

Cognitive? চিন্তাশক্তি,
 Cognition (n): the
 Loyal - বিশ্বস্ত, devoted, faithful, loyalty - বিশ্বস্ততা
 Trust → characteristics - বৈশিষ্ট্য

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amic → মিত্র
 vigilant - সতর্ক
 liberty - স্বাধীনতা
 reciprocity - পরস্পরিকতা
 generosity - উদারতা
 relation - সম্পর্ক
 ESE 229: Engineering ethics and cyber law
 for mutual benefits.
 the quality being kind and generous



Presented by:

Dr. Mst. Jannatul Ferdous
 Professor

Department of Computer Science and Engineering
 Jatiya Kabi Kazi Nazrul Islam University, Bangladesh
 Email: mjferdous_cse@jknui.edu.bd, mjannatul@gmail.com

3rd September, 2023

What is Ethics?

- Derived from the Greek word "ethos", which means "way of living", ethics is a branch of philosophy that is concerned with human conduct, more specifically the behavior of individuals in society.
- Ethics examines the rational justification for our moral judgments;
- It studies what is morally right or wrong, just or unjust.

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of rational - logical - যুক্তিগত
 ethos - নীতি
 ethics - নীতিশাস্ত্র/নীতি
 conduct - (n) - the manner in which a person behaves especially in a particular place or situation.
 morality

Ethical views

ETHICS

Ethics define rules or norms for acceptable and unacceptable behavior

What does it mean to "Do the Right Thing"?

Behaving Ethically Includes:

- Being honest.
- Keeping promises.
- Doing your job well.
- Not stealing.

Reaching the Right Decision

- There is no formula to solve ethical problems.
- The professional must consider trade-offs.
- Ethical theories help to identify important principles or guidelines.

Some Important Distinctions

- Goals vs. actions: the actions we take to achieve our goals should be consistent with our ethical constraints.
- Law vs. ethics: some acts are ethical, but illegal; other acts are legal, but unethical.

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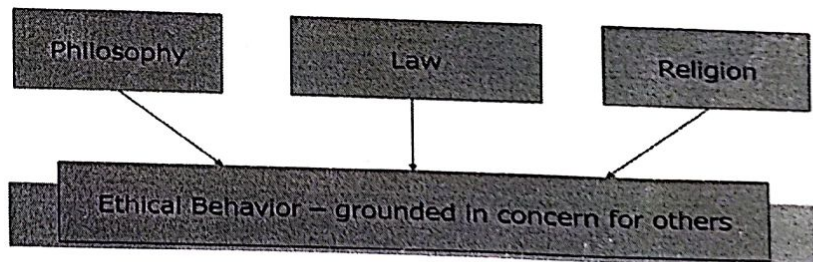
ORIGINS OF TODAY'S ETHICS

Ancient Greeks - especially Socrates, Aristotle
Judeo - Christian tradition
Islam
Buddhists
Hindus

- relating to the Jews or Judaism

Western ethics have principally evolved from first two.

Muslim culture is basically the best way for best ethics



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Trade-off → *orun* - a balance achieved between two desirable but incompatible features. a compromise

Distinction: a difference or contrast between similar things or people.
consistent - *inconsistent*

constraint → a limitation or restriction.

nominally → नाममात्र, for name only.
 moral → नैतिक
 morally → "नैतिक"
 morality → नैतिकता
 Unethical → अनैतिक, निषिद्ध

ETHICS AND RELIGION

Some people's ethics are based in religion
However, nominally religious people may not be ethical.

ETHICS AND LAW

Engineering and business are governed by laws at the international, federal, state and local levels.

~ प्रमाणित

PERSONAL VS. BUSINESS ETHICS

Personal ethics deal with how we treat others in our day-to-day lives.

Professional (business) ethics often involves choices on an organizational level rather than a personal level.

ETHICS PROBLEMS

not often

Rarely have a correct answer that everyone will come up with.
 There will be a range of solutions that are clearly right.
 There will be a range of solutions that are clearly wrong.
 It is convenient to define your ethics reference

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Senses of Ethics

- इतना / बहुत feeling

- Moral principles that govern a person's behavior or the conducting of an activity.
- The branch of knowledge that deals with moral principles.
- Ethics is an activity of
 - Understanding the moral values
 - Resolve the moral issues
 - Justify the moral judgment
- Ethics refers to a set of beliefs, attitudes, and habits that a person or group displays concerning morality.
- Ethics is a purely factual matter about explaining beliefs and actions related to morality.
- Ethics refers to being "morally correct"
 - People's actions can be spoken of as "ethical" or "unethical"
 - Individuals can be evaluated as "ethical" or "unethical"

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ought → shou, obo → used to indicate duty or correctness, typically when criticizing someone's actions
notorious → gogo, famow or well known, typically for some bad quality or

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Engineering Ethics

- Engineering Ethics is an activity of
 - Understanding the moral values that ought to guide the engineering profession
 - Resolve the moral issues in the profession
 - Justify the moral judgment concerning the profession.

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ENGINEERING ETHICS

Engineers have an ethical and social responsibility to themselves, their clients, and to society.

Practically (although there is much debate about this), engineering ethics is about balancing cost, schedule, and risk.

WHY STUDY?

Several notorious cases -

Achieved great attention and led engineers to gain an increased sense of professional responsibilities.

Led to an awareness of the importance of ethics, how engineers have far reaching impact on society.

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IP → refers to creations of the mind, such as inventions; literary and artistic works; designs; and symbols, names and images used in commerce. 9/3/2023
 Deliberate (অসংগত) → done intentionally and consciously.

QUESTIONABLE ENGINEERING PRACTICES

Forging – "Inventing some or all of the research data..."

Plagiarism – misappropriating intellectual property. (IP)

Conflicts of Interest (such as accepting gifts.)

- actual
- potential
- apparent

CLEARLY WRONG ENGINEERING PRACTICES

- Lying
- Deliberate deception
- Withholding information
- Failure to seek out the truth
- Revealing confidential or proprietary information.

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GOAL

Sensitize you to the important ethical issues before you have to confront them.

Moral autonomy – চিন্তাশক্তি/স্বাধীনতা

- To think critically and independently about moral issues.
- To apply this moral thinking to situations that arise in professional engineering practice.

Professional Engineering

- National Institute for Engineering Ethics (NIEE)
- <https://www.niee.org/>
- Codes of Ethics
- Accreditation Board For Engineering And Technology
- American Institute Of Chemical Engineers
- American Society Of Civil Engineers
- American Society Of Mechanical Engineers
- IEEE Code of Ethics
- National Council of Examiners for Engineering and Surveying (NCEES) Model Rules of Professional Conduct
- National Society of Professional Engineers (abbreviate as NSPE), NSPE Code of Ethics for Engineers
- Software Engineering Code Of Ethics And Professional Practice
-

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overzealous → having no showing care - किम्वदन्त / धर्म

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NIEE Code of Ethics

- Engineers shall hold paramount the health, safety, and welfare of the public in the practice of their profession.
- Engineers shall practice only in their areas of competence, in a careful and diligent manner and in conformance with standards, laws, codes, and rules and regulations applicable to engineering practice.

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NIEE Code of Ethics - 2

- Engineers shall examine the societal and environmental impact of their actions and projects, including the wise use and conservation of resources and energy, in order to make informed recommendations and decisions.
- Engineers shall issue public statements only in an objective and truthful manner. If representing a particular interest, the engineer shall clearly identify that interest.

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NIEE Code of Ethics - 3

- Engineers shall sign and take responsibility for all engineering work that they prepare or directly supervise.
- Engineers shall act as faithful agents for their employers or clients and maintain confidentiality they shall avoid conflicts of interest whenever possible, disclosing unavoidable conflicts.
-

→ *conflict of interest*

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NIEE Code of Ethics - 4

- Engineers shall ensure that a client is aware of the engineer's professional concerns regarding particular actions or projects, and of the consequences of engineering decisions or judgments that are overruled or disregarded.
- An employee engineer shall initially express those concerns to the employer.

info
conflict

conflict of interest

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NIEE Code of Ethics - 5

- Engineers shall appropriately report any public works, engineering decisions, or practices that endanger the health, safety, and welfare of the public. *to know*
- When, in an engineer's judgment, a significant risk to the public remains unresolved, that engineer may ethically make the concerns known publicly.
- Engineers shall commit to life-long learning, strive to advance the body of engineering knowledge, and should encourage other engineers to do likewise.

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NIEE Code of Ethics – 6

- Engineers shall promote responsibility, commitment, and ethics both in the education and practice phases of engineering they should enhance society's awareness of engineers' responsibilities to the public and encourage the communication of these principles of ethical conduct among engineers.

✓ APPROVED BY THE NIEE BOARD OF DIRECTORS OCTOBER 28, 2000

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Architectural Engineering

- Design criteria for safety over-engineering
- Testing and computer-aided design tools
- Conflicts with costs
- Ethical engineer will NOT build a structure made unsafe by cost-saving measures
- But note the unknown (resonance in failed bridges and buildings)

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Software Engineering

- Association for Computer Machinery (<https://www.acm.org/>)
- IEEE Computer Society (<https://www.computer.org>,
<https://www.ieee.org/>)
- IEEE Communications Society (<https://www.comsoc.org/>)
- Internet Society (<https://www.internetsociety.org/>)

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Software Engineering - 2

- Really complex
- The number of states is either incalculable or too large to test
- Networks make it worse 600M Internet users, 1 B devices on the net all full of software
- ACM RISKS Peter Neumann (<http://catless.ncl.ac.uk/risks/>)

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Observations

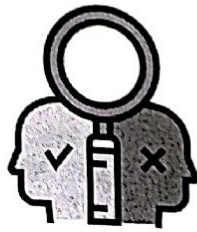
- Engineering Judgment and Intuition aided by standards and tools
- Example of the Challenger Space Shuttle and the O-ring problem (bad judgment and unethical management?)
- Cascade failures (see Six Degrees by Duncan Watts) epidemiology, connectivity,

•Observations – 2

- Software theft (the original remains)
- Viruses and Worms
- Domain Names and Uniform Dispute Resolution Procedure (UDRP) created by the World Intellectual Property Organization at the request of the Internet Corporation for Assigned Names and Numbers

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Attitudes, values, ethics, and morals are mental constructs that guide our behavior. They are responsible for influencing our choices, guiding our decision-making, and directing our behavior.



Ethics



Values



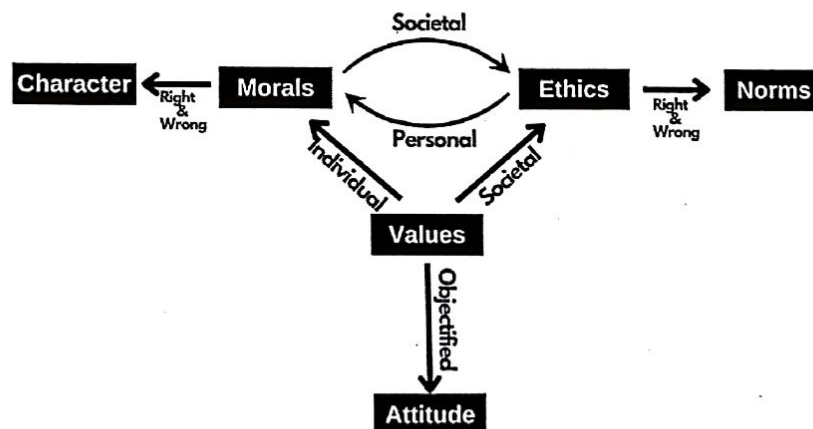
Morals



Attitude

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How is EVMA interrelated?



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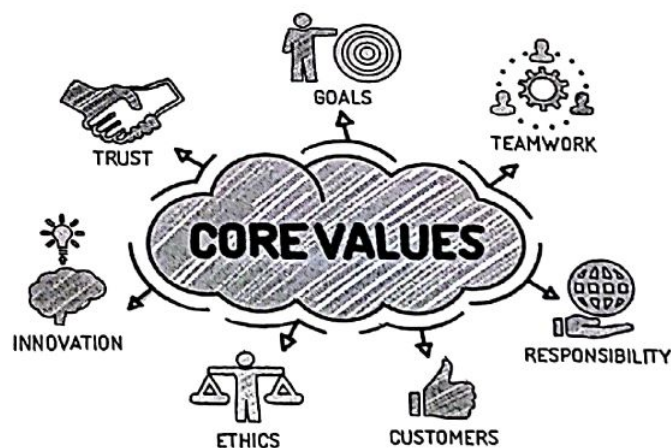
5 moral values for every working professional

- Honesty
- Discipline
- Professionalism
- Respecting colleagues and their spaces
- Accepting others

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extract proposal

Ethics and Human Interface: Essence, determinants and consequences of Ethics in human actions; dimensions of ethics; ethics — in private and public relationships.



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jurisdiction(n) → the official power to make legal decisions and judgements -
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What is Cyber Law?

- Cyber law, also known as Internet Law or Cyber Law, is part of the overall legal system that is related to legal informatics and supervises the digital circulation of information, e-commerce, software, and information security. It is associated with legal informatics and electronic elements, including information systems, computers, software, and hardware. It covers many areas, such as access to and usage of the Internet, encompassing various subtopics as well as freedom of expression, and online privacy.
- Cyber law deals with the legal aspects of cyberspace, the internet, and computing. In a broader view, cyber law handles the issues of intellectual property, contracts, jurisdiction, data protection laws, privacy, and freedom of expression in the digital space.
- Cyber law is any law that applies to the internet and internet-related technologies. Cyber law is one of the newest areas of the legal system. This is because internet technology develops at such a rapid pace. Cyberlaw provides legal protections to people using the internet. This includes both businesses and everyday citizens. Understanding cyber law is of the utmost importance to anyone who uses the internet. Cyber Law has also been referred to as the "law of the internet."

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Cybercrime and Cybersecurity

- Areas that are related to cyber law include cybercrime and cybersecurity. With the right cybersecurity, businesses and people can protect themselves from cybercrime. Cybersecurity looks to address weaknesses in computers and networks. The International Cybersecurity Standard is known as ISO 27001.
- Cybersecurity policy is focused on providing guidance to anyone who might be vulnerable to cybercrime. This includes businesses, individuals, and even the government. Many countries are looking for ways to promote cybersecurity and prevent cybercrime.

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libel → defame. A published false statement that is damaging to a person's reputation. A written defamation.

slander → The action or crime of making a false spoken statement damaging to a person's reputation.

typosquatting → URL hijacking → is a type of social engineering attack which targets internet users who incorrectly type a URL into their web browser rather than using a search engine.

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Categories of Cyber Crime

- Generally, there are three major categories of cybercrimes that you need to know about. These categories include:
- **Crimes Against People.** While these crimes occur online, they affect the lives of actual people. Some of these crimes include cyber harassment and stalking, distribution of child pornography, various types of spoofing, credit card fraud, human trafficking, identity theft, and online-related libel or slander.
- **Crimes Against Property.** Some online crimes happen against property, such as a computer or server. These crimes include DDOS attacks, hacking, virus transmission, cyber and typosquatting, computer vandalism, copyright infringement, and IPR violations.
- **Crimes Against Government.** When a cybercrime is committed against the government, it is considered an attack on that nation's sovereignty and an act of war. Cybercrimes against the government include hacking, accessing confidential information, cyber warfare, cyber terrorism, and pirated software.

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the use of software that is not properly licensed.

What Is Ethics in Research & Why Is It Important?

- Research ethics govern the standards of conduct for scientific researchers. It is important to adhere to ethical principles in order to protect. What are the 5 ethics of research?
- **Principles of research ethics**
- **PRINCIPLE ONE:** Minimising the risk of harm.
- **PRINCIPLE TWO:** Obtaining informed consent.
- **PRINCIPLE THREE:** Protecting anonymity and confidentiality.
- **PRINCIPLE FOUR:** Avoiding deceptive practices.
- **PRINCIPLE FIVE:** Providing the right to withdraw.
- the dignity, rights and welfare of research participants.

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- The ABET is a non-governmental organization that accredits post-secondary education programs in applied and natural sciences, computing, engineering, and engineering technology.
- Accreditation Board for Engineering and Technology, Inc. (ABET)
- Abet: encourage or assist (someone) to do something wrong, in particular to commit a crime.

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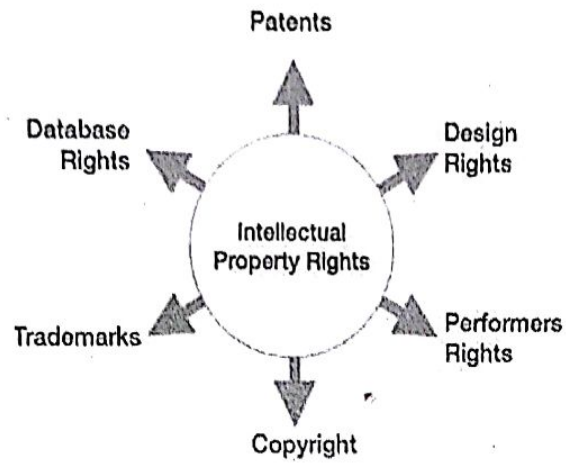
Integrity - *ନିଷ୍ଠା/ଅସଫୁଟ*

- The quality of being honest and having strong moral principles.
- The state of being whole and undivided.
- Integrity is an indispensable moral virtue that includes acting with honesty, fairness, and decency.

ଅନିବାର୍ଯ୍ୟ
↳ absolutely necessary

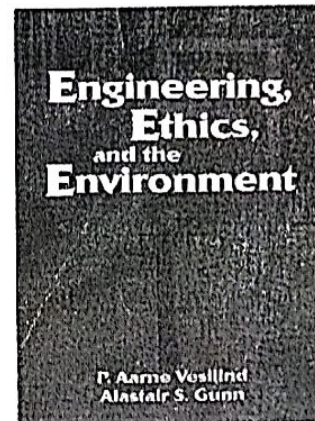
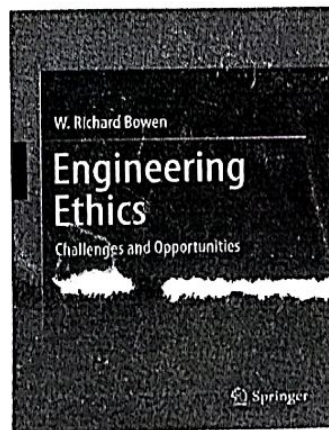
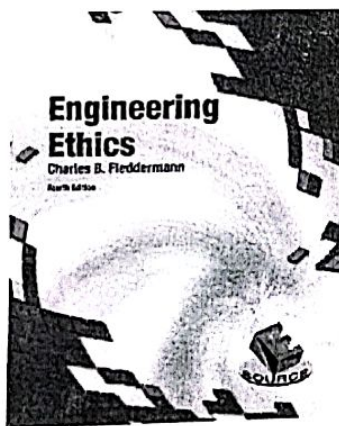
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Intellectual Property Right



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Recommended Readings



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