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Humanitarian Engineering: Ethics, Theory, Practices

Juan C. Lucena
Colorado School of Mines

Jon Leydens
Colorado School of Mines

Carl Mitcham
Colorado School of Mines

Junko Munakata-Marr
Colorado School of Mines

Jay Straker
Colorado School of Mines

Course Syllabus, Spring 2007

The hottest places in hell are reserved for those who,
in times of great moral crisis, maintain their neutrality."- Dante

Course No: LAIS 498/598 Title: Humanitarian Engineering: Ethics, Theory, Practices

Class Meetings: Tues and Thur, 9:30 to 10:45 am

Course Website: http://blackboard.mines.edu/

Instructors:
Juan C. Lucena (jlucena@mines.edu, 303-273-3564) (Lead instructor)
Jon Leydens (jleydens@mines.edu)
Carl Mitcham (cmitcham@mines.edu)
Junko Munakata-Marr (jmmarr@mines.edu)
Jay Straker (jstraker@mines.edu)

Office Hours for Juan Lucena: Tuesday and Thursday, 1:30 pm to 4 pm

Required Course Readings:

- Smyser, W.R. 2003. *The Humanitarian Conscience: Caring for Others in the Age of Terror*. Palgrave
- Selected readings available on Blackboard (BB) course website (password protected)

Recommended readings (on reserve in the library)

- Cahill, Kevin (ed.) 2005. *Technology for Humanitarian Action*. Forham University Press.
- Cuny, Frederick. 1983. *Disasters and Development*. Oxford University Press.

Course Description: This course is an introduction to humanitarian engineering from ethical, cultural, and practical perspectives. Through this course, faculty and students will collectively develop and refine a set of humanitarian engineering ethics criteria (constraints). Students will then critically apply these criteria to specific examples of humanitarian technologies, including one that they will research and develop into a case-study. Students will also research multiple career pathways in humanitarian-related organizations and practices and consider potential careers as humanitarian scientists and engineers.

Learning Objectives: By completion of this course, students will be able to

1. understand the basic concepts and history of humanitarianism and humanitarian action
2. describe how humanitarianism might be related to engineering history, education, and practice
3. imagine, understand, and question how humanitarian constraints and ideals might engage with multiple engineering practices and standards of professional conduct
4. research, develop, write and present an effective case study on humanitarian engineering that incorporates ethical dimensions
5. contemplate multiple pathways (grad school, NGO, corporate) of professional practice that would benefit from humanitarian engineering knowledge and skills

Course Policies:

The course consists of seminar discussions of class readings, lectures, in-class collaborative exercises, films, weekly response papers, group presentations, and case-study research and writing. Very important readings on the historical, ethical, and practical dimensions of humanitarian engineering are required for this class. As a 400/500-level course, this course requires a significant amount of reading. Hence **your MAIN RESPONSIBILITY is to keep up with the reading assignments, reflect and write about them, be prepared to discuss and use them in class in order to contribute to the learning environment.** The final grade is based on both your level of performance and your level of commitment to the learning process and objectives.

GRADING:

Class attendance, participation, and respect for the learning process (100 pts)
This area of grading includes attendance, in-class engagement, and relevant participation, e.g., contributing meaningfully to discussion as well as when working in groups or pairs. It also includes turning in work on time, and keeping up with the reading and weekly papers. Attendance and engaged participation will be seriously considered in our final assessment

- **Attendance:** _____ points will be deducted for each unexcused absence. Excused absences are ONLY the following: official sport varsity team travel, a medical condition excused in writing by doctor, a personal matter excused in writing by the Dean of Students office, jury duty, and military duty.

- **Participation:** We welcome many types of contributions to class discussion, and two in particular. Comments that feature a knowledge claim supported by well-structured, logical, and relevant evidence advance everyone's collective understanding, regardless of our own perspectives. Note that well-supported claims are not just stated opinions. Second, we recognize that not all thoughts come out fully formed, so we also invite exploratory contributions to class discussion, comments that are characterized more by questioning and inquiring than by answering and defending a position. We will begin actively seeking student participation after the fifth class meeting in order to give everyone an opportunity to first feel comfortable with the classroom climate, topics, nature of discussion, instructors, and process writing.

- Students will decide *how* these 100 points will be distributed towards attendance and *what* constitutes meaningful participation. This will constitute a learning contract between students and faculty.

Response weekly papers (350 pts): There will be approximately 12 weekly papers, each worth up to 25 pts. The field research paper based on your research and reflection of the career expo experience can earn you up to 50 pts. Papers will be limited to 300-500 words in length.

Case study (350 pts): Students will have some choice in whether to research, write, and present their case studies in groups or individually. Before spring break, submit a memo describing your intended case study and a rationale for individual or group work (10 pts). A first outline of the case study will be submitted the week after spring break (20 pts). A second more developed outline/draft, addressing feedback from instructors, will be submitted before the final presentation (20 pts). A final write up of the case study will be submitted on the last day of classes (5/3/07) (300 pts). More instructions on memo, outlines, and final write up will be provided later.

Final presentation (200 pts): In groups or individually, students will develop, prepare, and present a thorough presentation based on their case study. More instructions will be provided later.

Grading scale: A (900-1000 pts); B (800-899 pts); C (700-799 pts); D (600-699 pts); F (0-599 pts).
Remember: Important information, including required course readings, will be accessed through Black Board. Hence it is your responsibility to check Black Board regularly to ensure a successful completion of the course.

Humanitarian Engineering Ethics Criteria

Teaching humanitarian engineering ethics entails inviting our students to ask a set of somewhat more specific questions about their engineering work and themselves along the following lines:

A. Does this engineering work **promote the good of all humans** independent of their nationality, religion, class, age, or sex? [Justification: Humanitarianism as an ethical tradition historically rejects the significance of such distinctions.]

B. How might this engineering project be related to the **protection and promotion of human rights**? [Justification: Humanitarianism has been repeatedly linked with the emergence of human rights especially as recognized in such documents as the Universal Declaration of Human Rights (1948).]

C. Is the product, process, or system being engineered any likely to benefit **solving humanitarian crises** such as those typically associated with war or natural disasters? [Justification: Humanitarianism is often exemplified with humanitarian aid during such crises.]

D. Is this engineering work addressed especially to **meet fundamental human needs** (such as food, water, and shelter)? [Justification: Humanitarianism regularly argues the priority of fundamental needs over needs associated with affluence.]

E. Is this engineering work oriented toward providing **benefits for those otherwise underserved by engineering** either in the advanced or the developing regions of the world? [Justification: Humanitarianism typically manifests what is known as the "preferential option for the poor."]

F. In what ways might the engineering work be **more compatible with not for profit enterprises** than for profit enterprises? How might such engineering and construction work that did seem more compatible with the pursuit of economic profit be either supported by alternative means or recast so as to be compatible with economic motives? [Justification: Humanitarianism has often been practiced in tension with corporate economic interests.]

G. What is the likelihood that this engineering product, process, or system will be **sustainable**? [Justification: Humanitarianism is often thought to be supportive of and appropriately pursued in synthesis with sustainable development.]

H. Does engineering work **factor in the cultural exigencies of multiple stakeholders**? [Justification: The outcomes of engineering work are only be effective and accepted if they are culturally appropriate, especially in humanitarian crises]

HEE SEMINAR SCHEDULE

(Readings are subject to changes at the discretion of the instructors)

I. INTRODUCTION

DATE	TOPIC	LEAD INSTRUCT	READING DUE	HW DUE
Thu 1/11	Welcome, Intro to case studies	All		
Tue 1/16	History of humanitarian work I	Juan	Smyser: chaps 1-3 (60 pp)	

II. HUMANITARIAN ENGINEERING ETHICS: Criteria, Analysis, Comparisons

Thu 1/18	Students' views of HEE criteria	All	HEE criteria Smyser: chaps 4-6 (60 pp)	
Tue 1/23	Humanitarianism as ethical tradition	Carl and Juan	Smyser: chaps. 7, 11, 14 (41 pp) Dulles, S.J. 2003. Christianity and Humanitarian Action. From Cahill, K. M. (ed) *Traditions, Values, and Humanitarian Action.* (15 pp)	Reflection paper
Thu 1/25	Human needs	Carl and Dave	Maslow, A.H. 1943. A Theory of Human Motivation. *Psychology Review* (27pp) Hofstede, Geert. 1984. The Cultural Relativity of the Quality of Life Concept .*Academy of Management Review*, Vol. 9, No. 3: 389-98 (10pp)	
Tue 1/30	Human rights	Carl and Juan	Universal Declaration of Human Rights, overview, history, profiles at http://www.udhr.org/history/ Vesilind, Aarne. 2005. The Evolution of Peace Engineering, from Vesilind, A (ed.) *Peace Engineering* (10 pp)	Response paper
Thu 2/1	Humanitarian crises	Peter Van Arsdale, Director of Humanitarian Assistance Program, University of Denver	Chap 2 from Cuny, F. 1983. *Disasters and Development* (40 pp) Bankoff, Greg. 2004. The Historical Geography of Disaster. From Bankoff, G (ed.) *Mapping Vulnerability*. (10 pp) Heijmans, Annelies. 2004. From Vulnerability to Empowerment. From Bankoff, G (ed.) *Mapping Vulnerability*. (11pp)	
Tue 2/6	Class for student processing time	All	Chap 3 from Cuny, F. 1983. *Disasters and Development* (17 pp)	Response paper
Thu 2/8	How to search for a humanitarian-related job?	Jon and Juan	Chapters 3, 4 and 5 from Brinkerhoff, D. W. 2005. *Working for Change: Making a Career in International Public Service* (57 pp)	
Tue 2/13 **Career expo day**	How to search for a humanitarian-related job?	Students at career expo		

Thu 2/15	Technology and Development	Juan and Junko	Exec Summary, Chap 1 and 2 from Task Force on Sci, Tech, Innovation, UN Millenium Report. 2005. *Innovation: applying knowledge in development* (28 pp) **(PRINT PAGES 22-50 ONLY)**	Field research paper on career expo (50 pts)
Tue 2/20	Culture and Development	Jay and David Frossard	Pigg, Stacy L. 1992. Inventing Social Categories Through Place: Social Representations and Development in Nepal. *Comparative Studies in Society and History. 34 (3): 491-513* (21pp)	Response paper
Thu 2/22	Humanitarianism & sustainable development	Carl	Mitcham, Carl. 1995. The Concept of Sustainable Development: its Origins and Ambivalence. *Technology and Society.17 (3): 311-326* (15pp) Smillie, Ian. 2001.Capacity Building and the Humanitarian Enterprise. From Smillie, Ian (ed.) *Patronage or Partnership* (13pp)	
Tue 2/27	Bringing it all together	All	Chap 3 on Self-Reliant Participatory Dev., Chap 7 on Working with People from Burkey, S. 1993. *People First: A Guide to Self-Reliant Participatory Rural Development* (60 pp)	Response paper

III. HEE CASE STUDIES: Methods, examples, applications

Thu 3/1	Case studies: Theory and methods	Juan and Jon	Chaps 3 & 4 on Preparing for and Collecting Data from Yin, Robert 2003. *Case Study Research: Design and Methods* (50 pp) Penn State's Schreyer Institute for Teaching Excellence. 2004. *Guidelines for Case Writing* (8 pp)	
Tue 3/6	Case studies: Theory and methods	Juan and Jon	Cuny: chap 10 Case study of a reconstruction program. (29 pp)	Response paper
Thu 3/8	Case study process time			Memo on case study due 3/9
3/13 -3/15	**SPRING BREAK**			

IV. HEE PRACTICE AREAS

Tue 3/20	Sustainability	Carl and Dave	Izzo, Dominic. 2004. Reengineering the Mississippi. *Civil Engineering-ASCE*. 74 (7): 39-45,119 (7pp) Costanza, R. et al. 2006. A new vision for New Orleans and the Mississippi delta: applying ecological economics and ecological engineering. *Front Ecol Environ*, 4(9): 465–72 (7 pp)	Case study outline 1 due
Thu 3/22	Water	Anu Ramaswami,		

		Director of IGERT in Urban Sustainability, U of Colorado_Denver		
Tue 3/27	Water	Junko- Jon	Task Force on Gender and Water. 2006. *Gender, Water and Sanitation: A Policy Brief* (16 pp)	Response paper
Thu 3/29	Energy	Carl	Robert, J. and S. Samuel. 2005. Energy. From Mitcham, C (ed.) *Encyclopedia of STE* (3 pp) James, Ralph and H. Todosow. 2005. Energy Technologies for Humanitarian Purposes. From Cahill, K. (ed.) *Technology for Humanitarian Action* (30 pp)	Response paper
Tue 4/3	Working as an engineer in International Emergencies	Dennis Warner, guest speaker	Warner, Dennis. 2006. Career Choices in Peace Engineering: Alternatives in Intl Development and Disaster Response (10 pp) Warner, Dennis. 2003. Working for Peace in International Emergencies: The Varied Roles of Engineers and Engineering (9 pp)	Response paper
Thu 4/5	The Moral Dimensions of Humanitarian work	Dennis Warner, guest speaker	Warner, Dennis. 2005. Moral Dilemmas in Disaster Response (6 p) Hunt, Mathew. 2005. Ethics Beyond Borders: How Health Professionals Experience Ethics in Humanitarian & Development Work. (20 pp)	Response paper
Tue 4/10	Media	Jon	Hoijer, Birgitta. 2004. The discourse of global compassion: the audience and media reporting of human suffering. *Media, Culture & Society.* 26(4): 513-531 (18 pp)	Response paper
Thu 4/12	Process day for students	All		Case study outline 2 due
Tue 4/17	Student presentations			
Thu 4/19	Student presentations			
Tue 4/24	Student presentations			
Thu 4/26	Student presentations			
Tue 5/1	Process day for students			Response Paper on presentations
Thu 5/3				Case study write up due