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The 14th International Conference in Quality and Dependability CCF2014 - An Important Event in the Field

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Abstract
In the first part of the paper, the coordinators of CCF2014 present the evolution of the CCF conferences, which became an important international forum for the dissemination of recent information and scientific results in quality and dependability (reliability, maintainability, safety/security). In the second part of the paper, they present the objectives and the topics of CCF2014. The authors mention that several debates of CCF2014 will be dedicated to the evolutions in the European quality on the European scene during these last years, as well as to the national evolutions in this field. The International Conference in Quality and Dependability – CCF is now a well established brand of excellence among the international scientific meetings in the inter-disciplinary field of quality and dependability.

Keywords: Quality, Dependability, Reliability, Conference, International Conference, CCF, CCF2014, Quality Policy

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Lean and Six Sigma: A Comparative Study

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Abstract
The purpose of this paper is to compare and contrast Lean and Six Sigma organizational approaches. This is an important area of study because although, theoretically, there are differences between Lean and Six Sigma, they can be compatible and comparable in practice. Organizations can benefit from the integration of Lean and Six Sigma, as both are effective methods of continual improvement. Although both are effective tools for implementing continuous improvement, when combined they are all the more successful. This paper therefore compares and contrasts Lean and Six Sigma with a view to illustrating their effectiveness separately and together. Thus this paper will identify the weaknesses and strengths of both Lean and Six Sigma and the ways in which they compliment each other.

Keywords: Lean, Six Sigma, Quality, Management, Study, Approach

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Lean Manufacturing: Can it be Applied Successfully within the Higher Education Sector?

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Abstract
The purpose of this paper is to present the findings of a research project which aims to determine if and how lean manufacturing principles can be applied to the Higher Education sector. The research is based on a comparative qualitative analysis of literature and semi-structured interviews with those involved in lean implementation across a number of sectors including Higher Education. It is shown that while lean projects can be successful at a local level, a more strategic approach is required to ensure a culture for continuous improvement and full implementation of lean principles is achieved. Furthermore, critical success factors are identified at all levels of implementation. The practical implication of this work is to provide a framework which will help in the planning and implementation stages of applying lean manufacturing to the Higher Education Sector. The value of the work which this paper conveys is the presentation of a framework, informed by best practice and lessons learned in implementing lean manufacturing and which can be applied to the higher education sector.

Keywords: Lean practices, best practice, higher education.

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ISO 9001:2015 and ISO 14001:2015 - Advanced QMS and EMS Versions

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Abstract
Business standardization developed intensely in the second decade of the 21st century. In late 2012 (31st of December) there were: (i) 1504213 certificates to ISO 9001, 13485, 14001, 16949, 22000, 27001 and 50001 in the world, whereby 1,101,272 certificates were to ISO 9001, and 285 844 were to ISO 14001. It is estimated that on 31st of December 2013 total number of certificates for all SMS will be 1600000, with just for QMS 1150000. In our country there are approximately 3000 certificates for QMS, and approximately 800 certificates for all other SMS, which is 2,6 i.e. 2,1 per mille, respectively, comparing to worldwide. This again means that with this number of certificates, both for QMS and total number, Serbia is about 40th ranked in the world. On the other hand, for two years now, ISO TC 176 is working intensely on the new QMS model. At the moment, there is current CD version, with the similar situation for ISO 14001 (EMS) for which ISO TC 207 is working on the new version. This paper provides detailed analysis of certification status, both in the world and our country, by different parameters, for seven standardized management systems, as well as the developing condition of the new QMS and EMS models.

Keywords: Business Standardization, QMS, EMS, analysis, new model.

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Thermography as A Tool in the Development of Microdevices

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Abstract
The characterization of microdevices involves a multitude of methods and investigative procedures. Thermography, as a method, opens a new way of working in the development process of this class of devices. Investigated microdevices structures were subjected to various types of electrical stress and the effects of applying stimuli on these structures were visualized. This paper presents the issues related to the use of this method and treats the investigation procedures, the calibration problems and the necessary adjustments of characterization system. Experiments are performed using FLIR SC 5000 camera equipped with a G3 type lens. Various types of devices as well as specific test vehicles were subjected to the tests. The information obtained and the ways of interpreting them were analyzed.

Keywords: Microdevices, Reliability, Thermography, Experiments, Investigation

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An Improved Solution for Design of Reliable Robotic Arms for Research

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Abstract
This paper investigates the use of new methods for the design of robot arms to improve their accuracy and strength without the use of expensive components or exotic gear systems. The result is a system with increased reliability compared to existing ones in this price category. The compromise we made is the use of a trapezoidal screw, similar to those used in CNC machines, that significantly reduces the speed but increases the overall accuracy and strength of the entire arm. Thus a millimeter precision can be achieved or even submillimeter depending on the type of screw used increasing the payload as necessary. The mechanical advantage is considerable and is not subject to the backlash phenomenon, so the control scheme can be kept open using stepper motors and eliminating the need to use expensive position sensors and closed loop control schemes that requires intensive processing power. In this paper we present the relation between the parameters and the screw speed, accuracy and strength screw and a series of case studies that highlight the benefits of using this particular type of actuator arm screw. The prototype developed under this work has three degrees of freedom and can be used for very precise pick and place operations.

Keywords: Robot, robotic, cost, design, reliability, precision

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