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## Preliminary Design of Heavy Duty Industrial Gas Turbine

Ahmed ElDemerdash, Ahmed ElShaer, Ahmed Hamid, Ahmed khairy,  
Ahmed Samir, Ahmed Shehta, Andrew Maher, Mohamed Adel, Mostafa Elgamal

Zagazig University, Egypt,

Enga7mad0@gmail.com, ahmedp2552@gmail.com, ahmedhamid690@yahoo.com,  
ahmed.khairy14@yahoo.com, ahmedsamir2893@yahoo.com, ahmedshehta.f@gmail.com,  
andrew.maher94@yahoo.com, mu7.adel9@gmail.com, engmostafaelgamal@gmail.com

Supervisors:

<sup>1</sup> Ahmed F. El-Sayed,

Professor of Aerospace and Mechanical Engineering,

Mechanical Power Dept., Faculty of Engineering, Zagazig University, mailto: dr\_ahmedhelal@yahoo.com

<sup>2</sup> Mohamed S. Emeara,

Lecturer Assistant

Mechanical Power Dept., Faculty of Engineering, Zagazig University, mailto: memeara@gmail.com

*Industrial gas-turbine engine had many developments in the past 60 years and becomes the common power plant. Egypt, middle east and Africa is considered one of the biggest region for gas turbine markets. The main aim of the present project is to submit a preliminary design for gas turbine. This is to improve engine performance in the world markets. Engine developments in gas-turbine design have endeavors of larger net-power, low noise and emission as well as better fuel economy. These goals were achieved by increasing of the compressor pressure ratio (PR), turbine inlet temperature (TIT) as well as using modifications of gas-turbine cycle and cooling techniques for both turbines and combustion chamber. Such modifications led to improvements in cycle efficiency, decreases in specific fuel consumption (SFC) and increase the net power. This paper presents a parametric study and design point selection of a heavy duty industrial gas-turbine engine (close to GE-F9). This engine is one of the products of GE Aviation Company. Performance analysis is performed using MATLAB program codes.*