

	UČNI NAČRT PREDMETA/COURSE SYLLABUS
Predmet	Menedžment kakovosti
Course title	Quality Management

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Tehnologije in sistemi v strojništvu/ 2. stopnja	Ni smeri študija	2. letnik	3.
Technologies and systems in mechanical engineering/ 2 nd Cycle	No study field	2 nd year	3 rd

Vrsta predmeta/Course type

Modularni/module

Univerzitetna koda predmeta/University course code

TSS M2 UN 3

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Laboratory work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
30			30		120	6

Nosilec predmeta/Lecturer:

prof. dr. Mirko Soković

Jeziki/ Predavanja/Lectures:
Languages: Vaje/Tutorial:

slovenski/Slovenian
slovenski/Slovenian

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

<ul style="list-style-type: none"> Vpis v drugi letnik študijskega programa. Študent mora pred izpitom pripraviti in predstaviti ter zagovarjati projektno seminarsko nalogo. 	<ul style="list-style-type: none"> A prerequisite for inclusion is enrolment in the second year of study. Student has to prepare, present and defend a project seminar before the exam.
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Vsebina:

Content (Syllabus outline):

<ul style="list-style-type: none"> <i>Uvod</i> Osnovni pojmi in definicije kakovosti, zagotavljanja kakovosti, menedžmenta kakovosti. Vidiki kakovosti. Vloga in pomen menedžmenta kakovosti v organizaciji. <i>Razvojna pot menedžmenta kakovosti</i> Posamezne faze v razvoju menedžmenta kakovosti: <ul style="list-style-type: none"> - preverjanje (I), - kontrola kakovosti (QC), - zagotavljanje kakovosti (QA), - vodenje kakovosti (QM), - celovito obvladovanje kakovosti (TQC), - celovito vodenje kakovosti (TQM), - nenehno izboljševanje (CI). 	<ul style="list-style-type: none"> <i>Introduction</i> Basic concepts and definitions of quality, quality assurance, quality management. Quality aspects. The role and importance of quality management in an organization. <i>Development of quality management</i> Individual stages in the development of quality management: <ul style="list-style-type: none"> - inspection (I), - quality control (QC), - quality assurance (QA), - quality management (QM), - total quality control (TQC), - total quality management (TQM), - continuous improvement (CI).
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<ul style="list-style-type: none"> • <i>Guruji kakovosti in njihov prispevek k razvoju kakovosti</i> <ul style="list-style-type: none"> - Walter Shewhart, Edwards Deming, Joseph Juran, Philip Crosby, Armand Feigenbaum, - Kaoru Ishikawa, Shigeo Shingo, Genichi Taguchi, Noriaki Kano, Yoshio Kondo. • <i>Sistemi vodenja kakovosti (SVK) in standardizacija</i> Sistemski pristop k SVK. Mednarodni standardi za SVK: <ul style="list-style-type: none"> - družina standardov ISO 9000, - standard za avtomobilsko industrijo IATF 16949, ... Drugi sistemi vodenja: <ul style="list-style-type: none"> - sistem ravnanja z okoljem ISO 14001, - sistem vodenja varnosti in zdravja pri delu ISO 45001, - sistem upravljanja z energijo ISO 50001, - sistem vodenja varnosti živil ISO 22000. Integrirani sistemi vodenja. • <i>Metode / tehnike menedžmenta kakovosti</i> Pri izvajanju svojih dejavnosti menedžment kakovosti uporablja statistične (kvantitativne) in nestatistične (kvalitativne) tehnike. Kvantitativne tehnike: <ul style="list-style-type: none"> - FMEA, SPC, QFD, DoE, DMAIC, DFSS, ... Kvalitativne tehnike: <ul style="list-style-type: none"> - Benchmarking, Balanced Scorecard (BSC), Model EFQM, Kanban, Activity Based Costing (ABC), ... • <i>Stroškovni in vrednostni vidiki kakovosti</i> Stroški kakovosti. Kakovost in produktivnost. 	<ul style="list-style-type: none"> • <i>Quality "Gurus" and their contribution</i> <ul style="list-style-type: none"> - Walter Shewhart, Edwards Deming, Joseph Juran, Philip Crosby, Armand Feigenbaum, - Kaoru Ishikawa, Shigeo Shingo, Genichi Taguchi, Noriaki Kano, Yoshio Kondo. • <i>Quality management systems (QMS) and standardization</i> System approach to QMS. International standards for QMS: <ul style="list-style-type: none"> - ISO 9000 family of standards, - IATF 16949 Automotive standard, Other management systems: <ul style="list-style-type: none"> - Environmental management systems ISO 14001, - Occupational health and safety management systems ISO 45001, - Energy management systems ISO 50001, - Food safety management systems ISO 22000. Integrated management systems. • <i>Quality management methods /techniques</i> In carrying out its activities, quality management uses statistical (quantitative) and non-statistical (qualitative) techniques. Quantitative techniques: <ul style="list-style-type: none"> - FMEA, SPC, QFD, DoE, DMAIC, DFSS, ... Qualitative techniques: <ul style="list-style-type: none"> - Benchmarking, Balanced Scorecard (BSC), Model EFQM, Kanban, Activity Based Costing (ABC), ... • <i>Cost and value aspects of quality</i> Quality costs. Quality and productivity.
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Temeljna literatura in viri/Readings:

- MONTGOMERY, Douglas, C.L. JENNINGS in M.E.PFUND. *Managing, Controlling, and Improving Quality*. USA: John Wiley & Sons Wiley, Inc., 2011.
- BASU, Ron. *Implementing Quality: A Practical Guide to Tools and Techniques*, Thomson, Learning, 2004. ISBN 1-84480-057-1
- KONDIĆ, Živko, Leon MAGLIĆ, Duško PAVLETIĆ in Ivan SAMARDŽIĆ. *Kvaliteta 1, Kvaliteta 2, Kvaliteta 3*. Varaždin: Sveučilište J.J., Strossmayera u Osijeku, 2018. ISBN 978-953-6048-81-6, ISBN 978-953-6048-83-0, ISBN 978-953-6048-84-7
- ŠOSTAR, Adolf: *Management kakovosti*. Maribor: Fakulteta za strojništvo, 2000. ISBN 86-435-0304-1
- MAROLT, Janez in Boštjan GOMIŠČEK. *Management kakovosti*. Kranj: Fakulteta za organizacijske vede, 2005. ISBN 961-232-174-4

Cilji in kompetence:

Učna enota prispeva predvsem k razvoju naslednjih splošnih in specifičnih kompetenc:

- sposobnost razumevanja, analize, sinteze in uporabe teoretičnih in aplikativnih znanj o menedžmentu kakovosti v praksi ter reševanje problemov in posledic na področju menedžmenta kakovosti,
- seznanitev s sodobnimi razvojno-raziskovalnimi metodami in procesi za uveljavljanje in nadzor menedžmenta kakovosti,
- sposobnost samostojnega in ustvarjalnega raziskovalno-razvojnega dela na področju menedžmenta kakovosti,
- sposobnost prenosa znanja s področja menedžmenta kakovosti v poslovno strukturo gospodarskih in družbenih organizacij,
- sposobnost za razvoj kritične presoje uporabe metod in tehnik menedžmenta kakovosti za doseganje poslovne odličnosti,
- razumevanje povezave med aktivnostmi menedžmenta kakovosti v vseh področjih razvoja proizvoda in procesa proizvodnje ter sistemi kot so logistika, ekonomika, itd.,
- kooperativnost, usposobljenost za timsko delo,
- sposobnost interdisciplinarnega povezo-vanja znanja.

Objectives and competences:

The learning unit mainly contributes to the development of the following general and specific competences:

- ability to understand, analyze, synthesize and use theoretical and applied knowledge of quality management in practice and solve problems and consequences in the field of quality management,
- acquaintance with the modern research and development methods and processes for the implementation and control of quality management,
- ability of independent and creative R&D work in the field of quality management,
- ability to transfer knowledge from the field of quality management to the business structure of production and social organizations,
- ability to develop critical appraisal of the use of quality management methods and techniques to achieve business excellence,
- understanding the connection between quality management activities in all areas of product development and production process and sub-systems such as logistics, economics, etc.,
- cooperation, ability to work in a team,
- ability to interdisciplinary integration of knowledge.

Predvideni študijski rezultati:

Študent/študentka:

- razume, obvlada in zna predstaviti teoretične in strokovne pojme in znanja v konkretnem primeru sistema managementa kakovosti,
- obvlada vire, teorijo, metode in tehnike za neposredno uporabo menedžmenta kakovosti v praksi,
- razume povezavo med poslovno strategijo in metodami izvajanja menedžmenta kakovosti,
- zna opredeliti menedžment kakovosti kot osrednjo funkcijo, ki zagotavlja uspešnost, razvoj, odličnost in konkurenčnost,
- bo poznal obstoječe standarde, normative ter ustrezne informacijske sisteme in metode za pridobitev relevantnih certifikatov za različne sisteme vodenja.

Intended learning outcomes:

Student:

- understands, masters and is able to present theoretical and professional concepts and knowledge in the concrete case of a quality management system,
- masters the resources, theory, methods and techniques for direct use of quality management in practice.
- understands the connection between business strategy and methods of implementing quality management,
- is able to define quality management as a central function that ensures success, development, excellence and competitiveness,
- will know the existing standards, norms and appropriate information systems and methods for obtaining relevant certificates for various management systems.

Metode poučevanja in učenja:

- *predavanja* z aktivno udeležbo študentov (razlaga, diskusija, vprašanja, primeri, reševanje problemov),
- *avditorne vaje*: reševanje problemov, študije primerov, kritično presojanje, diskusija, refleksija izkušenj, vrednotenje, projektno delo, timsko delo,
- *laboratorijske vaje*: praktično reševanje več tipičnih problemov v laboratoriju (na računalniku),
- *seminar*: priprava, predstavitev in uspešen zagovor projektne/raziskovalne naloge, (reševanje problemov, študije primera, kritično presojanje, diskusija, refleksija izkušenj, vrednotenje, projektno delo, timsko delo).

Learning and teaching methods:

- *lectures* with active student participation (explanation, discussion, questions, examples, problem solving),
- *tutorial*: problem solving, case studies, methods of critical thinking, discussion, reflection of experience, evaluation, project work, team work,
- *laboratory work*: practical solving of several typical problems in laboratory (on a computer),
- *seminar tutorial*: presentation and defence of project/research work (problem solving studies, critical thinking, discussion, reflection of experience, evaluation, project work, team work).

Načini ocenjevanja:	Delež (v %) Weight (in %)	Assessment:
Načini: <ul style="list-style-type: none"> • pisni izpit • ustni izpit • projektno seminarsko delo Ocenjevalna lestvica: ECTS.	40 % 20 % 40 %	Types: <ul style="list-style-type: none"> • written exam • oral examination • project seminar Grading scheme: ECTS.