GENERAL INFORMATION					
Course name	AM4. Designing for Additive Manufacturing				
Semester	3	Character	Compulsory	Type of module	Specialisation
ECTS	5		Modality	Face-to-face	
Higher Education Institution(s)			Koszalin University of Technology		
Lecturer(s)			Błażej Bałasz Mirosław Wesołowski		

LEARNING AND TEACHING	
ESCO Occupation(s)	Manufacturing engineer Calculation engineer
ESCO Skill & Competences (*no ESCO)	Computational mechanics Create a product's virtual model Interpret technical requirements Design thinking Combine multiple fields of knowledge
Learning outcomes (Please refer to Appendix 4 for the interpretation of the acronym)	KU1, EA1, EA2, ED2, EP5
Teaching methods	Lectures. Flipped Classroom Case Studies Simulation-Based Learning Workshops
Assessment methods	Examination Technical report Oral presentation & defence

CONTENTS

Previous requirements (if necessary)

Content index

1. Introduction to additive technologies and DfAM:
   - History and development of AM technology.
   - Basic design principles for AM.
2. DfAM support software:
   - CAD/CAM tools for design in AM.
   - Computer simulation and analysis.
3. Minimising the use of supports in DfAM:
   - Design strategies for minimising support structures.
   - Practical examples and case studies.
4. Print orientation in DfAM:
   - Impact of part orientation on product quality and production process.
   - Optimisation of print orientation.
5. Post-processing processes in DfAM:
   - Finishing and removal of support structures.
   - Techniques to improve mechanical and aesthetic properties.
6. Quality control in DfAM:
   - Monitoring and quality control methods during and after the printing process.
   - Non-destructive testing and analysis of mechanical properties.
7. Topological optimisation in DfAM:
   - Principles and techniques of topological optimisation.
   - Examples of applications and benefits.
8. Generative design in DfAM:
   - Generative algorithms and their application in AM.
   - Structural and aesthetic optimisation using generative design.
9. Practical applications of DfAM:
   - Case studies of real-world DfAM applications in industry.
   - Analysis of the economic and technical benefits of DfAM applications.

10. The future and innovation in DfAM: • New technologies and trends in design for AM. • Future developments and applications of DfAM
SUPPORTING BIBLIOGRAPHIC REFERENCES
Elsevier ScienceDirect Library
SOFTWARE
Ansys, Simufact Additive