

## Appendix A to the Addendum for Double Master's Degrees between Universidade Federal do Paraná (UFPR) and Universität Stuttgart (USTUTT)

### Double Master's Degree Scheme

The attached MACROPLAN depicts the 2-year MSc double degree structure in **Meio Ambiente Urbano e Industrial (MAUI) at UFPR** and in **Air Quality Control, Solid Waste and Waste Water Process Engineering (WASTE) at the U Stuttgart**. It shows the compulsory and elective modules in each semester as well as the prerequisites for students wishing to spend their 2<sup>nd</sup> year at the partner institution.

### Macroplan for Double Master's Degree (MAUI - WASTE)

V4 (15.04.2015)

between Universidade Federal do Paraná (UFPR) and University of Stuttgart (USTUTT)

SWS  $\Delta$  créditos

1st SEMESTER		2nd SEMESTER		3rd SEMESTER		4th SEMESTER	
MAUI student in UFPR (01.08. - 20.12.)	WASTE student in USTUTT (WS 15.10. - 15.02.)	MAUI student in UFPR (15.02 - 15.07.)	WASTE student in USTUTT (SS 15.04. - 30.07)	MAUI student in USTUTT (WS 15.10. - 15.02.)	WASTE student in UFPR (01.08. - 20.12.)	MAUI student in USTUTT (SS 15.04. - 30.07.)	WASTE student in UFPR (15.02 - 15.07.)
Thermodynamics (3SWS/3ECTS) (Weinschutz)	Thermo- and Fluid Dynamics (5,5SWS/6ECTS) (Laurien/Eiden)	Reactor Kinetics (3SWS/3,5ECTS) (de Aquino)	Process Engineering (5SWS/6ECTS) (Trautmann/Eiden)	Firing Systems and Flue Gas Cleaning (4SWS/6ECTS) (Scheffknecht/ Baumbach/Seifert)	Combustion Processes (1SWS/1,5ECTS) (Erbe)		
Transport Phenomena (3SWS/ 3ECTS) (George / Santos)		*2 Multiphase Processes (3SWS/4ECTS) (Scheer)					
Air Quality and Monitoring of Air Pollution (2SWS/3ECTS) (Grauer)	Pollutant Formation and Air Quality Control (5SWS/6ECTS) (Kronenburg/Vogt)	Practical Work in Air Quality Control (3 ECTS)	Practical Work in Air Quality Control (3ECTS)	Elective Module in Air Quality Control (6ECTS)	Air Quality Management (2SWS/3ECTS) (Grauer)		
ST: Chemistry and Physics of Combustion (2SWS/3ECTS) (Erbe)							
Environmental Chemistry (2SWS/3ECTS) (Metzger)	Chemistry and Biology for Environmental Engineers (6SWS/6ECTS) (Engesser/Metzger/Kuch/Schwederski)	Emissions of Waste Treatment Plants (1SWS/1,5ECTS) (Fischer)	Mechanical, Biological and Thermal Waste Treatment (4SWS/6ECTS) (Seifert/Gehrmann/ Fischer/Reiser)	Elective Module in Air Quality Control (3ECTS)	Carbon Dioxide Compensation Points Pollutants (2SWS/3ECTS) (de Tarso)		
ST: Biology for Environmental Engineers (2SWS/3ECTS) (Charvet)		Biological Treatment of Solid Waste (2SWS/3ECTS) (Fischer)					
		*2 Thermal Waste Treatment" (SWS/1,5ECTS)					
Industrial Wastewater I (2CSWS/3ECTS) (Menzel)	Sanitary Engineering (4SWS/6ECTS) (Fischer/Seinmetz)		Elective Module in Solid Waste (3ECTS)	Industrial Internship (6 weeks) (6 ECTS)	Industrial Internship Solid Waste (6 weeks/ 6 ECTS)		
*5		ST: Presentation of Research (3ECTS)	Elective Module (3ECTS)	Elective Module in Solid Waste (3ECTS)	Technologies for Reduction of Pollution (2SWS/3ECTS) (Kolicheskij/ Feilstecker)		
Seminar Requirements for a presentation (2SWS/3ECTS) (Charvet)	Technology Assessment and Presentation Techniques (4,5SWS/6ECTS) (Friedrichs/ZLW)	Industrial Engineering and Management Systems (1SWS/1,5ECTS) (Erbe)	Elective Module (3ECTS)		*3 Environmental Law (2SWS/3ECTS) (Peters)		
*1		Treatment of Sludge and Industrial Waste (1SWS/1,5ECTS) (Neuffer)			ST: Presentation of Research (3ECTS)		
*4 Mathematics (3SWS/3ECTS)	*4	*5 Management of Urban and Industrial Waste (2SWS/3ECTS) (Fischer)		*1 Technology Assessment and Environmental Economics (2SWS/3ECTS) (Friedrichs)			
*3 Environmental Law (2SWS/3ECTS) (Peters)							
German Course I (3ECTS)	German Course I (3ECTS)	German Course II (3ECTS)	German Course II (3ECTS)	German Course I	Portuguese I	German Course II	Portuguese II
33 ECTS	33 ECTS	27 ECTS	27 ECTS	30 ECTS	30 ECTS	30 ECTS	30 ECTS

\*1 Der Teil "Technology Assessment and Environmental Economics" muss von den MAUI Studenten in Deutschland gehört werden / "Technology Assessment and Environmental Economics" has to be followed by MAUI students in USTUTT.

\*2 "Multiphase Processes" beinhaltet "Thermal Waste Treatment" mit (1SWS/1,5ECTS) / "Multiphase Processes" includes "Thermal Waste Treatment" with

\*3 "Environmental Law" ist Pflichtfach in MAUI / "Environmental Law" is a compulsory course in MAUI.

\*4 "Mathematics" ist Pflichtfach in MAUI - kann WASTE Student anerkannt werden, wenn bereits im Bachelor die Prüfungsleistung erbracht wurde. / "Mathematics" is a compulsory course in MAUI - if WASTE students have done this during their Bachelor degree, this achievement can be transferred

\*5 "Management of Urban and Industrial Waste" wird im 2. Semester gelehrt ist Teil von "Sanitary Engineering" / "Management of Urban and Industrial Waste", taught in the 2nd semester is part of "Sanitary Engineering"

Advances Modules 36 ECTS
Specialized Area I - 18 ECTS
Specialized Area II - 18 ECTS
Elective Modules - 12 ECTS
German Course OR Key Qualifications - 6 ECTS
Master Theses - 30 ECTS