

## Syllabus Format

**Subject Name: Introduction in (Regional) Material Flow Management (as part of RMFM – I)**

**Instructor Name: Dr. Michael Knaus**

Item	Details
1 Recommended qualifications/ knowledge	None
2 Course Objectives	<p>The course aims to provide an overview on important topics covered within the IMAT program introducing the conceptual approaches of Zero Emission and Material Flow Management as suitable strategies to establish new economy forms on a regional level. The learning outcomes are:</p> <ul style="list-style-type: none"><li>▪ Provide an overview on international policy and management strategies on Zero Emission;</li><li>▪ Provide a first overview on key Zero Emission technologies to implement regional Zero Emission strategies;</li><li>▪ Acquire basic knowledge in regional material flow management strategy design and understand the methodical approach as well as the tools</li></ul>
3 Standards for Course Completion	Participation of at least 60% and group presentation on assigned topics.
4 Teaching Methods	Lectures, discussions, case studies and student presentations.
5 Overview of Each Class	<p>The course is structured as follows:</p> <p><b>Session 1:</b> Introduction of IMAT program content and the Zero Emission Campus Birkenfeld;</p> <p><b>Session 2-3:</b> Introduction of the institute of applied material flow management and its research (selected case studies);</p> <p><b>Session 4-5:</b> Principles and (international) Strategies on Zero Emission, Circular Economy and Material Flow Management (MFM);</p> <p><b>Session 6-7:</b> Introduction of regional material flow management methodology and tools;</p> <p><b>Session 8-10:</b> Selected case studies on Zero Emission technologies;</p> <p><b>Session 11-12:</b> Regional MFM and CO<sub>2</sub> balancing;</p> <p><b>Session 13-14:</b> Business Game Simulation;</p> <p><b>Session 15:</b> Wrap up session;</p>

<p>6 Method of Grade Evaluation</p> <p>The final exam must not take up more than 50% of the total grade. Please have at least 1 other small exam or report assigned during the course.</p>	<p>The total score for the course is 100%: Exam: 60 minutes (50%), Presentation (50%),</p>
<p>7 Requirements for Students</p>	<p>None</p>
<p>8 Required Reading (The student will need to purchase these textbooks when registering for this course.) (Max.3Books)</p>	<p>BMU (2009), <i>Zero Emission: Recognising the potential , Optimising processes, creating added value</i></p> <p>(Free download at: <a href="https://www.mf.tu-berlin.de/fileadmin/fg267/veranstaltungen/gcsm/Case_St._Material/BMU_Bro_Null-Emissionen_ENG_07_RZ2_web1.pdf">https://www.mf.tu-berlin.de/fileadmin/fg267/veranstaltungen/gcsm/Case_St._Material/BMU_Bro_Null-Emissionen_ENG_07_RZ2_web1.pdf</a>)</p> <p>Kuehr, Ruediger: <i>Towards a sustainable society: United Nations University's Zero Emissions Approach</i>, in: <i>Journal of Cleaner Production</i>, Vol 15 (2007), p. 1198-1204</p>
<p>9 Further Reading (Max 15 Books for an Undergraduate school subject. Max 30 Books for a Graduate school subject.)</p> <p><b>* Magazines are not acceptable</b></p> <p><b>* The Reserve Corner houses two copies of each Further Reading designated in the faculty syllabus.</b></p>	<p>Suzuki, Motoyuki: <i>Realization of a Sustainable Society - Zero Emissions Approaches</i></p> <p>(Free download at: <a href="http://archive.unu.edu/zef/publications_e/suzuki_intro_ZE.pdf">http://archive.unu.edu/zef/publications_e/suzuki_intro_ZE.pdf</a>)</p> <p>Fujie, Koichi and Goto, Naohiro: <i>Materials Flow Analysis and Modeling to Establish a Zero-Emission Network in Regional Areas</i>, in: <i>Integrative Approaches towards Sustainability Proceedings of a German-Japanese Workshop Munich, 2000</i></p> <p>(Free download at: <a href="http://archive.unu.edu/zef/publications_e/fujie_and_goto.pdf">http://archive.unu.edu/zef/publications_e/fujie_and_goto.pdf</a>)</p>
<p>10 Misc. Notes</p>	
<p>11 Office Phone No.</p>	
<p>12 E-mail Address</p>	<p>m.knaus@umwelt-campus.de</p>
<p>13 Course-related links</p>	