

## ABSTRACTS “INNOVATIVE TECHNOLOGY” 4 / 2015

### **AUTOMATIC CUTTING TOOLS SELECTION FOR HELICOPTER BLADES MOULD MANUFACTURING**

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*The paper presents an application which objective is to provide a software tool for the integrated engineering of the complex parts. Thus, the article is focused on the automatic determination of virtual cutting tools in three-axis milling process of sculptured pockets. The main objective of this article is development an software tool called VTOOL (Virtual cutting Tools) whith applications in helicopter blade manufacturing. The software program is achieved with the help of tools of development Visual Basic and CAD/CAM system PoweShape / PowerMill from Delcam.*

### **CNC MILLING OF SPIRAL SHAPE CONTOURS USING FACS-15 SOFTWARE SYSTEM**

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*Any kind of chip removing process, but not only, of the parts, surfaces or contours must be done today by using modern techniques that implies the use of computer-aided systems. In other words, any modern machining process involves the use of CAD / CAPP / CAM / CAE equipment. In accordance with the new concepts of engineering, as modelling engineering and simulation engineering, all related information with the geometric modelling phase (CAD) must be saved in order to access them both within the process planning phase (CAPP) and in the manufacturing phase (CAM). This paper presents a software package whose interface provides a number of facilities, both in the contours design phase and in its manufacturing phase, resulting by the automation of both processes. This is possible by using original default CAD geometries. These geometric configurations, in so far as we know, cannot be generated automatically by any other CAD / CAPP / CAM / CAE software from the market.*

*The software package also allows, within the CAD phase, to modify quickly the shape of the elements that defines the contours. Other advantages of this system refers to the Romanian language commands and also the favourable purchase price, compared to other similar CAD / CAM / CAE CNC milling systems, such as: CATIA, Pro Engineer, Solid Works, Power Mill etc.*

### **ANALYSIS OF THE AERODYNAMIC PERFORMANCE OF A POWERED SAILPLANE FROM CS 22 CATEGORIES**

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*The aircraft is a complex mechanical system with a large number of degrees of freedom, with complex applications with different aerodynamic forces and moments. By developing techniques for flight simulation and airflows, they allow determination of the aerodynamic characteristics of an aircraft in a short time. In this paper it was determined aerodynamic performance (lift, drag, coefficient of pressure) of a powered sailplane category CS-22 rules for different flight regimes. The variation curve of drag coefficient depending on the angle of incidence was determined for the wing profile, for complete wing and full powered sailplane. Preliminary analysis of a powered sailplane aerodynamics analysis using specific programs is achieved in a short time, with minimal material costs quickly determining the main characteristics of flight.*

### **RESEARCHES CONCERNING THE ACHIEVEMENT OF AN INTEGRATED DOSING SYSTEM FOR THE BINAR LUBRICANT FLUID**

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*The paper presents a study for the achievement of an integrated dosing system for a binary lubricant fluid, followed by an evaluation of its tribological properties and a comparison between this one and the classical pump-driven liquid lubrication solution. An experimental stand was design and realized, in order to test a standard gearbox, alternatively lubricated with both systems. The influence of the two lubrication systems on the performance of the gears and ball bearings was investigated, with variations of load and speed. Statistical techniques were used to design an efficient experimental plan. The dependent variables chosen to be monitored in this experiment were the operating temperature and the level of noise. The extended tests show that the binary lubrication system offers better performance than the classical lubrication system.*

**SISTEME ELECTRONICE DE ACHIZIȚII /  
DATA ACQUISITION SYSTEMS**

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*This article approaches the opportunity of transitioning an organisation to an e-procurement model, by showing both theoretically, as well as practically, using a case study, the superiority of such system from a cost and efficiency point of view, to a traditional procurement process. The purpose of the case study is to showcase the simplicity and accessibility perceived by the end user through the user interface, while not making any compromises with regard to the complexity and thoroughness of the back-end process.*