

## Ethics in Engineering Practice and Research (3.0 hec)

### About the course

This is an introductory course in engineering ethics. The course aims at providing the students with the tools and concepts necessary for discussing ethical aspects of engineering practice and research. After completing the course the students should be able to:

- identify and describe common ethical problems that arise in engineering practice and research, with particular focus on problems that arise in one's own field of research/specialization
- analyze the problems taking relevant empirical factors into account
- suggest possible solutions to the problems and justify the chosen solution by means of basic ethical principles and concepts
- systematically reflect on the role of science and technology in society and the engineer's responsibility for how they are used

The course covers the major themes and concepts in engineering ethics, such as: professional responsibilities of engineers, dual-use problems, whistleblowing and workplace rights, scientific misconduct, authorship and credit in research, conflicts of interest, and the engineer's responsibility for the environment. Professional engineering codes of ethics and major research ethical declarations will be introduced.

The course is given for doctoral students in natural science or technology.

### Course language

English

### Requirements

- Home assignments
- Written examination
- Active participation in the seminar

If the student is unable to attend the scheduled seminar s/he may instead write a supplementary assignment.

### Grades

Pass/Fail grade. Grades will be given according to how well the student succeeds in reaching the course objectives.

### Teacher

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## Schedule

| Date   | Time        | Topic   | Readings   |
|--|-------------|---|--|
| 9 January<br><br><i>Deadline home assignments 1-2, 8 January at 9.00</i>       | 13.15-14.00 | Introduction to engineering ethics, professional codes of conduct             | Whitbeck (2011): 77-85, 92- 99, 103-104<br><br>Swedish Association of Graduate Engineers Code of Conduct |
|  | 14.15-15.00 | Normative theories  | <i>Rachels (2012) (Optional reading!)</i>  |
|  | 15.15-16.00 | Engineering responsibilities, problem of many hands, dual-use, whistleblowing | Whitbeck (2011): 85-92, 99-103, 105-131, 155-191, 351-382<br><br>Selgelid (2007)                         |
| 10 January   | 9.15-10.00  | Engineering workplace rights, IP rights                                       | Whitbeck (2011): 211-272   |
|  | 10.15-11.00 | A practitioner's perspective  |  |
| 24 January<br><br><i>Deadline for home assignments 3-4, 22 January at 9.00</i> | 13.15-14.00 | Scientific misconduct   | Whitbeck (2011): 273-302<br><br>Carroll & Zetterling (2009)  |
|  | 14.15-15.00 | Authorship and peer review  | Whitbeck (2011): 324-350<br><br>ICMJE guidelines   |
|  | 15.15-16.00 | Conflicts of interest, academia-industry partnerships                         | Whitbeck (2011): 35-38<br><br>Shamoo & Resnik (2009): 189-201, 205-207                                   |
| 25 January   | 9.15-10.00  | Research on humans  | Whitbeck (2011): 310-323   |
|  | 10.15-11.00 | A practitioner's perspective  |  |
| 7 February   | 13.15-15.00 | Seminar   | Your group members' ethical self-reflections<br><br>Course evaluation                                    |

## Required readings

- Carroll, J. and Zetterling, C.-M. 2009. *Guiding Students Away from Plagiarism*. KTH Learning Lab: Stockholm, pp. 11-15. Available from:  
[https://www.kth.se/polopoly\\_fs/1.656375!/Guidingstudents%20away%20from%20plagiarism.pdf](https://www.kth.se/polopoly_fs/1.656375!/Guidingstudents%20away%20from%20plagiarism.pdf)
- International Committee of Medical Journal Editors (ICMJE) guidelines on authorship and contributorship. Available from:  
<http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html>
- Rachels, J. 2012. *The Elements of Moral Philosophy*. Seventh Edition. McGraw-Hill: New York. (Optional reading!)
- Shamoo and Resnik. 2009. *Responsible Conduct of Research*. Second Edition. Oxford University Press, Oxford.
- Selgelid, M.J. 2007. A tale of two studies: ethics, bioterrorism, and the censorship of science, *The Hastings Center Report* 37(3), 35-43.
- Whitbeck, C. 2011. *Ethics in Engineering Practice and Research*. Second Edition. New Cambridge University Press: New York.

Selgelid (2007) and Shamoo and Resnik (2009) will be distributed by the teacher before the course start.