

## UČNI NAČRT PREDMETA / COURSE SYLLABUS

<b>Predmet:</b>	Zagotavljanje kakovosti
<b>Course title:</b>	Quality Assurance

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Tehnologije in sistemi – prva stopnja	/	tretji	peti
Technologies and Systems – 1st cycle	/	third	fifth

**Vrsta predmeta / Course type** izbirni/elective

**Univerzitetna koda predmeta / University course code:** TS IP UN 2

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Laboratorijske vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
45		15	15		100	6

**Nosilec predmeta / Lecturer:** prof. dr. Mirko Soković

<b>Jeziki / Languages:</b>	<b>Predavanja / Lectures:</b>	Slovenski/Slovenian
	<b>Vaje / Tutorial:</b>	Slovenski/Slovenian

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

- vpis v tretji letnik študija.

**Prerequisites:**

- enrollment in the third year of study.

**Vsebina:**

- **Uvod**  
*Splošno o kakovosti.  
Osnovni pojmi in definicije kakovosti.  
Razlike med proizvodom in storitvijo.*
- **Sodobni koncepti kakovosti**  
*Razvojna pot in družbeni vidiki zagotavljanja kakovosti.  
Kakovost se spleča.*
- **Razvoj sistema kakovosti**  
*Organizacija in struktura sistema vodenja kakovosti (QMS).  
Poslovník kakovosti.*

**Content (Syllabus outline):**

- **In Introduction**  
*General about quality.  
Basic concepts and definitions of quality.  
Differences between product and service.*
- **Modern concepts of quality**  
*Development path and social aspects of quality assurance.  
Quality is worth.*
- **Development of the quality system**  
*Organisation and structure of the quality management system (QMS).  
Quality regulations.*

*Presoje in certificiranje QMS.  
Ocena kakovosti dobaviteljev.  
Standard za avtomobilsko industrijo ISO/TS 16949.*

*Sistemi ravnanja z okoljem (ISO 14001).  
Sistemi vodenja varnosti in zdravja pri delu  
OHSAS 18001.*

*Integrirani sistemi vodenja (IMS).*

- **Organizacija kontrole kakovosti**  
*Vhodna, medfazna, končna kontrola,  
avtokontrola.  
Ocena kakovosti dobaviteljev.  
Prevzemno vzorčenje.*
- **Stroškovni in vrednostni vidiki kakovosti**  
*Stroški kakovosti.  
Kakovost in produktivnost.*
- **Orodja in tehnike zagotavljanja kakovosti**  
*Sedem osnovnih orodij kakovosti (7QC).  
Sedem menedžerskih orodij (7QM).  
PDCA krog.  
Sedem stopenjski pristop reševanja  
problemov kakovosti.*
- **Statistični nadzor procesov (SPC)**  
*Procesi in njihova variabilnost.  
Stabilnost in sposobnost procesov.  
Statistika v nadzoru kakovosti procesov in  
proizvodov.*
- **Analiza merilnih sistemov (MSA)**
- **Obvladovanje kakovosti od novega  
projekta do redne proizvodnje**  
*Obvladovanje kakovosti novega projekta:  
- razvoj in snovanje proizvoda/storitve,  
- razvoj in snovanje proizvodnega procesa.  
Obvladovanje kakovosti v proizvodnem  
procesu:  
- preventivne metode,  
- reševanje problemov.*
- **Poslovna odličnost**  
*Evropski model odličnosti EFQM  
Priznanje RS za poslovno odličnost (PRSP0)*

*QMS audits and certification.  
Quality assessment of suppliers.  
Automotive industry standard ISO/TS 16949.  
Environmental management systems (ISO  
14001).*

*Occupational health and safety  
management systems OHSAS 18001.  
Integrated management systems (IMS).*

- **Organisation of quality control**  
*Input, intermediate, final control, self-  
control.  
Quality assessment of suppliers.  
Acquisition sampling.*
- **Cost and value aspects of quality**  
*The cost of quality.  
Quality and productivity.*
- **Quality assurance tools and techniques**  
*Seven Basic Quality Tools (7QC).  
Seven Managerial Tools (7QM).  
PDCA round.  
A seven-step approach to solving quality  
problems.*
- **Statistical Process Control (SPC)**  
*Processes and their variability.  
Process stability and capability.  
Statistics in process and product quality  
control.*
- **Analysis of measurement systems (MSA)**
- **Quality control from new project to regular  
production**  
*New project quality control:  
- product/service development and  
design,  
- development and design of the  
production process.*  
*Quality control in the production process:  
- preventive methods,  
- problem solving.*
- **Business excellence**  
*EFQM European model of excellence  
Recognition of the Republic of Slovenia for  
Business Excellence (PRSP0)*

## Temeljni literatura in viri / Readings:

### Temeljna literatura/Basic literature

[1] Marolt, J., Gomišček, B. *Management kakovosti*, Moderna organizacija, Kranj, 2005.

### Priporočljiva literatura/Recommended

[1] Basu, R. *Implementing Quality – A Practical Guide to Tools and Techniques*, Thomson Learning, London, 2004.

[2] Montgomery, D.C., Jennings, C.L., Pfund, M.E. *Managing, Controlling, and Improving Quality*, John Wiley & Sons Wiley, Inc., USA, 2011.

[3] Tague, N.R. *Quality Toolbox, Second Edition*, ASQ Quality Press, Milwaukee, Wisconsin, USA, 2005.

[4] Standardi: ISO 9001:2015, ISO 14001, ISO/TC 16949, ISO 18001 – izbrana poglavja.

### Cilji in kompetence:

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

- sposobnost evidentiranja problema in njegove analize ter predvidevanja operativnih rešitev v smislu zagotavljanja kakovosti,
- sposobnost obvladovanja standardnih razvojnih metod, postopkov in procesov,
- poznavanje osnovnih orodij in tehnik zagotavljanja kakovosti v vseh fazah nastanka proizvoda/storitve,
- sposobnost uporabe pridobljenega teoretičnega znanja o kakovosti pri svojem bodočem inženirskem delu,
- kooperativnost, usposobljenost za timsko delo,
- sposobnost interdisciplinarnega povezovanja znanja,
- razvoj strokovnih veščin in spretnosti na področju zagotavljanja kakovosti proizvodov/storitev,
- sposobnost stalne uporabe informacijske in komunikacijske tehnologije na svojem strokovnem področju.

### Objectives and competences:

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

- the ability to identify the problem and analyze it, as well as foresee operational solutions in terms of quality assurance,
- the ability to master standard development methods, procedures and processes,
- knowledge of basic quality assurance tools and techniques in all phases of product/service creation,
- the ability to use the acquired theoretical knowledge about quality in your future engineering work,
- cooperativeness, teamwork skills,
- the ability to connect knowledge interdisciplinary,
- development of professional skills and abilities in the field of product/service quality assurance,
- the ability to constantly use information and communication technology in one's professional field.

### Predvideni študijski rezultati:

Znanje in razumevanje:

*Študent/študentka:*

- se seznani s splošnimi pojmi in pomenom kakovosti v delovnem okolju in vsakdanjem življenju,

### Intended learning outcomes:

Knowledge and understanding:

*Student:*

- becomes familiar with the general concepts and importance of quality in the work environment and in daily life,
- becomes familiar with the basic concepts related to the creation of a product/service

- se seznanijo z osnovnimi pojmi povezanimi z nastajanjem proizvoda/storitve ter vlogo zagotavljanja kakovosti pri tem,
- spozna tendence v zvezi s kakovostjo proizvoda/storitve glede na sistem vodenja kakovosti, varnosti in zdravja pri delu, sistem ravnanja z okoljem ter energetske učinkovitostjo procesov, in s tem ustvari osebni odnos do kakovosti v širšem kontekstu,
- spozna sodobne trende pri razvoju novih pristopov pri zagotavljanju kakovosti, glede na stalni razvoj proizvodnih tehnologij.

- and the role of quality assurance in this context,
- learns the trends related to the quality of the product/service in relation to the quality management system, occupational health and safety, environmental management system and energy efficiency of processes, thereby developing a personal attitude towards quality in a broader context,
- learns about modern trends in the development of new approaches to quality assurance in view of the constant development of production technologies.

**Metode poučevanja in učenja:**

- Avditorna oblika poučevanja z uporabo sodobnih in uveljavljenih tehnik.
- Vključevanje gostujočih predavateljev, priznanih strokovnjakov iz področja kakovosti.
- Računske vaje in analiza praktičnih primerov iz proizvodnega okolja.
- Individualne seminarske naloge iz področja zagotavljanja kakovosti.

**Learning and teaching methods:**

- Auditory form of teaching using modern and established techniques.
- Involvement of guest lecturers, recognized experts in the field of quality.
- Calculation tutorials and analysis of practical examples from the production environment.
- Individual seminar assignments in the field of quality assurance.

Delež (v %) /

**Načini ocenjevanja:**

Weight (in %)

**Assessment:**

<p>Način (pisni izpit, ustno izpraševanje, naloge, projekt):</p> <ul style="list-style-type: none"> <li>• pisni izpit</li> <li>• ustni izpit</li> <li>• projektno in seminarsko delo</li> </ul> <p>Ocenjevalna lestvica: ECTS.</p>		<p>Type (examination, oral, coursework, project):</p> <ul style="list-style-type: none"> <li>• written exam</li> <li>• verbal exam</li> <li>• project and seminar work</li> </ul> <p>Grading scale: ECTS.</p>
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