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Student Self-Assessment of ACE 10 Outcomes

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Student Self-Assessment of ACE 10 Outcomes

Chemical Engineering Process Design CHME 453/853

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ACE 10 Question

The ACE Outcome 10 requires students to generate a creative or scholarly product that requires broad knowledge, appropriate technical proficiency, information collection, synthesis, interpretation, presentation, and reflection.

Will the student self-assessment of the extent of attainment of outcomes in a student output improve learning and teaching?

Student Work

Product & Process Design Projects

1. In-Class Team work
2. Project Preliminary Report
3. Project Progress Report
4. Project Final Report
5. Midterm Exam

Students design and simulate physical and chemical processes that require broad range of knowledge, ability to apply mathematics, science and engineering, use of computer, synthesis, interpretation, and presentation.

Method of Analysis

Undergraduate Course Assessment Report Department of Chemical and Biomolecular Engineering Spring 2012

ACE 10 Outcomes Questions

To generate a creative or scholarly produce that requires:

1. Broad knowledge
2. Appropriate technical proficiency
3. Information collection
4. Synthesis
5. Interpretation
6. Presentation and reflection

Student Self-Assessment Survey Form

Self-Assessment For Final Design Report: CHME 453-Spring 2012

Please identify and rate to which degree you have met the course objectives and ABET engineering outcomes: 1: poor; 2: adequate; 3: well; 4: extremely well

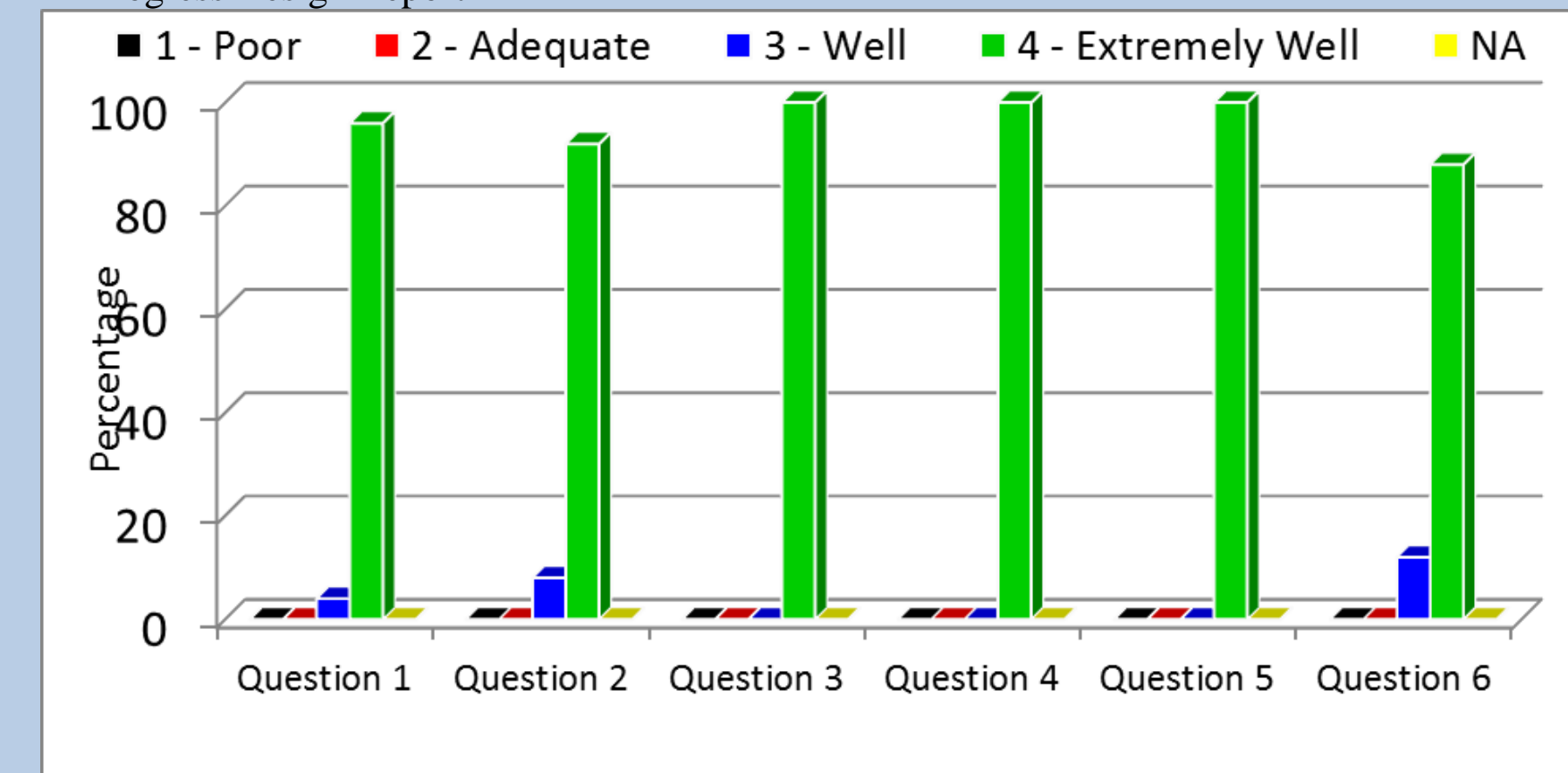
Course Objectives:	1	2	3	4
• an ability to apply principles of process design			13	87
• an ability to apply transport phenomena, thermodynamics, separation, and reactor engineering in process design			13	87
• an ability to perform process synthesis, pinch analysis			21	79
• an ability to apply Aspen Plus for simulation, design, retrofit, and optimization of processes				100
• an ability to implement process safety			4	96
• an ability to implement green engineering and environmental protection			8	92
• an ability to perform economic analysis			29	71
• practice in engineering communications			4	96
• practice in team work			4	96

ACE Outcome 10. Generate a creative or scholarly product that requires:	1	2	3	4
• broad knowledge			17	83
• appropriate technical proficiency				100
• information collection			4	96
• synthesis			8	92
• interpretation			17	83
• presentation and reflection			4	96

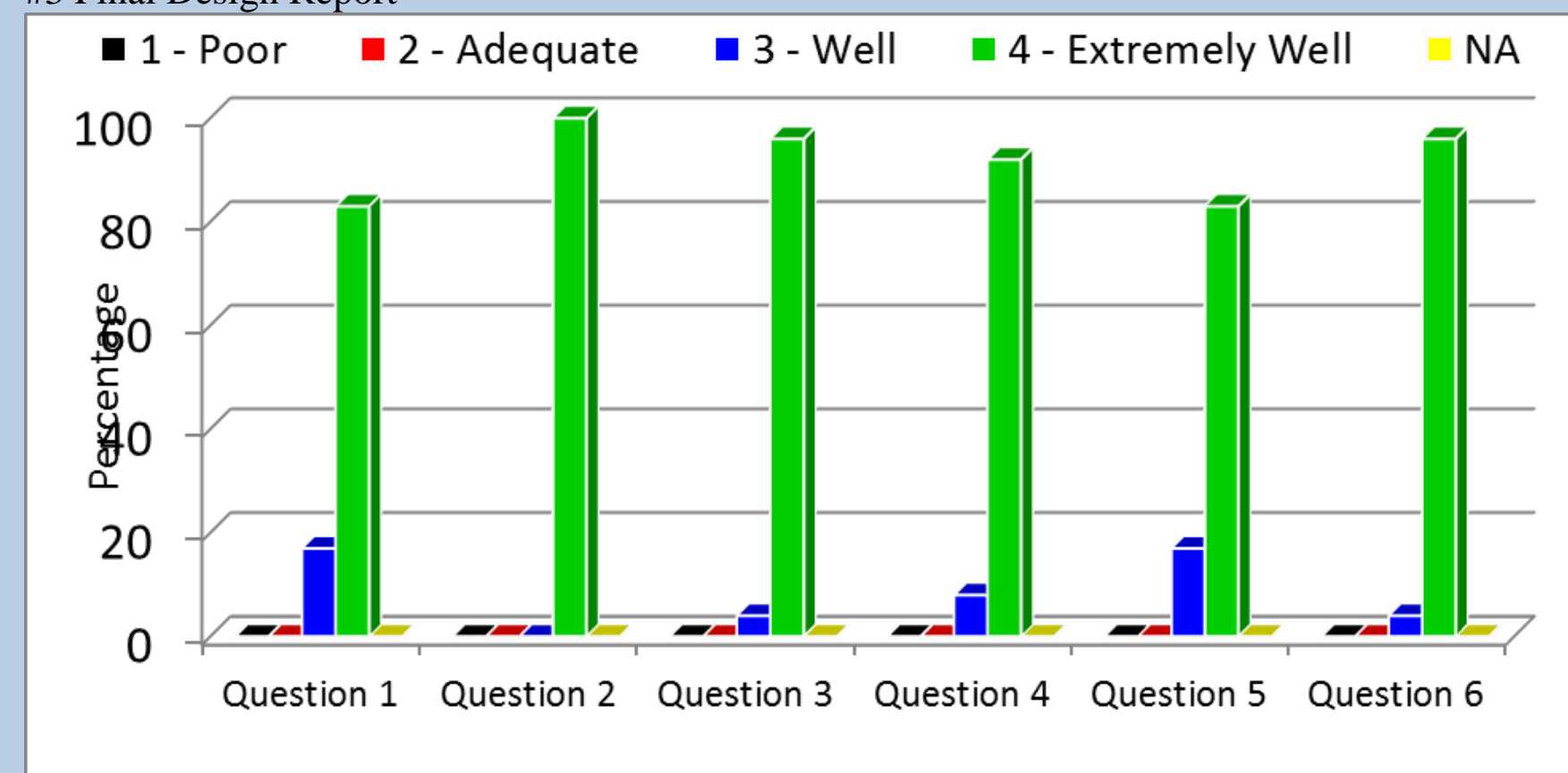
ABET Engineering Program Outcomes	1	2	3	4
(a) an ability to apply knowledge of mathematics, science, and engineering			13	87
(b) an ability to design and conduct experiments, as well as to analyze and interpret data			21	79
(c) an ability to design a system, component, or process to meet desired needs			13	87
(d) an ability to function on multi-disciplinary teams			8	92
(e) an ability to identify, formulate, and solve engineering problems			13	87
(f) an understanding of professional and ethical responsibility		4	4	92
(g) an ability to communicate effectively			17	83
(h) the broad education necessary to understand the impact of engineering solutions in a global and societal context			21	79
(i) a recognition of the need for, and an ability to engage in life-long learning		4	4	92
(j) a knowledge of contemporary issues		4	4	92
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.			4	96

Findings

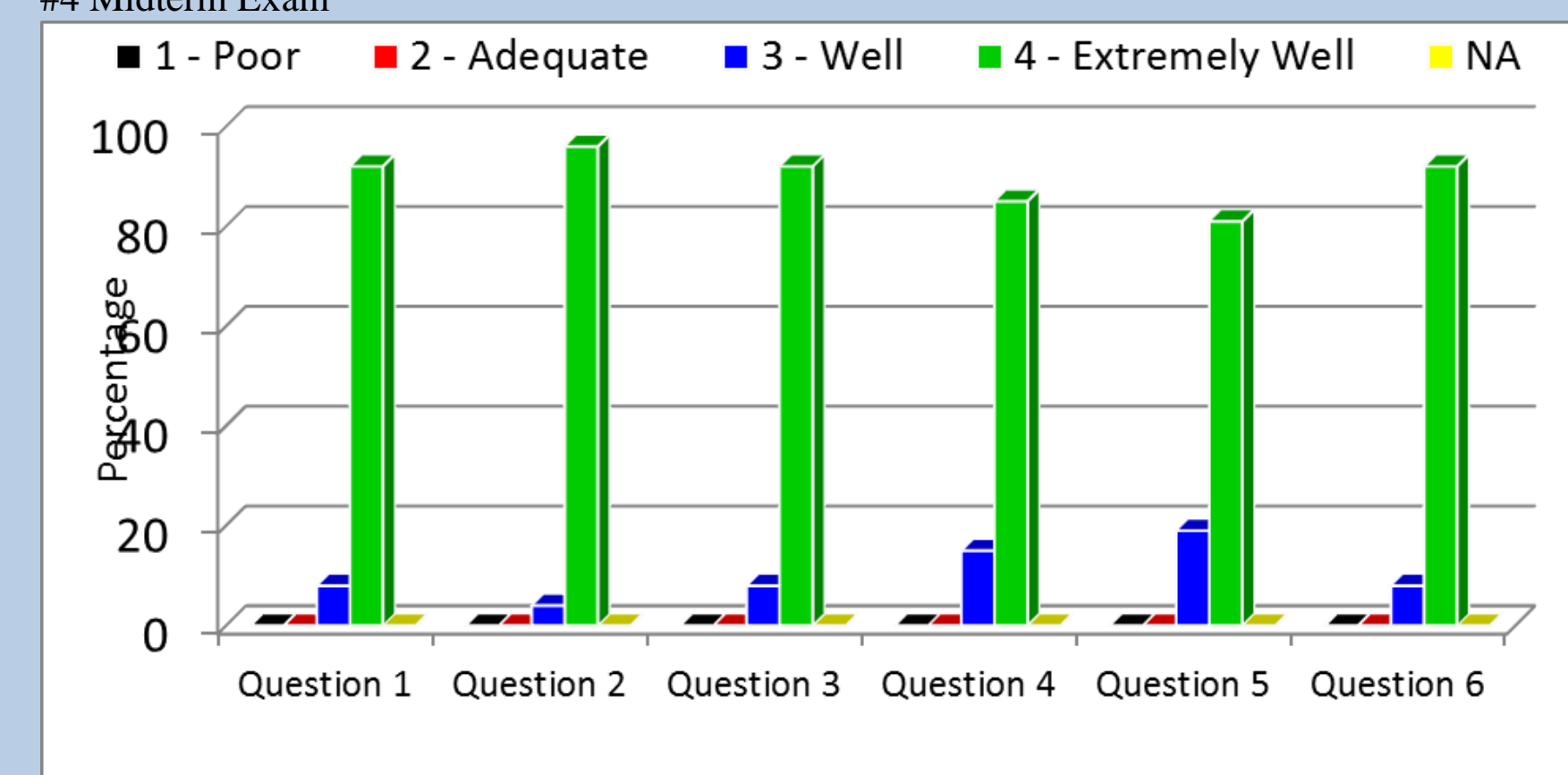
#2 Progress Design Report



#3 Final Design Report



#4 Midterm Exam



Improving ACE 10 Learning

Capstone design creates opportunity for the Department and for the faculty to develop an assessment tool for improving the level of integration of science, engineering, and social values for solving engineering problems.