SISTEMI KAKOVOSTI

UČNI NAČRT PREDMETA/COURSE SYLLABUS

Predmet:	SISTEMI KAKOVOSTI
Course title:	QUALITY SYSTEMS
Članica nosilka/UL Member:	UL FS

Študijski programi in stopnja	**Študijska smer**	**Letnik**	**Semestri**	**Izbirnost**
Strojništvo, tretja stopnja, doktorski	Proizvodno inženirske znanosti, kibernetika in mehatronika (smer)		Celoletni	izbirni

Univerzitetna koda predmeta/University course code:	0033469
Koda učne enote na članici/UL Member course code:	7314

Predavanja /Lectures	**Seminar /Seminar**	**Vaje /Tutorials**	**Klinične vaje /Clinical tutorials**	**Druge oblike študija /Other forms of study**	**Samostojno delo /Individual student work**	**ECTS**
90					160	10

Nosilec predmeta/Lecturer:	Drago Bračun

Izvajalci predavanj:	Drago Bračun, Davorin Kramar
Izvajalci seminarjev:	
Izvajalci vaj:	
Izvajalci kliničnih vaj:	
Izvajalci drugih oblik:	
Izvajalci praktičnega usposabljanja:	

Vrsta predmeta/Course type:	Izbirni predmet /Elective course

Jeziki/Languages:	Predavanja/Lectures:	Angleščina, Slovenščina
	Vaje/Tutorial:	Angleščina, Slovenščina

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisites:**
Veljajo splošni pogoji za doktorski študij.	General prerequisites for the third level studies.

Vsebina:	**Content (Syllabus outline):**
Sistemski vidik kakovosti: Proizvod in tržišče. Motivacija in obnašanje kupca. Opredelitev kakovosti. Atributi kakovosti. Kakovost kot vrednost. Koncepti celovitega upravljanja kakovosti. Model kakovosti: Osnovne mere modela. Obvladovanje kakovosti. Vrednost proizvoda. Generične specifikacije proizvoda. Ocenjevanje funkcionalnih vrednosti. Več-atributni model kakovosti proizvoda. Funkcionalno strukturiranje kakovosti v proizvodnem podjetju: Metodologija strukturiranega razvoja kakovosti. Taksonomija merskih karakteristik kakovosti. Mere za določitev performanc proizvodne strukture in njenih elementov. Razvoj kakovosti na sistemskem nivoju in v podsistemih. Načrtovanje parametrov in toleranc proizvoda. Kakovost in obvladovanje stroškov. Zagotavljanje kakovosti na proizvodnem nivoju: Metode načrtovanja in kontroliranja kakovosti. Tehnike izboljševanja procesov. Model računalniško podprtega obvladovanja kakovosti v podjetju.	A System aspect to quality: Product and market. Motivation and customer behaviour. Definitions of quality. Attributes of quality. Quality as a value. Concepts of quality management. Quality model. Basic characteristics of the model, Quality control. A product value. Generic product specifications. Assessmet of functional values. A multi-attribute quality model of a product. Functional structuring of a quality in a manufacturing enterprise: A methodology of strategic quality deployment. A taxonomy of quality characteristics. Performance measures of manufacturing structures and their elements. Quality design on system level. Parameter and tolerance design. Quality and cost control. Quality assurance on production level: Methods for quality design and control. Techniques for process improvement. Computer-aided quality management system in an enterprise.

Temeljna literatura in viri/Readings:

[1] Cook, H.E.: Product Management - Value, quality, cost, price, profit and

organization, Kluwer Academic Publishers, 1997.

[2] Phadke, M.S.: Quality engineering using robust design, Prentice-Hall International, 1989.

[3] Myers, R.H.: D.C. Montgomery, C.M. Anderson-Cook, Response Surface Methodology: Process and Product Optimization Using Designed Experiments, John Wiley, 2009.

[4] Dale B.G.: Managing Quality, Fourth Edition, Blackwell Publishing, Oxford, UK, 2003.

[5] Montgomery, D.C.: Introduction to statistical quality control.- 2nd ed., J. Wiley, 1991

Cilji in kompetence:	**Objectives and competences:**
Cilji: Vsebina predmeta je usmerjena k razumevanju sistemskega pristopa k zasnovi, gradnji, strukturiranju in operacijam sistemov kakovosti v luči podpore razvoju proizvoda in organizacije. **Kompetence**: Študent osvoji pristop k načrtovanju sistemov kakovosti ter metodam načrtovanja, zagotavljanja in obvladovanja tako na nivoju načrtovanja proizvoda kot tudi na nivoju proizvajanja. Je usposobljen razviti sodoben sistem kakovosti, vključujoč tudi računalniško podprte rešitve.	**Goals:** A content of the subject is oriented to understanding a system approach to design, building, structuring and operations quality management systems in terms of product development and organization design. **Competences**: A student learns how to design quality systems and methods of product and process design, assurance and control as well as manufacturing. A student is qualified also for developing a quality management system.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Študent osvoji pristop k načrtovanju sistemov kakovosti ter metodam načrtovanja, zagotavljanja in obvladovanja tako na nivoju načrtovanja proizvoda kot tudi na nivoju proizvajanja. Je usposobljen razviti sodoben sistem kakovosti, vključujoč tudi računalniško podprte rešitve.	A student learns how to design quality systems and methods of product and process design, assurance and control as well as manufacturing. A student is qualified also for developing a quality management system.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, laboratorijske vaje, seminarsko delo, e-izobraževanje, konzultacije. Seminarsko delo v čim večji meri navezujoče se na področje	Lectures, laboratory practice & seminar work, e-education, consulting. The seminar work is related, as much as possible, to the student's doctoral

doktorskega raziskovanja. Študij z uporabo priporočene literature.	research field. Study on a recommended literature basis.

Načini ocenjevanja:	**Delež/ Weight**	**Assessment:**
Način (pisni izpit, ustno izpraševanje, projektni seminar). • projektni seminar (50%) • pisni izpit (30%) • ustno izpraševanje (20%)		Method (written exam, oral examination, assignments, project) • project seminar (50%) • written exam (30%) • oral examination (20%)

Reference nosilca/Lecturer's references:

doc.dr. Drago BRAČUN

Bračun Drago, Sluga Alojz, Stereo vision based measuring system for online welding path inspection; Journal of Materials Processing Technology, 2015.

Vukašinovič Nikola, Bračun Drago, Možina Janez, Duhovnik Jože. A new method for defining the measurement-uncertainty model of CNC laser-triangulation scanner. The international journal of advanced manufacturing technology, 2012.

Bračun Drago, Gruden Valter, Možina Janez. A method for surface quality assessment of die-castings based on laser triangulation. *Measurement science & technology*, 2008.

Diaci Janez, Bračun Drago, Gorkič Aleš, Možina Janez, Rapid and flexible laser marking and engraving of tilted and curved surfaces. Optics and lasers in engineering, 2010.