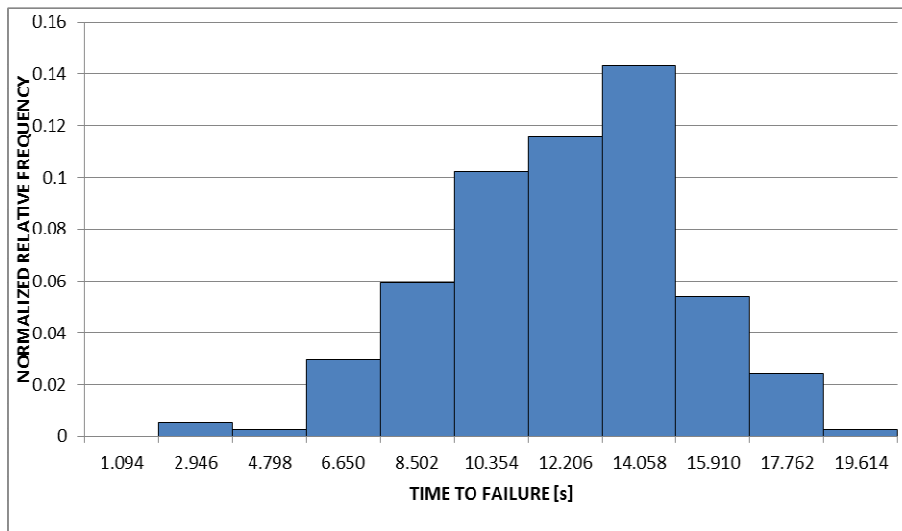


1. EXERCISE – Estimation of distribution parameters

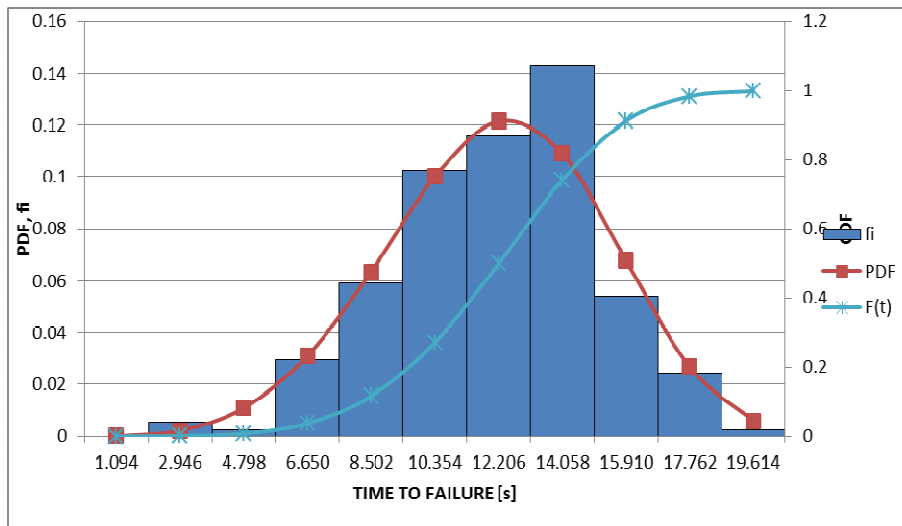
The file named "RV_vaja01_n.txt" contains information for the exercise, where each column represents a sample of the times to failure of the product under consideration. Three different samples are given that belong to the exponential, normal, and Weibull distributions, but they are not necessarily written in that order. Data in the file has a decimal symbol ".", which must be considered when importing the data into Excel.

The task requires that for all three columns of data you do the following:

- Draw a histogram and use it to determine which distribution belongs to it. You can use the "Tools/Data Analysis/Histogram" command in Excel to draw a histogram (if not, load it when you reinstall MS Office).



- Estimate the parameters of the corresponding distribution: exponential (λ), normal (μ, σ), Weibull (β, θ). For the Weibull distribution, use the medial rank method (MMR).
- Draw the corresponding probability density distribution $f(t)$ and the cumulative probability distribution function $F(t)$ on the histogram.



You can also use tools other than Excel (MathLab, Mathematica, etc.) to solve the problem. Submit the exercise in a written report. For each sample, specify which distribution it belongs to, the basic distribution equations, the estimated parameters (final equations only), the histogram, the probability density function of the distribution and the cumulative distribution function, and the final comment on the results.