**Time Series of Climate Variables**

**Practical 4 – Forecasting**

In the file **DailyData.xlsx**, there are two years of total global solar radiation on a horizontal surface (in kWh/m2) and mean ambient temperature. You are to perform the following activities.

1. Take the first year of each variable and construct the power spectrum.
2. Then decide from that what frequencies you need to develop the Fourier series model for each.
3. Find the difference between the data and the seasonal model and go through all steps to find the best ARMA model for these residuals.
4. Test the appropriateness of the models that you found.
5. Use the Fourier series plus ARMA model for each variable to perform one step ahead forecasting for the second year for each.
6. Find the error measures, MBE, MAE and RMSE, in normalised form for the forecasts for the second year.