



Responsible  
Research and  
Innovation Hub  
Ein Projekt der RWTH

# ENHANCE – MOOC “Responsible Innovators of Tomorrow”

Responsible:

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## Abstract

The MOOC “Responsible Innovators of Tomorrow” is a **3 ECTS course for all Bachelor students**, formulated within the ENHANCE proposal.

To promote interdisciplinary teaching and learning within an excellence surrounding, the MOOC will be created as cooperative work of experts from all ENHANCE universities. Therefore, we invite you to contribute to the MOOC and get the chance to educate responsible innovators of tomorrow at seven leading technical universities in Europe.

The course addresses topics in the context of responsible innovation with a focus on science and technology studies. To provide the students with interdisciplinary and broadened perspectives, the MOOC integrates the input and knowledge from experts of the different ENHANCE universities.

**Call for Action: Are you interested in supporting the MOOC? There are several ways to do so, and this course outline provides an overview of the course structure and content as well as the different possibilities for supporting the course. We kindly invite you to participate and to integrate your own content.**

## Teaching Concept

The course will be implemented into a platform-based eLearning environment so that students from all partner universities can join it. Within this course, the students receive video lectures, texts, and potentially access to live discussions.

The course contents are ordered in three phases, like recommended by the OECD Learning Compass<sup>1</sup>:

**1) Anticipation** – Students study the fundamental facts and problems within topics like the research and innovation (RRI) concept of Horizon 2020<sup>2</sup>, Ethics and Impact-Assessment, Gender and Diversity, Digitalization and Artificial Intelligence, and Sustainable Development Goals.

**2) Action** – Students learn about actions or about projects that give credit to the topics addressed in phase 1. Further, they learn how to apply the gained knowledge as future researchers and innovators.

**3) Reflection** – Phase three contains a reflection about the course while giving credit to the Sustainable Development Goals (SDGs) formulated by the United Nations.

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<sup>1</sup> [https://www.oecd.org/education/2030-project/contact/OECD\\_Learning\\_Compass\\_2030\\_Concept\\_Note\\_Series.pdf](https://www.oecd.org/education/2030-project/contact/OECD_Learning_Compass_2030_Concept_Note_Series.pdf)

<sup>2</sup> <https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation>

## Are you interested in supporting the MOOC?

There are several ways to do so. You can choose between either a full contribution or a partial contribution.

### Full Contribution

Are you interested in one of the topics mentioned above? You can make a full contribution by providing a video lecture regarding an above-mentioned topic of your choosing.

### Partial Contribution

A whole lecture is too much? We also highly appreciate partial contributions. The partial contribution can be for example one of the following formats:

- Partial video lecture: You have expertise in ethics but not in impact assessment? We appreciate your contribution to a sub-topic of the above-specified topics.
- Research contribution: You research in one of the topics mentioned above? We appreciate a short clip of your research area and main findings in the context of the topics mentioned above.
- Project contribution: There are interesting projects at your university covering one of the topics above? We appreciate a short clip of this project.
- Do you have another idea of how to contribute to the topics above? We invite you to send us your ideas!

## Content



## Agenda

Phase	Content	Possible Questions to be addressed in the lectures
Anticipation	RRI	<ul style="list-style-type: none"> <li>• What are the key aspects of the RRI framework?</li> <li>• What role does RRI play on the EU level (and internationally)?</li> <li>• What is the relevance of RRI for students of science and technology studies?</li> <li>• Project examples at ENHANCE universities</li> </ul>
	Ethics and Impact-Assessment	<ul style="list-style-type: none"> <li>• Why is ethics relevant in the context of engineering? How does ethics include assessing the risks and impacts of engineering?</li> <li>• Which ethical positions are commonly addressed, and how do they relate to engineering (example(s))?</li> <li>• How are these ethical positions connected to, and which ethical problems arise within the context of RRI?</li> <li>• Does the RRI framework cope with such ethical problems, and help to ethically assess the risks and impacts of engineering outcomes?</li> </ul>
	Gender and Diversity	<ul style="list-style-type: none"> <li>• Why is knowledge about topics of Gender and Diversity relevant for responsible researchers and innovators? (examples)</li> <li>• What are the key terms and -concepts of Gender- and Diversity-Studies?</li> <li>• How do these key terms and -concepts relate to Engineering and, especially, to the RRI framework? (positive examples)</li> </ul>
	Digitalization and Artificial Intelligence	<ul style="list-style-type: none"> <li>• What are current (global) challenges in the context of Digitalization and Artificial Intelligence (AI) in Engineering?</li> <li>• What are the chances in the context of Digitalization and AI in Engineering? How can the beneficial aspects be used effectively?</li> <li>• Which problems do the inclusion of fairness aspects and algorithmic bias impose? Which project examples and initiatives are there that tackle these issues?</li> <li>• How does the EU tackle these issues? How do, for example, the Digital Strategies of the EU affect the work of engineers?</li> </ul>
Action	Social Responsibility	<ul style="list-style-type: none"> <li>• What does the term “Responsibility” describe, and which concepts exist?</li> <li>• What is the role of responsibility in the context of RRI?</li> <li>• How does Corporate Social Responsibility affect society?</li> <li>• What does it mean for the researchers of tomorrow to bear social responsibility?</li> </ul>

	Sustainable and Social Innovation	<ul style="list-style-type: none"> <li>• How can social and sustainable innovations be defined, and what is the difference between both concepts?</li> <li>• Why do we need sustainable and social innovations, and what role do the ENHANCE universities have?</li> <li>• Examples for social and sustainable innovations</li> </ul>
Reflection	SDGs	<ul style="list-style-type: none"> <li>• What are the SDGs?</li> <li>• Reflection of Part I and II: How can we attain them?</li> <li>• Course Reflection: What has the course shown regarding the SDGs?</li> </ul>

## General Information for Video Production

### WHAT TO SUBMIT?

- Videos
  - › Full contribution: 10 – 30 min for a complete video lecture
  - › Partial contributions can be of shorter duration
  - › Videos can be recorded via screencast (or similar) or in production studios
- Slides
  - › Appropriate number of slides
  - › Slide template will be provided
- Supplementary material (research paper, ...)