



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

| | |
|----------------------|-------------------------------|
| Predmet: | Prenosljiva znanja |
| Course title: | Transferable Knowledge |

| Študijski program in stopnja Study programme and level | Študijska smer Study field | Letnik Academic year | Semester Semester |
|---|-------------------------------|----------------------------|----------------------|
| Matematika, 3. stopnja | | 3. | 5. |
| Mathematics, 3 rd cycle | | 3 rd | 5 th |

Vrsta predmeta / Course type:

Univerzitetna koda predmeta / University course code:

| Predavanja Lectures | Seminar Seminar | Vaje Tutorial | Klinične vaje work | Druge oblike študija | Samost. delo Individ. work | ECTS |
|------------------------|--------------------|------------------|-----------------------|-------------------------|----------------------------------|------|
| | | | | | 90 | 3 |

Nosilec predmeta / Lecturer:

| | | |
|------------------------|---------------------------|---------------|
| Jeziki / Languages: | Predavanja / Lectures: | Ni definirano |
| | Vaje / Tutorial: | Not defined |

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

Prerequisites:

Vsebina:

Študent v okviru tega predmeta opravi obveznosti z udeležbo na različnih aktivnostih (delavnicah, tečajih, seminarjih, poletnih šolah, izobraževanjih ipd.), ki jih izvaja Univerza v Mariboru ali druge priznane domače ali tuje institucije. Aktivnosti lahko zajemajo naslednje tri širše tematske sklope:

Content (Syllabus outline):

Student fulfils the obligations at the subject by active participation at different activities (e.g. workshops, courses, seminars, summer schools, training etc.) conducted by University of Maribor or other renown domestic or foreign institution. Activities can be chosen from three main topics:

- **splošne veščine in znanja** (aktivna udeležba delavnic, seminarjev, izobraževanj, tečajev s področja komunikacije in retorike, IKT, administracije, etike, prijave in pisanja projektov, zakonodaje ipd.)

- **veščine in znanja na strokovno-znanstvenem področju** (aktivna udeležba konferenc in poletnih šol s področja znanstvenoraziskovalne dejavnosti, aktivna udeležba tečajev, seminarjev, delavnic ali izobraževanj s področja strokovne dejavnosti (npr. uporabe novih eksperimentalnih, teoretičnih in računalniških metod in orodij, strokovnega tujega jezika) in pedagoško-didaktičnih dejavnosti (npr. predavanja na tuji ali domači univerzi); mentorstva študentom, dijakom in učencem pri raziskovalnih nalogah; organizacija in izvedba strokovnih ali pedagoških delavnic, taborov, seminarjev; aktivno sodelovanje na znanstvenoraziskovalnih projektih ipd.)

- **veščine s področja prenosa znanja iz/v gospodarstvo** (aktivna udeležba delavnic, seminarjev, izobraževanj, tečajev iz podjetništva, o zaščiti intelektualne lastnine, inovacijah, virih financiranja, sodobnih tehnologijah, prenosu znanj v prakso, poslovnem načrtovanju, raziskavah tržišč ipd.)

Posamezna aktivnost se ovrednoti z najmanj 0,5 ECTS. Aktivnosti, ki so daljše in zahtevajo več samostojnega dela študenta, se lahko ovrednotijo z večjim številom ECTS, vendar ne več kot z 1 ECTS.

Študent mora izbrati aktivnosti iz najmanj dveh tematskih sklopov.

Študent mora pred udeležbo posamezne aktivnosti oddati vlogo, ki mora vsebovati informacije o aktivnosti in program dela. Vodja doktorskega študijskega programa nato odloči o primernosti izbire in ob odobritvi aktivnost ovrednoti z ECTS.

- **general skills and knowledge** (active participation at workshops, courses, seminars or training in the field of communication and rhetoric, ICT, ethics, project applications and administration, regulations and legislations etc.)

- **skills and knowledge in the area of scientific-expertise** (active participation at conferences and summer schools on the field of scientific research, active participation at workshops, courses, seminars or training in the field of scientific expertise (e.g. application of novel experimental, theoretical or computational methods and tools, professional foreign language), pedagogical and didactical activities (e.g. lectures at domestic or foreign university); mentorship for students and pupils at research projects; organisation and implementation of professional or pedagogical workshops, summer camps, seminars; active participation at scientific research projects etc.)

- **skills of knowledge transfer into/from economy** (active participation at workshops, courses, seminars or training on the protection of intellectual property, business, innovation, funding sources, modern technologies, transfer of knowledge into practice, business planning, market research etc.)

Each activity is assessed with at least 0,5 ECTS. Activity that demands more individual work from students can be assessed with larger value of ECTS but not more than with 1 ECTS.

Student has to choose activity from at least two of the three main topics.

Before attending the activity, student has to submit the application that should include information about the activity and the program of work. The head of the doctoral program will then decide on the appropriateness of the selection and upon approval it will assess the activity with ECTS.

Temeljni literatura in viri / Readings:

Ni predpisana / Not defined

Cilji in kompetence:

Cilj predmeta je študente usposobiti aktivno uporabljati prenosljiva znanja in jih opremiti s kompetencami za slednje razvojnih trendov stroke ter razširiti njihova metodološka znanja za reševanje in implementacijo zahtevnih tehničnih, tehnoloških, organizacijskih in razvojnih nalog ter projektov. Tukaj gre večinoma za znanja, veščine in kompetence, ki jih ni moč usvojiti pri klasičnem izobraževanju znotraj uveljavljenega kurikulumu strokovnega področja, za katerega se kandidat izobražuje, saj so vezane na aktualne razmere in trende, ki se hitro spreminjajo.

Objectives and competences:

The aim of this course is to train students for actively use transferable skills and to equip them with the competencies for tracking the development trends of the profession and to expand their methodological knowledge for solving and implementation of complex technical, technological, organizational and developmental tasks and projects. These are mostly knowledge, skills and competences within the established area of expertise that cannot be gained during the standard curriculum, since they are tied to the current situation and trends, which are rapidly changing.

Predvideni študijski rezultati:

Znanje in razumevanje:

Študent usvoji izbrana (odvisno od izbire aktivnosti) prenosljiva znanja in veščine na področjih:

-komunikacije, IKT, administracije projektov, etike, zakonodaje ipd.;

-uporabe in aplikacije novih eksperimentalnih, teoretičnih in računalniških metod in orodij, strokovnega tujega jezika, pedagoško-didaktične dejavnosti, mentorstva, organizacije, predstavitve in objave rezultatov raziskav ipd.

-intelektualne lastnine, inovacij, virov financiranja, sodobnih tehnologij, prenosa znanj v prakso, poslovnega načrtovanja, raziskav tržišč ipd.

Intended learning outcomes:

Knowledge and understanding:

Student gains selected (depending on the choice of activity) transferable knowledge and skills in the areas of:

- communication, ICT, project administration, ethics, legislation etc.;

- the use and application of novel experimental, theoretical and computational methods and tools, professional foreign language, didactic activities, mentoring, organization, presentation and publishing of research results etc.

- intellectual property, innovation, financial resources, modern technologies, transfer of knowledge into practice, business planning, market research, etc.

Metode poučevanja in učenja:

Samostojno delo študenta, in druge oblike študija, ki lahko zajemajo tudi aktivno udeležbo na konferencah, seminarjih, delavnicah, poletnih šolah, tečajih ipd., samostojno izvedbo mentorstev, organizacijske aktivnosti, predavanja, predstavitve ipd.

Learning and teaching methods:

Individual student work, and other forms of work, which may include active participation at conferences, seminars, workshops, summer schools, courses, etc., individual mentoring, organizational activities, lectures, presentations and the like.

Delež (v %) /

Načini ocenjevanja:

Weight (in %)

Assessment:

Se oceni: opravi / ni opravi.

Evaluate: passed / not passed.

Reference nosilca / Lecturer's references:

1. BREŠAR, Boštjan, JAKOVAC, Marko, ŠTESL, Daša. Indicated coloring game on Cartesian products of graphs. *Discrete applied mathematics*. [Print ed.]. Jan. 2021, vol. 289, str. 320-326. DOI: [10.1016/j.dam.2020.11.007](https://doi.org/10.1016/j.dam.2020.11.007). [COBISS.SI-ID [41803267](https://www.cobiss.si/id/41803267)], kategorija: 1A3
2. JAKOVAC, Marko, OTACHI, Yota. On the security number of the Cartesian product of graphs. *Discrete applied mathematics*. [Print ed.]. Dec. 2021, vol. 304, str. 119-128. DOI: [10.1016/j.dam.2021.07.030](https://doi.org/10.1016/j.dam.2021.07.030). [COBISS.SI-ID [72524547](https://www.cobiss.si/id/72524547)], kategorija: 1A3
3. HOLUB, Přemysl, JAKOVAC, Marko, KLAVŽAR, Sandi. S-packing chromatic vertex-critical graphs. *Discrete applied mathematics*. [Print ed.]. Oct. 2020, vol. 285, str. 119-127. DOI: [10.1016/j.dam.2020.04.023](https://doi.org/10.1016/j.dam.2020.04.023). [COBISS.SI-ID [19477507](https://www.cobiss.si/id/19477507)], kategorija: 1A3
4. BUJTÁS, Csilla, JAKOVAC, Marko. Relating the total domination number and the annihilation number of cactus graphs and block graphs. *Ars mathematica contemporanea*. [Tiskana izd.]. 2019, vol. 16, no. 1, str. 183-202. DOI: [10.26493/1855-3974.1378.11d](https://doi.org/10.26493/1855-3974.1378.11d). [COBISS.SI-ID [24318728](https://www.cobiss.si/id/24318728)], kategorija: 1A3
5. JAKOVAC, Marko. Relating the annihilation number and the 2-domination number of block graphs. *Discrete applied mathematics*. [Print ed.]. May 2019, vol. 260, str. 178-187. DOI: [10.1016/j.dam.2019.01.020](https://doi.org/10.1016/j.dam.2019.01.020). [COBISS.SI-ID [24555272](https://www.cobiss.si/id/24555272)], kategorija: 1A3