

**CENTER FOR  
QUALITY**



**UNIVERSITY OF MONTENEGRO  
FACULTY OF MECHANICAL ENGINEERING**

**7th International Conference**

**ICQME<sup>20</sup><sub>12</sub>**

**(Quality, Management, Environment, Education, Engineering)**

**Proceedings**



**Tivat, Montenegro  
19. - 21. 09. 2012.**

**Center for Quality  
Faculty of Mechanical Engineering**

**7<sup>th</sup> International Conference**

# **ICQME2012**

**(Quality, Managament, Environment, Education, Engineering)**

**19.09.-21.09.2012  
Hotel Palma-Tivat  
Montenegro**

- Title:** *Proceedings of the 7<sup>th</sup> International Conference ICQME 2012  
(Quality, Management, Environment, Engineering)*
- Organizer:** *Center for quality-Faculty of mechanical engineering in Podgorica  
University of Montenegro  
Montenegro*
- Sub organizer :** *Government of Montenegro*
- Design:** *Velimir Karadžić, Center for quality  
Jelena Jovanović, Center for quality  
Aleksandar Vujović, Center for quality*
- Publishers:** *Faculty of mechanical engineering – Center for quality in Podgorica  
University of Montenegro  
Montenegro*
- Print:** *Art Grafika d.o.o.  
Nikšić*
- Issue:** *100 copies*

CIP-Katalogizacija u publikaciji  
Centralna narodna biblioteka Crne Gore, Cetinje  
International Conference ICQME 2012 (3;2008;Tivat) (Seventh)  
7<sup>th</sup> International Conference ICQME 2012, 19.-21.September 2012., Hotel Palma,  
Tivat,:(quality, management, environment, engineering)-Podgorica: Faculty of Mechanical  
engineering, Center for quality, 2012 (Nikšić:Art grafika).-VI, 370 str.  
Tiraž 100.- Bilješke uz tekst.-Bibliografija uz sve radove.  
ISBN: 978-9940-527-28-0  
a) Poslovna politika-Organizacija-Zbornici b)Menadžment-Zbornici  
COBISS.CG-ID 20844560

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## **PRODUCTION PROCESS METRIC IN MEDIUM MANUFACTURING ORGANIZATION**

### **Abstract:**

*In this paper a production subsystem in medium size manufacturing organization is analyzed by using the process approach. The production is analyzed as a network of interconnected sub-processes that are directed towards achieving the defined production objectives, as well as organization goals itself. Process metric for determining the process quality is developed and presented. For each sub-process the deterministic characteristics for processes measurement as well as characteristics values were established. Proposed metric is input for the development of model and software for evaluation and testing of the production process from the point of quality.*

**Keywords:** *Production, manufacturing organization, process approach, process metric*

### **1. INTRODUCTION**

Currently competitive environment, globalization and unstable market create large fluctuations in product demand. This requires manufacturing organizations to develop an integrate management system, to be enabling to deal with the increasing pace of change as well as a number of other challenges (high quality of products, customers' satisfaction, quick response to customers' demands, reliable delivery dates and others). To remain competitive manufacturing organizations need to model a production system able to produce high quality products at low prices and react to market changes [1]. This includes integration of organization goals in requirements of all subsystems of manufacturing organization. Consequently the production subsystem could be analyzed as a set of processes and resources that were designed and constructed to achieve the defined goal, such as the product [2].

The main attributes are the primary objective of manufacturing quality, price, reliability and flexibility [3, 4] and additional time (realization of the planned deadlines) and customer service [5, 6]. The quality of a product is difficult to be defined in quantitative terms because it is related to customer satisfaction which depends not only on the actual features of a product, but also of other factors that are often subjective and thus, difficult to quantify. In production, quality typically refers to how well the production process meets design specifications, while quality of production subsystems has many different aspects. Measuring quality is critical for production, as it reflects the performance of the production process as a whole, and facilitates the establishment of trade-offs between quality and other manufacturing attributes [7].

### **2. ANALYSIS OF PRODUCTION SUBSYSTEM**

In this paper production subsystem in manufacturing organization is analyzed by using process approach. The process approach is one of the eight basic principles of quality management systems