

# Dalhousie University Faculty of Engineering Electrical and Computer Engineering Design Methods I

## Design Case M1-2: EduSpace Inc.

March 8, 2006

### 1 The Situation:

All over the world, students go to school in classrooms. These rooms are designed by people who are not educators. EduSpace Inc. was started by four people with education experience and architectural and engineering experience to address the need for classroom designs that meet educational needs.

You are part of EduSpace Inc. Your task is to design a new classroom in which to teach engineering.

### 2 The Design Task

What must you do? What will be your course of action? Remember, the first stage of design consists of:

1. identify the potential opportunity
2. identify constraints
3. identify industry trends
4. identify attributes with their values
5. determine engineering characteristics

6. establish functions
7. generate alternative concepts, and
8. screen concepts.

By the deadline, you should have had a good look at the problem and have some ideas.

**Note: A potential opportunity is not a real opportunity unless there are no ‘project killers.’**

Since we are exploring design, I have created a **partial list** of items to consider:

- The status quo - what is the current situation with respect to classrooms and educational spaces?
- What are students’ ‘pet peeves?’
- How do users of the status quo work around the deficiencies in current classrooms?
- Who purchases classrooms? What insight does this give you?

Take notes of your thinking and the thinking of your group. You will need them in the future.

Note: I encourage ‘out-of-the-box’ thinking because this leads to new and better ideas. To foster your ideas, remember to:

- leave your ego at the door,
- pull the problem apart until you get to first principles
- express the problem clearly, preferably in 14 words or less,
- try to use analogies to understand and express your problem, and
- try to use both qualitative and quantitative models of the problem and its solutions.

### 3 Deliverables

As in all cases, be prepared to present the case in class. Also, you are to write a brief report that:

1. states the potential opportunity, and why you think it exists,

2. presents the constraints as you have determined them, and what organization or situation is imposing them
3. discusses industry trends, and
4. identifies the attributes, functions, constraints, opportunities, and engineering characteristics as you have identified them.