GENERAL INFORMATION					
Course name	SP2. Production Systems Engineering				
Semester	2	Character	Compulsory	Type of module	Spec.
ECTS	5		Modality	Face-to-Face	
Higher Education Institution(s)			FH Joanneum		
Lecturer(s)			Kurt Felfernig Klaus Zamazal Gerhard Gugenberger		

LEARNING AND TEACHING	
ESCO Occupation(s)	Manufacturing engineer
ESCO Skill & Competences (*no ESCO)	Define Manufacturing Technology Set-Up Machine Tool Plan Assure Maintenance of Production Equipment DfM, DfA Consider Waste & Recycling
Learning outcomes (Please refer to Appendix 4 for the interpretation of the acronym)	KU2, EP3, EP4, IN3
Teaching methods	Lectures Case Studies Collaborative and Problem-Based Learning
Assessment methods	Examinations Short Online quizzes

CONTENTS
Previous requirements (if necessary)
Content index
• Basic and advanced manufacturing technologies and production processes • Current technologies in the field of primary-shaping and forming manufacturing processes • Trends and developments in the field of cutting and machining processes • Additive manufacturing processes, their applications and systemic limitations • Comparison of manufacturing processes and substitution options, considering technological constraints • Economic evaluation of manufacturing processes, taking into account product characteristics and lot sizes • Assessment of manufacturing processes in terms of product life cycle and sustainability • Alternatives in Manufacturing techniques • Modern technology setups in Plants • Plant Layouting

- Design influences on Manufacturing
- End-To-End Production Layouting
- Organizational principles and assembly functions
- Handling technology
- Handling equipment and manipulators
- Joining techniques in assembly technology
- Automation of joining processes
- Manual assembly
- Mechanized assembly and assembly facilities
- Robot use in assembly technology
- Human machine interaction in assembly technology

SUPPORTING BIBLIOGRAPHIC REFERENCES

Lecture notes; handouts; Literature (as well available in English):
S. Hesse, V. Malisa: Taschenbuch Robotik - Montage - Handhabung; S. Hesse: Grundlagen der Handhabungstechnik; P. Lotter, H.-P. Wiendahl: Montage in der industriellen Produktion: Ein Handbuch für die Praxis (VDI-Buch); P. Konold, H. Reger, S. Hesse: Praxis der Montagetechnik: Produktdesign, Planung, Systemgestaltung (Vieweg Praxiswissen); B. Rekiek, A. Delchambre: Assembly Line Design: The Balancing of Mixed-Model Hybrid Assembly Lines with Genetic Algorithms; H. Martens, D. Goldmann: Recyclingtechnik: Fachbuch für Lehre und Praxis; P. Kurth, A. Oexle, M. Faulstich: Praxishandbuch der Kreislauf- und Rohstoffwirtschaft; M. Kranert, M. Baron, A. Behnsen: Einführung in die Kreislaufwirtschaft: Planung - Recht - Verfahren;

SOFTWARE