1. Review the material on ethical methodology. It will be covered on the final exam. This includes factual, conceptual, moral, and application issues. It also includes line-drawing and creative middle ways. Finally, it includes Utilitarian analysis (act utilitarianism, rule utilitarianism, and cost/benefit analysis) and RP analysis (rights, Golden Rule, Self-defeating Test).

2. Engineering Registration and the Texas Engineering Practice Act. You should know the process of getting a P.E. and some of the highlights of the code of ethics of the Texas Board of Professional Engineers (gifts, compensation from two parties in the same project, competitive bidding in the public and private arena, advertising, etc.). Remember that the Texas Legislature has given the Board power to define what is included in the practice of engineering and determine which products and practices require a P.E.) You should also be able to give some arguments for becoming a P.E.

3. Chapter 6: Integrity, Honesty, Conflicts of Interest. Types of misusing the truth (e.g. lying, deliberate deception, etc.) Since most real-world ethical problems are in the gray area, be able to distinguish types of misusing the truth other than outright lying. The definitions we will use of two important concepts are: trimming is eliminating data and cooking is inventing or modifying data. You should know that the Ethics Officers Association is an association of ethics officers in major Fortune 500 corporations. Confidential information is information told to a professional by clients. Secrets are facts obtained in the service of the client which the client's interests require not be disclosed to other. Confidentiality can be abused by breaking it when it should not be broken or not breaking it when the public interest demands it. Know something about the Goodrich and Citicorp cases. Expert witnessing: One must show that the defect is recognizable, could have been prevented, and that the fix would not compromise the product's function. Look at the rules for expert witnesses. Conflicts of interest: actual, apparent, and potential. DISCLOSURE is the crucial thing.

4. The environment (ch. 9). Dr. Holtzapple argues for global warming. How? What are the possible bad effects of global warming? Anthropocentric vs non-anthropocentric ethics. There is an important distinction between three types of firms with respect to the environment: actively hostile, do the minimum, and environmentally pro-active. Look at the textbook's discussion of the various criteria for clean and the one recommended by the book and by Dr. Holtzapple (not the same) and book's position on the scope of engineering obligations to the environment.

5. Dr. Hann's lecture on environmental law. The most important law is the National Environmental Policy Act (1970). It established the highly influential environmental impact statements. This law has been copied around the world. Important industry standards on the environment are the Valdez Principles, which mandate protection of the biosphere, sustainability, reduction and proper disposal of waste, damage compensation, environmental restitution, and disclosure of incidents of environmental contamination.

6. Safety, Risk and Liability (ch. 7) Risk=probability times the consequences. Risk assessment (what are the risks?) and risk management (how can problems be prevented or managed?) The attitude of the public towards risk often depends on factors not perfectly correlated with the likelihood of harm (familiarity, voluntariness, equity of distribution, etc.) Many of these factors seem to correlate with RP considerations. The risk expert, by contrast, is strongly utilitarian in orientation. The government expert takes another position: avoiding harm (false negatives) is the primary concern. Thus, what counts as an "acceptable risk" (a moralized term) differs in these three groups. Dr. Harm discussed the criteria for, and problems with, informed consent to risk, and the issue of paternalism as it relates to risk. Different standards of proof of harm or risk of harm in science (95%), tort law (51 %)and criminal law (beyond reasonable doubt). Which standards are
appropriate in determining liability for damage? Important concepts: event trees, fault trees, normalizing deviance, tight (vs. loose) coupling, complex (vs. simple) interaction.

7. Computer Ethics (ch. 5) Definitions of computer ethics, which vary from those that focus on the way computers raise old issues in new ways (Deborah Johnson) to those (N. Wiener) who say that computers will so affect everything that all ethical issues will in some sense be branches of computer ethics. Issues of intellectual property have been profoundly affected by computers. Copyrights, patent, trademarks, trade secrets and trade dress are various ways of protecting intellectual property. Which is the most appropriate for protecting computer programs-patent or copyright? How do we establish ownership? Privacy vs. social utility. Examples of creative middle ways in this area. Kevin Mitnick and computer crime. Line drawing seems to be useful in determining the degree of blame that should be attached to actions in this area. Computers and moral responsibility for harm. The Therac 25 case raises the question of individual and corporate blame responsibility. Negligence is relevant to individual responsibility. The major blameresponsibility lies with AECL and its employees. See the discussion on pp. 115-122. Globalization: laws and practices on issues related to computers are different in different countries: gambling, pornography, advertising. Computers and justice: will families with computers give their children advantages? You should look at the computer code of ethics (the ACM code) in the back of the book. The two other codes you should know something about are the NSPE code and the code of the Texas Board of Professional Engineers.

8. Engineers as employees (ch. 8) Three cases on employee rights, employment at will and the public-policy exception, manager-engineer relationships, Hitachi study, PED/PMD, use of line drawing. Challenger case as an example of PED/PMD, issues around the critical/uncritical loyalty distinction, three types of organizational disobedience, DeGeorge's criteria for permissible and mandatory whistleblowing and an evaluation of them. Whistleblower laws.

9. International engineering professionalism (ch. 10) Need to find a way between relativism and absolutism, laxism and rigorism. The nine Culture-Transcending Norms. Exploitation, paternalism, positive vs. negative rights, CT Norms can conflict with each other, and local norms (ours and theirs) can conflict, even when no CT Norm is violated. The Norms may be violated or infringed. Bribery, extortion, grease payments, gifts.

10. Mr. Chandler's lecture. Most important rules: consider only job-related factors, establish fair processes for making personnel decisions and follow them, and document your decisions. Application of these and other guidelines to cases. Affirmative action is an attempt to make the results of personnel decisions look like the feeder group.

11. Engineering professionalism and ethics: future challenges (ch. 11) The major division in this chapter is between voluntary engineering societies, whose strongest punishment is to cancel an engineer's membership, and state boards of registration that have the power to cancel an engineer's P.E. licens. Since membership in a voluntary organization is not necessary to practice engineering, the chapter argues that engineering societies are best equipped to merely PROMOTE ethics. Because the P.E. is necessary to practice engineering in some areas, the chapter argues that state boards are in a better position to ENFORCE ethics. Voluntary engineering societies are of - two types. First there are "umbrella" organizations which engineers in any engineering discipline may join. The best example is the National Society of Professional Engineers. You should also know something about the NSPE's Board of Ethical Review, and the fact that its judgments are only advisory. Another type of umbrella organization is the American Association of Engineering Societies, to which only engineering societies (not individuals) may belong. In addition to the umbrella organizations, there are the standard voluntary engineering societies: American Society of Civil Engineers, American Society of Mechanical Engineers, etc. You should know something about the Mardirosian case, which convinced professional societies that they had better be careful about attempt to enforce ethics. Look at the ways societies can promote ethics. Finally, look at the functions of state boards, and also the functions of the NCEES, an organization to which all state boards belong.