




<b>HTWK Leipzig, Leipzig University of Applied Sciences</b>	
	Module Course code <b>Industrial Printing and Processing</b> <b>iPP (FM/iP3)</b>
	Semester <b>Summer semester</b>
	ECTS, level <b>5 points, Bachelor's/Master's (under-/graduate)</b>
	Language of instruction <b>English</b>
	Teaching staff <b>Prof. Dr.-Ing. Jörg Ackermann</b> <b>Prof. Dr. rer. nat. Lutz Engisch</b> <b>Prof. Dr.-Ing. Inés Heinze</b> <b>Prof. Dr.-Ing. Ulrike Herzau-Gerhardt</b> <b>Prof. Dr.-Ing. Michael Reiche</b> <b>Prof. Dr. rer. nat. habil. Holger Zellmer</b>
Prerequisites	Basics of general engineering
Learning outcomes	<p>The students know the fluid transfer principles of the four main groups of printing processes (gravure, relief, flat-bed, screen) as well as digital printing.</p> <p>The students are well-grounded in the functionality of the basic units of printing presses.</p> <p>The lessons provide knowledge about the different materials for printing applications. In addition to printing inks and fibre based materials, plastics are also presented. Both the classical material characterisation as well as the different possibilities of interaction of material and ink are presented.</p> <p>The students will have acquired basic knowledge in prepress technologies, like digitalisation, desktop publishing, digital image processing, production workflows in prepress and single source - multiple channel publishing. They know technical terminology in prepress and the common application for desktop publishing and image processing.</p> <p>The students know the definition of printed functionality and have the theoretical background of the applied materials for functional printing fluids and substrates. They have an overview of the applications of printed functionality.</p> <p>The students will have acquired an overview of refining and refining methods are used in graphical and packaging industry. They know some methods (technological principle, influencing facts, samples of use) in detail.</p> <p>The students will have acquired basic knowledge about factory planning and additional about factory management. They are able to solve typical practical tasks and to make calculations using specific methods and tools.</p>
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Course contents	<p><b>Printing Processes</b></p> <ul style="list-style-type: none"> <li>- Basic units of sheet-fed and web printing presses</li> <li>- Specialities of printing presses (e. g. applied for tubes, bottles, cups)</li> <li>- Basic principles of fluid transfer in printing presses (theoretical abstract and practical demonstration)</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>- Cardboard and corrugated board</li> <li>- Polymeric substances</li> <li>- Printing ink</li> <li>- Interaction of printing substrates</li> <li>- Hands-on-lesson: Material tests</li> </ul> <p><b>Prepress Technologies</b></p> <ul style="list-style-type: none"> <li>- Terminology in prepress stage</li> <li>- Common technical environment and applications for desktop publishing as well as image editing</li> <li>- Principles and technologies for single source - multiple channel publishing</li> </ul> <p><b>Printed Functionality</b></p> <ul style="list-style-type: none"> <li>- Definition of printed functionality with respect to the surplus value, additional use and/or information of a printed product</li> <li>- Sensors and indicators for heat, ultraviolet radiation and biological decay processes</li> <li>- Applications of printable conducting materials, printed electronics, electro-optical and light emitting systems</li> </ul> <p><b>Refining</b></p> <ul style="list-style-type: none"> <li>- Definition, classification and general information (functions, effects and application fields of refining)</li> <li>- Introduction of refining principles</li> <li>- Practical work to amplify special methods by showing the technique and discussing influencing facts.</li> </ul> <p><b>Factory Planning and Management</b></p> <ul style="list-style-type: none"> <li>- Purpose and goals, system description, methodology, planning cases and procedures</li> <li>- Modelling of factory systems as well as planning workflow including different planning steps and methods</li> <li>- Practical exercise: Deal with typical planning tasks and their solutions</li> <li>- Workshop Hybrid Factory Planning: How to realise a small planning project using digital and physical models</li> </ul>			
Workload	150 hours, of which 60 hours attendance (30 teaching units á 90 min.)			
Pre-examination requirements	Successful participation in the practicals (Laboratory Course)			
Mode of instruction and assessment	<b>Lecture</b>	<b>Seminar</b>	<b>Laboratory Course</b>	<b>Assessment</b>
	24 hours	12 hours	24 hours	Poster presentation
Recommended reading	<p>KIPPAN, Helmut (Ed.): Handbook of Print Media – Technologies and Production Methods, Springer-Verlag Berlin Heidelberg</p> <p>Electronic handbooks and scripts</p>			