

# THE BUSINESS MEETING

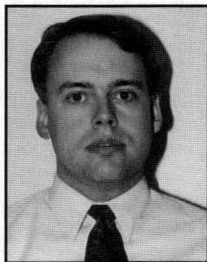
## *An Alternative to the Classic Design Presentation*

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There is an increasing consensus among academics and practicing engineers that effective communication skills should be an integral part of an engineering education.<sup>[1-3]</sup> When engineers who have been out of school for ten years are asked “What courses do you wish you had taken?”, Kranzber<sup>[4]</sup> reports that the most common answer is “English courses.” Both ABET<sup>[5]</sup> and the rest of the technical community<sup>[6]</sup> recognize that communications are part of a broader package of interpersonal, communication, and teamwork skills that Seat and Lord<sup>[7]</sup> refer to as “performance skills.”

Many educationally focused programs, including the programs at Rowan<sup>[8]</sup> and the University of North Dakota,<sup>[9]</sup> have integrated technical communication into their core engineering curriculum. In many cases, however, oral communication exercises in engineering consist of little more than giving repeated technical Powerpoint<sup>®</sup> presentations to an audience and answering a few brief questions at the end. Such an exercise emulates a presentation at a technical conference, but resembles very little else in the business world. There is no doubt that this presentation format is valuable, but it should not be the only experience that an undergraduate engineering student receives.



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Conducting a business meeting instead of a final presentation in a senior plant-design course provides an alternative to ANOTHER formal oral presentation. In this model, student teams plan and conduct a formal business meeting with faculty and industrial representatives serving in formalized roles. Details of the process are provided below.

### THE PROCESS

Each design team is asked to conduct a business meeting with the Executive Committee of their company/customer. The Executive Committee consists of the

- *Chief Executive Officer*
- *Engineering Director*
- *Finance Director*
- *Marketing/Sales Director*
- *Safety/Environmental Director*
- *Proposed Plant Manager*

Obviously, the number of members on the Executive Committee and their specific roles can be altered to accommodate the number of faculty and/or industrial representatives attending the presentations. Each group makes a formal presentation to this committee, including a description of the proposed process, relevant design issues, an economic analysis, and recommendations. This presentation should not exceed thirty minutes. During the presentation, the committee limits itself to questions of clarification.

Following the formal presentation, the members of the committee will ask questions of the design group. Committee members may address their questions to the team as a whole, or to specific members. Although there is no time limit to the questioning period, 20 to 25 minutes represents a typical length of time. During the presentation, the speaker

stands at the overhead projector or computer while the other group members are seated facing the committee. All group members are seated during the questioning.

## TEAM ROLES

Each member of the design group should perform a specific function on the team. At least three distinct roles that must be filled are

**The Team Leader** • This member is responsible for providing the introductory materials and anything dealing with the “big picture.” Team-leader responsibilities include making sure that all members of the group are given sufficient opportunities to participate in the questioning and that every question receives an adequate answer.

**The Economics Expert** • This member is responsible for presenting the economic analysis and fielding detailed questions about economic calculations and other issues.

**The Engineering Expert** • This member is responsible for presenting the technical aspects of the process including equipment selection, sizing, and processing issues. This person should be prepared to justify technical assumptions and other process decisions.

Teams with four members can divide either the economics or engineering issues between two members, but there must be only one team leader. Obviously, these positions may be further divided, or additional roles may be added to accommodate larger teams.

Student learning is disserved if individual members of a design team spend the semester focusing on only a single aspect of the design process. To avoid this dilemma, the faculty member’s selection of the engineering expert and the economics expert should be made and announced to the team only 48 hours before the presentation. Using this approach, team members cannot know which section of material they will be responsible for discussing and are more likely to work on all aspects. The team may pick its own leader.

## GRADING

An ongoing concern with group projects is how to effectively account for individual performance in team projects.<sup>[10]</sup> In this business meeting, grading can account for both team and individual performances. It is reasonable for students to feel that their grades should not be destroyed by a weak performance from an unmotivated student. At the same time, a weak member can negatively impact the effectiveness of the team presentation. Thus, a division between team and individual points seems appropriate. On the presentation itself, the team as a whole is graded on a five-point scale based on the following items:

- *Visual Aids (Clarity; Font Size; Usefulness)*
- *Organization (Appropriate Structure and Flow?)*
- *Introduction (Grabs Attention? Appropriate Content?)*
- *Body (Completeness; Accuracy; Clarity; etc.) [x3]*
- *Summary (Concise? Covered Key Points?)*
- *Overall Effectiveness (Speaker’s Goals Accomplished?)*

**Total Possible Points: 40**

Thus, each team member receives the same score from these 40 points. Individual team members are also evaluated on

- *Delivery (Volume; Clarity; Rate; etc.)*
- *Poise and Appearance (Appropriate Dress? Nervousness? etc.)*

**Total Possible Points: 10**

Thus, every team member can receive up to fifty points from the presentation. Forty of these points are the same for every member, while ten points vary from member to member. This division of team and individual grading makes all members accountable for the success of the team while at the same time it maintains individual distinctions.

The questioning period also results in a portion of the grade, but the mechanism is different for the experts and the team leader. Each expert is evaluated on the following

- *Poise (Calmness, Ability to “Think on One’s Feet”) [x2]*
- *Ability to Answer [x2]*
- *Interaction with Audience (Eye Contact? Demeanor)*

**Total Possible Points: 25**

Thus, each expert has 25 possible points for his or her role during questioning. The experts’ total for the presentation and questioning is divided by 7.5 to provide a 1-10 grade. The team leader has additional responsibilities during the questioning, so his or her scoring is more involved. It is evaluated on

- *Poise (Calmness, Ability to “Think on One’s Feet”) [x2]*
- *Ability to Answer [x2]*
- *Interaction with Audience*
- *Distribution (All Group Members Used?) [x2]*
- *Responsibility (Questions Suitably Answered?) [x2]*

**Total Possible Points: 45**

Each team leader has his or her total score divided by 9.5, resulting in the same 1-10 grading as the experts. It is important to note that the team leader does not receive more credit than the other team members, but that more of the team

leader's grade is determined by the questioning. A sample grading sheet is shown in Table 1. Obviously, the categories can be expanded, altered, or weighted differently to accommodate different priorities of design faculty.

### SELECTION OF EXPERTS AND TEAM LEADERS

Design teams select their own team leaders, while experts are assigned by the faculty member in charge, with only 48 hours advance notice. The team leader is responsible for sending all members of the Executive Committee a brief e-

mail that includes

- A formal invitation to the meeting, including mention of the time and place
- A statement identifying the team leader and other experts
- A brief summary of the topic to be discussed during the meeting

The e-mail must be sent at least 24 hours before the meeting.

### RESULTS

The business-meeting format has proven successful at two different universities. Students reported that they "felt more like a team" and were "less stressed" by the presentation format. Students with internship or other industrial experience reported that the format was more realistic and closer to what they experienced in their jobs. Overall, the students rated the new format a 4.73 out of a possible 5.00 when asked to rate the effectiveness of the business meeting.

The faculty have also enjoyed this method. Because of the group format, there was more time for detailed questioning. It was also easier to evaluate both group and individual performances. Other universities, including the Universidad Nacional de Salta in Argentina, have expressed interest in this idea and it is presently being implemented at the Israel Institute of Technology. Overall, the business meeting provided a useful alternative to a classical oral presentation.

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<b>TABLE 1</b>			
<b>Final Meeting Grade Report</b>			
(NOTE: x2 = double-weighting; x3 = triple weighting)			
Evaluator _____			
Project _____			
<b>Common Presentation Grades:</b>			
• Visual Aids (Clarity; Font Size; Usefulness)	_____		
• Organization (Appropriate Structure and Flow?)	_____		
• Introduction (Grabs Attention?: Appropriate Content?)	_____		
• Body (Completeness; Accuracy; Clarity; etc.) [x3]	_____		
• Summary (Concise? Covered Key Points?)	_____		
• Overall Effectiveness (Goals Accomplished?)	_____		
			<b>Total Points</b> _____
<hr/>			
	<u>Team Leader</u>	<u>Economics</u>	<u>Technical</u>
Delivery	_____	_____	_____
Poise and Appearance	_____	_____	_____
<b>(Questioning)</b>			
Poise [x2]	_____	_____	_____
Ability to Answer [x2]	_____	_____	_____
Audience Interaction	_____	_____	_____
Distribution [x2]	_____	_____	_____
Responsibility [x2]	_____	_____	_____
<b>Individual Totals</b>			
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	<u>Group Leader</u>	<u>Economics</u>	<u>Technical</u>
Team Total	_____	_____	_____
Individual Total	_____	_____	_____
Grand Total	_____	_____	_____
<hr/>			
<b>Score</b>	_____	_____	_____