IUCEE Course on Engineering Ethics 2023

The course will commence on February 16th, 2023. It will be offered every Thursday from 7:00 – 8:30 PM IST, for eight weekly modules of 90 min each on topics listed below. Attendees are expected to complete assignments on based on modules and they will be given a certificate after successful completion.

Weekly Topics, Presenters, and Schedule are given below:

Course Participants: Team of 1 Faculty member + up to 3 students per faculty member
Homework: To be assigned on each module, presenter will decide on format
Attendees will be given a certificate after successful completion
Fee charged to the attendees: per team of faculty member and accompanying students Rs. 500 for IUCEE Consortium Institutions and Rs. 2,000 for NON Consortium.

Weekly Topics:
16 February 2023: Personal Ethics (Dr. Claire Komives, San Jose State University)
The foundation of ethics is in oneself. Many life choices involve an ethical decision.
Why do we opt to do the "right" thing when it may be inconvenient or even cause us to suffer? If a person does not have an ethical basis outside of work, it is unlikely that they will be ethical in their professional work. This module will cover the basics of ethics and ethical decision making.
23 February 2023: Professional Ethics (Dr. Anil Kulkarni, Penn State University)
How significant is the role for ethics in engineering profession, and can we teach it to students and practicing professionals? This presentation will attempt to answer these questions by using video clips, examples, case studies from engineering practice, and example of a code of ethics for professional engineers. Audience will be strongly encouraged to participate in the discussion. The motivation for undertaking such ethical training is that it will prepare our young graduates as well as professionals to expect what can be an unethical practice (in order to avoid it) and to resolve an unethical situation (if they happen to find themselves in it), while being fully aware of the legal and regulatory constraints.
2 March 2023: Preparing engineers for social responsibility/Educating the Humanitarian engineer (Dr. Mohan Rao, Tennessee Tech University)
Having an understanding of social values and their impact are very important in any profession. The social responsibilities of engineers include human welfare, safety and environmental protection in engineering designs. A value-related motivation, the desire to help others are strong catalysts for developing students' professional identities and empowering future Humanitarian Engineers. This presentation will provide some ideas and attitudes that are required for socially responsible professional practice that should be empathized in engineering education.
9 March 2023: Ethics for Environment and Sustainability (Dr. Raj Rajaram, Chicago)
Sustainable value creation requires an ethical framework in which business, consumers

and government interact to protect our natural resources for the future generations while maintaining an adequate standard of living for the present generation. The government creates environmental laws to protect the citizens from pollution and ensure a healthy environment in which everyone can be productive and produce the goods needed by society. If businesses and citizens do not conduct themselves ethically, the water, air and land can be ruined for generations. This was demonstrated in many tragic cases around the world, including the Bhopal Gas tragedy, the Chernobyl nuclear accident and many contaminated chemical sites which ruined the water and soil for many generations to come in the area surrounding the factory. This course will stress the importance of ethics for environmental sustainability and present a few case studies which illustrate how ethics can be incorporated in the day to day decisions made by businesses and consumers.

16 March 2023: Ethics in designing, software engineering, and product designing (Ms. Sheetal Sohoni, Arizona State University)

Technological development has impacted our lives both positively and negatively. Nonethical practices in product designing, software development, use of AI, and user experience design can have non-reversible impact on human psyche and behaviors. It becomes important to be well informed about the ethical practices like accessibility, inclusive designs, avoiding dark patterns, copyrights, and collaborative platforms to develop products that can have positive influence for generations to come, because technology is here to stay!

23 March 2023: Ethics in Emerging Technologies, Development, Urbanization, Innovation and Modularity (Ms. Sampada Pachaury, IUCEE)

Ethics in Innovation and Technological development is an extremely important area to be covered while preparing the next-gen of young technologists. As innovation and technology get democratized, the concerns around technology entering human lives in undesirable ways grow large. The Module presents a few case studies where ethics play a key role in decision making and its' consequences'. The modularity in innovation, the technological disruption, and ethical responsibility to develop a harmonious social existence will be the main focus of this Module

30 March 2023: Upholding Institutional Values/ Corporate Social Responsibility (Mr. AnilPandit, GE Retd)

Ethics is simply upholding values. While leading an institution, the onus of defining, instilling, and adherence to set values by all rests with the leader. Further, as the institution is itself an integral part of society, ethical practice by all its constituents is the hallmark that sustains the organisation. This also helps to develop 'value' for values, in everyone associated with such institutions. Methods adopted to evolve and measure ethical behaviour as 'Conformance Index' will be elaborated.

6 April 2023: Introducing Survival Ethics into Engineering Education and Practice (Dr. John Tharakan, Howard University)

The course module will interrogate why ethical principles change across time and culture. It will also propose provisional motives and methods for reaching global consensus on engineering field ethics. Current interdisciplinary research in ethics, psychology, neuroscience and evolutionary theory grounds these proposals. Experimental ethics, the application of scientific principles to ethical studies, provides a model for developing policies to advance solutions. A growing literature proposes evolutionary explanations for moral development. Connecting these approaches necessitates an experimental or scientific ethics that deliberately examines theories of morality for reliability. To illustrate how this approach

works, we will cover three areas. First we analyze cross-cultural ethical systems in light of evolutionary theory. While such research is in its early stages, its assumptions entail consequences for engineering education. Second, we will frame a syllabus for engineering and STEM (Science, Technology, Engineering and Mathematics) ethics courses and a checklist model for translating educational theory and practice into community action. The model is based on aviation, medicine and engineering practice. Third we illustrate how educational efforts at some institutions translate engineering educational theory into community action. Multidisciplinary teams of engineering students and instructors take their expertise from the classroom to global communities to examine further the ethicality of prospective technologies and the decision-making processes that lead to them.