

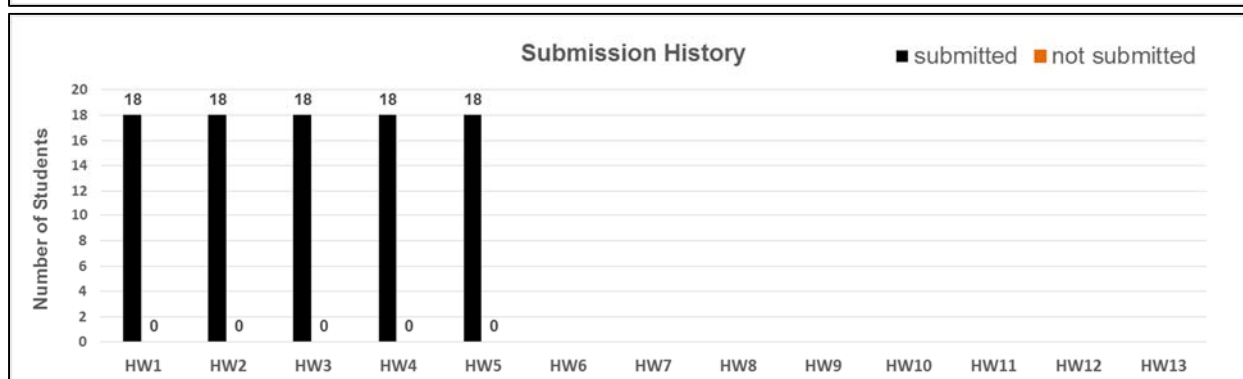
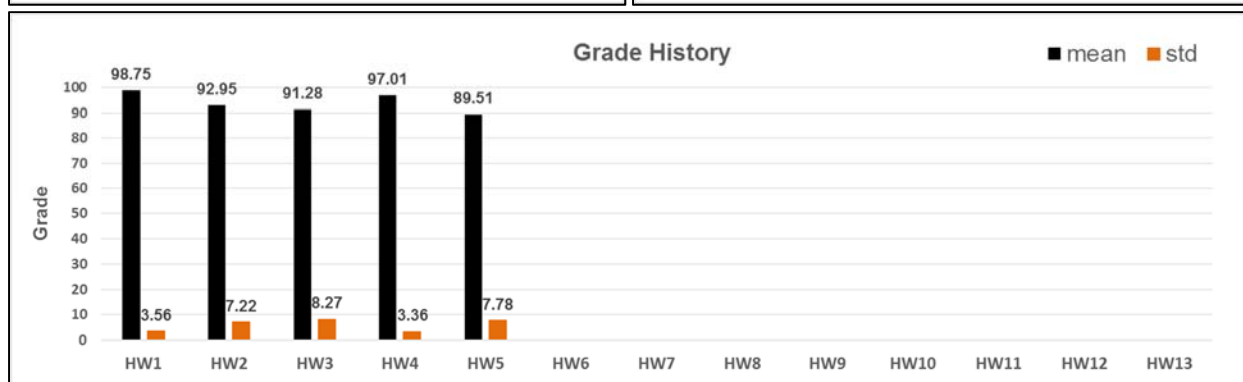
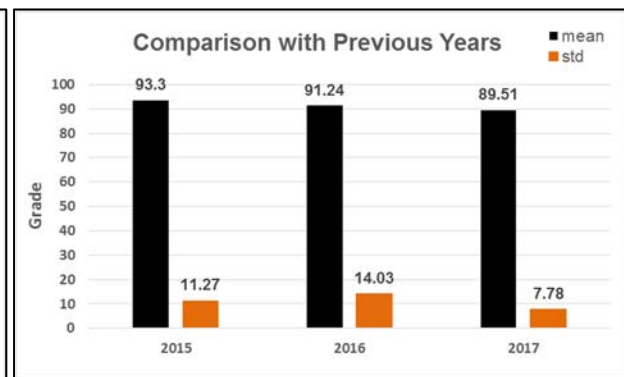
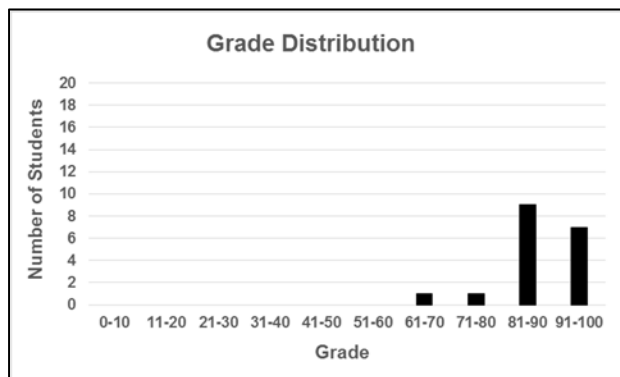
# HW#5 REPORT

## General

Number of students	18
Number of submitted HW	18
Number of not-submitted HW	0
Number of problems	9
<b>Not including bonus for undergraduate students</b>	
Grade average	89.51
Grade standard deviation	7.78
<b>Including bonus for undergraduate students</b>	
Grade average	89.51
Grade standard deviation	7.78

## Grade Breakdown

Problem #	P3.45	P3.49	P3.121	P3.139	P3.174	P3.178	P4.30	P4.40	P5.74
Grade average	9.56	9.33	9.75	8.22	9.28	9.94	8.56	9.11	6.81
Grade standard deviation	0.81	1.13	0.38	3.07	2.30	0.16	1.53	1.10	4.27



## Comments

P3.45

- Some students didn't put the correct sign for the supporting force.

P3.49

- Some students used Bernoulli equation to calculate "v1". It should be the continuity equation instead since the problem is considering force from the bolt, and the Bernoulli equation won't be accurate.
- Some students didn't consider the pressure force.
- Some students calculated pressure force at the end of the nozzle by using  $P_2A_2$ .

P3.121

- Many students did not subtract  $\rho_{CO_2}$  from  $\rho_{oil}$  when they setup the equation to get  $P_2$ . The amount of  $\rho_{CO_2}$  is negligible compared to  $\rho_{oil}$ , so those are also graded as 'correct', but technically, it should be considered.
- Many students calculated 'v<sub>1</sub>' by using continuity equation. Since  $p_1$  is used for the manometer,  $v_1$  is more close to the velocity at the stagnation point, which is zero. However, the location of  $p_1$  was vague, so using either way was graded as correct.

P3.139

- Some students didn't know how to calculate the relation between 'v<sub>1</sub>' and 'v<sub>2</sub>'. Since the problem is assuming unit width, the area in continuity equation can be considered as height.
- Many students didn't consider the force exerted by the gravity.

P3.174

- Some students didn't know where to put  $h_f$  or confused.

P3.178

- None

P4.30

- Many students didn't consider the convection terms.
- Many students didn't conclude the section (b).
- Some students didn't use  $p(0,0)=p_0$  when they need to determine the coefficient.

P4.40

- Many students didn't use correct boundary conditions (BC).

P5.74

- Some students were using opposite sign for the two terms in (a).