**Modeling And Analysis Of Single Point Cutting Tool Using Fem Method**

**Abstract** –

This paper is associated with the effect of temperature and cutting forces on the tip of Single Point Cutting Tool. Temperature at tool-tip is measured, generated in high speed machining operations. Temperature at cutting point of the tool is crucial parameter in the control of the machining process. Specifically, three different analyses are compared to an experimental measurement of temperature in a machining process at slow, medium and high speed. Toolwork Thermocouple technique is used for measuring temperature on tip of tool at various cutting parameters (depth of cut, speed and feed rate) and it found that with increase of speed and depth of cut temperature at tip of cutting tool increases. Cutting forces are analytically determined and stresses are found out at tip of cutting tool. Single Point Cutting Tool is modeled in CATIA software and model is then imported in ANSYS software for analysis. By applying temperature readings, temperature distribution on cutting tool is found out. Also from stress analysis of cutting tool it is observed that the effect of cutting force is more as compared to thrust force.

Key Words: Single Point Cutting Tool, Cutting Forces, Temperature, ANSYS, CATIA, Stresses.