

Instruction Program for Human Factors in Maintenance, Addressed to the People Working in Colombian Air Force Aeronautical Maintenance Area to Strengthen Operational Safety

Authors : Rafael Andres Rincon Barrera

Abstract : Safety in global aviation plays a preponderant role in organizations that seek to avoid accidents in an attempt to preserve their most precious assets (the people and the machines). Human factors-based programs have shown to be effective in managing human-generated risks. The importance of training on human factors in maintenance has not been indifferent to the Colombian Air Force (COLAF). This research, which has a mixed quantitative, qualitative and descriptive approach, deals with its absence of structuring an instruction program in Human Factors in Aeronautical Maintenance, which serves as a tool to improve Operational Safety in the military air units of the COLAF. Research shows the trends and evolution of human factors programs in aeronautical maintenance through the analysis of a data matrix with 33 sources taken from different databases that are about the incorporation of these types of programs in the aeronautical industry in the last 20 years; as well as the improvements in the operational safety process that are presented after the implementation of these ones. Likewise, it compiles different normative guides in force from world aeronautical authorities for training in these programs, establishing a matrix of methodologies that may be applicable to develop a training program in human factors in maintenance. Subsequently, it illustrates the design, validation, and development of a human factors knowledge measurement instrument for maintenance at the COLAF that includes topics on Human Factors (HF), Safety Management System (SMS), and aeronautical maintenance regulations at the COLAF. With the information obtained, it performs the statistical analysis showing the aspects of knowledge and strengthening the staff for the preparation of the instruction program. Performing data triangulation based on the applicable methods and the weakest aspects found in the maintenance people shows a variable crossing from color coding, thus indicating the contents according to a training program for human factors in aeronautical maintenance, which are adjusted according to the competencies that are expected to be developed with the staff in a curricular format established by the COLAF. Among the most important findings are the determination that different authors are dealing with human factors in maintenance agrees that there is no standard model for its instruction and implementation, but that it must be adapted to the needs of the organization, that the Safety Culture in the Companies which incorporated programs on human factors in maintenance increased, that from the data obtained with the instrument for knowledge measurement of human factors in maintenance, the level of knowledge is MEDIUM-LOW with a score of 61.79%. And finally that there is an opportunity to improve Operational Safety for the COLAF through the implementation of the training program of human factors in maintenance for the technicians working in this area.

Keywords : Colombian air force, human factors, safety culture, safety management system, triangulation

Conference Title : ICFSAS 2021 : International Conference on Flight Safety and Aviation Security

Conference Location : Helsinki, Finland

Conference Dates : July 19-20, 2021