

## [Keynote Talk]: Determination of the Quality of the Machined Surface Using Fuzzy Logic

**Authors :** Dejan Tanikić, Jelena Đoković, Saša Kalinović, Miodrag Manić, Saša Randelović

**Abstract :** This paper deals with measuring and modelling of the quality of the machined surface of the metal machining process. The average surface roughness ( $R_a$ ) which represents the quality of the machined part was measured during the dry turning of the AISI 4140 steel. A large number of factors with the unknown relations among them influences this parameter, and that is why mathematical modelling is extremely complicated. Different values of cutting speed, feed rate, depth of cut (cutting regime) and workpiece hardness causes different surface roughness values. Modelling with soft computing techniques may be very useful in such cases. This paper presents the usage of the fuzzy logic-based system for determining metal machining process parameter in order to find the proper values of cutting regimes.

**Keywords :** fuzzy logic, metal machining, process modeling, surface roughness

**Conference Title :** ICMAME 2018 : International Conference on Mechanical, Aeronautical and Manufacturing Engineering

**Conference Location :** New York, United States

**Conference Dates :** October 08-09, 2018