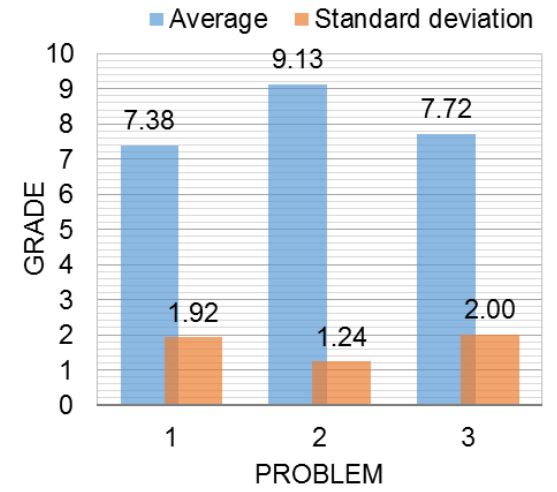
2015 Exam 2 – Report

General

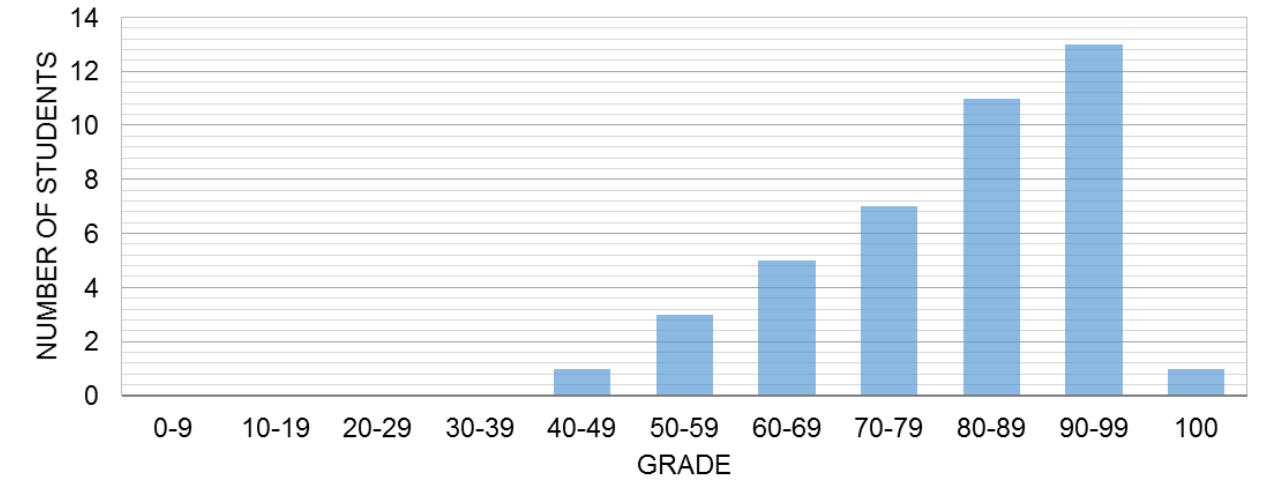
Total number of students	41
Attended	41
Missed	0
Number of problems	3
Average grade	80.79
Standard deviation of grades	13.81

Individual problem breakdown

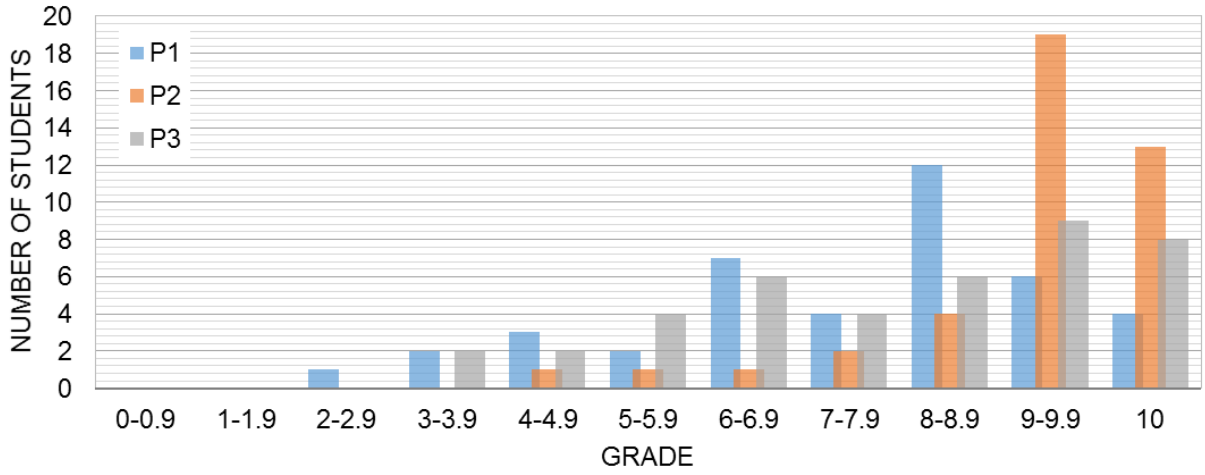
Problem	1	2	3
Average grade	7.38	9.13	7.72
Standard deviation of grades	1.92	1.24	2.00



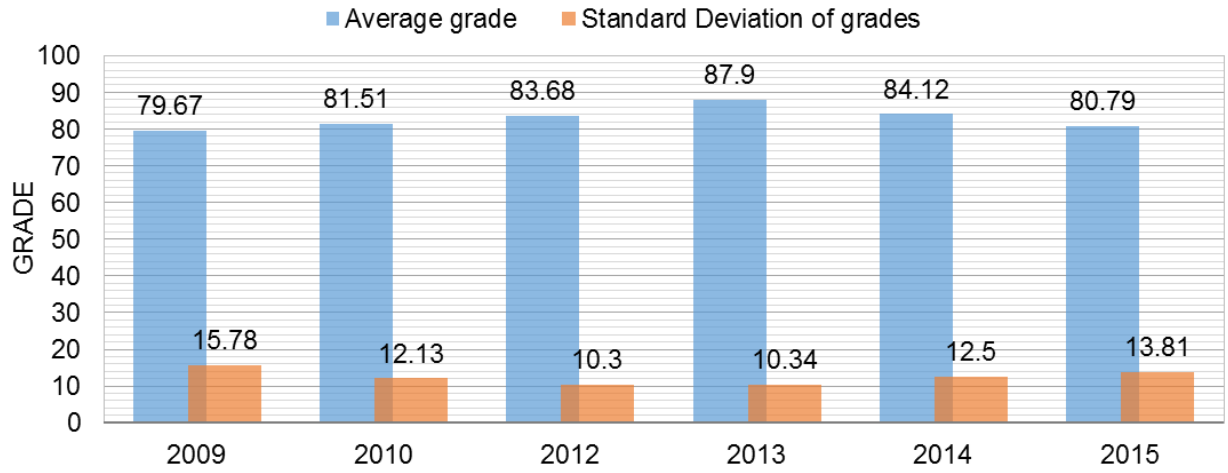
Grade distribution



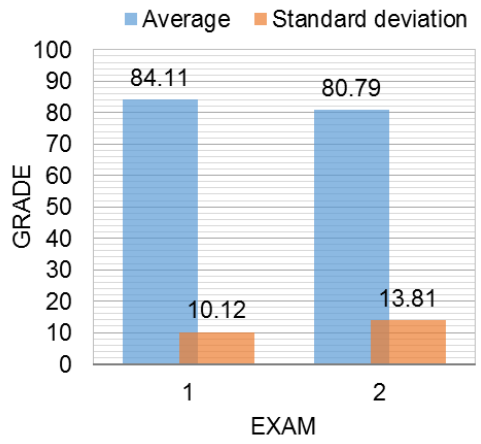
Grade distribution per problem



Comparison with past years



Comparison with Exam 1



Comments

OVERALL

- All students followed the rules for the formula sheet.

PROBLEM 1

- Some students did not take into account the weight of the pipe when summing moments.
- Some students attempted to use pressure at A and at outlet when summing moments.
- Some students made sign errors when crossing r[j] with v[i] and when calculating moment from weight.
- Some students did not multiply by length L when calculating weight of pipe + fluid in part (b).

PROBLEM 2

- Many students couldn't get the right sign of the pressure gradient when plugging ($\Delta P/l$) in the momentum equation.
- Several students integrated the governing equation in wrong ways.
- Few students took into account the boundary condition at $r = r_i$ as: velocity gradient equal to zero or velocity equal to zero.
- Very few students assumed that the gradient respect to z-direction in the governing equation is not zero.
- Very few students assumed that the gravity term in the governing equation is not zero.

PROBLEM 3

- Few students did not apply continuity correctly ($Q_C = Q_A + Q_B$).
- Few students did not equate the friction losses of the pipes in parallel ($hf_A = hf_B$).
- Few students did not calculate all the three friction factors f_A, f_B, and f_C. Instead, they calculated one of them and use the same value for all.
- Some students calculated the pressure drop using the wrong friction loss. They should have used $hf_{1->2} = hf_A+hf_C$ or hf_B+hf_C. Instead, they used hf_A, hf_B, hf_C by themselves or the sum of all of them.
- Many students made calculation mistakes.