Learning Module Outline

Short Description	
Description of the module	**Materials in 3D Printing for Aerospace Applications** This module focuses on material selection and utilization in additive manufacturing processes. It provides an overview of current material technologies used in additive manufacturing, with particular emphasis on aerospace applications. The module explores the structure–property–process relationships of materials, and emerging trends in material development. The content of the module is outlined below. 1. Introduction 2. Material Requirements for Aerospace Components 3. Polymeric and Composite Materials for 3D Printing 4. Metallic Materials for 3D Printing 5. Ceramic and Hybrid Materials for 3D Printing 6. Conclusions

Target Groups	
Targets	• Engineering students (Aerospace, Aeronautical, Materials and Mechanical Engineering) • Engineers and technical staff in aerospace and aeronautical industries

Learning Objectives	
Learning Objectives for this module	Upon completion of this module, participants will be able to: • Identify the material requirements specific to aerospace components. • Explain current material technologies used in 3D printing. • Classify materials suitable for 3D printing based on their properties and applications. • Select appropriate 3D printing processes for aerospace-grade materials.

Learning Resources	
Resources	• Scientific articles • Industrial reports • Books • Thesis

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Self-assessment and Learning Activities	
Self-assessment and Learning Activities to be created	• Textbook • Lesson presentations • Lesson reviews • Quizzes

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