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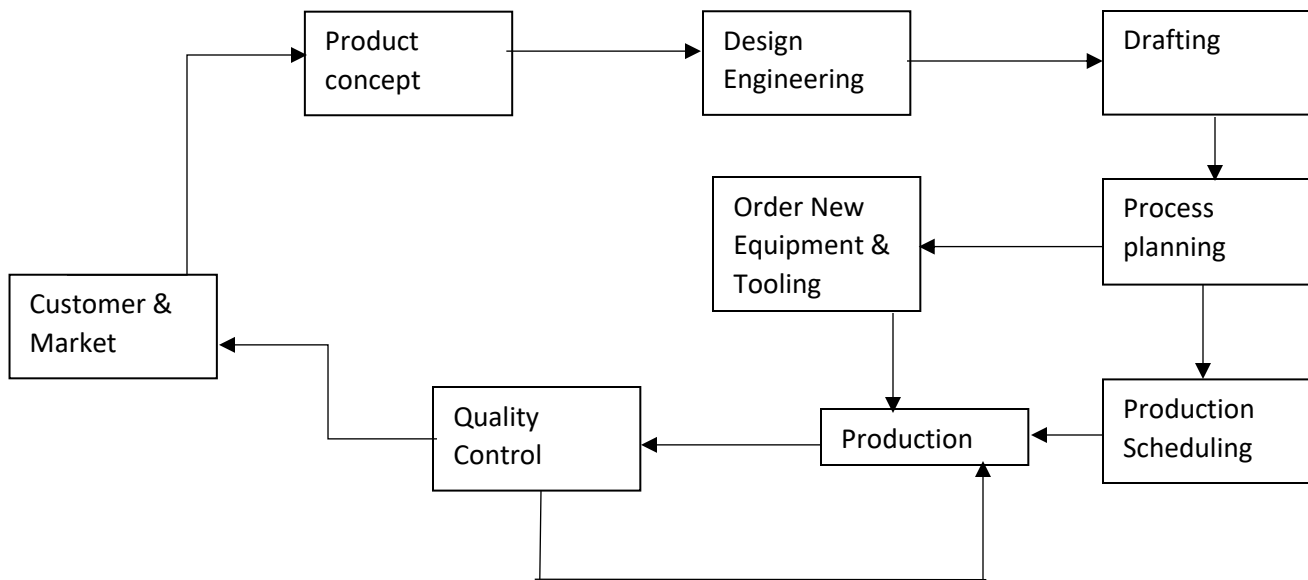
DEPARTMENT: MECHANICAL ENGINEERING

COURSE: MEE 586 (MACHINE DESIGN {III})

QUESTION

1. What is an integrated CAD/CAM?
2. Draw a product cycle to describe the scope of CAD/CAM in the operation of a manufacturing firm
3. Explain seven (7) characteristics of a good CAD software
4. Explain three (3) divisions of software components

SOLUTION

1. Integrated computer aided design (CAD)/ computer aided manufacturing (CAM) system are employed to achieve computer-aided integration in all production functions, from design and planning up to manufacturing and the assurance of quality standards. So far, however, overall integration of this kind.

2. A product cycle in CAD/CAM is the process for the reader to appreciate the scope of CAD/CAM in the operation of a manufacturing firm, it is appropriate to examine the various activities and functions that must be accomplished in the design and manufacture of a product. These activities and functions are referred to as product cycle.

Product concept → Design Engineering → Drafting → Process planning → Order New Equipment & Tooling → Production; Process planning → Production Scheduling → Production; Production → Quality Control → Customer & Market → Product concept; Quality Control → Production (feedback loop)

Product concept | Design Engineering | Drafting

Order New Equipment & Tooling | Process planning

Customer & Market

Quality Control | Production | Production Scheduling

Product cycle

3. Characteristics of a good CAD software:

   A. Efficiency: An efficient software is that which use less resources such as CPU in terms of time and usage to give a better output.

   B. Simplicity: a software must be simple to use and easy to understand and must be user friendly.

   C. Flexibility: The software must be able to incorporate the design modification without much difficulty.

   D. Readability: This provides the capability within the software to help user as and when required.

   E. Portability: The software must have the capacity to get transferred from one system to another.

   F. Reliability: To avoid causality the software must be able to avoid unwanted operation.

   G. Recover ability: A good software must be able to give warnings before getting crashed and must be able to recover.

4. Division of software components

A. Application software: which is software that uses the computer system to perform special functions or provide entertainment functions beyond the basic operation of the computer itself. There are many different types of application software, because the range of tasks that can be performed with a modern computer is so large.

B. System software: Is a software for managing computer hardware behavior, as to provide basic functionalities that are required by users, or for other software to run properly, if at all. System software is also designed for providing a platform for running application software.

C. Malicious software: This is a software that is developed to harm computers, as such malware is undesirable and is closely associated to computer-related crimes, through some malicious programs that may have been designed.