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1.133 M.Eng. Concepts of Engineering Practice
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MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Department of Civil and Environmental Engineering
1.133 Concepts of Engineering Practice

ASSIGNMENT 3: CHASE AN ENGINEER

A.   DESCRIPTION

The purpose of the 'Chase an Engineer' exercise is to give you the opportunity to observe an engineer in order to obtain a better understanding of engineering practice and the knowledge and skills that s/he uses on the job. Through group discussion, you will also share your experiences with classmates. The exercise consists of several elements:

1. Selecting an engineer

Each student should select an engineer from the candidate list (also posted on course website). This should be coordinated by track so that we receive one master list (student/chasee pairing) per track. Please have one representative from each track send the master lists to us by **Friday, 21ˢᵗ September**. Then, we would like you to submit a brief memo to Dr. Adams and Aaron stating who you have selected and the reason for your choice by **Friday, 28ᵗʰ September** (you may leave a paper copy in the M.Eng room).

2. Visiting the engineer

Please arrange to contact your chasee and arrange to visit them for a half day. Many students find that the Columbus Day (Monday, October 8ᵗʰ, 2007) is convenient, since MIT does not have class, while many firms work.

As this exercise is a 'shadowing' activity, assure your chasee that you do not expect them to rearrange their schedules or to spend a long time explaining things. Along the same vein, do not treat this visit as a job interview or recruitment activity. However, you might utilize breaks in their schedule to ask questions.

You should use this opportunity to observe and explore how the company operates. Keep a log of your correspondence (phone, email, fax, job responsibilities, etc) and note lessons learnt from different communication styles and systems, what you liked/disliked about them etc. The log should be included with your written trip report. Please keep in contact with either Dr. Adams or Aaron if you should have any difficulties, e.g. if you cannot contact your chasee.

3. Trip report

Write a trip report (not more than 4 pages double spaced) on your visit, which includes what you learnt about being an engineer and how it is practiced by your chasee. Since many of you have worked previously or are working, your expectations and experiences will differ from those right out of college. Write a report from your perspective: what did YOU learn? (Note: for HPS and Geotechnical students, please submit individual reports based on personal experiences from the visit, even though some of you are going in pairs). Include in your report any updated contact information on your chasee, such as address, phone, email, job title and responsibilities. The written report is due **Seminar 7.**

4. Thank-you letter

Write a letter of thanks to your chasee (not email). This is also due October 19th. Please include a copy for Aaron.

5. Group discussion

We will discuss your experiences in class on **Lecture 14**.

B. SUMMARY OF DELIVERABLES AND GRADE WEIGHTS

a) 20% Engineer selection (one master list per track) due **Seminar 3**.
b) 10% Memo due **Seminar 4** (engineer choice/reason)
c) 40% Written trip report plus correspondence log due **Seminar 7**.
d) 10% Thank-you letter (copy due **Seminar 7**).
e) 20% Preparation for and participation in group discussion on **Lecture 14**.

C. TOPICS FOR THOUGHT AND QUESTIONS FOR YOUR CHASEE

1. Routine activities (e.g. watching him/her respond to email) may seem mundane, but (at least a small dose of) it can also be educational. Find out who the communication is with (people within the company, peers/supervisors, and clients/future clients). How does the communication occur, and does it seem efficient?

2. Try to arrange a time when something special is going on – e.g. a field trip, a presentation to a client. Even if this is not possible, ask what your engineer does over a typical week or month, so you can appreciate the spectrum of activities. How many projects does s/he work on at a time? How many projects has s/he worked on during the past 6 months? Are all of the assignments similar, or is s/he allowed or encouraged to diversify? If so, for whose benefit (the engineer or the company)? How long is the typical work week? And the work week when a proposal or project report is due? How much flexibility is there in the work schedule? Does s/he feel challenged? Does s/he feel like s/he is doing an effective job? If not, why?

3. Group or project meetings can also be informative. Find out how tasks are divided up and reassembled to present to the client. How much responsibility is delegated to entry-level engineers? How often does your engineer communicate with his/her supervisor, and in what form? How much time is spent with business development/proposal writing? How is this activity rewarded in the company.

4. What skills do they value the most? Communication skills? What exactly do they mean by communication skills? Report writing? Negotiation? Chatting at the office cooler? Engineering skills? Which engineering skills from university are helpful? Which are less relevant? Why (e.g. because computers deal with those issues?) Is there anything s/he had wished they had studied more/less in school?

5. Do they feel they work more in a team, or more as an individual? When they need more technical expertise, do they pass the problem on to someone else, get advice from a supervisor, or do extra studying at home? When a project goes well, who benefits at the company?

6. How do engineers interact with non-engineers at the firm or among clients? So the non-engineers make bad decisions because they cannot understand the engineering, or vice versa? Are non-engineering issues within the firm (e.g. human resources, legal counsel, budget) relevant to the engineers' work?

7. What is the process for evaluating employee performance? What kind of feedback does an engineer get on his/her work? Are there incentive programs? If so, how do they affect the work environment?

8. Feel free to discuss among yourselves what questions/approaches seem most useful.

9. This is not an exhaustive list of topics/questions.