

<i>NOE Aspect</i>	<i>NOE Explanations</i>	<i>Reflective Questions</i>
Engineering Design Process (EDP)	The core idea of engineering design process includes three components: defining a problem, designing solutions, and optimizing solutions.	Did we go through each phase of the engineering design process with the engineering design challenge?
Empirical NOE	Engineers optimize their design solutions and compare alternative solutions based on evidence obtained from test data.	Were you able to test your design? How did you decide whether your design meet the criteria provided at the beginning of the design process?
Creative NOE	Creativity and imagination of engineers play a major role during the engineering design process. The role of creativity and imagination is not limited to any specific phase of the engineering design process.	In what ways did you use your creativity and imagination during the engineering design process?
Subjective NOE	There is no unique solution to an engineering design problem. While there can be many solutions to the same problem, some of these solutions may be more suited to meet the criteria and constraints of the problem.	Did every group develop the same design? Why do you think that each group come up with a completely different design idea? Can there be a single best design for this particular engineering design problem?
Collaborative NOE	Engineering is not a solitary pursuit. Engineers collaborate with their peers throughout the design process in order to achieve possible solutions to the problem at hand.	How did your group work together to design, construct, test, and improve your design? What are the advantages of working in groups while working on an engineering design problem? Do you think that engineers work collaboratively or alone in real world?
Social and	Engineering is a human activity.	Does your design address a real

Cultural NOE	Human needs and wants determine what engineers design and engineering designs (new technologies) have impact on people's lives.	<p>human need?</p> <p>Do human needs and problems determine what problems engineers tackle?</p> <p>In what ways does your design contribute to the society?</p>
Tentative NOE:	Engineering design solutions are open to revision.	<p>Did you revise your initial design idea?</p> <p>How many times did you revise your design idea?</p>
Failure-laden NOE	Designing a solution to an engineering design problem requires learning from failures and applying successful solutions to other problems.	<p>Did your design idea work for the first time?</p> <p>How many times did you fix your design idea?</p>