

Concept paper: kaizen principles in aerospace education

ABSTRACT

Educating students in Aerospace Engineering courses requires expensive equipment and highly trained professionals. A lot of the equipment and personnel are also used by the same aerospace industry to test and manufacture aerospace vehicles. This is a normal practice in established international universities such as those in the UK and the USA. The positive side of such practice is that it ensures that the graduates are 'industry-ready' by the time they graduate. But as time goes by, the cost of purchasing and maintaining the equipment and professionals become extremely expensive. Unlike profit making aerospace industry, Malaysian universities offering these courses are not aggressive by nature to generate their own income to sustain the use of the equipment and personnel. In most cases, universities struggle to maintain the equipment after purchase, and over time students' education are affected resulting in a terrible lost in education quality and university integrity. KAIZEN principles would be a good model to use to assist in breaking such 'pattern'. In this paper a small-scale test has been conducted using one of the most challenging course subjects offered to Aerospace students. The flight-testing laboratory course is part of the 4-year Bachelor in Aerospace Engineering course in UPM. The EAS 3924 Aviation Laboratory for Agriculture Application was used to demonstrate how KAIZEN principles have helped produced great results and played a pivotal role to break a deadlock and helped to keep the standard of aerospace education high as promised to students. The laboratory required the use of an aircraft to fly safely but the appropriate equipment was not available to students due to cost and aircraft availability. Using KAIZEN principles, it was not only feasible to run the laboratory successfully but the entire Aerospace Engineering course could now be run leaner and efficiently with the potential to supersede the course and program objectives manifold. It is possible to make aerospace engineering students receive quality aerospace engineering education whilst the university keep the cost of operation down and in the case of EAS 3924, that cost was virtually zero.

Keyword: Aerospace Education; Flight Testing; Flying Laboratory; Kaizen Aerospace; Aviation Lab