MASTER OF SCIENCE IN ENGINEERING

Zürcher Hochschule für Angewandte Wissenschaften
School of Engineering

Supplementary Course (EVA) at ZHAW School of Engineering

Title: Future oriented technology analysis
Short Code: rEVA_FOTA

ECTS Credits	3
Profile	All
Responsible Institute /Centre	Institute of Sustainable Development (INE)
Responsible lecturer and contact informtion	**Prof. Vicente Carabias**, cahu@zhaw.ch Dr. Adrian Kammer, kama@zhaw.ch Dr. Christian Zipper, zipp@zhaw.ch
Type and duration of examinations	Oral assignment (presentation of FOTA) / evaluation sheet (30%) Written assignment (group work report) / evaluation sheet (70%)
Start date and duration	Semester: Autumn Detail: Each Workshop will take place on a Friday. Workshop 1: date KW38, 09.00-16.00 hrs (Kick-off) Workshop 2: date KW39, 09.00-17.00 hrs Workshop 3: date KW45, 08.30-17.00 hrs Workshop 4: date KW03, 09.00-16.30 hrs (Presentation Day)
Location	All Workshops are conducted at **Technopark Winterthur** or similar places. Weblink: https://www.zhaw.ch/storage/shared/hochschule/lageplaene/lageplaene-winterthur/lageplan-winterthur-stadt-mitte.pdf (building MT or MN). The venue can easily be reached by public transport (10 min on foot from Winterthur railway station).
Course type	Four full-day workshops (teaching, in-class activities and group work progress meetings; total 30 hours) separated by independent self-study immersion and small group work periods (total 60 hours). In-class attendance is required and compulsory.
Language of instruction	English
Short description (max. 300 characters)	**Future oriented technology analysis (FOTA)** is vital for any forward and strategic planning or policy activity to be able to meet future challenges proactively in order to transform sociotechnical energy and transport systems. This module enhances FOTA by gathering anticipatory intelligence in a systematic way and linking it to today's decision making, as well as by acquiring knowledge on conceptual, methodological and operational approaches to futures assessment.
Contents and Learning Objectives	**Contents:** Workshop 1: Future oriented concepts, foresight process design, foresight methods (e.g. SWOT analysis, Delphi expert survey) Workshop 2: Applied technology assessment (e.g. LCA); group work Workshop 3: Scenario development, analysis & roadmap; progress Workshop 4: Presentations of small group works, foresight practice and evalatuation, EVA debriefing **Learning Objectives:** In this EVA Module, the students will

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	• gain competences in future oriented technology analysis, understanding the conceptual approach to futures research and how to design and evaluate a foresight process and architecture • acquire insights into a range of creative futures research and foresight methods, such as Delphi expert survey, scenario development, and technology analysis • apply successful methods, tools and software (e.g. LCA SimaPro) to deepen and experience the transferred knowledge in applied small group work			
Prerequisites	Bachelor of Science (or equivalent), English language skills. This module will respect the competence level of the students in future oriented technology analysis.			
Literature	• Carabias-Hütter, V., Haegeman K. (2013). Future-Oriented Technology Analysis (FTA) to Support Decision-Making in Meeting Global Challenges. SAGUF Mitteilungen, *GAIA* 22/1: 57-59. • Cagnin, C. et al. (eds., 2008). Future-Oriented Technology Analysis. Berlin: Springer. • Hellweg S., Rubli S., N. von Götz (2017). Ökologische Systemanalyse Vorlesungsskript. [Jan. 2024]. • Joss, S. & Bellucci, S. (eds., 2002). Participatory Technology Assessment: European Perspectives. London: Centre for the Study of Democracy. • World Energy Council (2013): Composing energy futures to 2050. [Jan. 2024]. • http://www.foresight-platform.eu/ [Jan. 2024]. • http://fullyfledgedforesight.blogspot.ch/ [Jan. 2024]. • Glenn & Gordon (2012). Futures Research Methodology Version 3.0. [Jan. 2024]. Further literature and websites will be provided during the EVA Module.			
Special requirements	Open & creative mind			
Offer for profiles	Aviation (Avi)	☒	Business Engineering (BE)	☒
	Computer Science (CS)	☒	Data Science (DS)	☒
	Electrical Engineering (ElE)	☒	Energy & Environment (EnEn)	☒
	Mechanical Engineering (ME)	☒	Mechatronics & Automation (MA)	☒
	Medical Engineering (Med)	☒	Photonics and Laser Engineering (Pho)	☒
	Information and Cyber Security (ICS)	☒	Civil Engineering (CE)	☒