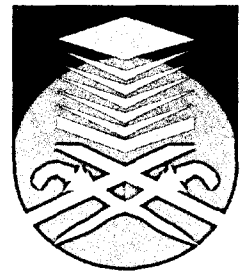

PREDICTION OF AN AEROENGINE PERFORMANCE ANALYSIS AND THERMODYNAMIC PARAMETRIC STUDY (DESIGN POINT STUDY)

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ABSTRACT

The purpose of this research was to determine the performances of the gas turbine aeroengine specifically in design point optimization. The main objective of parametric cyucle analysis is to relate the engine performance parameters which are net thrust (F_N) and specific fuel consumption (SFC) to design choices such as compressor pressure ratio (PR), fan pressure ratio (FPR), bypass pressure ratio (BPR), to design limitations such as turbine entry temperature (TET), compressor exit pressure with the flight environment such as Mach number, ambient pressure and temperature. From this analysis, we can easily to determine the engine type, shape and size of engine components to give optimum performance. To develop design point result, MATLAB and SIMULINK software being use to develop computer program for developing the result of all performances with interactive human interface. From research, the set value of output parameter such as thrust and TSFC calculated by the computer software results the variation of input parameter design such as altitude, Mach number and TET and from these data set, the design point of a gas turbine aeroengine type and size can be determine. The significant of the research is to developing computer software for Propulsion Laboratory Faculty of Mechanical Engineering for students to study related field regarding to gas turbine cycle such as thermodynamics and propulsion.

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