# UBC MECH 592 - Machine tool Structures and Vibrations - Prof. Y. Altintas
## Project II: FRF Measurement with Impact Tests
*Due date: Monday, 22 October 2018*

The attached file (*Point1_Channel1_CH1.txt*) contains one impact measurement that is done during the laboratory session. Below figure shows the endmill that is tested. The first column is sampling time [s], second column is the measured input force [N], and the third column is the measured vibration (acceleration in $[m/s^2]$).



Use MATLAB to calculate the following:

- Take the Fourier Spectrum (FFT), power spectrum and cross power spectrum of force and vibrations

- Calculate the FRF in [m/N]. (You need to convert the vibration from acceleration to displacement in frequency domain after taking Fourier Spectrum.)

- Calculate the coherence (It will be one because you have one measurement. Please discuss the effect of multiple measurements)

- Plot Power spectra of force and vibrations (displacements).

- Plot FRF of the measured system.