NC Codes Library for Pump Impeller Machining

Using CNC Machining Centre

by

Ahmad Izzat bin Abdul Wahab

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Universiti Teknologi PETRONAS,
Bandar Seri Iskandar,
31750 Tronoh,
Perak Darul Ridzuan.

ABSTRACT

This report discusses the preliminary research done and states the basic understanding of the chosen topic which is **NC Codes Library for Pump Impeller Machining Using CNC Machining Centre.** To objective of the dissertation is to create a library of NC code impellers from UNIGRAPHICS for machining using CNC Machining Centre. The challenge rises in this project when generating the design of the pump impeller by using a CAD/CAM system which in this case is CATIA and then generating the tool path simulation and the NC code by means of UNIGRAPHICS. UNIGRAPHICS will be used to simulate and also generate the NC code for machining purposes of the pump impeller. In a way, this report relates to the process of manufacturing a pump impeller. Pump impellers mostly consist of 3 parts which are the hub portion, vanes and shroud portion. There have been several ways to manufacture a pump impeller which includes molding, casting and the use of machines with electron beam welding to mate the three parts. To machine a certain type of complex shape in this case pump impellers requires high level of competency and knowledge in NC Programming. Thus, the report main objective is to develop a library of NC Codes of various impellers that can be used as reference for illiterate users or students to reduce setup time in machining by using CNC Machining Centre here in Universiti Teknologi Petronas.