### Ergänzende Veranstaltung der School of Engineering

**Titel:** System Dynamics Simulation of Socio-Technological Transitions

**Kürzel:** EVA_SimTec

<table>
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<tr>
<th>Umfang in Credits</th>
<th>3 ECTS</th>
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<tr>
<td>Veranstalter</td>
<td>ZHAW Zurich University of Applied Sciences, School of Engineering Institute of Sustainable Development (INE), Winterthur, Switzerland</td>
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| Leistungsnachweis/Bewertung | Oral assignment (group presentation of models and simulation results) / evaluation sheet (40%)  
Written assignment (group work report) / evaluation sheet (60%) |
| Startdatum         | Workshop 1: date KW8, 09.00-17.30 hrs (Kick-off)  
Workshop 2: date KW9, 09.00-17.30 hrs  
Workshop 3: date KW14/15, 09.00-17.30 hrs  
Workshop 4: date KW22, 09.00-17.30 hrs (Presentation Day) |
| Art der Durchführung | 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. |
| Unterrichtssprache | Teaching is generally in English. Student presentations and group work reports may be given/submitted in English or German. |
| Kurzbeschrieb (max. 300 Zeichen) | Technological (eco-) innovations are crucial for entrepreneurs to stay competitive and to satisfy societal needs in a sustainable manner, if they were used widely. Successful marketing of (eco-) technologies requires clear understanding of the impact of organizational and economic decision contexts. This EVA introduces and applies system dynamics modelling as a helpful tool for the analysis of the complex socio-economic interactions influencing the market success of (eco-) technologies supporting socio-technical transitions to sustainability. It includes designing and simulation of socio-technical system architectures, strategy and policy evaluation as well as sensitivity analyses. Graphical user interfaces (GUI) are introduced (or built) for scenario and strategy evaluation. |
| Modulinhalte und Lernziele | **Goals:**  
In this Module, the students will  
- gain competences in understanding the conceptual approach to system dynamics modelling of socio-technical system architectures  
- develop and apply strategy, scenario experiments or sensitivity analysis for future oriented system analysis  
- acquire insights into the barriers and drivers of technological (eco-) innovations and socio-technical transitions |
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- apply successfully tools and software (e.g. Vensim, Forio epicenter, Visual Basics for Applications)

**Contents:**

- Workshop 1: Introduction into concepts of socio-technical transitions and System Dynamics Modelling based on successful small models and applications in case studies and flight simulators.
- Workshop 2: Developing own simulation models or adjusting existing model structures (respecting the system dynamics modelling competence level of the students).
- Workshop 3: Designing strategy, scenario experiments and sensitivity analysis, developing GUI.
- Workshop 4: Presentation of small group works, debriefing.

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<th>Zulassungsvoraussetzungen</th>
<th>Bachelor of Science (or equivalent), English language skills.</th>
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Further literature and websites will be provided during the Module. |
| **Besondere Regelungen**  | All Workshops are conducted at Technopark Winterthur. Weblink: [https://www.zhaw.ch/storage/shared/hochschule/lageplaene/lageplan-winterthur-lagerplatz-stadt-mitte.pdf](https://www.zhaw.ch/storage/shared/hochschule/lageplaene/lageplan-winterthur-lagerplatz-stadt-mitte.pdf) (building LT or LN).  
The venue can easily be reached by public transport (10 min on foot from Winterthur railway station). |
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