought.

Solution: **Sketch the system** to be studied. USE A STRAIGHT EDGE for drawing lines. Always draw in the UNIT VECTORS for the coordinate systems that you use in your solution.

For kinetics problems, follow the four-step plan:

1. Draw FBD's.
2. Write down the fundamental kinetics equations (Newton/Euler, work/energy, linear impulse/momentum, angular impulse momentum equations).
3. Kinematics.
4. Solve.

Solve the problem symbolically.

At the end convert all quantities to a consistent set of units and substitute into the equations to obtain the final numerical answers (when numerical values for parameters are provided).

Check your answers for correctness and feasibility.

Check your vector notation and units. In particular, check that you are not equating vector quantities to scalar quantities. It is important that you demonstrate that you know the difference between scalars and vectors. So pay attention to your notation.

Label the answers. _____ ANSWER