2016 Exam 1 – Report

<u>General</u>

Total number of students	24
Attended	23
Missed	1
Number of problems	3
Average grade	87.97
Standard deviation of grades	7.91

Individual problem breakdown

Problem	1	2	3
Average grade	7.87	9.13	9.39
Standard deviation of grades	1.56	0.61	1.02



Grade distribution



Grade distribution per problem



Comparison with past years



Comments

OVERALL

• All students followed the rules for the formula sheet.

PROBLEM 1

- Some students did not use the integral form of continuity; they assumed a uniform velocity distribution not just at section 1 (correct) but also at section (2).
- Some students did not use the integral form of the momentum equation; they assumed a uniform velocity distribution not just at section 1 (correct) but also at section (2).
- Some students used the wrong sign for the force exerted by the mesh on the fluid (+).
- Some students either forget one or both the net force terms, due to the pressure at section 1 and 2, or used the wrong sign.
- When correctly using the integral form of the equations, few students made calculation mistakes in solving the integral.

PROBLEM 2

- Some students did not used the correct projection of gravity along the x-axis, which was $g \sin \theta$; instead, they used $g \cos \theta$ or $g/\sin \theta$.
- Few students used wrong boundary conditions.
- Few students made mistakes in calculating the integration constants resulting in a wrong final answer.

PROBLEM 3

- Few students included mass flow rate when calculating power coefficients.
- Some students made mistakes in the calculation of the power coefficients.