

(E) An ability to identify, formulate, and solve engineering problems

Component	Unsatisfactory	Marginal	Satisfactory	Outstanding
Identify engineering problems	Cannot identify problems or their source (component, structure, process).	Has difficulty recognizing problems and linking them to their source.	Sufficiently recognizes problems and links them to their source.	Highly proficient at recognizing problems and linking them to their source.
Formulate engineering problems	Given problem identification, cannot independently create a problem statement, nor link to known theory.	Has difficulty in formulating problem statements and linking theory to practice.	Sufficiently formulates problem statements and links theory to practice.	Readily applies principles and theories to define a clear problem statement and link theory to practice.
Solve engineering problems	Does not develop appropriate solutions to identified and formulated problems.	Has difficulty generating and implementing most appropriate solution.	Sufficiently generates potential solutions, develops evaluation criteria, and selects and implements most appropriate solution.	Adept at generating multiple potential solutions, selecting most appropriate solution based on well-developed criteria, and implementing solution using appropriate tools and techniques.

Notes:

1. A long list of potential outcome elements for outcome e (some specific to ChemE), can be found at <http://www.engr.pitt.edu/%7Eec2000/outcomes.html/HW-problems-e-6-8.htm>