UNIT 3 – Additive manufacturing and 3D printing in Industry 4.0

Subunit 2 – AM: Processes, materials, and application areas

# AM processes

Co-funded by the Erasmus+ Programme of the European Union

Project number: 2018-1-ES01-KA202-050289 This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

# Introduction

ISO/ASTM 52900:2015 standard establishes and defines the terms used in AM, and categorises this technology in seven individual processes.

Each process has its own features to build physical 3D geometries by successive addition of material, layer by layer.

In this activity trainees will have to associate a set of properties and characteristics to the correct AM process. In the next slide make a correspondence with arrows between the processes and their specific features. There are 2 specific features for each process.

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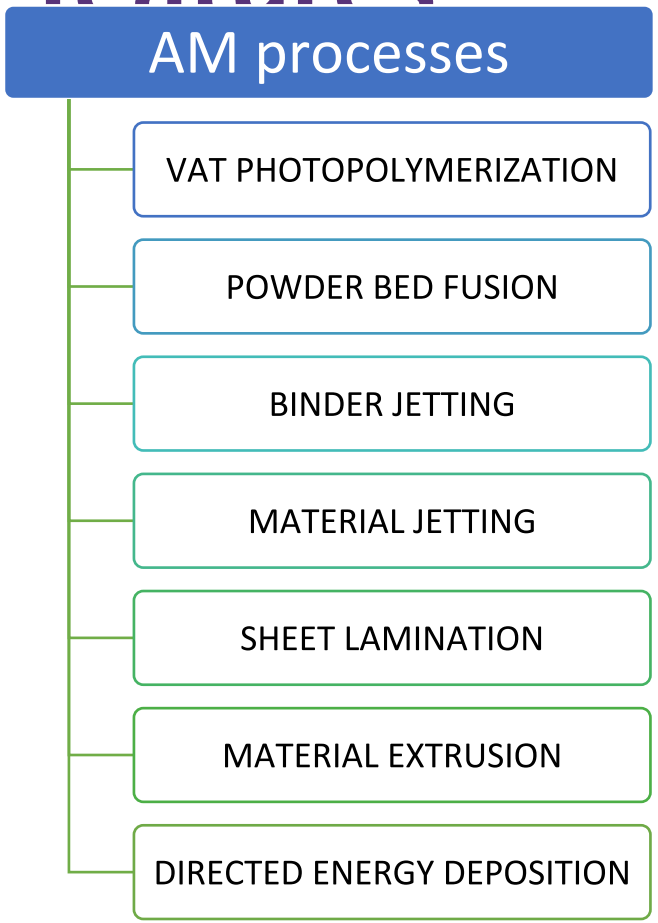
# Exercise: AM processes and respective features




- ☐ Injected powder or wire is melted by a heat source
- ☐ It uses a vat of liquid
- ☐ Sheets of material are bonded with adhesives
- ☐ It melts a powder bed material with a laser
- ☐ Alternating layers of powder and binder are used
- ☐ Parts sintered in a heated furnace
- ☐ It uses electric arc to build-up layer by layer
- ☐ Layers of powder are added with a roller
- ☐ Material is jetted in droplets
- ☐ Material is stacked in sheets and laminated together
- ☐ UV light is used to cure the droplets of resin
- ☐ Material is extruded through a nozzle
- ☐ Process used for many hobby 3D printers
- ☐ UV light is used to cure the liquid resin

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# Exercise solution




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