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UČNI NAČRT KREDITNO OVREDNOTENE OBŠTUDIJSKE DEJAVNOSTI / EXTRACURRICULAR COURSE SYLLABUS	
Ime dejavnosti/ Course title:	Učni laboratorij v realnem okolju Real-life learning lab
Vrsta dejavnosti/ Course group:	Ustrezno obkrožite: 1. Športna dejavnost. 2. Umetnost in kultura. 3. Prostovoljstvo in dobrodelnost. 4. Socialne in družbene aktivnosti. 5. Varovanje zdravja in okolja. 6. **Raziskave/znanost/projekti, ki niso del obveznih sestavin študijskih programov** 7. Druga relevantna področja, na predlog KOD (kot npr. pedagoško/strokovno delo).

Ime članice / službe

Center za ob-študijsko dejavnost UL

Študijski program Study programme	**Stopnja Level**	**Letnik Academic year**	**Semester Semester**
za uveljavljanje ECTS kreditnih točk v študijskih programih 1. in 2. stopnje	*Dodiplomska (prva); magistrska (druga)*	*Zadnji letnik dodiplomske/ Vsi letniki magistrske / enoviti magistrski študijski program*	*V vseh semestrih*
First and second cycle study programmes	*First and Second cycle*	*Last year of first cycle / All years of second cycle / Single-cycle master study programme*	*All semesters*

Vrsta predmeta / Course type *Obštudijska dejavnost / Extracurricular*

Način izvedbe dejavnosti/oblike dela – izpolnite relevantne glede na področje obštudijskih aktivnosti

Predavanja Lectures	**Seminar Seminar**	**Vaje Tutorial**	**Samost. delo Individ. work**	**ECTS**
10	50		60	4

Druge oblike študija (navedite)

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Druge oblike študija se bodo izvajale v zgoraj definirani kvoti 120 ur. Učni laboratorij v realnem okolju, kjer študentje v interdisciplinarnih skupinah rešujejo realne probleme in izzive slovenske industrije in družbe. Oblikovanje in izvajanje raziskovalno-razvojnih projektov oz. primerov iz prakse (angl. »case study«), ki so praktično naravnani in zajemajo reševanje aktualne potrebe oz. problema v gospodarstvu in širše. Delo študentov poteka pod mentorstvom pedagoškega osebja (pedagoški mentorji) iz različnih fakultet Univerze v Ljubljani ter strokovnjakov iz podjetij (delovni mentorji). Povezovanje ter prenos znanja med različnimi fakultetami Univerze v Ljubljani in slovenskimi podjetji.

The described studies will be delivered in the frame of the 120 hours. Real life learning lab is experiential and problem-based learning and teaching approach where interdisciplinary groups of students solve real-life problems and challenges of Slovene industry and society in general. Development and implementation of research and development projects and real-life case studies that are practically oriented involving relevant needs of industry and society. Students work is supervised and led by pedagogical staff (pedagogical mentors) from different faculties of the University of Ljubljana and professionals from companies (working mentors). Cooperation and transfer of knowledge between different faculties of the University of Ljubljana and Slovene companies.

Nosilec predmeta / Lecturer: Prof. Dr. Slavko Dolinšek ter drugi habilitirani učitelji na UL glede na temo in vsebino interdisciplinarnih projektov

Jeziki / Languages: slovenščina, angleščina / Slovenian, English

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisits:**
Študent mora biti vpisan vsaj v zadnji letnik dodiplomskega študija ali katerikoli letnik enovitega magistrskega študijskega programa na fakultetah Univerze v Ljubljani. Ob prijavi k predmetu mora napisati motivacijsko pismo glede na razpisano temo interdisciplinarnega projekta ter predložiti življenjepis. Izbira kandidatov se opravi glede na prepoznano motiviranost, povprečno študijsko oceno, morebitne izkušnje ter ustreznost, kar se ugotovi na osebnem razgovoru. Primernost ugotavlja nosilec predmeta.	Student has to be enrolled in the last year of first cycle of his/her bachelor studies or in second cycle of the single-cycle master study programme at University of Ljubljana. In the application process they have to submit a motivation letter addressing certain pre-described topics of the interdisciplinary project. Furthermore they have to attach their CV. Selection is made taking into account the identified motivation aspects, average grade and experiences. The adequacy is identified in the context of the individual interview by the course lecturer.

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Vsebina:	**Content (Syllabus outline):**
Spodbujanje povezovanja in kroženja znanja med visokošolskim okoljem ter industrijo je pomembna strateška usmeritev, njeno uresničevanje pa se lahko vrši preko različnih modelov in platform. Model »učnega laboratorija v realnem okolju« (angl. »Real Life Learning Lab«) temelji na oblikovanju interdisciplinarnih skupin študentov, ki rešujejo konkretne probleme industrije in širše družbe. Tovrstno povezovanje in problemsko-naravnano projektno delo pod mentorstvom strokovnjakov iz visokošolskega in poslovnega okolja omogoča razvoj praktičnih veščin študentov, kar dolgoročno povečuje njihove zaposlitvene in karierne možnosti. Rezultati projektov pa lahko vodijo v izboljšave obstoječih izdelkov in storitev, so lahko vir novih idej ter invencij, hkrati pa model omogoča, da podjetja prepoznajo in testirajo mlade perspektivne talente. Program bo na podlagi inovativnega, problemskega in skupinskega pristopa k reševanju praktičnih problemov razvijal kompetence, omogočal pridobivanje praktičnega znanja ter izkušenj študentov, in sicer z vključitvijo v projekte, ki se bodo izvajali v neposrednem partnerstvu z gospodarstvom. Študentje se bodo najprej udeležili uvodnih predavanj, kjer se bodo seznanili s temeljnimi koncepti projektnega dela, inovacijskih procesov in podjetništva, analitičnega in dizajnerskega razmišljanja (angl. user-design thinking), komuniciranja. S pomočjo mentorjev iz izobraževalne in gospodarske sfere bodo študentje v okviru projektnih aktivnosti, ki bodo potekale kot dopolnitev rednega učnega procesa, razvijali inovativnost, kreativno razmišljanje ter druge kompetence, ki jim bodo omogočile lažji prehod iz izobraževanja v zaposlitev. Različni projekti bodo načrtovani in vodeni v tesnem sodelovanju z gospodarstvom ter bodo na ta način spodbujali prenos in kroženje znanja med obema sferama. Podrobna vsebina predmeta se bo prilagajala izbranim temam. Vsako leto sproti jih bodo oblikovali izvajalci predmeta.	Enhancing cooperation and exchange of knowledge between higher education and industry is an important strategic direction that can be achieved through different models and platforms. Real-life learning lab model is based on interdisciplinary students' group work solving real-life cases of the industry and society in general. Cooperation and problem-based project work under the mentorship of pedagogical and professional staff enhance the development of students' practical skills, increasing their employment opportunities and career prospects on the long term. The results of the interdisciplinary projects lead to improvement of existing products and services and are valuable source of ideas and inventions. Furthermore, companies are able to identify and test young talents eventually becoming their future employees. The course program will enhance innovative, problem-based and group work practices focusing on solving real-life practical problems, enable acquisition of new knowledge, practical experiences and competences of students through interdisciplinary team projects with direct involvement of the industry. Students will firstly attend the introductory lectures to gain relevant insights in project work and management, innovation processes and entrepreneurship, analytic and user-design thinking, communication. In the frame of project activities and under the mentorship of pedagogical and professional staff students will acquire innovation skills, creative thinking and other relevant competences enabling them smooth and effective transition from education to the labour market. Different projects will be developed and managed through university-business cooperation activities and will enhance transfer and exchange of knowledge between both hemispheres. The detailed content of the program will be adjusted taking into account the selected topics. Each year they will be developed by the course lecturers/coordinators.

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Temeljni literatura in viri / Readings:

Temeljno literaturo za izvedbo predmeta določijo izvajalci predmeta ter pedagoški in delovni mentorji glede na izbrane tematike.
- Kumar V. (2013). 101 Design Methods: A Structured Approach for Driving Innovation in Your Organization. New Jersey: John Wiley & Sons

The readings and basic literature for the implementation of the course shall be defined by each course coordinator, since it is expected that the course contents will adapt each year to the selected theme or even several selected themes.
- Kumar V. (2013). 101 Design Methods: A Structured Approach for Driving Innovation in Your Organization. New Jersey: John Wiley & Sons

Cilji in kompetence:

Generične kompetence:
- delo v interdisciplinarnih skupinah;
- reševanje interdisciplinarnih problemov in izzivov iz prakse;
- zmožnost zastaviti, oblikovati in izvajati raziskovalno-razvojni proces;
- sposobnost prenosa teorije v prakso in obratno;
- razvoj kognitivnih spretnosti (kot so na primer uporaba logičnega, analitičnega, intuitivnega in dizajnerskega razmišljanja);
- komunikacija, pogajanja, reševanje konfliktov in javno nastopanje;
- projektni management (načrtovanje, organizacija dela, vodenje, koordinacija, poročanje, kontrola);
- samoevalvacija in samokritičnost.

Poklicno specifične kompetence, ki so odvisne od specifičnega projekta (kot so na primer programiranje, ravnanje z laboratorijskimi instrumenti, uporaba materialov, orodij itd.).

Objectives and competences:

Generic competences:
- interdisciplinary group work;
- solving real-life interdisciplinary problems and challenges of the industry and society;
- development, setting and implementation of the research process;
- transfer of theory in practice and vice versa;
- development of cognitive skills (e.g. logical, analytical, intuitive and user-design thinking);
- communication, negotiation, conflict solving and public performance;
- project management (development, organization of work, coordination, leadership, reporting, control);
- self evaluation.

Work specific competences are dependent on specific project (e.g. programming, working with laboratory equipment, materials and tools etc.).

Predvideni študijski rezultati:

Znanje in razumevanje:
Študijski rezultat je uspešna izvedba projekta ter pridobljene praktične izkušnje, znanja in kompetence, ki jih študentje pridobijo z vključitvijo v interdisciplinarni projekt. V okviru projekta se lahko razvijejo idejne rešitve oz. izvedbene študije, analize, raziskave, ki potencialno vodijo do novega izdelka, storitve, inovacije oz. k uvajanju novih ali izboljšanih delovnih procesov, novih pristopov pri delovanju podjetij, prilagajanju trgu in tržnim zahtevam ter drugo, kar prispeva k razreševanju aktualnih potreb gospodarstva.

Intended learning outcomes:

Knowledge and understanding:
The intended learning outcomes range from effective implementation of the project activities to the acquisition of practical skills, knowledge and competences that students will gain through their involvement in the interdisciplinary project. In the frame of the project students can develop different ideas, solutions, implementation studies, analysis and research potentially leading to new product, service, innovation or introducing new or improved working processes, new procedures, market demand led improvements or other results that address actual needs of the industry.

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Metode dela :	**Learning and teaching methods:**
Udeležba na uvodnih predavanjih z aktivnim sodelovanjem. Interdisciplinarno projektno delo, ki vključuje izkustveno in problemsko naravnano učenje (experiential learning and problem based learning) pod mentorstvom strokovnjakov iz univerzitetnega in poslovnega okolja. Učenje v realnem okolju (na primer okolje industrije) z visoko aplikativno vrednostjo. Samo-organizacija skupine (načrtovanje, delitev nalog, izvedba, vodenje, kontrola). Iskanje idej, prototipiranje, testiranje na uporabnikih, prepoznavanje in raziskovanje različnih možnosti ter rešitev. Skupinske diskusije, pogajanja. Uporaba logičnega, analitičnega, intuitivnega in dizajnerskega razmišljanja	Active participation at introductory lectures. Interdisciplinary project work involving experiential and problem-based learning under the mentorship of pedagogical and professional staff. Learning in real-life settings (e.g. industry environment) with high application value. Group self-organization (e.g. planning, task division, implementation, leadership, control). Identification of ideas, prototyping, user-based testing, identification and research of different solutions and possibilities. Group discussion, negotiation. Logical, analytical, intuitive and user-design thinking.

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
Način (pisni izpit, ustno izpraševanje, naloge, projekt ali drugo):		Type (examination, oral, coursework, project or other):
Izdelava pisnega poročila / projektne dokumentacije	60%	Written report / project documentation
Javna predstavitev opravljenega dela	40%	Public presentation of work completed

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Reference nosilca / Lecturer's references:

Prof. Dr. Slavko Dolinšek je doktoriral iz področja avtomatizacije in proizvodne kibernetike na UL FS, opravil post-doktorski študij na University of California - Berkeley in mednarodni MBA študij na UL EF. Od leta 2009 je izvoljen v naziv redni profesor za področje »Management« na Univerzi na Primorskem (Fakulteti za Management) in od leta 2004 v naziv izredni profesor za področje »Izdelovalnih tehnologij in sistemov« na Univerzi v Ljubljani (Fakulteta za strojništvo), trenutno je direktor IRI (Inovacijsko razvojni inštitut), Univerze v Ljubljani. Kot raziskovalec je sodeloval pri večjem številu znanstveno-raziskovalnih projektov (v okviru ministrstev RS) in aplikativnih projektov za slovensko industrijo na področju proizvodnih tehnologij (TQM, prenos znanja in tehnologij, tehnologije prototipranja, hitre izdelave orodij in končnih izdelkov). Vključen je v raziskovalni program ARRS, kot slovenski partner pa v raziskovalnih projektih 5., 6. in 7. ter Obzorja 2020 programa EU. Bibliografija znanstveno-raziskovalnega in strokovnega dela v zadnjih petih letih šteje preko 100 znanstvenih in strokovnih člankov, objavljenih v mednarodnih in domačih revijah.

Prof. Dr. Slavko Dolinšek finished his PhD in the field of automation and production cybernetics. He did his postdoctoral studies at the University of California - Berkeley, and also finished the international MBA study. Since 1998 he is a professor of “Manufacturing technologies and systems” at the University of Ljubljana (Faculty of Mechanical Engineering) and “Management” at the University of Primorska (Faculty of Management), and he is currently taking a position as the chief executive for IRI UL (Institute of Research and Innovation), associated member of University of Ljubljana. For several years he has been working as a researcher in various national and international basic and applicative research projects in the field of production engineering (TQM, technology and knowledge transfer, technology and production management, rapid tooling and rapid manufacturing). He has been intensively involved in the research of practical industrial problems, and consultancy in production engineering and management. In the last ten years he also published more than 100 scientific and professional papers.