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DETERMINATION OF OPTIMIZED SHAPE OF MEAN CAMBER LINE OF AIRFOIL FOR
VARIOUS ATMOSPHERIC CONDITIONS OF EARTH AND MARS.**Abstract**

The aerodynamic performance of any aircraft depends on the shape of an airfoil. an optimized mean camber line of an airfoil can provide a high lift to drag ratio for specific operating conditions and hence can enhance the performance of the aircraft. on the other hand, an airfoil optimized for a specific operating condition will perform poorly at different operating conditions. therefore the airfoil of an interplanetary spacecraft traveling to Mars, optimized for earth atmosphere has very low aerodynamics efficiency on the Martian atmosphere. this problem can be solved by continuously changing the shape of mean chamber line of airfoil during flight according to the operating condition encounter by the spacecraft in both earth and martian atmosphere. in present work, the shape of the mean chamber line is optimized for various atmospheric conditions of planet earth and mars. an algorithm has been developed to determine the shape of the mean chamber line for a wide range of atmospheric conditions.