Scoring Rubric for Program Outcome
1a) An ability to apply math & science in engineering

Level 5 performance characterized by:
- Combines mathematical &/or scientific principles to formulate models of chemical, physical and/or biological processes and systems relevant to chemical engineering
- Applies concepts of integral and differential calculus and/or linear algebra to solve chemical engineering problems
- Shows appropriate engineering interpretation of mathematical and scientific terms
- Translates academic theory into engineering applications and accepts limitations of mathematical models of physical reality
- Executes calculations correctly
  - By hand
  - Using mathematical software
- Correctly analyzes data sets using statistical concepts

Level 3 performance characterized by:
- Chooses a mathematical model or scientific principle that applies to an engineering problem, but has trouble in model development
- Shows nearly complete understanding of applications of calculus and/or linear algebra in problem-solving
- Most mathematical terms are interpreted correctly
- Some gaps in understanding the application of theory to the problem and expects theory to predict reality
- Minor errors in calculations
  - By hand
  - Applying math software
- Minor errors in statistical analysis of data

Level 1 performance characterized by:
- Does not understand the connection between mathematical models and chemical, physical, and/or biological processes and systems in chemical engineering
- Does not understand the application of calculus and linear algebra in solving chemical engineering problems
- Mathematical terms are interpreted incorrectly or not at all
- Does not appear to grasp the connection between theory and the problem
- Calculations not performed or performed incorrectly
  - By hand
  - Does not know how to use math software
- No application of statistics to analysis of data