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Joshua Oates - a215 - lab 5 - File Operations

```
clear all;
close all;
clc;
```

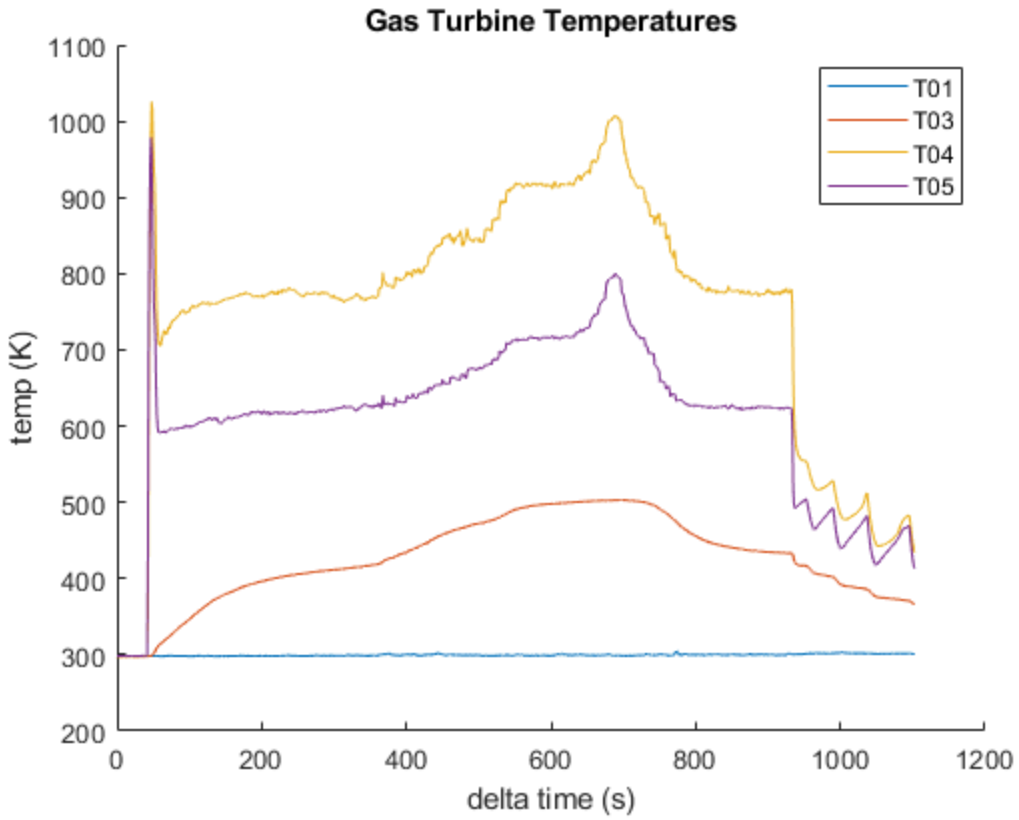
Part 1

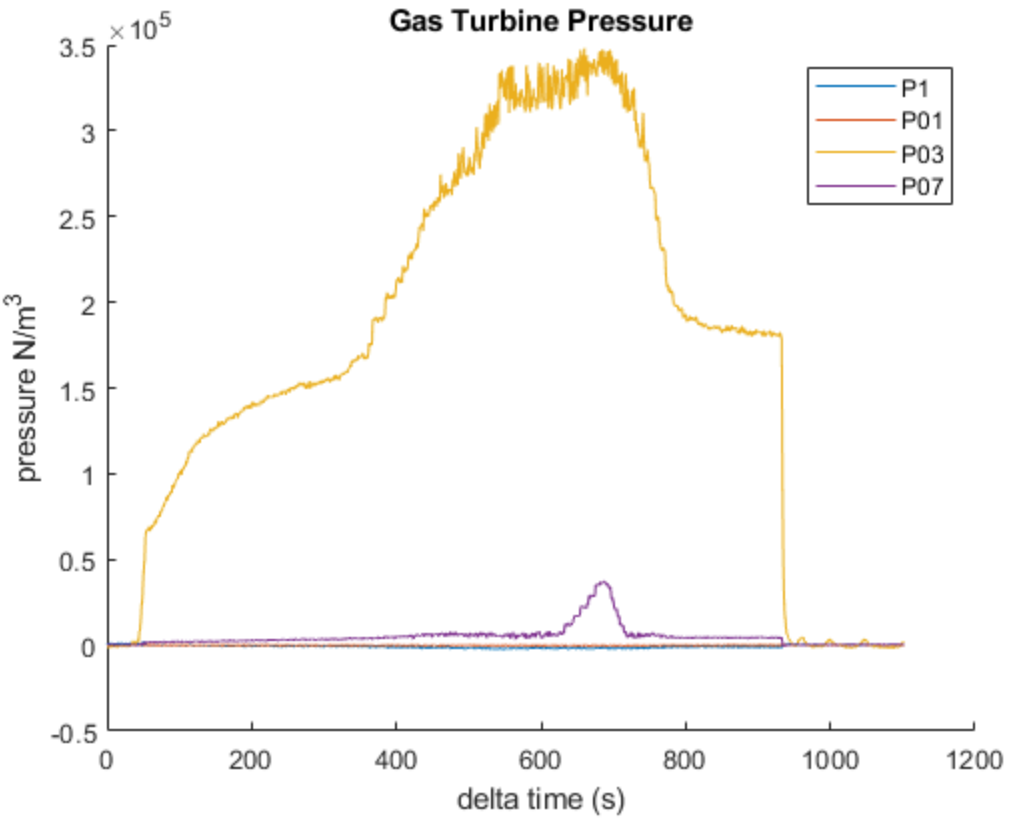
In a script, read into MATLAB the data from turbine experiment using readtable.

```
TurbineDatIn = readtable('a215_lab5files\a215_lab5files
\turbineRunData.xlsx');


% Use the . notation to pull the variables out of the table as
% vectors.
dTime = TurbineDatIn.DTime_seconds_; % seconds

T01 = TurbineDatIn.T01_F_; % Fareinheit
T03 = TurbineDatIn.T03_F_;
T04 = TurbineDatIn.T04_F_;
T05 = TurbineDatIn.T05_F_;

P1 = TurbineDatIn.P1_psig_; % psi
P01 = TurbineDatIn.P01_psig_;
P03 = TurbineDatIn.P03_psig_;
P07 = TurbineDatIn.P07_psig_;

%Convert the temperatures T1, T03, T04, and T05 from F to K and the
% pressures from PSI to N/m2 using vector operations.
% (temp in °F # 32) × 5/9 + 273.15 = temp in K
PSIconv = 6894.76; % 1 PSI = 6894.76 N/m2

P1 = P1 * PSIconv; % overwrite P in psi to P in N/m^2
P01 = P01 * PSIconv;
P03 = P03 * PSIconv;
P07 = P07 * PSIconv;

T01 = ( T01 - 32 ) * (5/9) + 273.15; % overwrite T in F to T in K
T03 = ( T03 - 32 ) * (5/9) + 273.15;
T04 = ( T04 - 32 ) * (5/9) + 273.15;
T05 = ( T05 - 32 ) * (5/9) + 273.15;

% Create two figures, one of all the temperatures in K and one of all
 the
```

```
% pressures in N/m2  versus "D Time"
figure (1)
hold ('on')
plot (dTime, T01, dTime, T03, dTime, T04, dTime, T05);
xlabel ("delta time (s)");
ylabel ("temp (K)");
title ("Gas Turbine Temperatures");
legend("T01","T03","T04","T05");

figure (2)
hold ('on')
plot (dTime, P1, dTime, P01, dTime, P03, dTime, P07);
xlabel ("delta time (s)");
ylabel ("pressure N/m^3");
title ("Gas Turbine Pressure");
legend("P1","P01","P03","P07");
```

Warning: Column headers from the file were modified to make them valid MATLAB identifiers before creating variable names for the table. The original column headers are saved in the VariableDescriptions property. Set 'VariableNamingRule' to 'preserve' to use the original column headers as table variable names.





Part 2

Using Publish, submit this Lab 5 as a PDF lastnameFirstname_a215_lab5.pdf

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