

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELGAUM – 590 010



PROJECT REPORT ON

(10 ME 85L)

**“NON CONVENTIONAL CUTTING OF PLATE GLASS
USING HOT AIR JET MIXED WITH ABRASIVE”**

(Sponsored by KSCST)

Submitted in partial fulfillment of the requirements of the award of the degree

BACHELOR OF ENGINEERING

IN

MECHANICAL ENGINEERING

UNDER THE GUIDANCE OF

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ABSTRACT

Glass is an important engineering material used in several applications because of its attractive look, chemical stability towards environment, no porosity, and transparent nature. Its application is widely found in opt mechatronic systems, windows of buildings, art work, etc. Glass cutting is the first step in the fabrication for any of its applications. Conventionally, plate glass is cut by a diamond point tool or a diamond wheel. The cut surfaces by this method are rough and wavy. Micro cracks, which affect the life and quality of glass, may develop during cutting. It is difficult to cut nonstraight profiles by conventional method and glass wastage is more. Curved profiles cannot be cut in a single step. Recently, glass cutting using laser and abrasive water jet has been developed. Laser cutting is very costly, unsafe and leaves a heat affected zone. Researchers have used laser cutting on glasses of thickness lesser than 1mm. Abrasive water jet requires de-ionized water with very high pressure having entrained garnet abrasive and this method produces rough cut surfaces and causes wear of diamond nozzles. A novel method is developed which uses a low cost, simple, hot air jet to cut any complex profile with ease. Experimental studies are conducted to determine the variation of the cutting speed for various stand-off distance, glass thickness, and nozzle diameter. Glass in the thickness range of 2-5mm is used for the experiments.