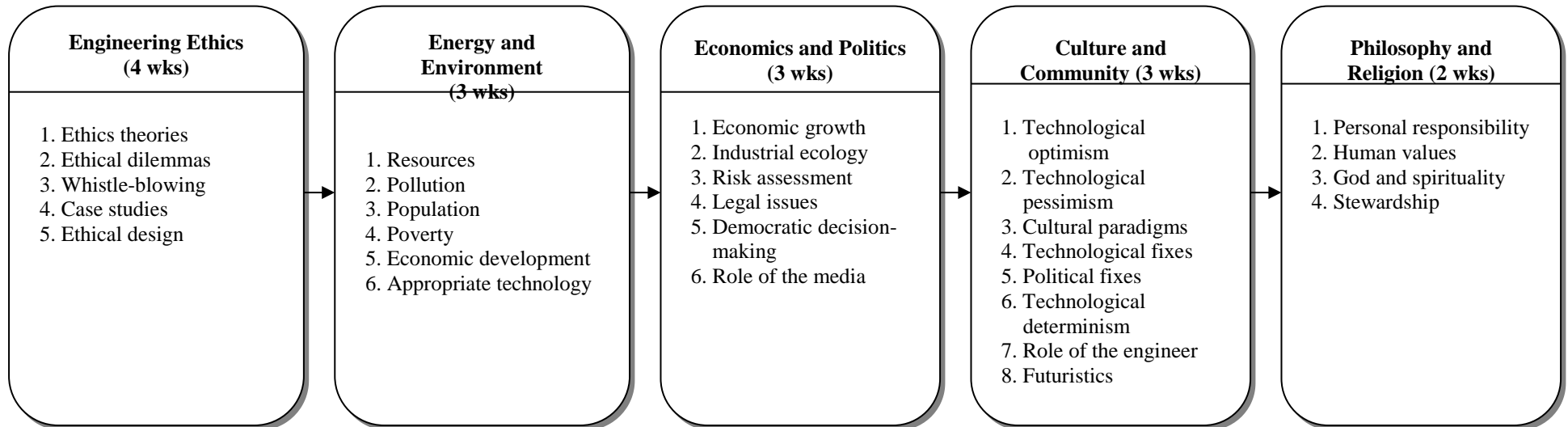


ME 492
TECHNOLOGY AND VALUES

Course Outcomes [Related ME Program Outcomes in brackets]

1. Develop awareness of *technology's impact* on people and society. [4]
2. Learn to critically assess *complex interdisciplinary issues*. [4,7]
3. Develop a tolerant mind, *open to changes in values and institutions*. [4]
4. Develop *moral autonomy* and a *moral vision*. [4]
5. Develop skills necessary for *ethical assessment* of potential technological solutions. [2,4]
6. Refine *communication skills* by writing short essays and a longer term paper. [2,3,4]



Revision Date: 2/20/2019

COURSE NUMBER: ME 492

COURSE TITLE: Technology and Values

REQUIRED COURSE OR ELECTIVE COURSE: Elective

TERMS OFFERED: Spring (Alternate Years)

TEXTBOOK/REQUIRED MATERIAL: W.M. Martin and R. Schinzinger, *Ethics in Engineering*, McGraw-Hill, 4th ed., 2005. R.M. Kidder, *How Good People Make Tough Choices*, Rev. ed., Harper Paperbacks, 2009. S.C. Florman, *The Existential Pleasures of Engineering*, St. Martin Press, 1996. Pacey, *Meaning in Technology*, MIT Press, 2001. R. Pirsig, *Zen & the Art of Motorcycle Maintenance*, Harper, 2005.

PRE-REQUISITES: Senior Standing

COORDINATING FACULTY: P. Meckl

COURSE DESCRIPTION: The impact of science and technology on personal and societal value systems. The special responsibility of engineers. Practical methods for using human values to guide future technological developments. Societal problems considered: warfare, energy, over-population, resource depletion, and environmental degradation. Inter-disciplinary approaches stressed.

COURSE OUTCOMES:

1. Develop awareness of *technology's impact on people and society*. [4]
2. Learn to critically *assess complex interdisciplinary issues*. [4,7]
3. Develop a tolerant mind, *open to changes in values and institutions*. [4]
4. Develop *moral autonomy* and a *moral vision*. [4]
5. Develop skills necessary for *ethical assessment* of potential technological solutions. [2,4]
6. Refine *communication skills* by writing short essays and a longer term paper. [2,3,4]

ASSESSMENTS TOOLS:

1. Class discussion.
2. Optional book summary
3. Presentation and discussion.
4. Five article reviews.
5. Four responses to discussion questions.
6. Four ethics case analyses.
7. 16-20 page course paper.

PROFESSIONAL COMPONENT:

1. Engineering Topics: Engineering Science – 2 credits (67%)
Engineering Design – 1 credit (33%)

NATURE OF DESIGN CONTENT: Roundtable discussions are fostered by meeting once a week for three uninterrupted hours. Students must make a presentation and lead discussion once during the semester. Written requirements include thirteen 500-word essays that analyze an ethics case, respond to questions in the main textbook, or summarize an article from the periodical literature.

COMPUTER USAGE: Mainly word processing.

COURSE STRUCTURE/SCHEDULE:

1. Lecture – 1 day per week at 150 minutes.

RELATED ME PROGRAM OUTCOMES:

1. Engineering fundamentals
2. Engineering design
3. Communication skills
4. Ethical/Prof. responsibilities
5. Teamwork skills
6. Experimental skills
7. Knowledge acquisition

PREPARED BY: P. Meckl
2019

REVISION DATE: February 20,