

POLITEHNICA UNIVERSITY OF BUCHAREST
THE FACULTY OF AEROSPACE ENGINEERING

Phd THESIS Abstract

Studies and experimental research in the evaluation of gas turbine engines operating regimes by testing on the testbench after a supplementary instrumentation and processing of the measured data

Conducător de doctorat: Prof.Dr.Eng. Ion Fuiorea

Autor: Eng. Răzvan Marius Catană

In this PhD thesis, it studied the operating regimes of three types of engines, such as TV2-117A turboshaft, AI-20K turboprop, Viper 632 turbojet, and based on experimental data, obtained from engine testing, it has initiated an analytical calculation model, for a gas turbine engine regimes, from which is known only the maximum operating regime.

The Phd thesis presents a practical and simple solution for a gas turbine engine operating regimes calculation, which is accessible for analytical simulation, used for hand-write calculation or to be implemented in an accessible calculation software, without the need for using advanced numerical computing methods

The analytical model calculation is based on the results analysis method research of the engine main parameters variation from the minimum regime to the maximum operating regime. The analysis method is a percentage variation of the parameters, and was performed by reporting the engine parameters values, from each engine, to the parameter value from the maximum engine regime. Following the achieved analysis, were created some common or similar parameters to determine the engine parameters from an unknown regime by reporting to a known regime.