EUROPE'S MOST COMPREHENSIVE ADDITIVE MANUFACTURING (AM) CURRICULUM LAUNCHED

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ADDITIVE MANUFACTURING FOR BEGINNERS

CONTENT OF TRAINING

Overview on AM Processes	Advantages and Manufacturing Constraints	Polimer Application	Metal Constraint	Design for Additive Analysis Based Design	Biomimetic Design Approach
Classification of AM Processes	Polymer Basic Principles	Metal Basic Principle	Metal Application	Design for Additive Design Optimization and Topology	**Main Concepts on the Whole Process Planning Chain** (Slicing, Path - Planning, Platform Optimization, Support Generation, Machine Code Generation)
The ASTM / ISO / NADCAP Classification of Additive Manufacturing Technologies	Polymer Material Knowledge	Metal Metarial Knowledge	Design for Additive Main Concepts and Objectives	Design for Additive Shape Complexity	
Main Characteristics	Polymer Constraints	Metal Powder Metallurgy	Design for Additive 3D Modelling	Design for Additive DFAM Rules	**Use of Common AM Software** (Cura, Magics, Etc.)

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ADDITIVE MANUFACTURING FOR INTERMEDIATE LEVEL

CONTENT OF TRAINING

Introduction to DFAM Module	Workflow of Topology Optimization	Design for Optimized/targeted Mechanical/functional / Thermal-Fluid Dynamic Performance	Process Parameters	Computerized Tomography (CT)
	Generative Design		Part Orientation	Mechanical Testing Methods
Computer Aided Design Tools for AM	Biomimetic Design	Case Analysis of Representative Targeted Mechanical / Functional Performance	Support Genaration	Microstructural Analysis
	Reverse Engineering In AM		Scaning Strategies	Scanning Electron Microscope (SEM)
Introduction to Topology Optimization	Design Rules for AM Processes	Case Analysis of Representative Targeted Thermal-Fluid Dynamic Performance	Process Planning	
	Design for AM Project / Project Guideline		Process Parameter Control	
Types of Topology Optimization Method	Introduction to Performance - oriented Design & Analysis of Additively Manufactured Components	Step-by-Step Design of Representative Cases Oriented to Project Presentation	Geometrical Dimensions & Tolerances (GD&T)	
			Non-destructive Testing Methods	

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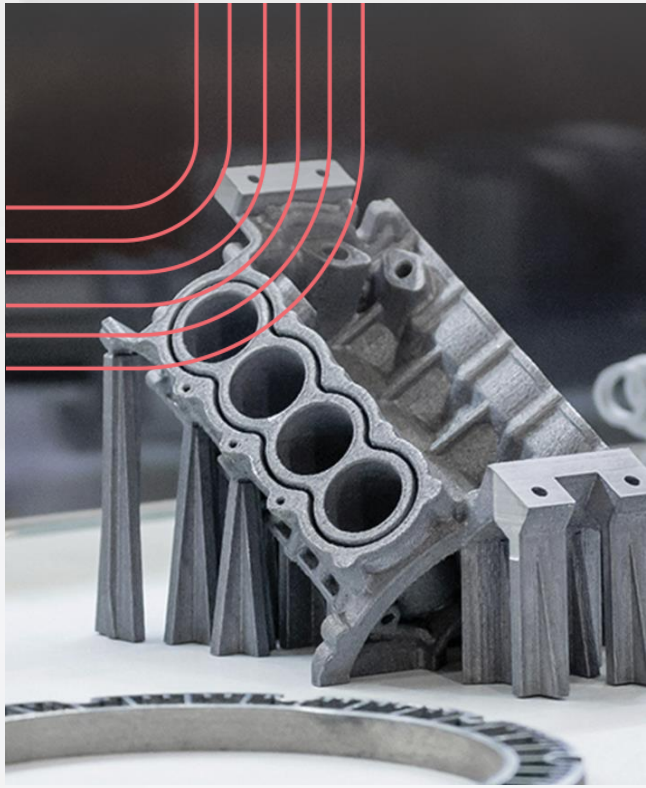
ADDITIVE MANUFACTURING FOR ADVANCE LEVEL

CONTENT OF TRAINING

- Introduction to Numerical Simulation of AM Processes
- Thermal, Mechanical and Microstructural Modeling of AM Processes
- Numerical Tools for the Specific Simulation of Phase-Change Processes in AM
- Numerical Tools for the Specific Simulation of Single Tracks Consolidation by AM
- Numerical Tools for the Integrated Simulation of Full Scale Components Consolidation by AM
- Step-by-Step Simulation Analysis of Representative Cases Oriented to Project Presentation
- Surface Enhancements Methods (General Considerations)
- Surface Enhancements Methods (Subtractive Enhancement Method)
- Surface Enhancements Methods (Plastic Deformation)
- Heat Treatment Support Removal and Finishing
- Historical Development of Standards
- Standardisation Bodies & Technical Committees
- Review of AM Standards
- Qualification Certification
- Role of Standards in AM Processes
- Cost Analysis Modelling
- Sustainability in AM
- Ill Well Structured Costs
- Illustrative Example
- AI in AM
- Micro-Nonao Printing
- Bioprinting
- 4D Printing
- Hybrid AM
- FGM and Smart Matarials
- Enviromental and Social Implications
- Practical Application Theoretical
- Module Organization & Contributions
- Interdisciplinary Approach
- Metal 3D Printing in Construction An Overview of its Role in Structural Engineering
- Waam in Construction: General Aspects
- Waam in Construction: Charcaterization of Metal 3D Printed Elements
- Waam for Large-Scale Structures: Fabrication
- Waam in Construction: Combining Waam With Other Construction Materials
- Comparative LCA Assessment
- Design
- Fabrication & Testing



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ENTREPRENEURSHIP IN AM INDUSTRY

CONTENT OF TRAINING

Testing Entrepreneurship Features, Business Idea Activity Description (Including Profile of Participants Per Organisation, Goals and Results of the Activity)
Development and Creativity Exercises
(an Introduction to Entrepreneurship)

The Concept of Business Plan and Its Components (Market Research, Marketing Plan, Production Plan, Management Plan, Financial Plan)
(Business Plan and Its Components)

Workshops to Reinforce Business Plan Elements (Market Research, Marketing Plan, Production Plan, Management Plan, Financial Plan)

Issues to be Considered in Writing and Presenting The Business Plan Entrepreneurial Person Profiles and Evaluating Opportunities

Business Model and Enterprise Strategies

Technology & Innovation Management

Enterprise Finance & Financial Management

AM-Themed Entrepreneurship Examples & Hands-on Learning Contents

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