

	UČNI NAČRT PREDMETA/COURSE SYLLABUS
Predmet	Metode raziskovanja
Course title	Research Methods

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	4.
Technologies and systems in mechanical engineering/ 2 nd Cycle	No study field	2 nd year	4 th

Vrsta predmeta/Course type obvezni/core

Univerzitetna koda predmeta/University course code TSS 2 UN 3

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Laboratory work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
15		15			90	4

Nosilec predmeta/Lecturer: doc. dr. Elvis Hozdić

Jeziki/	Predavanja/Lectures:	slovenski/Slovenian
Languages:	Vaje/Tutorial:	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 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 v znanstvenoraziskovalno delo:</i> Osnovne definicije in pojmi. <i>Raziskave v inženirstvu.</i> Splošno. Etika v znanstvenoraziskovalnem delu in inženirskih raziskavah. <i>Faze raziskovalnega dela:</i> Opredelitev raziskovalnega problema in raziskovalno vprašanje. Pregled literature. Opredelitev ciljev. Načrtovanje raziskovanja in raziskovalnega projekta. Predstavitev raziskovalnih rezultatov in njihov prenos v prakso. <i>Navodila za izdelavo magistrskega dela.</i> 	<ul style="list-style-type: none"> <i>Introduction to scientific research work:</i> Basic definitions and concepts. <i>Engineering research:</i> General. Ethics in scientific and engineering research. <i>Stages of research work:</i> Definition of the research problem and research question. Literature review. Definition of objectives. Research and research project planning. Presentation of research results and their transfer into practice. <i>Instructions for preparing a master's thesis.</i>
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Temeljna literatura in viri/Readings:**Temeljna literatura/Basic literature**

- WALLIMAN, Nicholas. *Research Methods: The Basics*. Routledge, 2010.
- THIEL, David V. *Research methods for engineers*. Cambridge University Press, 2014. ISBN 9781139542326
- MARDER, Michael P. *Research methods for science*. Cambridge University Press, 2011. ISBN 9781139035118

Cilji in kompetence:

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

- sposobnost samostojnega in ustvarjalnega raziskovalno-razvojnega dela na področju strojništva,
- sposobnost samostojnega spremljanja in kritične presoje najnovejših dosežkov s področja strojništva in širše,
- sposobnost aktivnega pisnega in ustnega sporazumevanja na visoki strokovni kot tudi na poljudni ravni, odvisno od ciljnega občinstva,
- sposobnost timskega dela s strokovnjaki z različnih področij,
- sposobnost učinkovite uporabe informacijsko-komunikacijske tehnologije,
- sposobnost prevzeti odgovornost za lasten poklicni in osebnostni razvoj,
- sposobnost individualnega ustvarjalnega mišljenja,
- usposobljenost za komuniciranje v domačem in mednarodnem okolju,
- zavezanost profesionalni etiki,
- usposobljenost za predstavitve pridobljenega znanja in raziskovalnih dognanj.

Objectives and competences:

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

- ability of independent and creative research and development work in the field of mechanical engineering,
- ability to independently perceive and critically assess the latest achievements in the field of mechanical engineering and beyond,
- ability to actively communicate in writing and orally at a high professional as well as at a popular level, depending on the target audience,
- ability to work in teams with experts from different fields,
- ability to effectively use information and communication technology,
- ability to take responsibility for one's own professional and personal development,
- ability of individual creative thinking,
- ability to communicate in the domestic and international environment,
- commitment to professional ethics,
- ability to present acquired knowledge and research findings.

Predvideni študijski rezultati:**Študent/šudentka:**

- pozna osnove znanstvenoraziskovalnega dela,
- razume raziskave v inženirstvu,
- razume pomen etike v znanstvenoraziskovalnem delu in inženirskih raziskavah,
- se usposobi za komuniciranje v domačem in mednarodnem okolju,
- se usposobi za predstavitve pridobljenega znanja in raziskovalnih dognanj,
- se usposobi za uporabo IKT za iskanje informacij za potrebe znanstvenega in strokovnega dela,

Intended learning outcomes:**Students:**

- know the basics of scientific research work,
- understand engineering research,
- understand the importance of ethics in scientific research and engineering research,
- develop skills to communicate in the domestic and international environment,
- develop skills for presentations of acquired knowledge and research findings,
- develop skills to the use of ICT to search for information for the needs of scientific and professional work,
- develops the ability to critically assess the quality of sources of scientific and professional literature.

<ul style="list-style-type: none"> • razvije sposobnost za kritično presojo kakovosti virov znanstvene in strokovne literature. 	
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Metode poučevanja in učenja:

Learning and teaching methods:

<ul style="list-style-type: none"> • <i>predavanja</i> z aktivno udeležbo študentov (razlaga, diskusija, vprašanja, primeri, reševanje problemov), • <i>avditorne vaje</i>: reševanje problemov, študije primerov, kritično presojanje, diskusija, refleksija izkušenj, vrednotenje, projektno delo, timsko delo, • <i>seminar</i>: priprava, predstavitev in uspešen zagovor projektne/raziskovalne naloge, (reševanje problemov, študije primera, kritično presojanje, diskusija, refleksija izkušenj, vrednotenje, projektno delo, timsko delo). 	<ul style="list-style-type: none"> • <i>lectures</i> with active student participation (explanation, discussion, questions, examples, problem solving), • <i>tutorial</i>: problem solving, case studies, methods of critical thinking, discussion, reflection of experience, evaluation, project work, team work, • <i>seminar tutorial</i>: presentation and defence of project/research work (problem solving, studies, critical thinking, discussion, reflection of experience, evaluation, project work, team work).
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Načini ocenjevanja:

Delež (v %)
Weight (in %)

Assessment:

<p>Načini:</p> <ul style="list-style-type: none"> • ustni izpit • projektno seminarsko delo <p>Ocenjevalna lestvica: ECTS.</p>	<p>70 %</p> <p>30 %</p>	<p>Types:</p> <ul style="list-style-type: none"> • oral examination • project seminar <p>Grading scheme: ECTS.</p>
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