**Ethical Dilemmas**

For Mechanical, Industrial, and Manufacturing Engineers

**Tough assignment**  Bill, an engineering student, is struggling to pass a course and now the instructor has made a difficult, time-consuming assignment. Bill’s grade in the course and, in fact, his success in completing his degree, depend on doing well on this assignment. The instructor expects the students to work independently, but Bill is aware that many of his classmates are working in small groups, dividing up portions of the assignment among themselves, and sharing answers. Bill doesn't think he can complete the assignment correctly on time by himself. **What should he do?**

**Falsified data?**  You learn from your friend Kathy that her senior project team is having trouble testing their prototype and the test results are not coming out well. Later, in proofreading their final report as a favor to Kathy, you discover, to your surprise, that the test data in the report is favorable. You suspect that they have falsified the data to make the results look good. **What should you do?**  Other facts to consider: One of Kathy’s team members, who you suspect of leading the falsification, is very assertive and domineering. Kathy is just the opposite; it is unlikely that she would confront her team on this. Kathy’s team has not fared well, grade-wise so far, and a weak final report would result in a poor grade on their transcripts.

**Taking credit**  Your senior project team has a meeting with your sponsor mentor and your faculty advisor, but one of your team members, Mary, cannot attend due to a prior engagement. At the meeting, the mentor commends the team for a particular design feature that was Mary’s idea, but the advisor takes credit for it. **What should you do?**  Other facts to consider: Based on this meeting, the mentor’s company wants to hire the advisor for part-time consulting. You and Mary must pass a required course next term to graduate and the course is taught only by your advisor.

**Too much change**  You go to Home Depot for some parts for your prototype and the bill comes to $37.50. You pay with $40 cash, the checker gives you your change and receipt, and you stuff them in your pocket and go home. Later, you count your change and find that the checker gave you a one dollar bill, a five dollar bill, and two quarters instead of two ones and two quarters. **What should you do?**

**Tobacco company interview?**  Your friend Edna, a recent OSU engineering graduate, is still seeking a job. She had several campus interviews and, although she considers tobacco products harmful and most tobacco companies unethical, she did a campus interview with one to “get the experience”. She got no invitations for on-site interviews and, indeed had no good prospects until the tobacco company called and invited her for a follow-up interview at one of their east coast plants. Edna is worried about her job prospects and is seriously considering making the interview trip. **Should she take the interview?**  Other facts to consider: Edna’s grandfather, a life-long smoker, died of lung cancer and, at one time, Edna felt the tobacco companies were responsible. Her father cannot work due to an occupational illness and her family is having trouble making mortgage payments. Edna hopes to supplement her family’s income from her salary.

**Two offers**  Joe is a graduating senior, seeking a job. He has sent out many, many resumes but has received only two interviews, one from a medical equipment manufacturer, the other from a defense contractor, a manufacturer of weapons systems. The defense contractor has made a lucrative offer but requires a response before the decision of the medical equipment company (to make or not make an offer) is expected. Joe has deep reservations about working for the defense industry, but he has student loans to pay and if he does not take the outstanding offer, he may not have a job when he graduates. **What should Joe do?**

**Go home?**  Josephina, an engineering student from a South American country with many underdeveloped, impoverished rural areas, is finishing her MS in the US. She has a job offer with a low salary from a company in her own country working under grants from her government and international organizations to develop wind power and small-scale hydropower systems in rural areas. She also has a very attractive offer from a high-tech consumer electronics manufacturer in the US. The US company will
support and pay for her application for a work visa and, possibly, permanent resident status in the US. *What should she do?* Other facts to consider: The company in her country is totally dependant on “soft money” in the form of grants and, should those grants not be renewed, has no local market for its products that could support the business for the long-term. Josephina enjoyed her stay in the US immensely and would like to live here. She has a US boyfriend. Despite some similarities in their cases, Josephina would not be risking her life in the South American job, as Ben Lindner did.

**Toxic waste** Fred, a manufacturing engineer, discovers his company is burying small quantities of toxic wastes in 30 gallon steel drums on the plant grounds to avoid the high cost of disposal at an approved hazardous waste facility. Fred tells his supervisor about it, who tells him to forget about it. Fred knows that the company deals with disloyal employees severely. *What should Fred do?* Other facts to consider: Fred has a family and a mortgage. He lives in a small town where his company is the major employer. His wife and children have many friends in the community and are very happy there. If Fred were to leave the company, he would be very unlikely to get a job with equivalent pay in the town.

**Salting the lots** A company manufactures a specialized fastener in very large lots (100,000 units per lot) for one of its customers and tests those lots by sampling inspection. The contract states that lots with 0.05% or less defective product are acceptable, and most lots run around 0.02% defective, but lots with more than 0.05% are produced occasionally. Those lots must be scrapped at a total loss, and it is high. Dave is the quality engineer, and his supervisor hits on the idea of “salting” the bad lots with fasteners from the 0.02% defective lots. That is, by mixing fasteners with a very low defect rate in with the bad lots, acceptable lots of 0.05% defective or better can be reliably produced, and those lots will meet the terms of the contract. Dave is dubious about this. *What should he do?* Other facts to consider: There is no other customer for these specialized fasteners. Although the contract allows leeway, the customer would, of course, like to receive 0% defective lots. Testing is destructive. Besides the cost of scrapping a bad lot, replacing it with a new lot (hopefully with 0.05% or less defective) would put the company behind in its delivery schedule, in violation of the contract.

**Promote who?** Angela, an engineering manager, must decide which of two employees to recommend for promotion. Tom is white, Jose is Hispanic, and Hispanics are under-represented in the company, especially at higher levels. Both employees seem about equally deserving to Angela, while other employees have more favorable opinions of Tom. *What should Angela do?*

**Consulting with company software** Milton, an engineer and long-time employee of a large corporation, feels bored and underpaid, so he starts a private consulting business on the side. Milton does not own the expensive software he needs for his consulting, but it is on his company laptop, which he can take home to work on company business. *Should Milton use the company laptop and software for his consulting?* Other facts to consider: Milton’s consulting business specializes in helping small startup companies that do not compete with his employer. In the past when things were busier at work, Milton put in many evening and weekend hours on his “day” job and, as he is salaried, received no extra compensation for that time. His performance reviews have always been satisfactory, but he never received any special recognition for his past dedication.

**Offshore?** Margaret, a manufacturing engineer for a US company that has always relied on US labor for its production, has been given full responsibility for setting up a new production line, including the decision of where to put it. After diligently considering all reasonable alternatives, Margaret determines that if the new line were set up in a certain foreign country, production costs would be 75% of those of manufacture in the small, financially depressed US town that is the other prime candidate for the facility. *Should Margaret put the line in the US or offshore it?* Other facts to consider: The foreign site can offer the lower costs in part because workplace safety and environmental regulations there are not nearly as stringent as those in the US. The economy of the area surrounding the foreign site is also depressed. There are plenty of potential workers at both sites. This decision will not make or break the company but, of course, its stockholders are interested in a better rate of return and may be watching the company closely on this matter.

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1 Adapted from a problem by Edward McDowell, IME emeritus professor.

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