

Professional Ethics and Values in Engineering (HS317)

Unit 2: Ethical Theories- Philosophical point of view- Moral issues and reasoning - Indian, Utilitarian and Aristotelian theories –duties, rights and virtues- Engineers, Managers, Heads and consultants and their role, Engineering Ethics - variety of moral issues - types of inquiry - moral dilemmas - moral autonomy - Kohlberg's theory - Gilligan's theory - consensus and controversy – Models of Professional Roles - theories about right action - Self-interest - customs and religion - uses of ethical theories.

Ethical theories

Independently propounded ethical theories are many and are very diverse in nature.

Philosophical point of view of ethical theories

Deontology

Deontological ethics or deontology (from Greek δέον, *deon*, "obligation, duty"; and -λογία, *-logia*) is an approach to ethics that determines goodness or rightness from examining acts, or the rules and duties that the person doing the act strove to fulfill. This is in contrast to consequentialism, in which rightness is based on the consequences of an act, and not the act by itself. In deontology, an act may be considered right even if the act produces a bad consequence, if it follows the *rule* that "one should do unto others as they would have done unto them", and even if the person who does the act lacks virtue and had a bad intention in doing the act. According to deontology, we have a *duty* to act in a way that does those things that are inherently good as acts ("truth-telling" for example), or follow an objectively obligatory rule (as in rule utilitarianism). For deontologists, the ends or consequences of our actions are not important in and of themselves, and our intentions are not important in and of themselves.

Immanuel Kant's theory of ethics is considered deontological for several different reasons. First, Kant argues that to act in the morally right way, people must act from duty (*deon*). Second, Kant argued that it was not the consequences of actions that make them right or wrong but the motives (maxime) of the person who carries out the action.

Kant's argument that to act in the morally right way, one must act from duty, begins with an argument that the highest good must be both good in itself, and good without qualification. Something is 'good in itself' when it is intrinsically good, and 'good without qualification' when the addition of that thing never makes a situation ethically worse. Kant then argues that those things that are usually thought to be good, such as intelligence, perseverance and pleasure, fail to be either intrinsically good or good without qualification. Pleasure, for example, appears to not be good without qualification, because when people take pleasure in watching someone suffering, this seems to make the situation ethically worse. He concludes that there is only one thing that is truly good:

Nothing in the world—indeed nothing even beyond the world—can possibly be conceived which could be called good without qualification except a *good will*.

Kantian ethics are deontological, revolving entirely around duty rather than emotions or end goals. All actions are performed in accordance with some underlying maxim or principle, which are deeply different from each other; it is according to this that the moral worth of any action is judged. Kant's ethics are founded on his view of rationality as the ultimate good and his belief that all people are fundamentally

rational beings. This led to the most important part of Kant's ethics, the formulation of the categorical imperative, which is the criterion for whether a maxim is good or bad.

Simply put, this criterion amounts to a thought experiment: to attempt to universalize the maxim (by imagining a world where all people necessarily acted in this way in the relevant circumstances) and then see if the maxim and its associated action would still be conceivable in such a world. For instance, holding the maxim *kill anyone who annoys you* and applying it universally would result in a world which would soon be devoid of people and without anyone left to kill. Thus holding this maxim is irrational as it ends up being impossible to hold it.

Universalizing a maxim (statement) leads to it being valid, or to one of two contradictions — a contradiction in conception (where the maxim, when universalized, is no longer a viable means to the end) or a contradiction in will (where the will of a person contradicts what the universalization of the maxim implies). The first type leads to a "perfect duty", and the second leads to an "imperfect duty."

Kant's ethics focus then only on the maxim that underlies actions and judges these to be good or bad solely on how they conform to reason. Kant showed that many of our common sense views of what is good or bad conform to his system but denied that any action performed for reasons other than rational actions can be good (saving someone who is drowning simply out of a great pity for them is not a morally good act). Kant also denied that the consequences of an act in any way contribute to the moral worth of that act, his reasoning being (highly simplified for brevity) that the physical world is outside our full control and thus we cannot be held accountable for the events that occur in it.

The Formulation Rule of Kantianism:

1. Act only according to that maxim by which you can, at the same time, will that it would become a universal law.
2. Act so that you always treat others as an end, and never as a means to an end *only*.

Virtue ethics

Virtue ethics describes the character of a moral agent as a driving force for ethical behavior, and is used to describe the ethics of Socrates, Aristotle, and other early Greek philosophers. Socrates (469 BC – 399 BC) was one of the first Greek philosophers to encourage both scholars and the common citizen to turn their attention from the outside world to the condition of humankind. In this view, knowledge having a bearing on human life was placed highest, all other knowledge being secondary. Self-knowledge was considered necessary for success and inherently an essential good. A self-aware person will act completely within his capabilities to his pinnacle, while an ignorant person will flounder and encounter difficulty. To Socrates, a person must become aware of every fact (and its context) relevant to his existence, if he wishes to attain self-knowledge. He posited that people will naturally do what is good, if they know what is right. Evil or bad actions are the result of ignorance. If a criminal was truly aware of the mental and spiritual consequences of his actions, he would neither commit nor even consider committing those actions. Any person who knows what is truly right will automatically do it, according to Socrates. While he correlated knowledge with virtue, he similarly equated virtue with happiness. The truly wise man will know what is right, do what is good, and therefore be happy.

The essential features of virtue ethics

- (a) An action is right if and only if it is what an agent with a virtuous character would do in the circumstances
- (b) Goodness is prior to rightness.
- (c) The virtues are irreducibly plural intrinsic goods.
- (d) The virtues are objectively good.
- e) Some intrinsic goods are agent-relative.
- (f) Acting rightly does not require that we maximise the good

Claims (a) to (f) are made by all forms of virtue ethics, and the different varieties of the theory can be distinguished according to which of these claims they emphasise, and their reasons for making these claims. Some philosophers who do not (or at least, not explicitly) call themselves virtue ethicists nevertheless endorse one or more of these claims as part of their criticisms of Kantian, utilitarian, or consequentialist theories.

However, taken as a whole, these claims help show how virtue ethics constitutes a distinct alternative to familiar forms of Kantianism, utilitarianism, and consequentialism

Aristotle (384 BC – 322 BC) posited an ethical system that may be termed "self-realizationism." In Aristotle's view, when a person acts in accordance with his nature and realizes his full potential, he will do good and be content. At birth, a baby is not a person, but a potential person. To become a "real" person, the child's inherent potential must be realized. Unhappiness and frustration are caused by the unrealized potential of a person, leading to failed goals and a poor life. Aristotle said, "Nature does nothing in vain." Therefore, it is imperative for persons to act in accordance with their nature and develop their latent talents in order to be content and complete. Happiness was held to be the ultimate goal. All other things, such as civic life or wealth, are merely means to the end. Self-realization, the awareness of one's nature and the development of one's talents, is the surest path to happiness.

Aristotle asserted that man had three natures: vegetable (physical/metabolism), animal (emotional/appetite) and rational (mental/conceptual). Physical nature can be assuaged through exercise and care, emotional nature through indulgence of instinct and urges, and mental through human reason and developed potential. Rational development was considered the most important, as essential to philosophical self-awareness and as uniquely human. Moderation was encouraged, with the extremes seen as degraded and immoral. For example, courage is the moderate virtue between the extremes of cowardice and recklessness. Man should not simply live, but live well with conduct governed by moderate virtue. This is regarded as difficult, as virtue denotes doing the right thing, to the right person, at the right time, to the proper extent, in the correct fashion, for the right reason.

Consequentialism

Consequentialism refers to moral theories that hold that the consequences of a particular action form the basis for any valid moral judgment about that action (or create a structure for judgment, see rule consequentialism). Thus, from a consequentialist standpoint, a morally right action is one that produces a good outcome, or consequence. This view is often expressed as the aphorism "*The ends justify the means*".

The term "consequentialism" was coined by G.E.M. Anscombe in her essay "Modern Moral Philosophy" in 1958, to describe what she saw as the central error of certain moral theories, such as those propounded by [Mill](#) and [Sidgwick](#). Since then, the term has become common in English-language ethical theory.

The defining feature of consequentialist moral theories is the weight given to the consequences in evaluating the rightness and wrongness of actions. In consequentialist theories, the consequences of an action or rule generally outweigh other considerations. Apart from this basic outline, there is little else that can be unequivocally said about consequentialism as such. However, there are some questions that many consequentialist theories address:

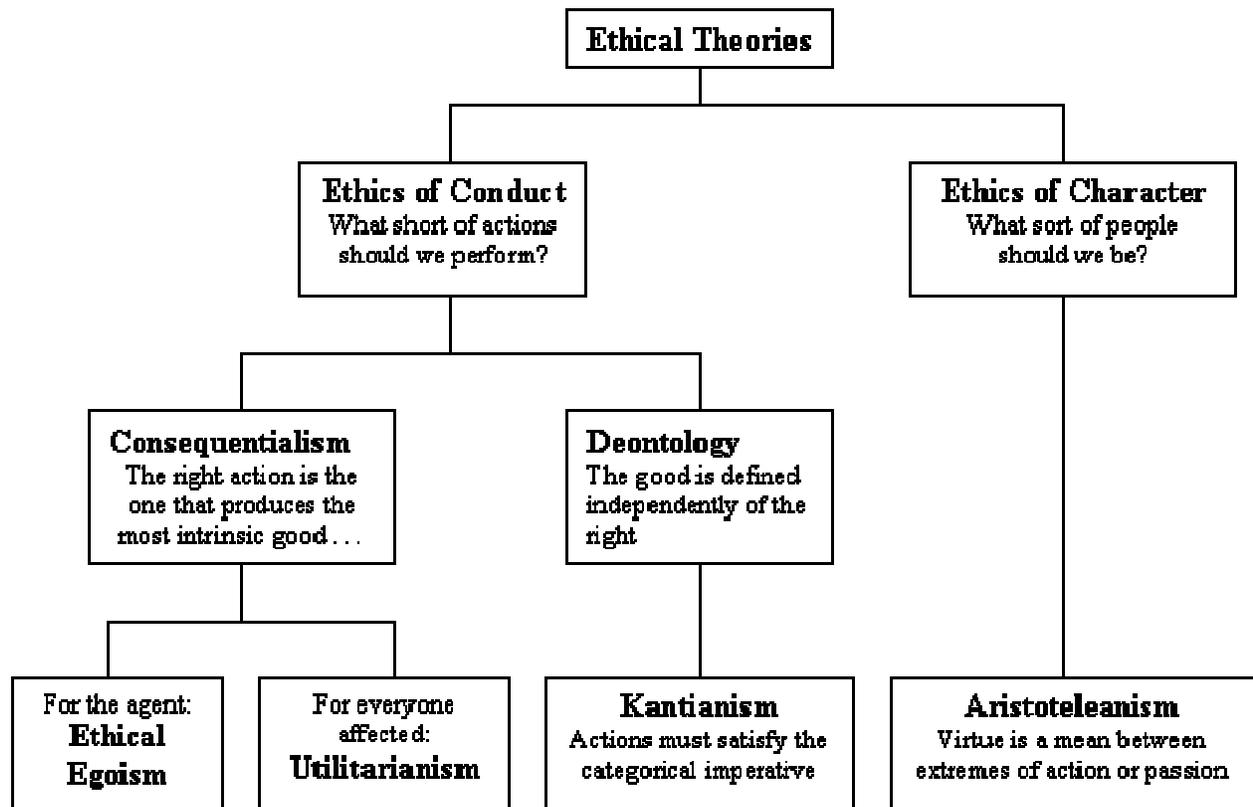
- What sort of consequences count as good consequences?
- Who is the primary beneficiary of moral action?
- How are the consequences judged and who judges them?

One way to divide various consequentialism is by the types of consequences that are taken to matter most, that is, which consequences count as good states of affairs. According to hedonistic utilitarianism, a good action is one that results in an increase in pleasure, and the best action is one that results in the most pleasure for the greatest number. Closely related is eudaimonic consequentialism, according to which a full, flourishing life, which may or may not be the same as enjoying a great deal of pleasure, is the ultimate aim. Similarly, one might adopt an aesthetic consequentialism, in which the ultimate aim is to produce beauty. However, one might fix on non-psychological goods as the relevant effect. Thus, one might pursue an increase in material equality or political liberty instead of something like the more ephemeral "pleasure". Other theories adopt a package of several goods, all to be promoted equally. Whether a particular consequentialist theory focuses on a single good or many, conflicts and tensions between different good states of affairs are to be expected and must be adjudicated.

Comparison of Ethical theories

	Consequentialism	Deontology	Virtue Theory
example	Mill's utilitarianism	Kantian ethics	Aristotle's moral theory
abstract description	An action is right if it promotes the best consequences.	An action is right if it is in accordance with a moral rule or principle.	An action is right if it is what a virtuous agent would do in the circumstances.
more concrete specification	The best consequences are those in which happiness is maximized.	A moral rule is one that is required by rationality.	A virtuous agent is one who acts virtuously, that is, one who has and exercises the virtues. A virtue is a character trait a human being needs to flourish or live well.

Classification of Ethical Theories



Philosophers have found ethical theories useful because they help us decide why various actions are right and wrong. If it is generally wrong to punch someone then it is wrong to kick them for the same reason. We can then generalize that it is wrong to “harm” people to help understand why punching and kicking tend to both be wrong, which helps us decide whether or not various other actions and institutions are wrong, such as capital punishment, abortion, homosexuality, atheism, and so forth.

All of the ethical theories have various strengths and it is possible that more than one of them is true (or at least accurate). Not all moral theories are necessarily incompatible. Imagine that utilitarianism, the categorical imperative, and Stoic virtue ethics are all true. In that case true evaluative beliefs (e.g. human life is preferable) would tell us which values to promote (e.g. human life), and we would be more likely to have an emotional response that would motivate us to actually promote the value. We would feel more satisfied about human life being promoted (e.g. through a cure to cancer) and dissatisfied about human life being destroyed (e.g. through war). Finally, what is right for one person would be right for everyone else in a sufficiently similar situation because the same reasons will justify the same actions.

Eastern or Indian theory of Ethics

The three western theories above are one-dimensional and narrow. A more broad-based, multi-dimensional ethical theory developed in India takes a unified approach to morality. It was developed by a good number of Hindu philosophers, who were inspired by the Bhagwad Gita.

Take an analogy from the world of religion. Religious monoism stands for only one true religion existing. But there are many religions and thus there are many true faiths varying from individual to individual. This is the theory of religious pluralism. Through this we come to the question that if there can be religious pluralism, then why not ethical pluralism? This is the argument by Hindu philosophers who say that there is no need to fight over ethical theories. Reason, duty, affection are all important parts of human nature, thus we must embrace all the theories instead of choosing any one of them.

So the non-western ethical perspective is to unite all perspectives, take a multi-dimensional approach. We as human beings are complex and need to include everything. Another analogy is that of a surgeon, who has to make choices everyday of his life and who can't follow only a single approach in his life.

Kohlberg's Theory of Moral Development

Moral development is a major topic of interest in both psychology and education. One of the best known theories was developed by psychologist Lawrence Kohlberg who modified and expanded upon Jean Piaget's work to form a theory that explained the development of moral reasoning.

Piaget described a two-stage process of moral development, while Kohlberg's theory of moral development outlined six stages within three different levels. Kohlberg extended Piaget's theory, proposing that moral development is a continual process that occurs throughout the lifespan.

"The Heinz Dilemma"

Kohlberg based his theory upon research and interviews with groups of young children. A series of moral dilemmas were presented to these participants and they were also interviewed to determine the reasoning behind their judgments of each scenario.

The following is one example of the dilemmas Kohlberg presented"

Heinz Steals the Drug

"In Europe, a woman was near death from a special kind of cancer. There was one drug that the doctors thought might save her. It was a form of radium that a druggist in the same town had recently discovered. The drug was expensive to make, but the druggist was charging ten times what the drug cost him to make. He paid \$200 for the radium and charged \$2,000 for a small dose of the drug.

The sick woman's husband, Heinz, went to everyone he knew to borrow the money, but he could only get together about \$ 1,000 which is half of what it cost. He told the druggist that his wife was dying and asked him to sell it cheaper or let him pay later. But the druggist said: "No, I discovered the drug and I'm going to make money from it." So Heinz got desperate and broke into the man's store to steal the drug-for his wife. Should the husband have done that?"

Kohlberg was not interested so much in the answer to the question of whether Heinz was wrong or right, but in the *reasoning* for each participant's decision. The responses were then classified into various stages of reasoning in his theory of moral development.

Level 1. Preconventional Morality

- **Stage 1 - Obedience and Punishment**

The earliest stage of moral development is especially common in young children, but adults are also capable of expressing this type of reasoning. At this stage, children see rules as fixed and absolute. Obeying the rules is important because it is a means to avoid punishment.

- **Stage 2 - Individualism and Exchange**

At this stage of moral development, children account for individual points of view and judge actions based on how they serve individual needs. In the Heinz dilemma, children argued that the best course of action was the choice that best-served Heinz's needs. Reciprocity is possible at this point in moral development, but only if it serves one's own interests.

Level 2. Conventional Morality

- **Stage 3 - Interpersonal Relationships**

Often referred to as the "good boy-good girl" orientation, this stage of moral development is focused on living up to social expectations and roles. There is an emphasis on conformity, being "nice," and consideration of how choices influence relationships.

- **Stage 4 - Maintaining Social Order**

At this stage of moral development, people begin to consider society as a whole when making judgments. The focus is on maintaining law and order by following the rules, doing one's duty and respecting authority.

Level 3. Postconventional Morality

- **Stage 5 - Social Contract and Individual Rights**

At this stage, people begin to account for the differing values, opinions and beliefs of other people. Rules of law are important for maintaining a society, but members of the society should agree upon these standards.

- **Stage 6 - Universal Principles**

Kohlberg's final level of moral reasoning is based upon universal ethical principles and abstract reasoning. At this stage, people follow these internalized principles of justice, even if they conflict with laws and rules.

Criticisms of Kohlberg's Theory of Moral Development:

- Does moral reasoning necessarily lead to moral behavior? Kohlberg's theory is concerned with moral thinking, but there is a big difference between knowing what we *ought* to do versus our actual actions.
- Is justice the only aspect of moral reasoning we should consider? Critics have pointed out that Kohlberg's theory of moral development overemphasizes the concept as justice when making moral choices. Factors such as compassion, caring and other interpersonal feelings may play an important part in moral reasoning.
- Does Kohlberg's theory overemphasize Western philosophy? Individualistic cultures emphasize personal rights while collectivist cultures stress the importance of society and community. Eastern cultures may have different moral outlooks that Kohlberg's theory does not account for.

Gilligan's Theory

Gilligan was a student of Lawrence Kohlberg and Kohlberg applied Piaget's theory to the development of moral thinking. Borrowing from Piaget's "preoperational/concrete/formal" distinctions Kohlberg came up with the stage theory you see here.

Kohlberg Stages of Moral Development		
Approximate Age Range	Stage	Substages
Birth to 9	Preconventional	1) Avoid punishment 2) Gain Reward
Age 9 to 20	Conventional	3) Gain Approval & Avoid Disapproval 4) Duty & Guilt
Age 20+ maybe never	Postconventional	5) Agreed upon rights 6) Personal moral standards

The pre-conventional moral stage, says Kohlberg, is based on the cognitive abilities of a person in Piaget's concrete operational stage. Moral decisions are egocentric (based on me) and concrete. So you can see how reward and punishment are the typical bases of reasoning in this stage. The conventional stage is based on the children's ability to "decenter" their moral universe and take the moral perspective of their parents and other important members of society into account. The post-conventional stage is based on

the adult's ability to base morality on the logic of principled decision making based on standards that are thought to be universalizable and not dependent on culture. Kohlberg's system was based on extensive research he and his students did with interviews in which they asked children and adults to give the reasons they had for moral decisions Kohlberg presented them with. So his stages and ages do not correspond exactly from Piaget, but you can see a tantalizing similarity.

Now we finally get to Gilligan. As a student of Kohlberg's, Gilligan was taken by the stage theory approach to understanding moral reasoning. But she disagreed with her mentor's assessment of the content of the moral system within which people developed. If you look at the table of Kohlberg's stages, you can see the question being answered in the third column is one of justice - the fourth stage gives this away with talk about duty and guilt. "What are the rules of the game?" seems to be the issue at hand. From her careful interviews with women making momentous decisions in their lives, Gilligan concluded that these women were thinking more about the caring thing to do rather than the thing the rules allowed. So she thought Kohlberg was all wet, at least with regard to women's development in moral thinking.

What set her off in thinking this was the fact that in some of Kohlberg's investigations, women turned out to score lower - less developed - than did men. Were women really moral midgets? Gilligan did not think so. In taking this stand, she was going against the current of a great deal of psychological opinion. Our friend Freud thought women's moral sense was stunted because they stayed attached to their mothers. Another great developmental theorist, Erik Erickson, thought the tasks of development were separation from mother and the family. If women did not succeed in this scale, then they were obviously deficient.

Gilligan's reply was to assert that women were not inferior in their personal or moral development, but that they were different. They developed in a way that focused on connections among people (rather than separation) and with an ethic of care for those people (rather than an ethic of justice). Gilligan lays out in this groundbreaking book this alternative theory.

Gilligan's Stages of the Ethic of Care		
Approximate Age Range	Stage	Goal
not listed	Preconventional	Goal is individual survival
Transition is from selfishness -- to -- responsibility to others		
not listed	Conventional	Self sacrifice is goodness
Transition is from goodness -- to -- truth that she is a person too		
maybe never	Postconventional	Principle of nonviolence: do not hurt others or self

Thus Gilligan produces her own stage theory of moral development for women. Like Kohlberg's, it has three major divisions: preconventional, conventional, and post conventional. But for Gilligan, the transitions between the stages are fueled by changes in the sense of self rather than in changes in cognitive capability. Remember that Kohlberg's approach is based on Piaget's cognitive developmental model. Gilligan's is based instead on a modified version of Freud's approach to ego development. Thus Gilligan is combining Freud (or at least a Freudian theme) with Kohlberg & Piaget.

In reading Gilligan and understanding her place in psychology, you may yourself come face to face with an intellectual difficulty. The momentous life decision that Gilligan looks at in her central study was that of whether or not to get an abortion. It seems clear from Gilligan's comments in her text that she is a

supporter of a women's right to choose. Those of you who agree with her will have less trouble seeing the logic of her system. Those of you who disagree will have to get past the disagreement on this important ethical issue to see if there is anything interesting psychologically in what Gilligan has to say.

Here is the pitch for the psychologically interesting. Gilligan has shown that Kohlberg's (and Freud's, and Erickson's) systems are based on a male-centered view. Kohlberg built his theory based on interviews with males only. She has certainly shown us the inadequacy of that. In addition, she has broken the idea that there is only one dimension of moral reasoning. If there can be two, why not three? Why not several? Finally, she has connected moral decision making back into concerns about both the self and the social environment in which the self lives.

Most psychologists now disagree with the empirical claim that men and women differ in their moral reasoning in the way Gilligan outlines. Several studies have now found both men and women using both justice and care dimensions in their moral reasoning. There have also been criticisms of the rigor of her interview method of research. More careful researchers are now cleaning up behind the trail she blazed.

Ethical theories and principles are the foundations of ethical analysis because they are the viewpoints from which guidance can be obtained along the pathway to a decision. Each theory emphasizes different points such as predicting the outcome and following one's duties to others in order to reach an ethically correct decision. However, in order for an ethical theory to be useful, the theory must be directed towards a common set of goals. Ethical principles are the common goals that each theory tries to achieve in order to be successful. These goals include beneficence, least harm, respect for autonomy and justice

Ethical Theories and Their Use in Ethics Education

As shown earlier, one helpful way for leading an ethical case study discussion is to give students a guide, such as the “Seven Step Format for Ethical Decision Making” to help them think through the issues presented in a case. Moral theories are another tool to help an individual clearly and logically think about an ethical issue, and arrive at a decision that can be rationally defended. As John Rowan states in his preface to the textbook, *Ethics for the Professions*

“A moral theory is a mechanism for assessing whether a particular action or rule is ethically justified. More precisely, a moral theory can help us to sharpen our moral vision, it helps us determine whether an action or a rule is ethically right (meaning it is required and must be performed and followed), wrong (meaning it must not be performed or followed), or permissible (meaning it may be, but need not be, performed or followed.” (1)

Moral theories range from Utilitarianism which bases what is considered “morally right” on the consequences of an action, to deontological theories, which base concepts of what is considered “morally right” on universal laws that exist outside of a specific situation. While these approaches differ significantly, all moral theories have two things in common. For a moral theory to be helpful, it should provide us with the source of moral values (reasons why we should be moral), and it should provide us with a framework or strategy for ranking moral norms when we confront a dilemma. (2)

Many instructors of professional ethics are wary of including moral theory in their curriculum, and indeed, it is not necessary to if you are attempting to include only a small amount of professional ethics instruction in your course. Problems often arise when moral theories are presented in unhelpful or confusing ways; either students become overwhelmed when all the details of a theory are presented, or

instructors present only the briefest synopsis of a theory that is too sketchy to provide any real benefit for the students. (3) However, moral theories are one way to assist an individual in setting aside the feelings, desires, and ambitions that often tend to skew one's moral vision and look at a problem from a rational viewpoint. Any inclusion of moral theory in should help the student develop a more systemized, rational scheme of thought through which they can reflect on the ethical decisions they will be asked to make, either in the classroom when looking at case studies, or in their chosen professional field. (4) It should not lead to confusion.

Solving Moral Problems

Knowing all this, we may now answer our initial question: How can one solve moral problems? Moral problems are solved by developing moral judgments with regard to an action and choosing the best action. We now know how to develop moral judgments about situations using both Utilitarianism and Kantianism. Using Utilitarianism, the most ethical action would be the action that creates the greatest amount of satisfaction over dissatisfaction. Using Kantianism, the most ethical action would be the action that treats all people as autonomous agents. To solve a moral problem, one must decide which is the most ethical action using approaches such as these. For many people, guidance on solving moral problems comes from a more personal source: their religion. Each religion, be it Christianity, Islam, Judaism, or some other faith, seeks to instill in its followers a set of moral guidelines that can be used to help solve moral problems. It should be noted that both Kantianism and Utilitarianism can be used in conjunction with most religious principles. After all, the main ideas behind both theories have similarities with ideas found in religious texts. When dealing with moral problems, having multiple sources from which to analyze potential solutions can be very beneficial. The process of understanding, developing, and justifying moral judgments can be tedious, especially when a large number of people are involved. For this reason, many organizations have developed ethical codes of conduct that guide people to act ethically in their professions. These ethical codes are based upon philosophical approaches such as the ones that we have just studied. We will now look at the development of these ethical codes of conduct and their usefulness as we examine the second part of the definition of engineering ethics.

Ethical Codes of Conduct

Let us look at the definition of engineering ethics: "Engineering ethics is the development of and compliance with currently accepted engineering ethical codes of conduct." Ethical codes of conduct, or **moral codes**, are simply compilations of ethical actions that act as guides to our lives. For example, the individual ethical actions "Help your neighbor," "Do not kill people," and "Do not steal" may be collected in one moral code to help guide a person to live an ethical life. Each individual ethical action in a moral code could be justified using the Utilitarian or Kantian approach. Moral codes describe the ethical actions that we can base our behavior on through our intuitive use of these approaches. Engineering codes of ethics are based upon general codes of ethics. The engineering codes of ethics are simply compilations of ethical actions that act as a guide in professional practice. Every moral rule in these codes could be justified using either the Utilitarian or Kantian approach. Every engineering code of ethics leaves room for an engineer to make virtuous choices within his profession while instructing the engineer in the most ethical actions and procedures. It is critical that all engineers comply with the various accepted codes. Although most of the different engineering codes share similar ideals, nearly every major engineering association has its own code that specifically addresses the issues that its members are likely to encounter in the course of their duties. In unit 4, we shall focus different codes of ethics including the National Society of Professional Engineers (NSPE) Code of Ethics.