3D Printing Promises Unlimited Possibilities

3D printing, also known as additive manufacturing, is a process of making tangible, three-dimensional solid objects from a digital file. The process includes the production of successive layers of substrate until the object is completed. Each layer of material is a thinly sliced horizontal cross-section of the eventual object. 3D printing starts with a virtual design using a Computer-Aided Design (CAD) file that, in turn, relies upon 3D modeling software. This software slices the final model into hundreds or thousands of horizontal layers.

According to the National Association of Manufacturers (NAM), 3D printing is showing signs of triggering transformations in U.S. industrial manufacturing, from product design and production to restructured supply chains. Citing a recent report from PricewaterhouseCoopers in conjunction with The Manufacturing Institute, NAM revealed that "… two-thirds (67%) of manufacturers surveyed are currently implementing 3D printing either by experimenting with the technology or by already using it for prototypes or final products. One in four respondents said they plan to adopt 3D printing in some way in the future."

Peter Maritato, Professor of Engineering Science and Electrical Technology at Suffolk County Community College, says it's easy to see why this technology is catching on. "The adoption of 3D printing is utilized in every field from creating organ transplants, jewelry design, clothing and, especially, manufacturing."

technology helps our students visualize and create objects, as well as present STEM-related theoretical concepts in a 3D environment. Students have grown up in a world exposed to video games and smart technology, but have not developed the skill or ability to imagine STEM-related concepts. With the inclusion of 3D printing, we have discovered that students quickly acquire the skills of visualization and complex problem solving. This leads to entrepreneurial possibilities."

Recently, the world's first 3D printed electric car — named Strati, Italian for "layers"— was unveiled. It has less than 50 parts to it and may be the genesis for a totally innovative way for manufacturing vehicles. "This is unleashing creative thinking in students," says Professor Maritato. "It will undoubtedly also be the opportunity to start new businesses from the ground up."



The world's first 3D printed car was recently created by an Arizona-based company and took only 44 hours to print.

At Suffolk, 3D printing is being integrated into the curriculum so that students better understand how to bring ideas to fruition and present complex concepts in a visual 3D object. In fact, the department of engineering science and industrial technology has purchased three 3D printers to support engineering and technology courses. "Students gain in many ways by having the ability to create with 3D printers," says Professor Maritato. "This

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