

**VISOKA GOSPODARSKA ŠOLA**

**DIPLOMSKO DELO**

**IZBOLJŠAVE PROIZVODNEGA PROCESA Z  
METODOLOGIJO ŠEST SIGMA**

**IMPROVEMENT OF PRODUCTION PROCESS WITH  
SIX SIGMA METHODOLOGY**

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**Študijski program: Sodobno proizvodno inženirstvo**

**CELJE, 2013**

# IZBOLJŠAVE PROIZVODNEGA PROCESA Z METODOLOGIJO ŠEST SIGMA

## POVZETEK

V diplomski nalogi sem obravnaval problem nedoseganja norme v proizvodnem procesu kavnih aparatov, kar je bil vzrok za nezmožnost izdelave predvidenega števila aparatov v planiranem času. Kratkoročno je to za podjetje pomenilo povečanje proizvodnih stroškov. Kot lastnik zelenega pasu (angl. green belt) sem se lotil izboljšave proizvodnega procesa po metodologiji šest sigma, s katero lahko na sistematičen način izboljšamo kakovost izdelka, odkrijemo in odpravimo vzroke za napake ter zmanjšamo variabilnost proizvodnega procesa. Reševanje problema je potekalo postopno po korakih DMAIC od opredelitve problema, meritev in analize do izboljšav in nadaljnjega nadzora procesa. Pri reševanju problema sem uporabil različne metode in orodja, kot so: viharjenje možganov, diagram vzrok-posledica, Paretov diagram, statistično vrednotenje procesa in sposobnost merilnega procesa. S sistematičnim delom sem prišel do vzroka za nedoseganje norme, ki je bil v neponovljivem merjenju časa testiranja. Napako smo odpravili s spremembo načina zajemanja signala za začetek merjenja časa testiranja, kar je potrdila tudi analiza podatkov po uvedeni izboljšavi. Cilj projekta šest sigma je bil s tem dosežen.

**Ključne besede:** proizvodni proces, kakovost, izboljšave, montažna linija, merilna delovna postaja, šest sigma

# **IMPROVEMENT OF PRODUCTION PROCESS WITH SIX SIGMA METHODOLOGY**

## **ABSTRACT**

In diploma work I deal with the problem of not attaining the norm of the production process of coffee appliances. This resulted in inability to produce expected amount of appliances in planned time and caused higher production costs for a company in short term. As an owner of the green belt I decided to improve production process using six sigma methodology, that helping us to systematically improve quality of products, detect and remove causes for defects, and reduce variability in manufacturing process. I conduct the problem solving process in DMAIC steps from defining the problem, measuring and analysing, to improving and further controlling the process. During problem solving process I used different methods and tools as brainstorming, Ishikawa chard, Pareto chard, statistical process evaluation, capability of measuring system, etc. With systematic work I have found out that the reason for incapability to produce planned quantities of the products is measuring unrepeatability of testing duration. We eliminated the fault by changing the acquisition of a starting signal for measuring the testing duration. Further analysis confirmed the success of the improvement. With that the goal of the six sigma project was achieved.

**Keywords:** Production process, quality improvements, assembly line, measuring station workstation, Six Sigma