

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet: Tehniška dokumentacija in prostorsko modeliranje
Course title: Technical Documentation and 3D Modeling

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Tehnologije in sistemi – prva stopnja	/	prvi	drugi
Technologies and Systems – 1st cycle	/	first	second

Vrsta predmeta / Course type

obvezni/obligatory

Univerzitetna koda predmeta / University course code:

TS 1 UN 9

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Laboratorijske vaje Laboratory work	Druge oblike študija Other forms of study	Samost. delo Individ. work	ECTS
30			30		80	5

Nosilec predmeta / Lecturer:

doc. dr. Marko Vrh

Jeziki /

Languages:

slovenski/
slovenian

Predavanja /

Lectures:

slovenski/Slovenian

Vaje / Tutorial:

slovenski/Slovenian

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

- vpis v prvi letnik študija

Prerequisites:

- inscription in the first year of study

Vsebina:

Vsebina tehnične dokumentacije:

- Elementi in pravila tehnične dokumentacije (merila, vrste črt, projekcijske ravnine, načini projiciranja, vrste in načini kotiranja, vrste in uporaba presekov, pogledi, šrafure).
- Tolerance (tolerance dolžinskih mer, ISO tolerančni sistem in ujemi, kakovost površin in označevanje hrapavosti, geometrijske tolerance).
- Zgradba konstrukcijske dokumentacije (splošna pravila za izdelavo tehniške dokumentacije po SIST, EN, ISO, vsebina

Content (Syllabus outline):

Content of the technical documentation:

- Elements and rules of technical documentation (measurements, types of lines, projection planes, projection methods, types and methods of dimensioning, types and use of sections, elevations, hatches).
- Tolerances (length tolerances, ISO tolerance system and conformities, marking of surface quality and roughness, geometric tolerances).
- Construction documentation (general rules for preparation of technical documentation

delavniške in sestavne risbe, izdelava dokumentacije zvarjencev in litih izdelkov, risanje standardnih in nestandardnih strojnih elementov).

Vsebina prostorskega modeliranja:

- Osnovni gradniki (geometrijski elementi, krivulje, površine, telesa, zveznost, transformacije).
- 3D modeliranje (modeliranje komponent, modeliranje sklopov, geometrijske in kinematične relacije in omejitve, kinematična analiza, izdelava risb, osnove in značilnosti PDM/PLM sistemov).

according to SIST, EN, ISO, content of workshop and assembly drawings, preparation of documentation of welded and cast products, drawing of standardised and non-standardised machine elements).

The content of spatial modeling:

- Basic building blocks (geometric elements, curves, surfaces, solids, continuity, transformations).
- 3D modeling (modeling of components, modeling of assemblies, geometric and kinematic relationships and constraints, kinematic analysis, creation of drawings, basics and features of PDM/PLM systems).

Temeljni literatura in viri / Readings:

Temeljna literatura/Basic literature

Glodež, S. (2010) *Tehnično risanje*. Ljubljana: Tehniška založba Slovenije.

Prebil, I., Kunc, R. (2011) *Opisna geometrija: potrebna znanja za pravilno risanje - osnove tehničnega risanja*. Piran: STRI svetovanje.

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 tehnološkem smislu,
- sposobnost obvladovanja standardnih razvojnih metod, postopkov in procesov,
- sposobnost uporabe pridobljenega teoretičnega znanja v praksi,
- sposobnost obvladovanja razvoja in napredka,
- avtonomnost v strokovnem delu s področja tehnologij in sistemov,
- sposobnost razumevanja in uporabe sodobnih teorij s področja tehniških, tehnoloških in naravoslovnih ved,
- sposobnost interdisciplinarnega povezovanja znanja,
- sposobnost reševanja konkretnih delovnih problemov na področju tehnologij in sistemov z uporabo standardnih strokovnih metod in postopkov,

Objectives and competences:

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

- the ability to identify a problem and analyze it, as well as anticipate operational solutions in a technological sense,
- the ability to master standard development methods, procedures and processes,
- the ability to use acquired theoretical knowledge in practice,
- the ability to manage development and progress,
- autonomy in professional work in the field of technologies and systems,
- the ability to understand and apply modern theories in the field of technical, technological and natural sciences,
- the ability to integrate knowledge in an interdisciplinary manner,
- the ability to solve specific work problems in the field of technologies and systems using

- razvoj strokovnih veščin in spretnosti na področju tehnologij in sistemov,
- izdelovanje, spremljanje in vodenje tehnične dokumentacije,
- sposobnost stalne uporabe informacijske in komunikacijske tehnologije na svojem strokovnem področju.

- standard professional methods and procedures,
- development of professional skills and abilities in the field of technologies and systems,
- creation, monitoring and management of technical documentation,
- the ability to continuously use information and communication technology in one's professional field.

Predvideni študijski rezultati:

Znanje in razumevanje:

Študent/študentka:

- študent je usposobljen za osnovno samostojno 3D modeliranje ter izdelavo tehnične dokumentacije ob upoštevanju veljavnih standardov, tehničnih karakteristik konstrukcij ter proizvodnih procesov:
- pozna in razume osnove skiciranja in tehniškega risanja,
- pozna in razume sisteme toleranc,
- pozna in razume uveljavljene elemente in pristope prostorskega modeliranja,
- pozna programsko opremo za 3D modeliranje.

Intended learning outcomes:

Knowledge and understanding:

Student:

- is capable of basic independent 3D modeling and creation of technical documentation considering valid standards, technical characteristics of designs and production processes:
- knows and understands the basics of sketching and technical drawing,
- knows and understands tolerance systems,
- knows and understands the common elements and approaches of spatial modeling,
- knows 3D modeling software.

Metode poučevanja in učenja:

- *predavanja* z aktivno udeležbo študentov (razlaga snovi, pogovori, vprašanja, primeri, reševanje problemov),
- *konstrukcijske obvezne vaje*,
- *laboratorijske vaje* (individualne naloge),
- *projekt* (konkretna praktična naloga),
- *konzultacije* (individualne in skupinske).

Learning and teaching methods:

- *lectures* with active attendance of students, which incorporate discussions, answers on the question and demonstrative exercises
- *tutorials and exercises*
- *lab. works.*
- *Individual project*
- *individual and collective work consultations*

Načini ocenjevanja:

Način (pisni izpit, ustno izpraševanje, naloge, projekt):

- pisni (ustni) izpit
- zagovor individualnega projekta

Ocenjevalna lestvica: ECTS.

Delež (v %) /

Weight (in %) /

Assessment:

Type (examination, oral, coursework, project):

- examination
- individual project

Grading scale: ECTS.

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