MANUFACTURING SKILL STANDARDS COUNCIL

Definition of Additive (3D) Manufacturing

Additive Manufacturing (aka 3D Printing) is the process of joining materials to make objects from three-dimensional computer model data, usually thin layer upon thin layer, using powdered forms of metals or polymers. It is opposed to subtractive manufacturing methodologies, i.e. traditional manufacturing that often requires machining or other techniques to remove surplus material.

Around the world, AM is changing the way organizations design and manufacture products. Manufacturers typically use AM in design/modelling to produce functional prototypes, molds, mold inserts and direct parts production. AM can be used to enhance mass customization by making small lots of uniquely designed products as cost-efficiently as uniform mass production.

When used correctly, AM can save impressive amounts of time and money. Companies maintain that AM has helped trim weeks, even months, of design, prototyping, and manufacturing time, while avoiding costly errors and enhancing product quality. Increasingly, manufacturers see additive manufacturing as a cost-saving and faster turn-around alternative in certain situations where CNC machining, injection molding and investment casting were used in the past.

Sometimes, a single AM-produced component replaces many parts, reducing assembly times and simplifying supply chains. The wide range of assembly-line tools make masking, drill guides and specialty fixtures simple to produce directly from CAD files. As a result, the end-use parts are printed with durable materials.

https://www.ge.com/additive/additive-manufacturing/information/3d-printing
https://wohlersassociates.com/additive-manufacturing.html
https://blog.trimech.com/what-is-additive-manufacturing