HUM 321

Engineering Ethics and Environmental Protection

Course Teacher:

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Lecturer

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Credit: 2.0 Credit Hour: 2hrs/week

Assessment Tools:

Quiz - 15 (4 Quizzes, best 3 will be considered)

Presentation - 08

Attendance - 07

Assignment - 05

Mid Exam - 25

Final Exam - 40

Total - 100

Course Rationale:

Professional engineers have responsibility to serve the society and work to improve the welfare, health and safety, with the minimal use of natural resources and paying attention with regard to the environment and the sustainability of resource. They play an important and significant role to meet the sustainability.

In their professional fields, they have to face ***ethical***, ***social*** and ***environmental*** issues and their decisions affect the world or society.

Ethical Roles of an Engineer:

- It is often difficult to understand the morally right course of action. It's engineers' obligation to be sensitive to ethical issues for the continuing professional development in their careers.

- It is, therefore, important that engineers have a clear understanding of how engineers should interact with the society, and the impacts of engineering decisions on the society and environment.

Why we need to learn this course?

- The purpose of this course is to **sensitize** students to *ethical*, *social* and *environmental issues* in engineering.

- To **equip** students with the necessary skills required for ethical decision making.

- To make them **acknowledge** societal and environmental safety, responsibilities, values, and rights to become an engineer.

Course Objectives:

The objectives of this course are to –

- Develop the ability to identify the core human values and responsibilities of engineers.
- Make the students able to understand and apply the engineering code of ethics and moral development theories.
- Enable the students to critically assess the effects of engineering decisions on society and environment.
- Develop skills to ensure environmental protection and sustainability to balance engineering for sustainable growth of the environment.
- Develop an appreciation of ethical responsibilities and rights of engineers towards public safety and welfare to prevent any engineering hazards.

Course Contents:

- Human Values: Morals, Values and Ethics, Integrity, Work Ethic, Honesty, Courage, Empathy, Self-Confidence, Character.
- Engineering Ethics: Senses of 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. Valuing Time, co-operation and commitment.

- Engineering ethics: Perspective Bangladesh

Engineering as Social Experimentation: Engineering as experimentation, Engineers as responsible experimenters, Codes of ethics, A balanced outlook on law, The challenger case study.

- Safety, Responsibilities and Rights: Safety and risk, Assessment of safety and risk, Risk-benefit analysis and reducing risk, Bhopal and Chernobyl case studies.
- Environmental Protection and Sustainability: Ethics of environmental protection, Environment issues from engineering aspects. Technology for a sustainable environment. Responsibility for environmental protection and sustainability.

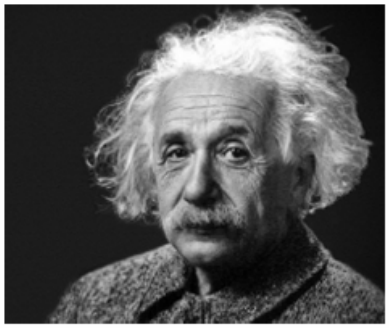
Life Changing Quotes

I hear and I forget. I see and I remember. I do and I understand. – Confucius

(551– 479 BC)

Teachers open the doors, but you must enter by yourself. - Chinese Proverb

If you can't explain it simply, you don't understand it well enough. - Einstein



(1879 – 1955 AD)

Education is what remains after one has forgotten what one has learned in school.

– Einstein

Genius is 1% talent and 99% hard work.

- Einstein

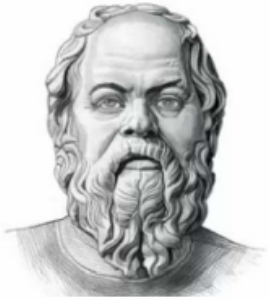
Learning is not child's play; we can not learn without pain.

— Aristotle

Life Changing Quotes

Strong minds discuss ideas, average minds discuss events, weak minds discuss people.

— Socrates



(470–399 BC)

Wonder is the beginning of wisdom.

— Socrates

Try not to become a man of success, Rather become a man of value. - Einstein

It is during our darkest moments that we must focus to see the light. — Beauvoir

Man is a goal seeking animal. His life only has meaning if he is reaching out and striving for his goals.

— Aristotle

Life Changing Quotes

The one who plants trees, knowing that he will never sit in their shade, has at least started to understand the meaning of life. — Rabindranath Tagore

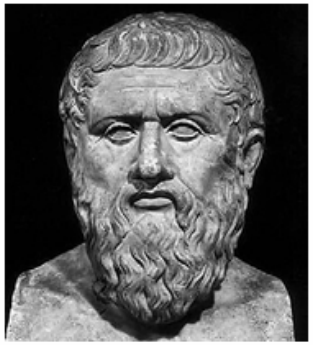
(1861–1941 AD)

You cannot cross the sea merely by standing and staring at the water. — Rabindranath Tagore

Change your life today. Don't gamble on the future, act now, without delay. — Beauvoir

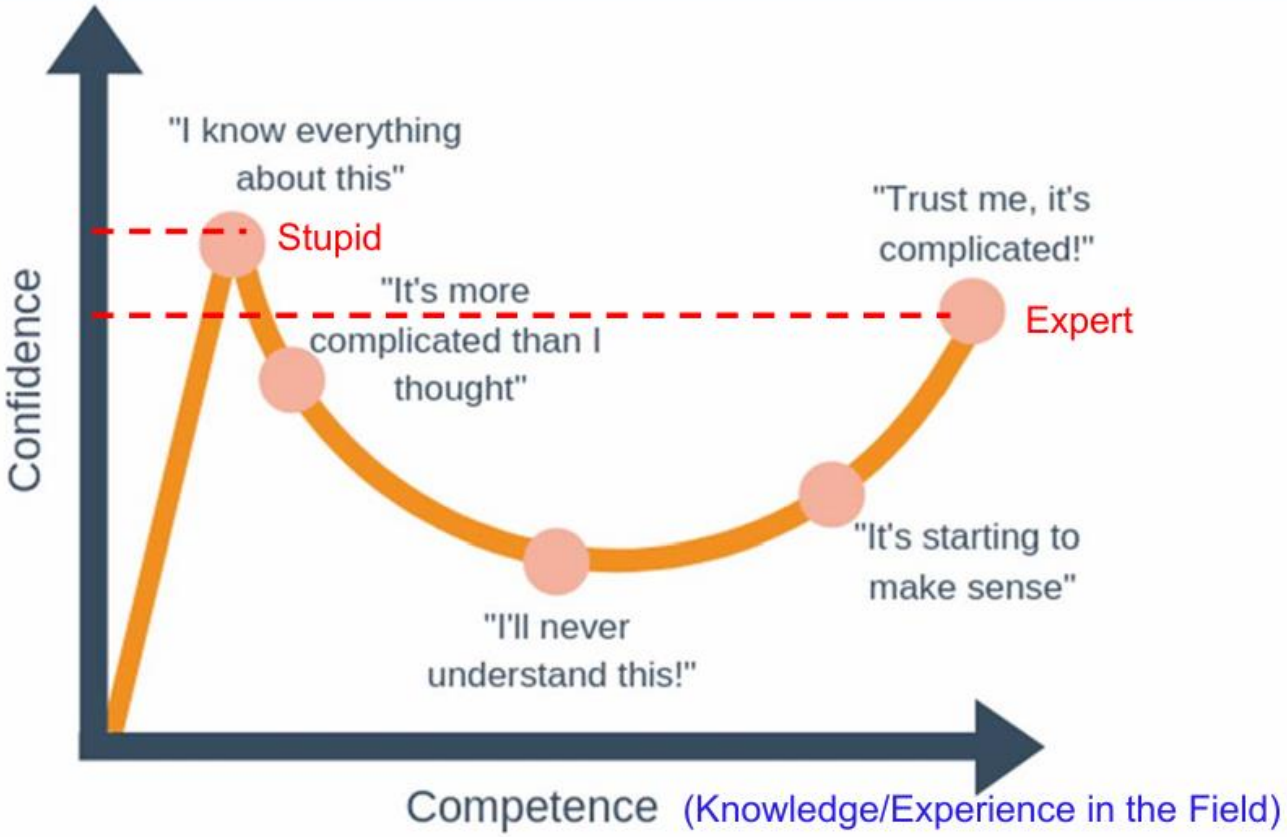
Never discourage anyone, who continually makes progress, no matter how slow. — Plato

Ignorance, the root and stem of every evil. — Plato



(428/427 or 424/423 – 348/347 BC)

Dunning-Kruger Thought Process



The problem with the world is that the intelligent people are full of doubts, while the stupid ones are full of confidence.

- Charles Bukowski

Resources:

Textbook(s):

1.Charles E. Harris Jr., Michael S. Pritchard, Michael J. Rabins, “Engineering Ethics: Concepts and Cases”.

Reference(s):

2.Charles B. Fleddermann, “Engineering Ethics”, 4th Edition.

3.P. Aarne Vesilind, “Engineering, ethics, and the environment”.

Thank You