MANUFACTURING

VOCATS 7.05

MANUFACTURING is

- A system or group of systems used in the manufacturing process to make products for an end user (R1 pg. 239)

Three Types of Manufacturing

- Custom
- Job Lot
- Mass

Custom Manufacturing

Custom production produces products that are made one at a time according to customer’s exact specifications.

Job Lot

- Job lot production involves producing a limited quantity of a product. Production is stopped when a certain amount of the product is made.

Mass Production

Continuous or mass production produces a large quantity of the same product. This is achieved through one steady process using an assembly line.

Manufacturing Process

- Designing
- Development
- Making and servicing of products and systems.

Production

- Production is the developing or actual making of a product. Methods or production engineers are in charge of producing the production tooling, the jigs, fixtures, and quality control devices, needed to manufacture the product.

Marketing

- Marketing is the promoting, selling and delivering the product or service.

Components of an Automated Manufacturing System

- **AGV (Automatic Guided Vehicle)** is a vehicle used to carry the product from one work station to another. It is computer operated and runs along an "invisible" electric track throughout a factory. It is a very modem form of an assembly line.

Components of an Automated Manufacturing System

- **CAD (Computer- Aided Design)** is a method of planning and drawing a product using a computer. The designs and information is stored in the computer. computer can run test on the new product or part without the part even being there!

Components of an Automated Manufacturing System

- **CAM (Computer- Aided Manufacturing)** is a system where computers are used to operate the machinery in a factory.

Components of an Automated Manufacturing System

- **CAD/CAM** joins the two. The designer can create a part or product on the computer screen then sends it directly to a machine tool, which makes the part.

Components of an Automated Manufacturing System

- **CIM (Computer- Integrated Manufacturing)** uses one computer system to control many function of the manufacturing company. This main computer system handles marketing and sales, invoicing, production scheduling, design, equipment control and many other functions of a company.

Components of an Automated Manufacturing System

- **CNC (Computerized Numerical Control)** is a machine tool operation that is controlled by numerical commands from a computer.

Components of an Automated Manufacturing System

- **Fixture**- is a specialty tool usually designed and used only for one operation. A fixture holds material in place, while it is being processed, usually when holding the material by hand is too dangerous or not secure enough.

Components of an Automated Manufacturing System

- **Jig**- is another speciality tool usually designed and used for only one operation. A jig holds and guides the material to be processed during the operation. Again, a jig is used when holding the material by hand may be to dangerous or not secure enough. The jig moves but the fixture does not.

Components of an Automated Manufacturing System

- **Just- in- time-** With the aid of computers, manufacturers can order materials and parts from other suppliers "just in- time" to be used.
  - This reduces the need for warehouse storage space and a costly inventory. This saves money and lowers product cost

Components of an Automated Manufacturing System

- Robotics- the technology that deals with the design, manufacture and use of robots in industrial and automated situations

Components of an Automated Manufacturing System

- **Stereo Lithography-** is a very new innovation that works like a three dimension picture