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CENG 291: ENGINEERING IN SOCIETY

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INTRODUCTION – MORAL FRAMEWORKS.

- An ethical theory is a comprehensive perspective on morality that clarifies, organizes, and guides moral reflection.
- An ethical theory provides a framework for making moral choices and resolving moral dilemmas; not a simple formula but rather a comprehensive way to identify, structure, and integrate moral reasons.
- They also ground the requirements in engineering codes of ethics by reference to broader moral principles.
- There are five types of ethical theories namely: utilitarianism, right ethics, duty ethics, virtue ethics, and self – realization ethics.

UTILITARIANISM

UTILITARIANISM VERSUS COST-BENEFIT ANALYSIS

- Utilitarianism is the view that ought to produce the most good for people, giving equal consideration to everyone affected. The standard of right conduct is maximization of these consequences. Utility sometimes refers to the balance of good over bad consequences.
- Morality involves producing good consequences as utilitarian standard seems simple and plausible. Utilitarianism seems a straightforward way to interpret the central principle in most engineering codes: “engineers shall hold paramount the safety, health and welfare of the public in the performance of their performance duties”. Welfare is synonymous to overall good (utility), and safety and health are viewed as important aspects of that good.

CONT'D

UTILITARIANISM VERSUS COST-BENEFIT ANALYSIS

- What exactly is the good to be maximized?
- Also, should the good effects of individual actions or the good effects of general rules (policies, laws, principles in codes of ethics) be maximized.
- Utilitarianism takes different forms pertaining to how these questions are answered.
- A typical cost benefit analysis identifies the good and bad consequences of some action or policy, usually in terms of dollars. It weighs the total “goods” against the total “bads”, and then compares the results to similar tallies of the consequences of alternative actions or rules.
- However, a utilitarian analysis considers the costs and benefits to everyone affected by the project or proposal. They weigh the interests of each person affected equally, giving no preference to members of a corporation.

ACT-UTILITARIANISM VERSUS RULE-UTILITARIANISM

- Act-utilitarianism focuses on each situation and the alternative actions possible in the situation. A particular action is right if it is likely to produce the most good for the most people in a given situation, compared to alternative choices that might be made. However, the right action is the one that produces the most overall good, taking into account everyone affected.
- An alternative version of utilitarianism says we should take rules, rather than isolated actions much seriously. Justified rules are morally authoritative rather than loose guidelines, hence rule-utilitarianism. It asserts to the principle where right actions are those required by rules that produce the most good for the most people.
- Act-utilitarianism and rule-utilitarianism are philosophical debates over precisely how much rule-utilitarianism and act-utilitarianism differ from each other as rule-utilitarianism was developed as a way of correcting several problems with act-utilitarianism.

CONT'D ACT-UTILITARIANISM VERSUS RULE-UTILITARIANISM

- Act-utilitarianism permits some actions that we know are patently immoral whereas rule-utilitarianism expresses the moral knowledge demonstrated in the practice of the overall good when engineers heed the principle, “act as faithful agents or trustees of employers”.
- Act-utilitarianism permits injustice by promoting the social good at the expense of individuals whereas rule-utilitarianism avoids injustice by emphasizing the general good in heeding rules like “corporations should inform the public of dangers”, “discipline or punish only the guilty”.

CONT'D ACT-UTILITARIANISM VERSUS RULE-UTILITARIANISM

- Act-utilitarianism requires too much of us when the overall good is being called for by foregoing luxuries and redirecting our careers in order to give to worthy causes such as alleviating world hunger at the expense of our wellbeing. Rule-utilitarianism however agrees that relatively wealthy people should increase their philanthropic giving but they also think the general good is promoted by allowing individuals to act in accord with a rule such as “give to help others while keeping sufficient resources for the security and reasonable luxuries for oneself and one’s family”.

THEORIES OF GOOD

- Justified actions or rules should maximize good consequences, but what is the standard for “good” consequences?. All other good things are instrumental goods in that they provide means (instruments) for gaining happiness.
- Utilitarians sometimes consider pleasure to be the only intrinsic good (good considered by itself apart from its consequences) but that seems counterintuitive; there is nothing good about the pleasures of rapists and sadistic torturers.
- Mill believe that happiness is the only intrinsic good, and hence he understands utilitarianism as the requirement to produce the greatest amount of happiness.
- Richard Brandt argues that things like love and creativity are good because they satisfy rational desires. Rational desires are those that we can affirm after fully examining them in light of all relevant information about the world and our own deepest needs.

THEORIES OF GOOD

- Some self-destructive desires, such as the desire to use dangerous drugs are not rational due to their full implications. Desires and pleasures of rapists and sadists are also not rational.
- Mill and Brandt both try to use an objective standard on what counts as good. Other utilitarians, especially economists adopt a “preference theory”: what is good is what individuals prefer, as manifested in their choices in the marketplace. Economists base their cost-benefit analysis on the preferences that people express through their buying habits. Utilitarianism thus becomes the view that right actions produce the greatest satisfaction of the preferences of the people affected.

RIGHTS ETHICS AND DUTY ETHICS

- Rights ethics regards human rights as fundamental, and duty ethics regards duties of respect for autonomy as fundamental. Both theories emphasize respect for individuals' dignity and worth, in contrast with utilitarians' emphasis on the general good.
- Furthermore, rights ethics and duty ethics are largely mirror images of each other: you have a right to life, I have a duty not to kill you; and if I have a duty not to deceive you then you have a right not to be deceived.

HUMAN RIGHTS

- Holding paramount the safety, health, and welfare of the public can be interpreted as having respect for the public's rights to life, rights to privacy, rights not to be injured, and rights to receive benefits through fair and honest exchanges in a free marketplace.
- Nearly all ethical theories leave room for rights. Thus, rule-utilitarianism construe rights as those areas of liberty that are so important as to deserve special safeguards in society.
- Rights ethics is distinctive, however, in all that it makes human rights the ultimate appeal; the moral bottom line since morality is about respecting the inherent dignity and worth of individuals as they exercise their liberty.

CONT'D HUMAN RIGHTS

- Rights ethics provides the moral foundation of the political and legal system of most countries as Thomas Jefferson of the United States during the Declaration of Independence wrote: “we hold these truths to be self-evident; that all men are created equal; that they are endowed by their Creator with certain unalienable rights, that among these are life, liberty, and the pursuit of happiness.”
- The notions of human rights and legal rights are distinct. Legal rights are simply those the laws a given society says one has. Human rights are those we have as humans, whether the law recognizes them or not.

TWO VERSIONS OF RIGHTS ETHICS

- Rights ethics gets more complex as we ask which rights exist. Thus, human rights might come in two forms: liberty rights and welfare rights.
- Liberty rights are rights to exercise one's liberty, and they place duties on other people not to interfere with one's freedom.
- Welfare rights are rights to benefits needed for a decent human life, when one cannot earn those benefits and when the community has them available.
- The first version of rights ethics conceives of human rights as intimately related to communities of people.
- A. I. Melden, for example, argues that having moral rights presupposes the capacity to show concern for others and to be accountable within a moral community.

CONT'D TWO VERSIONS OF RIGHTS ETHICS

- Melden's account, like that of most rights ethicists allow for more “positive” welfare rights to community benefits needed for living a minimally decent human life. The extent of welfare rights, just like that of liberty rights, always has to be determined contextually by what the community has available by way of resources and the variety of the obstacles to freedom confronted by various individuals.
- The second version of rights ethics denies that, there are welfare human rights. Libertarians believe that only liberty rights exist; there are no welfare rights.
- John Locke, the first philosopher to carefully articulate a rights ethics, is often interpreted as a libertarian. He believed that the three most basic human rights are to life, liberty, and property.

CONT'D TWO VERSIONS OF RIGHTS ETHICS

- Locke's version of human rights ethics was highly individualistic. He viewed rights primarily as entitlements that prevent other people from meddling in one's life.
- Special moral rights, rights held by particular individuals rather than by every human being exist aside human rights. These special rights are indirectly grounded in human rights. Thus, contracts and other types of promises create special rights because people have human rights to liberty that are violated when the understandings and commitments specified in contracts and promises are violated.
- Few rights are absolute, in the sense of being unlimited and having no justifiable exceptions. Libertarians and other rights ethicists agree that members of the public do not have an absolute right not to be harmed by technological products.

DUTY ETHICS

- Duty ethics says that right actions are those required by duties to respect the liberty or autonomy of individuals.
- Immanuel Kant, the most famous duty ethicist argued that all such specific duties derive from one fundamental duty to respect persons. Persons deserve respect because they are moral agents capable of recognizing and voluntarily responding to moral duty. Autonomy means having the capacity to govern one's life in accordance with moral duties.
- Hence, respect for persons amounts to respect for their moral autonomy.

CONT'D DUTY ETHICS

- Immorality occurs when we “merely use” others, reducing them to mere means to our ends, treating them as mere objects to gratify our needs. Violent acts such as murder, rape, and torture are obvious ways of treating people as mere objects serving our own purposes.
- We have duties to ourselves, for we too are rational and autonomous beings as illustrated in this statement, “act so that you treat humanity, whether in your own person or in that of another, always as an end and never as a means only”.
- Kant finally emphasizes that moral duties are universal and “categorical imperatives.”

PRIMA FACIE DUTIES

- Kant thought that everyday principles of duty, such as “do not lie” and “keep your promises”, are absolute in the sense of never having justifiable exceptions conflating three ideas: universality, categorical imperatives and absolutism.
- Contemporary duty ethicists recognize that many moral dilemmas are resolvable only by recognizing some valid exceptions to simple principles of duty. Thus, engineers have a duty to maintain confidentiality about information owned by their corporations, but that duty can be overridden by the paramount duty to protect the safety, health, and welfare of the public.

CONT'D PRIMA FACIE DUTIES

- David Ross introduced the expression prima facie duties to emphasize that most duties have some justified exceptions. In a technical sense, prima facie simply means “might have justified exceptions”.
- Most duties are prima facie ones; they sometimes have permissible or obligatory exceptions.
- Ross believed that prima facie duties are intuitively obvious, much like Jefferson said that human rights are self-evident. However, he emphasized that it is not always obvious how best to balance conflicting duties, so as to arrive at our actual duty, all things considered.

VIRTUE ETHICS

- Virtue ethics emphasizes character more than rights and rules. Character is the pattern of virtues (morally desirable features) and vices (morally undesirable features) in an individual.
- Virtues are desirable habits or tendencies in action, commitment, motive, attitude, ways of reasoning and ways of relating to others.
- Vices are morally undesirable habits or tendencies.

VIRTUES IN ENGINEERING

- The most comprehensive virtue of engineers is responsible professionalism. Virtue implies four categories of virtues: public well-being, professional competence, cooperative practices, and personal integrity.
- Public-spirited virtues are focused on the good of clients and the wider public. The minimum virtue is the tendency not to harm others intentionally. Engineering codes of professional conduct also call for beneficence , which is preventing or removing harm to others and more positively, promoting the public safety, health, and welfare. A sense of community manifested in faith and hope, generosity and justice within corporations, government, and economic practices are essential virtues in the profession of engineering.

CONT'D VIRTUES IN ENGINEERING

- Proficiency virtues are the virtues of mastery of one's profession, in particular mastery of the technical skills that characterize good engineering practices. The most general proficiency virtue is competence: being well prepared for the job one undertakes. Diligence and creativity are proficiency virtues that are most desirable within a rapidly changing technological society.
- Teamwork virtues are those that are especially important in enabling professionals to work successfully with other people. They include collegiality, cooperativeness, loyalty, and respect for legitimate authority. Also important are leadership qualities that play key roles within authority-structured corporations.

CONT'D VIRTUES IN ENGINEERING

- Self-governance virtues are those necessary in exercising moral responsibility. Some of them center on moral understanding and perception, for example, self-understanding and good moral judgement, what aristotle called practical wisdom. Other self-governance virtues center on commitment and on putting understanding into action: courage, self-discipline, perseverance, fidelity to commitments, self-respect, and integrity.

COMPETENCE AND CONSCIENTIOUSNESS

- Like rights ethics, duty ethics, and utilitarianism, virtue ethics takes alternative forms, especially in the particular virtues emphasized and their roles in morally good lives.
- Samuel Florman, an ethicist said that a virtue ethics in pleasure; there exist pleasures which are deeply rooted and elemental satisfactions in engineering that contribute to happiness. In his view, “the essence of engineering ethics” is best captured by the word conscientiousness.
- Engineers who do their jobs well are morally good engineers, and doing their jobs well is to be understood in terms of the more specific virtues of competence, reliability, inventiveness, loyalty to employers, and respect for laws and democratic processes.

COMPETENCE AND CONSCIENTIOUSNESS

- Conscientious engineers are competent. Florman estimates that 98% of engineering failures are caused by incompetence. The other 2% involves greed, fraud, dishonesty, and other conventional understandings of wrongdoing.
- Conscientious engineers are loyal to employers, within the boundaries of laws and democratic institutions. Florman places great emphasis on laws as setting the basic rules governing engineering.
- Within a democratic setting in which laws express a public consensus, economic competition among corporations makes possible technological achievements that benefit the public.

COMMUNITY AND THE GOLDEN MEAN

- Aristotle defined the moral virtues as habits of reaching a proper balance between extremes in conduct, emotion, desire, and attitude. Virtues are tendencies to find the golden mean between the extremes of too much and too little with regard to particular aspects of our lives.
- Virtues enable us to pursue a variety of public goods within a community.
- Macintyre conceives of professions as valuable social activities, which he calls social practices.
- A social practice is any coherent form of socially established cooperative human activity through which goods internal to that form of activity are realized in the course of trying to achieve those standards of excellence which are appropriate to, and partially definitive of that form of activity, with the result that human powers to achieve excellence, and human conceptions of the ends and goods involved.

CONT'D COMMUNITY AND THE GOLDEN MEAN

- The definition above attests to the fact that progress is made possible through social practices. Nowhere is this truer than in the professions, which systematically expand our understanding and achievement of public and private goods.

SELF-REALIZATION AND SELF-INTEREST

- Utilitarians believe that self-interest should enter into our calculations of the overall good; rights ethics says we have rights to pursue our legitimate interests; duty ethics says we have duties to ourselves; and virtue ethics links our personal good with participating in communities and social practices. Self-realization ethics, however gives greater prominence to self-interest and to personal commitments that individuals develop.

ETHICAL EGOISM

- Ethical egoism says that each of us ought always and only to promote our own self-interest. The theory is ethical because it is a theory about morality, and it is egoistic because it says the sole duty of each of us is to maximize our well-being
- Thomas Hobbes, an egoist says that rational persons will agree to abide by a “social contract” in which one obeys the laws when others are willing to do so, thereby lifting them from a “state of nature” in which constant war makes life “solitary, poor, nasty, brutish, and short.”
- Ayn Rand celebrates a host of virtues exercised on behalf of oneself: self-respect, honesty with oneself, courage and excellence in pursuing personal projects, and even respect for others insofar as it tends to promote one’s endeavours.

MOTIVES OF ENGINEERS

- Engineers are strongly motivated by self-interest, but they are also capable of responding to moral reasons in their own right, as well as additional motives concerned with the particular nature of their work.
- The motives of professionals are categorized into three namely; proficiency, compensation, and moral.
- Proficiency motives, and their associated values, center on excellence in meeting the technical standards of a profession, together with related aesthetic values of beauty. Students are mostly motivated to enter engineering primarily by a desire for interesting and challenging work.
- Compensation motives are for social rewards such as income, power, recognition, and job or career stability. These motives and values are largely self-interested. Regard for one's self-interest is a moral virtue.

CONT'D MOTIVES OF ENGINEERS

- Moral motives include desires to meet one's responsibilities and to respect the rights of others. Such motives of moral respect and caring involve affirming that other people have inherent moral worth. A moral concern involves maintaining self-respect and integrity, valuing oneself as having equal moral worth.
- Engineering is demanding, and it requires engineers to summon and to integrate a wide range of motivations.