

## ACFD 2017, Project 3, Instructor's remarks

The results of Task 1 are slightly sensitive to mesh resolution and the choice of time step size. The three reference solutions show the range of the typical outcome.

For Task 3, several approaches could be used to extract the time series of the "depth of water" in the left or right container. A method, as discussed in class, is to first obtain the time series of mass flow rate at either a boundary or an internal cross section, integrate MFR in time to obtain mass, then convert mass to depth. A useful example of Matlab code for processing the MRF data is in the appendix of reference solution #3.

The result of Task 4 at  $t = 0.3s$  is slightly sensitive to mesh resolution, the choice of time step size, and the choice of domain size. The three reference solutions show the range of the typical outcome. For Task 4a, the majority of the submitted solutions are closer to the first two reference solutions. A slight roll-up at the leading edge, as shown in reference solution #3, is also acceptable as long as it is not excessive. The difference might come from the detail of the initial condition (i.e., the initial shape of the "semicircle") and the air flow around the blob of oil.