

# “Analytical” Rubric Example

## *TIDEE Project Design Knowledge Test Design Process Question: Design Process Subcategories <sup>1</sup>*

### Question

In a general sense, a process is an ordered set of activities to accomplish a goal. In the space provided, describe and/or diagram your understanding of the **engineering design process**

### Scoring Rubric

<b>CATEGORY: DESIGN PROCESS</b>				
<b>Subcategory: Information Gathering</b>				
1	2	3	4	5
No information gathered specifically to support design.		Information gathered primarily once or from single source; aware that information varies in quality.		Varied sources used to obtain information; some judgment of information quality; information gathered multiple times.
<b>Subcategory: Problem Definition</b>				
1	2	3	4	5
No design requirements stated, or few but ambiguous at best.		General design goal stated; design requirements of both technical and non-technical nature defined.		Goal and requirements defined fully, revised over time, address technical and non-technical issues such as performance, cost, reliability, manufacturability, and safety.
<b>Subcategory: Idea Generation</b>				
1	2	3	4	5
Need for creativity not addressed or inept at being creative.		Idea generation used to add creativity to design products; used once; only one method used.		Creative ideas sought to improve design products; used more than once; multiple methods used; creative environment sustained.
<b>Subcategory: Evaluation and Decision Making</b>				
1	2	3	4	5
Only cursory analysis of ideas; decisions made arbitrarily.		Analysis limited in perspectives considered; numerical analysis of uncertain reliability.		Quantitative and qualitative issues analyzed; appropriate analytical and experimental methods, tools, and information used; decisions based on established criteria.
<b>Subcategory: Implementation</b>				
1	2	3	4	5
No deliverables produced or they fail to meet requirements.		Design decisions converted to deliverables; design products meet primary requirements.		Decisions integrated to yield design products that satisfy system requirements; products delivered on time and within allowed resources.
<b>Subcategory: Process Development</b>				
1	2	3	4	5
Several design elements not used; no effort to improve.		All design process elements evident; some iteration to improve the desired product.		Process elements used, repeated to improve results; design process planned, recorded, and reviewed for improvement.

Transferable Integrated Design Engineering Education (TIDEE)Project; “Program Assessment of Team-Based Engineering Design: Concepts, Methods, and Materials, Appendix”; DENNY C. DAVIS, KENNETH L. GENTILI, DALE E. CALKINS, MICHAEL S. TREVISAN; OCTOBER 1998; Downloaded 5/29/01;  
<http://www.cea.wsu.edu/TIDEE/monograph.html>