



Feb 2012

Welcome to the SDSU ASEE Best Practices in Engineering Education Series

Today's Topic:
Rubrics

- Help yourself to pizza / drinks



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Check out:

SDSU External website – Engineering Homepage

ASEE page – links to these Best Practices Sessions
& SoTL work – Conference papers



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THE NATIONAL EFFECTIVE TEACHING INSTITUTE

21st Annual National Effective Teaching Institute (NETI)

**Thursday, June 7 - Saturday, June 9
Grand Hyatt, San Antonio**

The [National Effective Teaching Institute \(NETI\)](#) is a three-day workshop held each year just prior to the Annual Meeting of the American Society for Engineering Education. For information about the NETI content and facilitators, a summary of past workshop evaluations, the enrollment procedure, and the time and location of the next offering of the workshop, visit [NETI](#).

The Dean of Engineering nominates faculty to attend



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Next session: Thursday, March 15

Topic: Discussion on doing collaborative academic research projects and applying for the Academic and Scholarly Excellence funds, due Oct 1.



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Examples of Rubrics Used to Assess ABET Student Outcomes in a Capstone Course

Rubrics:

- Descriptive scoring schemes that are developed by teachers or other evaluators to guide the analysis of the products or processes of students' efforts.
- Presents a continuum of performance levels, defined in terms of selected criteria, towards full attainment or development of the targeted skills
- Provides qualitative information regarding the observed performance in relation to a desired one



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Examples of Rubrics Used to Assess ABET Student Outcomes in a Capstone Course

Rubrics:

- Used for subjective and authentic assessments
- Learners are clearer about the expectations prior to assessment and are clear about their areas of weakness and strength after the assessment
- Using rubrics for assessment standardizes the evaluation of the assessments, and reduces the burden on faculty time



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Examples of Rubrics Used to Assess ABET Student Outcomes in a Capstone Course

Rubrics used to help ABET data-gathering process

- Used to evaluate the direct evidence of student work, that is, “grading” the student’s progress on meeting the assigned learning outcomes
- Evaluation at the level of a program’s Capstone course is subjective
 - Deals with how well the student project groups can define and solve a technical problem
 - Doing as objective as possible evaluation of the student’s work requires the use of standardized rubrics



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Examples of Rubrics Used to Assess ABET Student Outcomes in a Capstone Course

Rubrics:

- Analytical vs. Holistic
- Formative vs. Summative



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Examples of Rubrics Used to Assess ABET Student Outcomes in a Capstone Course

Rubrics:

- Analytical – also called quantitative - usually preferred when a fairly focused type of response is required

ABET Outcome	Tool	Superior 10	Excellent 9	Good 8	Fair 6-7	Poor 0-5
(n) the ability to apply project management techniques	Midterm Test	100% on exam	90-99% on exam	80-89% on exam	etc.	



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Examples of Rubrics Used to Assess ABET Student Outcomes in a Capstone Course

- Holistic – also called qualitative - are used to evaluate or assess the whole process, performance, or product
- Based on the idea that instructors “know quality when they see it”
- Faculty should write thorough narrative descriptions for excellent work, down to poor work, incorporating each attribute into the description



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Examples of Rubrics Used to Assess ABET Student Outcomes in a Capstone Course

Holistic - Teamwork

ABET Outcome	Tool	Superior	Excellent	Good	Fair	Poor
		10	9	8	7-6	5-0
(e) an ability to function effectively as a member or leader of a team	Rubric at middle and end of project	Completes all assigned tasks by deadline without prompting	Completes all assigned tasks by deadline	most tasks	some tasks	few tasks
		Work accomplished is thorough, comprehensive, and advances the project	Work accomplished is thorough and advances the project	mostly through	does not advance	little work accomplished
		Proactively helps other team members complete their assigned tasks to a similar level of excellence	Works with other team members as required.	only with prompting	only on some tasks	works poorly with team members



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Examples of Rubrics Used to Assess ABET Student Outcomes in a Capstone Course

Formative (a grade) & Summative (feedback to students)

Design Review Rubric	4 pts Exceeds Expectations	3 pts Meets Expectations.	2 pts Nearly Meets Expectations.	1 pts Below Expectations.
Up-to-date Status Report, Customer Reviews, Tracking Gantt	X	Present	X	Not present
Deliverables Table - show what has been finished	X	Present	X	Not present
All documentation that you have to date on what you have done technically on the project.	Documentation is all clear, complete, and organized	Documentation is mostly clear, complete, and somewhat organized	Documentation is clear, but not complete or organized	Documentation is not clear, incomplete, and is disorganized
Hardware and/or software of project to date	Project works as plan describes, is almost ready for final version	Project works to some extent, it is clear what works needs to be done in next few weeks	Projects works somewhat, but it is unclear what work still needs to be done	Project does not work, work needed to complete is unknown
If you need to change your plan / scope of the project / deliverables, etc., in order to complete the project by Apr. 15, write that out and make it as clear as possible	Plan is Very Clear	Mostly clear	Somewhat unclear	Unclear

HOLISTIC RUBRIC EXAMPLE

A supplement to an Assessment101 column, "Rubrics: What Are They Good For? Part II," from the October 2006 issue of ABET's *CommunityMatters* newsletter.

4-Exceeds Criteria	3 – Meets Criteria	2- Progressing to Criteria	1 – Below Expectations
<ul style="list-style-type: none"> • Provides ample supporting detail to support solution/ argument. • Organizational pattern is logical and conveys completeness. • Uses effective language; makes engaging, appropriate word choices for audience and purpose. • Consistently follows the rules of standard English. 	<ul style="list-style-type: none"> • Provides adequate supporting detail to support solution/ argument. • Organizational pattern is logical & conveys completeness & wholeness with few lapses. • Uses effective language & appropriate word choices for intended audience & purpose. • Generally follows the rules for standard English. 	<ul style="list-style-type: none"> • Includes some details, but may include extraneous or loosely related material. • Achieves little completeness & wholeness though organization attempted. • Limited & predictable vocabulary, perhaps not appropriate for intended audience & purpose. • Generally does not follow the rules of standard English. 	<ul style="list-style-type: none"> • Includes inconsistent or few details which may interfere with the meaning of the text Little evidence of organization or any sense of wholeness & completeness. • Has a limited or inappropriate vocabulary for the intended audience & purpose. • Does not follow the rules of standard English.



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Examples of Rubrics Used to Assess ABET Student Outcomes in a Capstone Course

If you, as a faculty, are developing your own rubrics, Rocco suggests following these guidelines:

- Outline your expectations.
- Divide expectations into traits for a quality performance or product.
- Decide on a hierarchy of traits.
- Decide on the rubric format.
- If you are using a holistic rubric, create sample products for each level of competence.
- Share and discuss the rubric with students.
- Use the rubric.
- Modify the rubric as needed.



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Using Rubrics in D2L Dropbox