

<i>Cím</i> <b>ENGINEERING ETHICS &amp; ATTITUDE</b>	
<i>Tárgykód</i>	<b>SZM006AN-EA-00</b>
<i>Heti óraszám: ea/gy/lab</i>	<b>2/0/0</b>
<i>Kreditpont</i>	<b>2</b>
<i>Szak(ok)/ típus</i>	<b>CE BSc 6.+8.s; SE MSc 2.s</b>
<i>Tagozat</i>	<b>Full Time</b>
<i>Követelmény</i>	<b>Examination (with grade)</b>
<i>Meghirdetés féléve</i>	<b>2019-2020/2 (Spring Term)</b>
<i>Előzetes követelmény(ek)</i>	<b>None</b>
<i>Oktató tanszék(ek)</i>	<b>Department of Civil Engineering</b>
<i>Tárgyfelelős és oktatók</i>	<b>Dr. András Timár, professor emeritus</b>

#### TANTÁRGY CÉLKITŰZÉSE/**OBJECTIVES**

*Célok/Objectives:* The Course „Engineering Ethics and Attitude” is designed to introduce students of Civil Engineering and Structural Engineering to the concepts, theory and practice of ethics. They will be prepared to understand the foundation and development of classical moral theory within different cultures, and moral decision making in the context of engineering practice.

#### TARTALMA/**CONTENTS**

*Rövid leírás/Short description:* Engineering ethics combines social, economic and environmental factors in order to produce a set of formal and informal rules which could assist engineers to behave responsibly, as well as to make decisions protecting the public interest, regardless of any material or other pressures they may encounter while serving corporate organizations. Students are enabled to recognize, analyse and properly evaluate ethical challenges they may face in their professional careers through knowledge and exercises (discussing several Case Studies taken from real life), that deeply challenge and finally strengthen their decision making abilities and ethical values. Moral problems examined by Case Studies seldom have a single clear-cut, correct answer, but may lead to many solutions, while some among them may be considered as being better than others. Therefore, ethical problems can be treated similarly to open-ended engineering design problems, where multiple equivalent solutions exist.

*Témakörök/Topics:* The importance of ethics in engineering; Definition and explanation of ethics and moral in philosophy; Relation between religion, legislation and ethics; Moral analysis and decision making; Behaviour and attitude of professionals in society; Responsibility, accountability and conflict of interest; Bribery, fraud and corruption; Plagiarism and copyright; Relativity of cultural values, habits and tradition; Historic development of Codes of Ethics for civil engineers; Equal treatment: fairness in tendering, contracting and supervising.

Előadások/**Lectures**: They will give detailed explanation to the basic knowledge of main ethical and moral problems related to the engineering practice, presenting appropriate case studies.

#### **Weeks & Dates**

1. 03.02.2020. **Introduction and requirements**
2. 10.02.2020. The importance of ethics in engineering
3. 17.02.2020. Philosophy, religion, ethics and morality I.
4. 24.02.2020. Philosophy, religion, ethics and morality II
5. 02.03.2020. Moral analysis & decision making
6. 09.03.2020. Virtues & habits - Bribery, fraud & corruption
7. 16.03.2020. Moral responsibility & accountability
8. 23.03.2020. Attitude & behaviour – Honesty and sincerity
9. 30.03.2020. Plagiarism & copyright - Cultural relativism - Case Studies
10. 06.04.2020. Conflict of interest & fairness in business – Case Studies
11. 13.04.2020. **Easter Monday**
12. 20.04.2020. Moral problems related to sustainability
13. 27.04.2020. Development of *Codes of conduct* for civil engineers
14. 04.05.2020. Equal treatment: fairness in tendering, contracting and supervising
15. 11.05.2020. **Pre-Examination**

Following each Lecture, slides related to it will become downloadable from the following link:

[ftp://witch.pmmf.hu:2001/Tanszeki\\_anyagok/Epitomernok\\_Tanszek/Timar\\_Andras/Engineering\\_Ethics\\_and\\_Attitude/](ftp://witch.pmmf.hu:2001/Tanszeki_anyagok/Epitomernok_Tanszek/Timar_Andras/Engineering_Ethics_and_Attitude/)

Gyak/Lab/**Exercises/Home Work**: In compliance with a prescribed structure (see Guidelines attached), students will prepare a short (maximum 3 pages) written analysis (individual Case Study) of an ethical case based on their own professional or (exceptionally) private experience; it should be sent to the Instructor in *Word* format as an E-mail attachment for evaluation not later than COB at 7th of May 2019.

#### **SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE/REQUIREMENTS & EVALUATION METHODS**

##### **Részvétel/Participation:**

It is required to attend all lectures (to be controlled), while attendance will impact the grade (max. 15%). Unexcused absences will adversely affect the grade and in case of absence from more than 50% of the total number of lectures will be grounds for failing the entire Course. To be in class at the starting time and stay there until the scheduled end of the lecture is required, delayed arrival or early departure of more than 20 minutes will be considered as an absence. In the case of an illness or family emergency, a valid written excuse, such as a doctor's note should be presented.

##### **Félévi jegy feltétele/Conditions of Acknowledgement:**

- Attendance of lectures, in-class activity (attending minimum 50% of the lectures)
- Passing the quiz-like, written Final Examination (*Scope*: all lectures 1-12) - repeated failure involves denial to attend the final written examination

**Vizsga/Final Examination**: Passing the quiz-like (33 Questions, each with 3 optional Answers), written Final Examination (*Scope*: All Lectures), within the Examination Period. Each right answer's value is 3 point, thus the maximum achievable sum of points equals 99.

**Az érdemjegy kialakításának módja/Calculation of Final Grade**: Grading will follow the course structure using the following weight-factors:

1. Class participation, class activity – mark *A* (attending minimum 50% of the lectures is required): 15%
2. Preparation of a written Case Study related to engineering ethics (in compliance with the Guidelines attached) and accepted by the instructor (mark *B*): 25 %.
3. Written examination in the examination period (mark *C*): 55%

$$\text{Grade} = 0.15xA + 0.25xB + 0.55xC$$

Grading scale for the written final examination based on percentage of right answers:

<b>Mark:</b>	<b>5 (excellent)</b>	<b>4 (good)</b>	<b>3 (fair)</b>	<b>2 (pass mark)</b>	<b>1 (inadequate)</b>
<b>Percentage</b>	<b>81%-100%</b>	<b>71%-80%</b>	<b>61%-70%</b>	<b>51%-60%</b>	<b>0-50%</b>
<b>Grade</b>	<b>4.25<math>\leq</math></b>	<b>3.51-4.24</b>	<b>2.51-3.50</b>	<b>2.00-2.50</b>	<b><math>\leq</math>1.99</b>

#### KÖTELEZŐ ÉS AJÁNLOTT IRODALOM/*RECOMMENDED READINGS & REFERENCES*

- [https://www.tutorialspoint.com/engineering\\_ethics/index.htm](https://www.tutorialspoint.com/engineering_ethics/index.htm)
- **Charles Harris, Michael Pritchard, and Michael Rabins:** Engineering Ethics: Concepts and Cases (6th edition, CENGAGE, Boston USA, 2017)
- **Fleddermann, C.B.** (2011): Engineering Ethics. Prentice Hall, 4th edition
- **Van de Poel, I., and L. Royackers** (2011): Ethics, Technology, and Engineering: An Introduction. Wiley-Blackwell
- **Dave Robinson** (2012): Introducing Ethics for Everyday Life: A Practical Guide. Icon Books Ltd, UK
- **C. Ben Mitchell** (2013): Ethics and Moral Reasoning: A Student's Guide. Crossway, Illinois, USA
- **Code of Professional Conduct of the European Council of Civil Engineers (ECCE)**  
[http://www.ecceengineers.eu/about/code\\_of\\_conduct.php](http://www.ecceengineers.eu/about/code_of_conduct.php)
- **Code of Ethics of the American Society of Civil Engineers (ASCE)**  
<http://www.asce.org/code-of-ethics/>

**GUIDELINES FOR HOME WORK / PRACTICE**

Structure and Chapters of an individual Case Study in Engineering Ethics

1. Short and concise **description** of an event/story observed in your own professional or private experience, having any relationship with required and respected ethical norms, following a chronological approach (*what* happened, *when* and *how*). **A CASE STUDY OR SERIES OF EVENTS PRESENTED, ANALYSED AND EVALUATED ALREADY EARLIER BY ANYBODY ELSE (COPIED FROM THE INTERNET OR FROM ANY OTHER EXTERNAL SOURCE) IS STRICTLY FORBIDDEN! Plagiarism discovered by the Instructor leads inevitably and automatically to the refusal of the entire work.**
2. **Presentation** of the presumed ethical/moral dilemmas, conflicts of interest and a well detailed decision making process of the actors participating in the story, with special emphasis on the neglected and/or duly respected ethical principles, norms and requirements (to be enumerated).
3. **Demonstration** of the possible solutions of the ethical problems/conflicts encountered and their eventual consequences, pointing out, why reality was (or wasn't) different from theoretical assumptions and presumed outcomes.
4. **Elaboration of your personal opinion:** how would have been possible to find out a valid and acceptable ethical solution, to decrease/mitigate ethical risks or to avoid unethical behaviour (if any). **Make proposals** aiming to avoid or reduce probability of appearance of similar ethical conflicts or mistakes/wrongdoings in the future.

The Case Study shouldn't exceed 3500 words (title page + 3 pages) and must be prepared in electronic form (Microsoft Word is the preferred software program and format). Use Times New Roman font, with eleven (11) point size. Margins are to be 1 inch or 2.5 cm all around. Number the pages consecutively, beginning with the title page as page 1. Title page must contain only the title of the study and the author's name, personal university code and date (see format on the next page).

**The duly signed Homework/Study has to be sent as an E-mail attachment to the Instructor not later than at COB on 18<sup>th</sup> of May 2019. Mailing address: [timara@hu.inter.net](mailto:timara@hu.inter.net)**

Pécs, 01. February 2020.



**Dr. Timár András, Instructor**

**UNIVERSITY OF PÉCS, Hungary - Faculty of Engineering & Information Technology**  
**Department of Civil Engineering - Academic Year 2019/2020, 2<sup>nd</sup> (Spring) Term**

Course: **ENGINEERING ETHICS & ATTITUDE**

*(Title)*

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**(CASE STUDY)**

Prepared by

*(Name and University Code)*

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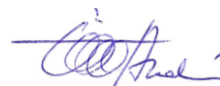
**Pécs, (Day), (Month), (Calendar Year)**

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**ÜTEMEZÉS/SCHEDULE**

		SZORGALMI IDŐSZAK, OKTATÁSI HETEK															VIZSGAIDŐSZAK						
2019/2020. I. FÉLÉV		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	1.	2.	3.	4.	5.		
Előadás tematika sorszáma		<i>In-tro</i>	1	2	3	4	5	6	7	8		9	10	11	12	EX			Aláírás, félévközi jegy már nem pótolható				
Gyakorlat/Labor sorszáma																							
Zárthelyi dolgozat																							
Otthoni munka	kiadása																						
	beadási határidők													X									
Jegyző- könyvek	beadási határidők																						
Egyebek	pl. beszámolók, stb.																						
Aláírás / Félévközi jegy megadása																a /fj							
Vizsgák tervezett időpontjai																	EX	EX	EX				

2020. február 1.


**Dr. Timár András, professor emeritus, tantárgyfelelős/Lecturer**