Chapter Review 41

New Technology in Manufacturing

Objectives...

1. review the use of ERP systems in manufacturing
2. evaluate the role of technology in manufacturing
3. distinguish CAD from CAM
4. explain what is meant by CIM and what a Flexible Manufacturing System (FMS) is

Key Terms

Automation	The use of control systems (such as numerical control) and information technologies (such as CAD, CAM and robotics) reducing the need for or enhancing human intervention and leading to enhanced productivity
Computer-aided design (CAD) software	Software that allows designers to design and "build" production prototypes, "test" them as a computer object under given parameters, compile parts and quantity lists, outline production and assembly procedures, and then transmit the final design directly to milling and rolling machines.
Computer-aided manufacturing (CAM) software	Software that uses a digital design such as that from a CAD system to directly control production machinery.
Enterprise resource planning (ERP) systems	Large, integrated, computer-based business transaction processing and reporting systems. ERP systems pull together all of the classic business functions such as accounting, finance, sales, and operations into a single, tightly integrated package that uses a common database
flexible manufacturing systems	Two or more computer controlled machines or robots linked by automated handling devices such as transfer machines, conveyors, and transport systems Computers direct the overall sequence of operations and route the work to the appropriate machine, select and load the proper tools, and control the operations performed by the machine
robot	A programmable machine designed to handle materials or tools in the performance of a variety of tasks

25. In this chapter we evaluated the role of technology in manufacturing, from the general and specific manufacturing standpoints. Initially focussing on information flows, we discussed the use of ERP systems in manufacturing. ERP systems and broader ES integrate the parts of the organisation, its value and supply chain, to make the organisation more responsive and efficient. In the second part we considered Computer integrated manufacturing. CIM systems have become the most important means of improving productivity, responding to changing market demands, and enhancing the control of manufacturing and management functions. Both sets of technologies represent efforts to integrate operations and processes in order to make manufacturers more effective and efficient.