

# **STUDI KARAKTERISTIK AIRFOIL NACA 0012 PADA BERBAGAI VARIASI ANGLE OF ATTACK**

**DISUSUN OLEH :**

**SARJITO**

**FAKULTAS TEKNIK  
UNIVERSITAS MUHAMMADIYAH SURAKARTA  
Jl. A Yani Pabelan Kartasura Tromol Pos 1, Telp (0271) 717417, 719483  
2008**

## ***ABSTRACT***

In the past, for making and investigating performance of airfoil should be conducted by trial and error, and often many materials castaway. Since every time, if we would like to change of the model, we should produce first for doing next investigation. Beside that, for testing the airfoil should be done in the wind tunnel, it is difficult to get information of pressure and velocity distribution accurately. Now adays, it can be done computationally, faster and cheaper by using softwares.

The aim of this research are to investigate the characteristics of airfoil performance. It cover the pressure distribution, velocity around the airfoil, and visualization of trajectories. Specifically, it will compare performance of symetric airfoil NACA-0012 and asymmetric airfoil NACA-2410, especially relationship between  $C_l$ ,  $C_d$  versus  $\alpha$  computationally. Method of research is proceeded by making of symatric airfoil meodil as well as asymmetric airfoil medel by using design foil software, and then for adjusting angle of attach be assisted by the AutoCad software, and solving process to be done by the SolidWork CosmosFlow software 2007, Analisis covers distribution of pressure, velocity and trajectories simulation.

The result of the research shows, that increasing angle of attach will be followed by increasing of lift coefficient polynomially, it also the drug coefficient has exponentially relationship with angle of attach. However, it can be seen that NACA-0012 has the higher coefficient of lift and coefficient of drug than NACA-2410. This patterns then be compared to Trend of US Departement of Transportation Federal Aviation document, Apparently there has similar trend each other.

***Key Word : Airfoil, NACA, Simetry, Aerodinamics***