

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	Sistemi kakovosti
Course title:	Quality Systems

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Sonaravne tehnologije in sistemi v strojništvu - 3. stopnja	/	1. / 2.	Zimski / letni
Sustainable technologies and systems in mechanical engineering - 3 rd cycle	/	First / second	Winter / summer

Vrsta predmeta / Course type

izbirni/elective

Univerzitetna koda predmeta / University course code: STSS IP UN36

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Laboratorij- ske vaje work	Druge obli- ke študija	Samost. delo Individual work	ECTS
10	40			/	250	10

Nosilec predmeta / Lecturer:

prof. dr. Mirko Soković, doc. dr. Janez Gradišek

Jeziki /

Languages:

Predavanja / Lectu-

res:

Vaje / Tutorial:

Slovenski / Slovenian

Slovenski / Slovenian

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

- Vpis v doktorski študijski program.

Prerequisites:

- Enrolment in the doctoral study program.

Vsebina:

Sistemi vidik kakovosti: Proizvod/storitve in trg. Motivacija kupca za kakovost. Opredelitev kakovosti. Kakovost kot vrednost. Koncepti celovitega upravljanja kakovosti (TQM).

Model kakovosti: Osnovne mere modela. Generične specifikacije proizvoda in storitve. Ocenjevanje funkcionalnih vrednosti. Večatributni model kakovosti proizvoda/storitve.

Funkcionalno strukturiranje kakovosti v podjetju: Metodologija strukturiranega razvoja kakovosti. Taksonomija merskih karakteristik kakovosti. Mere za določitev učinkovitosti proizvodne/storitvene strukture in

Content (Syllabus outline):

Systemic Aspect of Quality: Product/Service and the Market, Customer Motivation for Quality, Definition of Quality, Quality as a Value, Concepts of Total Quality Management (TQM)

Quality Model: Fundamental Measures of the Model, Generic Specifications of Products and Services, Evaluation of Functional Values, Multi-Attribute Quality Model for Products/ Services

Functional Structuring of Quality in a Company: Methodology for Structured Quality Development, Taxonomy Measurement Characteristics of Quality, Measures for De-

njenih elementov. Razvoj kakovosti na sistemskem nivoju in v podsistemih. Kakovost in obvladovanje stroškov.

Zagotavljanje kakovosti na proizvodnem/storitvenem nivoju: Metode načrtovanja in kontroliranja kakovosti. Tehnike izboljševanja procesov. Model računalniško podprtega obvladovanja kakovosti v podjetju.

termining the Efficiency of Production/Service Structures and Their Elements, Quality Development at the System and Subsystem Levels, Quality and Cost Management

Quality Assurance at the Production/Service Level: Methods for Quality Planning and Control, Process Improvement Methods, Computer-Supported Quality Management Model in a Company.

Temeljna literatura in viri / Readings:

Temeljna literatura / Basic Literature:

1. KONDIĆ, Ž. L. MAGLIĆ, D. PAVLETIĆ in I. SAMARDŽIĆ. *Kvaliteta 1*. Sveučilište Josipa Jurja Strossmayera u Osijeku, SFSB, Sveučilište Sjever, Sveučilište u Rijeci, Varaždin, 2018.
2. TANASIĆ, Z., G. JANJIĆ, G. in M. SOKOVIĆ. *Napredni koncepti proizvodnje, učbenik*, Banja Luka: Mašinski fakultet Univerziteta u Banjoj Luci, 2022.

Priporočena literatura / Recommended Literature:

1. MONTGOMERY, D.C., C. L. JENNINGS in M. E. PFUND. *Managing, Controlling, and Improving Quality*. USA: John Wiley & Sons, Wiley, Inc., 2011.
2. MYERS, R., D. C. MONTGOMERY, Ch. M. ANDERSON-COOK. *Response surface methodology: process and product optimization using designed experiments*. USA: John Wiley & Sons, Wiley, Inc., 2011.
3. TAGUE, N.R. *Quality Toolbox, Second Edition*. Milwaukee, Winsconsin, USA: ASQ Quality Press, 2005.
4. Standardi: ISO 9001:2015, ISO 14001, ISO/TC 16949, ISO 18001 – izbrana poglavja.

Cilji in kompetence

Splošne kompetence doktoranda:

- razumevanje pristopov, konceptov in metodologij znanstveno-raziskovalnega dela,
- spoštljiv odnos do ustvarjalnosti in dosežkov preteklega znanstveno-raziskovalnega in razvojnega dela naših prednikov,
- sposobnost sistematičnega in strukturiranega pristopa k znanstveno-raziskovalnemu delu,
- samostojno reševanje znanstveno-raziskovalnih in aplikativnih nalog (od formulacije problema do rešitve oz. do odgovora na zastavljeno vprašanje),
- sposobnost opazovanja in razumevanja fizikalnih procesov,
- sposobnost predvidevanja izidov,
- sposobnost kritične presoje,
- komunikacijske sposobnosti za predstavi-

Objectives and competencies:

General Competencies of a Doctoral Student

- Understanding of approaches, concepts, and methodologies of scientific research work.
- Respectful attitude towards creativity and achievements of past scientific research and development work by our predecessors.
- Ability to apply a systematic and structured approach to scientific research.
- Independent problem-solving in scientific research and applied tasks (from problem formulation to solution or answering the posed question).
- Ability to observe and understand physical processes.
- Ability to predict outcomes.
- Capacity for critical assessment.
- Communication skills for presenting and

tev in argumentiranje lastnih zamisli, hipotez in rezultatov pred znanstveno–raziskovalno in strokovno javnostjo v najširšem obsegu,

- zavezanost k etiki znanstveno–raziskovalnega dela.

Predmetno specifične kompetence:

- sposobnost razumevanja in uporabe sodobnih teorij s področja tehniških, tehnoloških in naravoslovnih ved,
- sposobnost razumevanja tehniških problemov in uporaba sodobnih tehnik in orodij pri reševanju le-teh,
- sposobnost interdisciplinarnega povezovanja znanja,
- usposobljenost za svetovalno delo (prenos znanja).

arguing one's ideas, hypotheses, and results before the scientific research and professional community at the broadest level.

- Commitment to the ethics of scientific research.

Subject-Specific Competencies

- Ability to understand and apply modern theories in the fields of engineering, technology, and natural sciences.
- Capability to comprehend technical problems and apply modern techniques and tools to solve them.
- Ability to integrate knowledge across disciplines.
- Competence for advisory work (knowledge transfer).

Predvideni študijski rezultati:

Znanje in razumevanje iz sledečih področij:

- Razumevanje in analiza sistemskih vidikov kakovosti
- Uporaba modelov kakovosti pri ocenjevanju proizvodov in storitev
- Strukturiranje kakovosti v storitvenem ali proizvodnem podjetju
- Implementacija metod zagotavljanja kakovosti v industrijskem okolju
- Razvoj inovativnih pristopov k upravljanju kakovosti

Intended learning outcomes:

Knowledge and understanding of the following areas:

- Understanding and analysis of quality from a systemic perspective
- Application of quality models for assessment of products and services
- Establishing a quality function in a service or production company
- Implementation of quality assurance methods in industrial environment
- Development of innovative approaches to quality management

Metode poučevanja in učenja:

- *Predavanja:* z aktivno udeležbo doktorandov (razlaga, razprava, vprašanja, primeri),
- *Seminar:* priprava, predstavitev in uspešen zagovor raziskovalne naloge, (opredelitev problema, reševanje problemov, študije primera, kritično presojanje, razprava, refleksija izkušenj, vrednotenje, timsko delo).

Learning and teaching methods:

- *Lectures:* with active participation of doctorands (explanation, discussion, questions, examples),
- *Seminar:* preparation, presentation and successful defence of research work (problem definition, problem solving, case studies, critical thinking, discussion, reflection of experience, evaluation, teamwork).

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
Načini: • temeljna ali aplikativna raziskovalna naloga z zagovorom Ocenjevalna lestvica: ECTS (uspešno, neuspešno).	100 %	Types: • fundamental or applicative research paper with characters defence Grading scale: ECTS (successful, unsuccessful).