

Online Education Portfolio Faculty of Technology, Policy and Management, TU Delft

Last update: March 2021

Contact: Joost Groot Kormelink, manager Open and Online Education (contact: j.b.j.grootkormelink@tudelft.nl)

Abbreviations:

MOOC Massive Open Online Courses (you can audit a MOOC for free) via [EdX](#)

PCP Professional certificate Program (cluster of MOOCs) via EdX.

ProfEd Professional Education (tuition fee required))

Note: some courses are archived (re-run to be announced) but you can still enrol and audit the course.

There are some programs/courses under development that will be open for enrolment from the autumn of 2021 onwards:

- *Water governance*
- *Climate Change and Mitigation focusing on Energy, Transport and Built Environment*
- *Room for Rivers*

Table: overview portfolio TPM March 2021

Type	Course + Link	Learning objectives
		Essential skills
MOOC	Creative problem solving and decision making	<ul style="list-style-type: none">• Analytically based support of decision-making, design and implementation of solutions.• How to apply tools like actor analysis, causal modeling, goal trees and means-end diagrams, problem diagrams, uncertainty, decision support and score cards.
ProfEd	Multi-stakeholder-strategies-analysis for winning coalitions/	<ul style="list-style-type: none">• Explain and anticipate actor strategies in complex environments based on a coherent conceptual framework• Apply different actor and strategy models to sharpen your understanding of multi-stakeholder environments• Develop strategies that increase the chances of success in building winning coalitions and effective partnerships.

PCP Leadership Essentials (3 MOOCs)

MOOC	Effective decision making-dealing with business-omplexity	<ul style="list-style-type: none">• How to use a systematic approach to successfully deal with complex decision situations• How to develop stakeholder goal trees, draw up scenarios, and conduct a multi-criteria analysis• How to employ an analytical mindset through writing a managerial summary of a business situation analysis that helps your organization move in the desired direction
MOOC	Dealing with Power and Dynamics: Discover Your Leadership Style and Influence Stakeholders	<ul style="list-style-type: none">• How to apply an influencing mindset to encourage multiple stakeholders with different interests to cooperate• How to recognize team dynamics, define roles and norms, and handle both individual and team issues, including motivating group members• How to use leadership approaches and styles to influence stakeholders and groups
MOOC	Framing Your Communication to Inspire and Convince	<ul style="list-style-type: none">• How to apply a sense making mindset to derive a concise message from a complex situation• How to use pitching methods, debating methods, and framing and reframing effectively to achieve your goals• How to frame your ideas and plans to gain support from senior management and your teams

Type	Course + Link	Learning objectives
Ethics/Responsible innovation		
MOOC	Responsible Innovation: Ethics and risks of new Technologies	<ul style="list-style-type: none"> • Understand the urgent need to include ethical questions with respect to (new) technology. • Know various ways/instruments to analyse risks of new technologies, both forward looking as backward looking (causes of accidents) • Understand various types of innovation (like radical, niche, incremental, frugal) and the conditions for success • Know how to deal with unknown risks (deep uncertainty) when it comes to new technologies • Are able to critically reflect on new technologies from an ethical and risk perspective (case studies). • Understand the concept of responsible innovation and Value Sensitive Design (VSD) and the implications for the design process
MOOC	Robots in Society: Blessing or Curse	<ul style="list-style-type: none"> • The potential societal and ethical impacts of robot creation • The principles that should be taken into consideration during the development of social and AI robots • The choices that need to be made when developing social robots
MOOC	Open Science	<ul style="list-style-type: none"> • Describe concepts and objectives of open science • Analyse and discuss benefits and barriers of particular open science cases, including cases from within your own region or discipline • Set up an open data sharing strategy to increase your research visibility • Determine appropriate route to take when publishing an open access article
MOOC	Building tomorrows responsible firms	<ul style="list-style-type: none"> • Explore successful strategies for RRI and implications for corporate citizenship at business level • Review Key Performance Indicators for CSR and RRI • Utilize the toolkit we provide to install the processes required for RRI • Analyse best practices from different companies across Europe • Design a roadmap for RRI to embed in CSR policies
MOOC	Dealing with ethical-dilemmas in-professional engineering	<ul style="list-style-type: none"> • Understand the professional rules of conduct for engineers and how to apply them. • Appreciate codes of conduct as an expression of the professional rules of conduct. • Understand the conditions under which whistle blowing is warranted. • Recognize conflicts of interest and develop strategies for handling these. • Understand the importance of communication with all stakeholders. • Apply practical strategies for handling ethical dilemmas and putting them into practice overcome them. • Improve your ability to communicate the choices you make in your design in terms of underlying values

PCP Business models Innovation (4 MOOCs)		
MOOC	PCP	<ul style="list-style-type: none"> • Why business models matter, and how tooling can help you innovate your business model • How to design your new business model in a structured way • How to evaluate the robustness of your business model towards trends and uncertainties • How to create a roadmap for business model innovation with concrete actions • How to grow your business with business model innovation
MOOC	The Value of Business Models (MOOC 1) /	<ul style="list-style-type: none"> • What a business model is • Why business models matter to your firm and the value they bring • How business model innovation improves business performance • How tooling can help you to innovate your business model
MOOC	How to design a successful business model	<ul style="list-style-type: none"> • How to design a business model in a structured way • How to select the appropriate tools for designing or innovating a business model • How to present your business model in a single sheet • How to reason from your needs (“I want to’s”) to a business model solution
MOOC	Business Model Testing (MOOC 3)	<ul style="list-style-type: none"> • How to identify which trends and uncertainties will affect your business model • Evaluate how robust your business model is given trends and uncertainties • Formulate concrete actions to make your business model more robust

<u>Other entrepreneurship courses</u>		
MOOC	Business Model Implementation (MOOC 4)	<ul style="list-style-type: none"> • How to create a business model roadmap • How to plan concrete actions to realize a new business model • How to find partners to realize a new business model
MOOC	Entrepreneurship for Engineers (4TU)	<ul style="list-style-type: none"> • Learn what it takes to become a “technopreneur” • Explore various methods for identifying opportunities • Learn how to conduct market research and provide evidence for the viability of the business idea • Develop a viable business proposition and learn to pitch your ideas for various audiences • Understand the dynamics of new venture development and team building • Develop the ability to translate a business idea into marketing and financial plans
MOOC	Big data strategies to transform your business	<ul style="list-style-type: none"> • identify the stakeholders and characteristics of your sector in the era of big data • Identify potential big data induced changes in strategy, business model, organization and job descriptions • Substantially change existing strategy, business model, organization or adopt new ones as required • Find and develop strategically important tasks for yourself in your organization

Type	Course + Link	Learning objectives
Infrastructure		
MOOC	Next Generation Infrastructure	<ul style="list-style-type: none"> • To diagnose the main challenges with respect to infrastructure (water, energy, transport, ICT) development for the future in a social-technical perspective • Decision making skills in a complex and uncertain world • Analytical and design support tools for improving infrastructures • How to discuss and explain challenges impacting and influencing global infrastructure
ProfEd	Adaptive planning for infrastructure and water management	<ul style="list-style-type: none"> • articulate and defend choices in long-term planning or decision-making under uncertainty • use a structured method to develop scenarios for plausible but uncertain futures • identify indicators and actors for the monitoring and evaluation of an adaptation pathway • design an adaptation pathway and evaluate its performance in a serious game • make recommendations on how to deal with the strengths and weaknesses of adaptation pathways during their implementation
MOOC	inclusive energy systems: exploring-sustainable energy for all	<ul style="list-style-type: none"> • Describe and recognize continuous change in (the social and technological nature of) energy systems in terms of balancing the 4 As of energy services. • Identify key institutional characteristics of universal access to energy services. • Determine related major implications for society. • Analyse the security of supply and reliability of energy services in various energy systems and the related short-term versus long-term considerations. • Evaluate the consequences of change(s) in the energy system for affordability and energy poverty, in various user environments. • Evaluate the social and environmental acceptability of energy services provision in different economic and socio-cultural contexts. • Value trade-offs and their legitimacy regarding the roles and responsibilities of all parties in the energy system
MOOC	Energy markets of today	<ul style="list-style-type: none"> • How energy markets operate, including regulation and market organization; • To identify different market models and understand what affects the operation of the electricity sector;

Type	Course + Link	Learning objectives
		<ul style="list-style-type: none"> • Why policy makers need to incentivize investment and how it can be done; • How the electricity network operates and how network tariffs are determined.
MOOC	The Transition to the Decarbonised Economy of Tomorrow	<ul style="list-style-type: none"> • The impact of the energy transition on energy markets, including the introduction of renewable energy sources and storage technologies; • To understand the business case for renewable energy technologies and to detail different support schemes for renewable energy sources; • To discuss different methods of carbon pricing, including discussing the origin and the implementation of the emission trading scheme; • To describe the goals and appearance of the European energy system and energy market of 2050, discussing the steps necessary to achieve these goals.
MOOC	Building With Nature	<ul style="list-style-type: none"> • Basic engineering design principles, and basic ecological principles, relevant to the Building with Nature approach • How to assess which principles are applied in several case studies and so form your own opinion on whether the hydraulic infrastructure is meeting engineering, ecosystem and societal goals • How to apply your new knowledge in assessing the potential for Building with Nature solutions where you live
MOOC	Beyond Engineering: Building with Nature	<ul style="list-style-type: none"> • Identify relevant stakeholders for the design and implementation of nature-friendly hydraulic infrastructure. • Analyse the power and interests of these stakeholders, including their interdependence in terms of resources. • Apply basic game-theory principles in combination with the stakeholder analysis to determine potential coalitions in a Building with Nature project case. • Evaluate the suitability of the coalitions for designing and implementing a particular Building with Nature project case.
MOOC	Electric Vehicles Policy	<ul style="list-style-type: none"> • Distinguishing between different policy perspectives and different levels of government pertaining to electric vehicles • Dealing with policy dilemmas and competing public values • Institutional theory and critical transactions in the future e-mobility/power system • Development and evaluation of effective e-mobility incentive schemes •

Type	Course + Link	Learning objectives
Open data & Cybersecurity		
MOOC	Open and smart government	<ul style="list-style-type: none"> • Basic concepts related to Open Government and Open Government Data • How to analyse and discuss benefits, barriers and potential negative effects of a particular open government case • How to analyse public values and best practices related to open government • How to make use of open data using algorithms and artificial intelligence techniques. • How to apply the open government principles in various situations • How to understand potential negative and positive effects Open Government might bring to the workplace
MOOC	Cyber security Economics	<ul style="list-style-type: none"> • Sound understanding of the economics of cybersecurity as a systems discipline, from security policies (modelling what ought to be protected) to mechanisms (how to implement the protection goals) • How to design security metrics to capture information security issues • How the design of effective policies to enhance and maintain cybersecurity must take into account a complex set of incentives facing not only the providers and users of the Internet and computer software, but also those of potential attackers
ProfEd	Cybersecurity for executives	<ul style="list-style-type: none"> • Develop strategies to build a cyber-resilient organization. • Identify cyber threats for your organization (including ransomware and phishing attacks), assess their risk levels, and determine how to mitigate these risks to acceptable levels. • Lead the cybersecurity initiative within your organization by developing solutions, including the design and implementation of cybersecurity action plans. • Deal with cybersecurity crises at a strategic level.