Program Overview

In three semesters the master's degree program Process Engineering (MPE) equips students with an advanced knowledge in chemical and thermal process engineering and biotechnology. Additionally, they receive important training in the intercultural competencies that are essential qualifications in process engineering's increasingly multicultural environment.

The MPE program is operated jointly by Offenburg University in Germany and the University of Warmia and Mazury (UWM) in Olsztyn in Poland. The curriculum provides for three semesters comprised of two semesters of theoretical study and one semester for writing a master's thesis.

Winter semesters take place in Germany and summer semesters in Poland. The master's thesis can be written at either university, another institution, a research institute, or industrial enterprise at a location of your choice.

Master's Thesis

The Master's thesis can be prepared at UWM or Offenburg University, or at any other suitable university, research institute or industrial company of the student's choice.

<table>
<thead>
<tr>
<th>Module Nr.</th>
<th>Module Name</th>
<th>ECTS</th>
<th>Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPE-31</td>
<td>Master's Thesis</td>
<td>30</td>
<td>Master's Thesis</td>
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<td></td>
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<td>Presentation and Defence</td>
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</tbody>
</table>

In the past master's theses have been written in the following institutions and companies:

- **Albert-Ludwigs-Universität Freiburg, Institut für Mikrosystemtechnik – IMTEK**
  
  Topic: Contact Replication of DNA Microarrays, (2012)

- **Atotech Deutschland GmbH, Feucht**
  
  Topic: Investigations for the Application of Megasonic, (2011)
<table>
<thead>
<tr>
<th>Company / Institution</th>
<th>Topic</th>
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<tbody>
<tr>
<td>BAG Budissa Agroservice GmbH, Malschwitz</td>
<td>Determination of Substrate Composition for Biogas Production Applying Screening Test, (2013)</td>
</tr>
<tr>
<td>Bosch Rexroth AG, Würzburg</td>
<td>Determination of Design for Environment Legal Requirements for DC Products, (2013)</td>
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</tbody>
</table>
+ Eisenmann Anlagenbau GmbH & C. KG, Holzgerlingen


+ Elopak AS, Spikkestad


+ Fraunhofer Institut für Grenzflächen- und Bioverfahrenstechnik IGB, Stuttgart

<table>
<thead>
<tr>
<th>Topic:</th>
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<tbody>
<tr>
<td>In vitro Evaluierung des Zelladhäsionsverhaltens auf diamantbeschichteten Implantatmaterialien, (2010)</td>
</tr>
<tr>
<td>Inkjet Printing of Silver Nanoparticle Ink on Glass Substrates to Produce Miniaturized Plasma Electrodes, (2012)</td>
</tr>
<tr>
<td>Construction and Evaluation of an Ice Storage System with Anti-Ice Surfaces, (2012)</td>
</tr>
<tr>
<td>Development of a Silicone-based Block Copolymer Membrane Support for Carbon Dioxide Separation, (2013)</td>
</tr>
<tr>
<td>Entwicklung polymener Membranen für die Abtrennung von CO2, (2013)</td>
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</tbody>
</table>

+ Fraunhofer Institut ISE, Freiburg

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<tr>
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<tr>
<td>Design of a Continuous Drying Unit for the Optimazation of a Novel Pyrolysis Process of Freshly Harvested Biomass, (2013)</td>
</tr>
</tbody>
</table>

+ Fraunhofer Institut für Verfahrenstechnik und Verpackung IVV, Freising

Topic: Investigation of potential factors influencing enzymatic degumming of jatropha crude oil envisaged to undergo

biodiesel production, (2013)

**+ Fraunhofer Institut UMSICHT, Oberhausen**

**Topic:**
- Deep Eutectic Solvents for Pulping Lignocellulose, (2014)
- Regeneration of CIP (Cleaning-in-Place) Solutions of a Dairy Industry via Membrane Technology, (2014)

**+ FUMA-Tech Gesellschaft für funktionelle Membranen und Anlagentechnologie GmbH, Vaihingen an der Enz**

**Topic:** Development and economic efficiency of diffusion dialysis system for hydrochloric pickling bath recycling with special attention to feed conditioning, (2013)

**+ Großmann Ingenieur Consult GmbH, Konstanz**

**Topic:** Biogas production from sugar beet pulp in sugar factory in Poland, (2013)

**+ Herrenknecht AG, Schwanau**

**Topic:** Analysis and Detection of Possible Improvements of a Foa, Device which is used for Ground Conditioning on Tunnel Boring Machines, (2013)

**+ Hochschule Offenburg**

**Topic:**
- Optimization of Substrate Composition for Efficient Production of Cellulase by Trichoderma reesei to Improve the Biogas Production, (2012)
- Screening of Different Cellulase Producing Microorganisms to Optimize the Biogas Yield, (2012)

Continuous Enzymatic Pretreatment of Cellulotic Substrates to Increase the Biogas Yield in Biogas Processes, (2013)
Analysing and creation of a balancing model for optimizing of a downdraft gasifier in respect to efficiency and handling in dependance of waste biomass, (2013)
Introduction to Computer Tomography for Undergraduate Students, (2013)

Hochschule Offenburg INES

Direct CO2 capture from ambient air as part of a carbon cycle: Literature analysis and simulation, (2015)

Hoffmann-La Roche AG, Basel

Hoffmann-La Roche AG, Basel, (2014)

Hosokawa Alpine, Augsburg

Influence of Grinding Aids on a Combined Milling and Air Classifying Loop, (2011)

HSG-IMJT Außenstelle Freiburg

Immunoassay-Development on an Innovative Lab-on-aChip System, (2012)

Huber SE, Berching

Analysis of Different Needle Felt Meshes for Obtaining an Effective Purification of Wastewater, Using RoDisc Micro Screen, (2014)

Institut für Prozess- und Anlagetechnik, Hamburg
Tom: Automation of the Initialization and the start-up phase of the Divided Wall Distillation Column, (2012)
- Dynamic Process Simulation on a Dividing Wall Column, (2012)

+ **Institut für Umweltmedizin und Krankenhaushygiene, Universitätsklinikum Freiburg**

<table>
<thead>
<tr>
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</table>
| - Coupling of the Closed Bottle Biodegradability Test with GC-MS, (2010)  
- Establishment of an Aerobic Water Sediment Test, (2010)  
- Emissions profile and first investigations on the toxicity of household laser printers, (2011)  
- The influence of chemical and physical properties of surfaces on cell behavior, (2011)  
- Studies on the suitability of the FADU-Assay (Fluorometric Analysis of DNA Unwinding Assay) as a method for identifying the potential genotoxicity of environmental pollutants in human A549 lung cells, (2012)  
- Establishment and application of a 3D Speroid Culture of Human Primary Epithelial Lung Cell for Investigation of Potential Toxic Effects of Nanoparticles, (2013)  
- Use of human lung cell monocultures (A549 and BEAS-2B) and an organotypic 3-D air-liquid model of human lung to assess the biological effects after silica and silver nanoparticle exposure, (2013)  |

+ **KIT, Karlsruhe**

<table>
<thead>
<tr>
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</thead>
</table>
- Online-Monitoring for High Salinity Ground Waters, (2011)  
- Simulation of fluid dynamics and light distribution in photobioreactors: evaluation of open-pored transparent sponges as light conducting structures, (2011)  
- Use of natural zeolites as an ion exchanger to remove heavy metals from industrial wastewater, (2013)  
- Investigation of Wastewater Treatment and Biogas Production under Varying Operational Parameters Using Anaerobic RBC, (2013)  
- Extrusion Processing of Sustainable Protein-Rich Cereals: Influence of Protein Content on System Parameters and Final Product Characteristics, (2014)  |
+ KIT, Eggenstein-Leopoldshafen

**Topic:** Conditioning film monitoring with surface acoustic wave (SAW) sensors, (2013)
- The Transportation and Heat Transfer Mechanism in a Screw Pyrolysis Reactor, (2014)

+ Leibniz-Institut für Katalyse e.V., Universität Rostock

**Topic:** Studies on Heterogeneous Catalysis of Methyl Oleate, (2012)

+ MBE Coal & Minerals Technology GmbH, Köln

**Topic:** Development of a Beneficiation Process of Low-Grade Iron Ore Slurries, (2013)

+ Mercedes Benz Werk, Rastatt

**Topic:** Methods for the Evaluation of Environmental Impacts at an Automotive Manufacturing Site, (2014)

+ Procter & Gamble, Darmstadt


+ ProMaqua GmbH, Heidelberg

**Topic:** Einsatz der Elektrolyseanlage DULCOLYSE R bei der Permanentbedüseung eines Getränkefüllers, (2011)

+ RWE Innogy GmbH, Essen
**Reduction of Hydrogen Sulfide Amount in the Biogas Plant Neurath with Calcium Nitrate Additive, (2013)**

**RWTH Aachen / AVT-Mechan. Verfahrenstechnik, Aachen**

**Topic:** CFD Modeling of a Rotary Kiln, (2013)

**Rytec GmbH, Baden-Baden**

**Topic:**
- Application of Additives for Improving the Production in Biogas Plants, (2013)
- Improving the Performance in the Biogas Production with Additives, (2013)

**Siemens VAI Metals Technologies GmbH, Willstätt**

**Topic:** Konzeption und Entwicklung eines Messsystems zur Erfassung der Stahlbadzusammensetzung in einem Elektrolichtbogenofen, (2011)

**Stadtentwässerung Frankfurt a. M.**

**Topic:** Research of Nitrite Formation in the Downstream Denitrification, (2014)

**Südzucker AG, Tienen**

**Topic:** Rheological and Technical Characterization of Natural Texturising Systems in Model Systems and Food Applications, (2011)

**Technical University of Hamburg-Harburg, Hamburg**

**Topic:** Treatment of Process Waters from Hydro Thermal Carbonization (HTC), (2013)
+ TTZ Bremerhaven

**Topic:** Evaluation of the Overall “Treat & Use” System Performance, (2014)

+ UGA Biopharma GmbH, Hennigsdorf

**Topic:** A Downstream Processing Platform for Monoclonal Antibodies: Design Considerations on Affinity, Ultrafiltration and Polishing Operations, (2014)

+ Umicore AG & Co. KG, Rheinfelden

**Topic:** Moisture Sorption and Moisture Measurement at Oxide Powder, (2012)

+ Universität Bern

**Topic:** Development of an LC-MS/MS Method for the Detection of the Alcohol Biomarker Phosphatidyl-Ethanol (PEth) in Blood, (2012)

+ University of Warmia and Mazury in Olsztyn, Polen

**Topic:**
- Production of PHA by fed-batch fermentation of pseudomonas sp. GI01 using rapeseed oil as carbon source, (2011)
- Differential Gene Expression in Hepatopancreatic Gland of Pond Snail (Lymnaea Stagnalis) after Exposure to Benzo(a)pyrene, (2013)
- Evaluation of Selected mRNA Expression Changes in Hepatopancreatic Gland of Pond Snail (Lymnaea Stagnalis) as Novel Biomarkers of Exposure to Benzo(a)pyrene, (2013)
Study Regulations

Every study program at the Offenburg University is defined and regulated as described in:

"Regulations concerning Study and Examinations (RSE) of the Offenburg University".

Some of the topics covered are:

- Regular periods of study and structure of study
- Modular Structure of Studies
- Loss of Admission to the Degree Program, loss of the right to take
- Examinations, Deadlines
- General Rules of Admission
- Examination Requirements
- Oral Examinations
- Seminar Papers and other written Assignments
- Evaluation of Examination Results
- Omission, Withdrawal, Deception, Irregularities
- Passing and Failing an Examination

These study regulations consist of a general part and a special part. The general part of the study regulations covers the topics common to all the masters programs. Each individual masters program has a special part that explains the regulations specific to its program. For legal purposes, only the German version of the "General Part of the Study Regulations" is binding. Links to both the general and the MPE specific parts of the study regulations are provided below:

1) German version of the General part of the Regulations concerning Study and Examinations (RSE)
2) English translation of the General part of the Regulation concerning Study and Examinations (RSE) (mainly in English)

https://incoming.hs-offenburg.de/nc/internationale-master-studiengaenge/process-engineering/studienverlauf/
3) German abbreviations used in the Regulations concerning Study and Examinations (RSE)

Course and Examination Schedules

Course schedule for the winter semester 2014/15