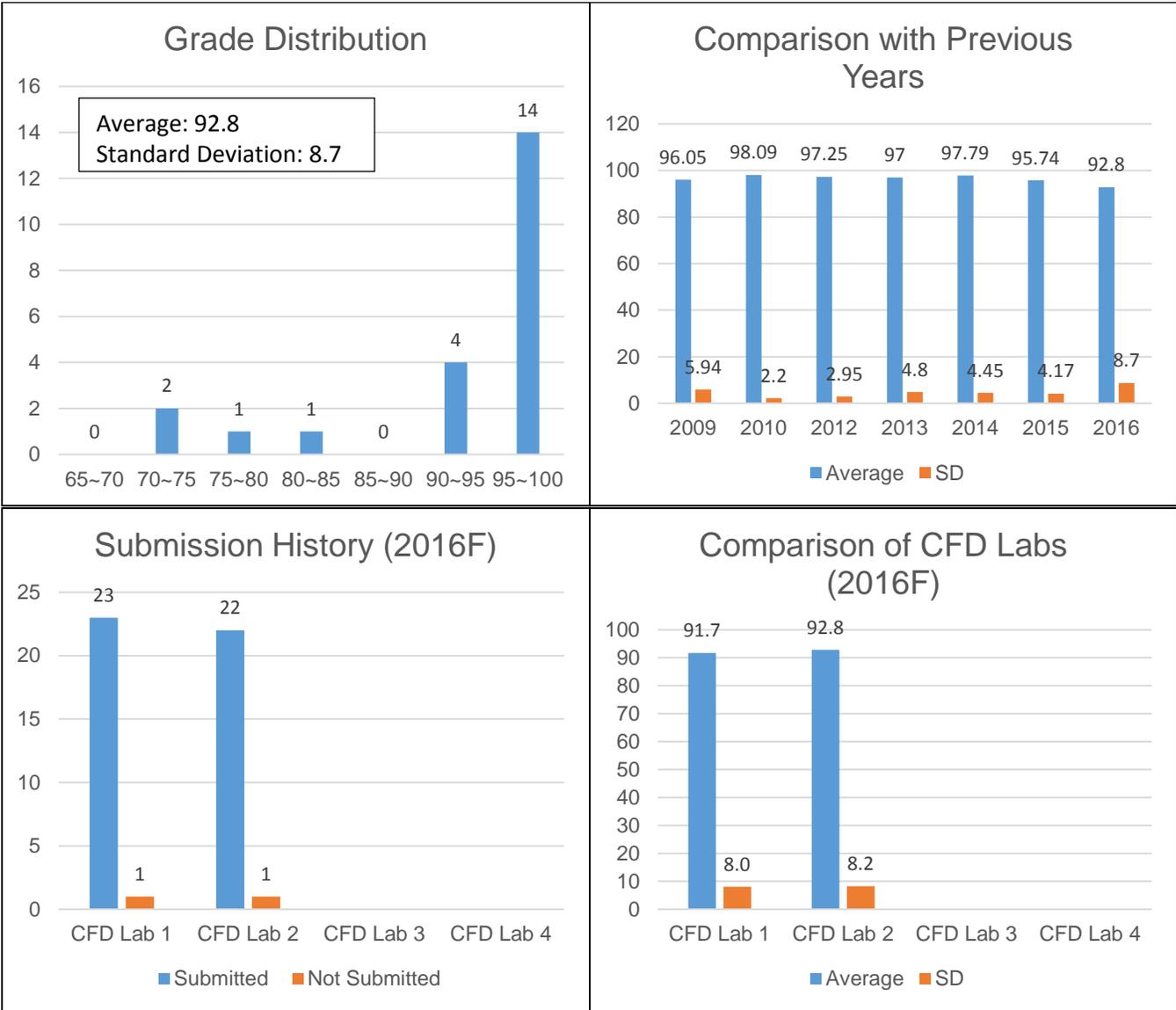


REPORT OF CFD LAB 2

	Number of Students
Total	24
Submitted	22
Not Submitted	2



Grade Distribution

Comparison with Previous Years

Average: 92.8
Standard Deviation: 8.7

65~70 70~75 75~80 80~85 85~90 90~95 95~100

Year	Average	SD
2009	96.05	5.94
2010	98.09	2.2
2012	97.25	2.95
2013	97	4.8
2014	97.79	4.45
2015	95.74	4.17
2016	92.8	8.7

Submission History (2016F)

Comparison of CFD Labs (2016F)

CFD Lab 1 CFD Lab 2 CFD Lab 3 CFD Lab 4

CFD Lab 1 CFD Lab 2 CFD Lab 3 CFD Lab 4

Submitted Not Submitted

Average SD

1. Common Mistakes

- a. A couple of students didn't follow the report format. Conclusion section is required since it is one of the main parts of a technical report.
- b. Many students reported verification results of pressure coefficient in lift coefficient verification sections by averaging P over entire points. This method works well as an investigation tool for both variables, so grade wasn't deducted.
- c. Some students input wrong values in V&V excel sheet and reported.
- d. A few students restarted the computation, and reported residuals or time-history starting after the convergence, which makes us hard to determine the convergence path.
- e. A few students used static pressure when they have to use pressure coefficient.
- f. A few students used dimensional lift or drag values when they have to use coefficients.
- g. CFD/EFD's source of error were improved compared to the 1st lab, but required more investigation especially regarding the numerical part. Please refer the CFD lecture notes (PPT file) on the class website.

2. Feedback

- a. Positive
 - i. Understood the actual values used to carry out each simulation
 - ii. Understood the flow around the airfoil by graphical results
 - iii. Knew the complexities involved with the simulations
 - iv. Interested to know that each module can be duplicated and connected to the other module
 - v. Knew that even the small angle of attack like 6 degree can impact a lot on lift and drag coefficients
 - vi. Interested to know that the domain size can affect the result
 - vii. Learned more about verifying or validating CFD results
 - viii. Learned how to model the airfoil and analyze the lift and drag while changing the angle of attack
- b. Negative
 - i. Required materials are notified at the end of the manual
 - ii. Statements in the exercise are vague

3. Student's Suggestions

- a. It would be good if there are more examples with other angles of attack including stall angle
- b. It would be nice to see the flow around the different shaped airfoil
- c. Needed explanation on why the K-e model was used as a turbulence model
- d. It would be nice to investigate the source of the error