Univerza v Mariboru
University of Maribor

Medicinska fakulteta
Faculty of Medicine

OPIS PREDMETA / SUBJECT SPECIFICATION	
Predmet:	Nevrokirurgija
Subject Title:	Neurosurgery

Študijski program Study programme	Študijska smer Study field	Letnik Year	Semester Semester
Biomedicinska tehnologija Biomedical technology		2	**3 ali 4**

Univerzitetna koda predmeta / University subject code:

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Lab. work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
15	20		10		105	**5**

Nosilec predmeta / Lecturer: Prof. dr. Tadej Strojnik

Jeziki / Languages:	**Predavanja / Lecture:**	slovenski in angleški/ Slovene and English
	Vaje / Tutorial:	slovenski in angleški/ Slovene and English

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisites:**
Kandidat mora doseči 300 ECTS na predhodnem študiju.	Graduate degree 300 ECTS.

Vsebina:	**Contents (Syllabus outline):**
Nevrokirurško zdravljenje bolečine - nevrostimulacija hrbtenjače za zdravljenje kronične bolečine (izbor bolnika, predstavitev sistema Medtronic, programiranje) Nevronavigacija - predstavitev stereotaktičnega sistema brez okvirja (BrainLAB Vector Vison nevro-navigacijski sistem, sestavni deli) - priprava bolnika – predoperativno slikanje s kožnimi označevalci, 3D rekonstrukcija; položaj bolnika (Mayfield), registracija kožnih označevalcev z IR kamero, shranitev podatkov - odčitavanje rekonstruiranih slik (aksialno, koronarno in sagitalno) pri VectorVision - potek operacije z nevronavigacijo	Neurosurgical pain management - spinal cord stimulation for the treatment of chronic pain (selection of the patient, presentation of the Medtronic system, manipulation with programmer) Neurosurgical Navigation - presentation of the frameless stereotactic system (BrainLAB VectorVision System, components) - preoperative procedures (preoperative imaging with skin fiducials, CT/MR scan, data processing, positioning (Mayfield), calibration and registration) - comprehension of the intraoperative reconstructed axial, coronal and sagittal images of the head - surgical navigation with the BrainLAB system

Temeljni študijski viri / Textbooks:

Follett K.A., Neurosurgical Pain Management, Elsevier Saunders, Iowa, 2004
Winn H.R., Youmans Neurologic Surgery, 5th ed., WB Saunders, 2003
Greenberg M.S., Handbook of Neurosurgery, 5th ed., Greenberg Graphics, 2001
Watson M.T., Maciunas R.J., Frameless Stereotactic Systems: General Considerations, In: M. Schulder, Handbook of Stereotactic and Functional Neurosurgery, Marcel Dekker, Inc., New York, Basel, 2003
Harnof S., Spiegelmann R., Surgical navigation with the BrainLAB System, In: M. Schulder, Handbook of Stereotactic and Functional Neurosurgery, Marcel Dekker, Inc., New York, Basel, 2003

Cilji:	**Objectives:**
Poznati nevrokirurške možnosti zdravljenja bolečine s poudarkom na nevrostimulaciji pri hudi kronični bolečini v križu in/ali nogah (indikacije, izbor kandidata, mehanizem delovanja in programiranje nevrostimulatorja). Princip uporabe nevronavigacije, namestitev kožnih oznak in registracija z IR kamero. Branje intraoperativnih rekonstrukcij.	Knowledge of neurosurgical pain treatment, especially neurostimulation in chronic back and/or leg pain (indication, patient's selection, functioning of the neurostimulation, programming of the appropriate level of stimulation). Navigation, point definition and registration. Reading of the reconstructions during surgery.
Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: Izbrati kandidata za nevrostimulacijo, pojasniti delovanje in programiranje stimulatorja. Poznati sestavne dele sistema za navigacijo, namestitev kožnih označevalcev, registracija. Prenesljive/ključne spretnosti in drugi atributi: Ravnanje s programatorjem (za zdravnika in za bolnika) za nevrostimulacijo. Ravnanje s kožnimi označevalci in Vector Vision sistemom.	Knowledge and Understanding: To select the patient for neurostimulation, to explain the mechanism and to program the level of the stimulation. Knowledge of the VectorVision components, attachment of skin fiducials, registration. Transferable/Key Skills and other attributes: Manipulation with physician and patient programmers for the neurostimulation. Attachment of the skin fiducials in manipulation with Vector Vision System
Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja Prikaz primerov Seminar Seminarske vaje	Lecture Case reports Seminar Tutorial

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
Način (pisni izpit, ustno izpraševanje, naloge, projekt) pisno ustno		Type (examination, oral, coursework, project): written examination oral

Materialni pogoji za izvedbo predmeta :	***Material conditions for subject realization***

Obveznosti študentov:	***Students' commitments:***
(pisni, ustni izpit, naloge, projekti)	*(written, oral examination, coursework, projects):*
Pisni in ustni izpit, seminar	Written and oral examination, seminar