

**1. Course number and name**

EE/CptS 302: Professional Skills in Computing and Engineering

**2. Credits and contact hours**

3 credits, 3 lecture hours

**3. Instructor's or course coordinator's name**

Chris Hundhausen

**4. Textbook, title, author, and year**

H.T. Tavani. 2013. *Ethics and Technology* (4th ed.). John Wiley & Sons, Hoboken, NJ. ISBN: 978-1-118-28172-7. (Optional)

J. Gido and J.P. Clements, 2014. *Successful Project Management* (6th ed.). South-Western Cengage Learning, Mason, OH. ISBN 978-1285068374. (Optional)

*Other supplemental materials*

B. Barenbach and M. Broy. 2009. Professional and ethical dilemmas in software engineering. *IEEE Computer* (January). 74-80.

A. Begel and B. Simon. 2008. Struggles of new college graduates in their first software development job. In *Proc. ACM Technical Symposium on Computer Science Education (SIGCSE '08)*. 226-230.

D. Gotterbarn and K.W. Miller. 2004. Computer ethics in the undergraduate curriculum: Case studies and the joint software engineer's code. *Journal of Computing Sciences in Colleges* 20(2): 156-167.

D. Gotterbarn, K. Miller, and S. Rogerson. 1999. Computer Society and ACM approve software engineering code of ethics. *Communications of the ACM* 42(10), 102-107.

The ethics of driverless cars. <http://moralmachine.mit.edu/>.

**5. Specific course information**

a. *Catalog description*: Foundation in computing and engineering professional development.

b. *Prerequisites or co-requisites*: Certified major in CptS, CE, EE, or SE.

**6. Specific goals for the course**

By the end of the course, students will be able to

- identify professional, ethical, legal, security, and social dimensions of a decision or action and its potential impacts on the individual, company/organization, and public (4a).
- perform analyses, formulate policies, and make decisions based on sound ethical reasoning that incorporates ethical frameworks (Utilitarianism, Deontology, Contract-based ethical theories, Character-based ethical theories), and professional codes of ethics (4c, 4d, 4e, 4f).
- articulate cost, schedule and risk components of computer or engineering project, with consideration of ethical consequences (4b).
- effectively communicate in oral presentations (3a, 3b, 3c, 3d, 3e, 3f)

- effectively communicate reasoning and rationale in written documents (3a, 3b, 3c, 3d, 3e, 3f).
- carefully listen to others and provide others with constructive feedback (5g).
- function effectively as part of a team (5b, 5c, 5d, 5e, 5f).
- effectively manage team projects (5a, 5c, 5d).

**7. Brief list of topics to be covered**

- Ethical frameworks
- Ethical reasoning
- Professional codes of ethics
- Privacy
- Interview skills
- Intellectual property
- Teamwork
- Project management