Univerza v Mariboru

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	**Teorija sistemov**
Course title:	**System Theory**

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Biomedicinska tehnologija/Biomedical Technology 3. stopnja/3rd Degree		2	3 ali 4

Vrsta predmeta / Course type	Izbirni/Elective
Univerzitetna koda predmeta / University course code:	

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. Delo Individ. Work	ECTS
15	30				105	5

Nosilec predmeta / Lecturer:	Prof. dr. Rajko Svečko

Jeziki / Languages:	**Predavanja / Lectures:**	Slovensko, angleško (po želji)
	Vaje / Tutorial:	-

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisites:**
Kandidat mora doseči 300 ECTS na predhodnem študiju.	Graduate degree 300 ECTS
Vsebina:	**Content (Syllabus outline):**
Teorija sistemov, pregled teorij, Modeliranje in simulacija v medicini, Deterministični modeli, Stohastični modeli Robotika, Kibernetika Inteligentni sistemi, Sistemi na osnovi baze znanj, Ekspertni sistemi, Diagnostika, Mehke teorije in reševanje problemov, Nevronske mreže, Genetski algoritmi	Introduction in systems theory, survey, Modelling and Simulation in Medicine, Deterministic and Stohastic Models Robotics and Cybernetics Intelligent Systems, Knowledge-Based Systems, Expert systems, Diagnostics Fuzzy Systems and Soft-computing, Neural Networks, Genetic algorithms

Temeljni literatura in viri / Readings:

- Laszlo, Ervin: The Systems View of the World: A Holistic Vision for Our Time (Advances in Systems Theory, Complexity, and the Human Sciences)
- Baura, Gail: System Theory and Practical Applications of Biomedical Signals
- Gupta Madan: Intelligent Control Systems
- Other Linkins, D. A.: Intelligent Control in Biomedicine
- Nicolini, C.: Modeling and Analysis in Biomedicine
- Hoppensteadt, Frank C.; Joint Author: Peskin, Charles S.: Modeling And Simulation In Medicine And The Life Sciences
- Svečko, Rajko: Teorija sistemov

Cilji in kompetence:	**Objectives and competences:**
Zadnji dosežki v teoriji sistemov, raziskovalno delo na tem področju, znanja in spretnosti pri sistemskem reševanju problemov.	Last achievements in system theory, encourage research in field of the medical telematics, knowledge and skills to system problem solving.

Predvideni študijski rezultati:	Intended learning outcomes:
Znanje in razumevanje: razumevanje in znanja teorije sistemov Študent pridobi znanja in spretnosti pri sistemskem reševanju problemov **Prenesljive/ključne spretnosti in drugi atributi:** sposobnost uporabe sodobnih tehnologij pri izvajanju svojega dela, razvoj in raziskave novih metod spremljanja bolezni pacientov	**Knowledge and understanding:** understanding and knowledge of systems theory The student acquires knowledge and skills in systemic problem solving **Transferable/Key Skills and other attributes:** to be skilled for use of new, modern technologies in their primary (basic) work, development and research of new methods for disease and hospitalization tracking
Metode poučevanja in učenja:	**Learning and teaching methods:**
predavanja, projektno delo	lecture, project work

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
seminarska naloga, ustni zagovor		coursework, oral defense