

FIU211201

Engineering and Civilization
Konsep Keteknikan untuk Peradaban

BASIC INFORMATION

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|------------------------------|--------------------------|
| Course Credit | 2 / 100 minutes per Week |
| Course Type | Required |
| Course Classification | General Education |
| Prerequisites | - |

STUDENT AND LEARNING OUTCOMES

Covered Student Outcomes

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| Knowledge Contemporary and Issues (SK.2) | Professional and Ethical Responsibilities (BH.1) |
| Engineering Awareness and Society (BH.2) | Sustainable Learning (BH.3) |

Learning Outcomes

- LO1** Students are able to explain about the role of engineers in the civilization.
- LO2** Students are able to explain about the holism epistemology within engineering.
- LO3** Students are able to understand ethics and its code.
- LO4** Students are able to understand Ethical code of Engineering in Indonesia.

COURSE DESCRIPTION

This course explains the soul and the role of engineering. It gives understanding of the big picture of engineering in human civilization. Also it reveals the ethical aspect of engineering.

TOPICS

- 1. Forewords: Explaining about the history of Engineering Faculty. Also about understanding difference among scientists and engineers.**
- 2. The contributions and importance of engineering in human civilization.**
- 3. Introduction about system thinking.**
- 4. Engineering Epistemology from Social and Cultural Insight.**
- 5. Engineering Epistemology from Political and Economic Insight.**
- 6. Engineering Epistemology from Nature Perspective.**
- 7. Design Principle**
- 8. Case study: Industrial Engineering (Mechanical-Electrical-Chemical)**
- 9. Case study: Earth Science (Geology-Geodetic)**
- 10. Case study: Civil and Planning.**
- 11. Case study: Energy.**

12. Attitude of engineers.

13. Ethics in Engineering.

14. Vision and Mission of Engineering Faculty Graduates.

REFERENCES

- [1] Anonim, 2000, Accreditation Board for Engineering and Technology
- [2] Anonim, 2011, Engineering ethics in practice: a guide for engineers, The Royal Academy of Engineering, London SW1Y 5DG
- [3] Hadikusumo, 2003, "Tagore, Kesatuan Kreatif" , Bentang, Yogyakarta.
- [4] Harris C., Pritchard M., MICHAEL J. Rabins M.J., 2009, Engineering Ethics Concepts And Cases, Wadsworth, Cengage Learning
- [5] Martin M.W. dan Schinzinger R., 2010, Introduction to Engineering Ethics, Published by McGraw-Hill
- [6] Wahyudi, 2001, Sikap mental dan Etika Profesi Teknik, Buku Saku mahasiswa, Fakultas Teknik UGM