3D PRINTING

O. O. Panchenko- *SumyStateUniversity, group IH-21,*
E. O. Gumennyy- *SumyStateUniversity, group IH-21*

3D printing or Additive manufacturing is a process of making a three-dimensional solid object of virtually any shape from a digital model.

Also known as "additive manufacturing" or "stereo lithography," 3D printing is often depicted as a mysterious and seemingly magic process. 3D printing turns computer models into real physical things. It takes different materials, from biodegradeable plastic filament PLA to ABS plastic to Nylon, melts it into thin layers onto a surface, moves up and prints another layer. After layer upon layer, you are left with a physical object. You can use 3D modeling software or download free things that people have already created, and print them out in your own home or office or classroom. Three-dimensional printing has been widely used in industrial contexts for more than two decades. It is only recently, however, that 3-D printing has captured the public eye. Greater refinement and reduced cost of the technology are primarily responsible for this phenomenon.

Many types of 3D printers currently exist. Every printer type typically uses a different material; nonetheless, all such printers employ the same basic technique to "print" objects: Spraying on or otherwise transferring multiple layers of a material onto a construction platform, starting with the bottom layer. Before printing a 3-D object, you must first produce a three-dimensional image of the item you want to print by using a computer-assisted design ("CAD") software application. The program "slices" your desired object into several hundred or several thousand horizontal layers. Each layer is then placed on top of each other in a one-by-one manner until the entire object develops. One type of 3D printer known as a selective laser sinter uses a laser beam to heat and solidify a granular substance into a specific pattern for every slice before repeating the process again and again on new layers. This particular method is often used to create figurines, for instance. Another 3d printing method involves the use of UV light to cure layers of resin. Still other methods deposit materials into a layered pattern, much as automatic glue guns work.

3-D Printing Advantages:

- Three-dimensional printing allows businesses to construct working models in just hours instead of days or weeks
- Generating prototypes with 3D printers is much easier and cheaper than making molds

- Certain three-dimensional printing methods enable the production of objects with excellent surface features. This makes it very easy to create construction models or prototypes for a wide variety of projects within many industries
- Durability
- The objects obtained in many types of 3-D printing are quite long lasting and durable, as they do not absorb moisture or warp over time

3D printing is a disruptive technology of mammoth proportions, with effects on energy use, waste, customization, product availability, art, medicine, construction, the sciences, and of course manufacturing. It will change the world as we know it. Before you know it.

I. A.Bashlak –*E.L.Adviser*

Соціально-гуманітарні аспекти розвитку сучасного суспільства : матеріали Всеукраїнської наукової конференції викладачів, аспірантів, співробітників та студентів, м. Суми, 21-22 квітня 2014 р. / Відп. за вип. О.М. Сушкова. — Суми : СумДУ, 2014. — С. 425-426.