Faculty of Medicine in Rijeka

Curriculum
2026/2027

For course

Neurosurgery

Study program:	**Medical Studies in English (R)** University integrated undergraduate and graduate study
Department:	**Department of Neurosurgery**
Course coordinator:	**doc. dr. sc. Šimić Hrvoje, dr. med.**
Year of study:	**5**
ECTS:	**1**
Incentive ECTS:	**0 (0.00%)**
Foreign language:	**Possibility of teaching in a foreign language**

Course information:

The course in Neurosurgery is obligatory course during the fifth year of the medical studies, consisting of 8 hours of lectures, 4 hours of seminars and 8 hours of clinical practice, which is total of 20 hours (1 ECTS). It is performed in the wards of Clinic of Neurosurgery, Clincial Hospital Center Rijeka, in it’s operation theaters, and in the Lecture hall of Clinical Hospital Center Rijeka (Sušak). The aim of the course for the students is to adopt basic knowledge and skills in the neurosurgery and neurotraumatology. After getting information about specifical neurosurgical approach to neurolgical diseases and neurotraumatological cases, the student will learn about advisable operative ways of their treatment.

The contents are a part of neurological contents that are already known to the students from the fourth year and represent its logical continuation offering modern methods of operative treatment. The importance of the decompressive and pathologic substrate ablation is stressed: be it a tumour, haematoma o malformmation. Also, operations of the CSL derivation are shown, as well as the decompression of the spinal channel. A short description of the surgery of the inflammatory and purulent processes, and modern microsurgical methods, ventriculoscopy, endoscopy and minimally invasive procedures will be given. In neurotraumatology the explanation of the common injuries to the neurocranium and spine, as well as to the brain and spinal cord and peripheral nerves will be given. The importance of the team approach in their modern complex treatment is explained (the teams consisting of the urgnet medicine physician, intensive care unit – anesthesiologists and neurosurgeons and neurorehabilitationists is stressed. Upon completing the course studnet will be able to aproach these patients with comprehension, be able to distinguish their ilness, analyse symptoms and recommend best diagnostic and treatment options. The student will be able to do the follow up of such patient and recognize qualitative and quantitative disturbances of the conciousness, focal neurological deficits (such as monoparesis vs hemiparesis, aphasia, gait and coordination disturbances etc.), recognize the signs of elevated ICP, neurlogical signs in sponal cord injuries (para- and tetraplegia).

List of assigned reading:

1. A comprehensive script representing lectures will be issued
2. Fundamentals of Neurosurgery, A Guide for Clinicians and Medical Students; A.F Joaquim, E. Ghizoni, H. Tedeschi, M.A.T. Ferreira – editors; Springer V. 2019.

List of optional reading:

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Curriculum:

Lectures list (with titles and explanation):

L1 Introduction – what is Central Nervous System – how to treat it surgically and Historical development of Neurosurgery (NS

Learning outcomes: to become familiar with the historical development of the neurosurgery, learn its subspecialties, become motivated in active taking part in the learning process.

L2 Patophysiology of the elevated Intracranial Pressure (ICP) – External CSL drainage

Learning outcomes: to understand what ICP is and about the basic patophyisiology of the elevated ICP. The student will know in what ways the CSL can be derived and how to recognize and follow these patients.

L3 Spinal neurosurgery – degenerative spine

Learning outcomes: understand what discal hernia is, become able to indicate the best diagnostic methods and advice teh treatment options – both for cervical, thoracic and lumbar spine.

L4 Pediatric neurosurgery

Learnng outcomes: to be able to describe and recognize common congenital malformations, especially to be able to recognize early signs of conatal hydrocephalus and its treatment. The student will also be informed about the common tumours in childhood.

L5 Tumors of the brain and spine – principles of diagnostic, operative indications, basic operative techniques

Learning outcomes: the student will know whcih tumours are benign and malignant and their characteristics, will be familiar with the WHO grading – get the basic knowledge of the meningiomas, gliomas and metastatic brain tumours.

L6 Neurotraumatology – head injuries

Learning outcomes: to accept most important principle of ultimate urgency in the treatment of the severe head injuries; the student will be able to recognize the mild, moderate and severe head injury. The student will be able to understand and urgently react in treating the acute elevation of the ICP.

L7 Neurotraumatology – spine injuries

Learning outcomes: after completing the learning process the student will know the specifics in such injuries – stability of the spinal column, the neurological lesions and the principles of the treatment – decompression and stabilisation of the spine

L8 Vascular neurosurgery – intracranial aneurysms

Learning outcomes: to differentiate arterial and veonous lesions; know where the most typical aneurisms are and what their symptoms are; know basic types of therapy – clipping, wrapping and coiling the aneurisms.

Seminars list (with titles and explanation):

S1 Basics in surgical neuroanatomy

-

S2 CSL derivation - VPA

-

S3 Contemporary and future treatment methods in NS

-

S4 Exam preparations

-

Practicals list (with titles and explanation):

P1 Getting used to the NS wards, neurosurgical op. theater Intensive care unit in NS

Getting used to the NS wards, neurosurgical op. theater

Intensive care unit in NS

P2 Brain tumours

Brain tumours

P3 Degenerative spine diseases

Degenerative spine diseases

P4 Neurotraumatology, Neurorehabilitation

Neurotraumatology, Neurorehabilitation

P5 VPA systems; spine – immobilization; typical head bandages.

VPA systems; spine – immobilization; typical head bandages.

P6 Peripheral nerves – typical diseases and injuries

Peripheral nerves – typical diseases and injuries

P7 Ambulatory patients

Ambulatory patients

P8 Presence in the operating theater

Presence in the operating theater

Student obligations:

The student has to follow all the parts of the course and actively take part in practical learning. They should also use the literature advised.

Exam (exam taking, description of the written/oral/practical part of the exam, point distribution, grading criteria):

The ECTS system of cumulating the points will be applied: According to which the number of ECTS for the Neurosurgery is 1. The student's activity during all the modalities of the training will be followed, and the final written exam can bring up to 50 points (the first 50 points can be achieved during the training) The student has to gain minimally half of the maximal points – 25 to be able to take part in the written exam, and another 25 points on the written exam – totalling in min. 50 points. The final exam is done in the written form of a test – finally the student can successfully finish the course getting the mark – passed (final colloqium)

Other notes (related to the course) important for students:

The information to the students will be distributed via student representatives, through net – info of the Chair for the neurosurgery, and also will be presented individually on request (secretary of the Chair)

COURSE HOURS 2026/2027

Neurosurgery

Lectures (Place and time or group)	**Practicals** (Place and time or group)	**Seminars** (Place and time or group)
01.10.2026		

L1 Introduction – what is Central Nervous System – how to treat it surgically and Historical development of Neurosurgery (NS:
• P5-111 (08:30 - 11:30) [295]
  ○ 1
 	
L2 Patophysiology of the elevated Intracranial Pressure (ICP) – External CSL drainage:
• P5-111 (08:30 - 11:30) [295]
  ○ 1
 	
L3 Spinal neurosurgery – degenerative spine:
• P5-111 (08:30 - 11:30) [295]
  ○ 1
 	
L4 Pediatric neurosurgery:
• P5-111 (08:30 - 11:30) [295]
  ○ 1		

doc. dr. sc. Šimić Hrvoje, dr. med. [295]		
05.10.2026		

L5 Tumors of the brain and spine – principles of diagnostic, operative indications, basic operative techniques:
• P5-111 (08:30 - 11:30) [3603]
  ○ 1
 	
L6 Neurotraumatology – head injuries:
• P5-111 (08:30 - 11:30) [3603]
  ○ 1
 	
L7 Neurotraumatology – spine injuries:
• P5-111 (08:30 - 11:30) [3603]
  ○ 1
 	
L8 Vascular neurosurgery – intracranial aneurysms:
• P5-111 (08:30 - 11:30) [3603]
  ○ 1		

naslovni doc. Vukas Duje, dr. med. [3603]		
08.10.2026		

	P1 Getting used to the NS wards, neurosurgical op. theater Intensive care unit in NS: • KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [1960] [1958] [295] [1961] ◦ NEURO 3 ◦ NEURO 2 ◦ NEURO 1 P2 Brain tumours: • KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [1960] [1958] [295] [1961] ◦ NEURO 3 ◦ NEURO 2 ◦ NEURO 3 ◦ NEURO 2 ◦ NEURO 1 P3 Degenerative spine diseases: • KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [1960] [1958] [295] [1961] ◦ NEURO 3 ◦ NEURO 2 ◦ NEURO 3 ◦ NEURO 2 ◦ NEURO 3 ◦ NEURO 2 ◦ NEURO 1 P4 Neurotraumatology, Neurorehabilitation: • KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [1960] [1958] [295] [1961] ◦ NEURO 3 ◦ NEURO 2 ◦ NEURO 3 ◦ NEURO 2 ◦ NEURO 3 ◦ NEURO 2 ◦ NEURO 3 ◦ NEURO 2 ◦ NEURO 1 P5 VPA systems; spine – immobilization; typical head bandages.: • KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [1960] [1958] [295] [1961] ◦ NEURO 3 ◦ NEURO 2 ◦ NEURO 3 ◦ NEURO 2 ◦ NEURO 3 ◦ NEURO 2 ◦ NEURO 3 ◦ NEURO 2 ◦ NEURO 3 ◦ NEURO 2 ◦ NEURO 1 P6 Peripheral nerves – typical diseases and injuries: • KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [1960] [1958] [295] [1961] ◦ NEURO 3 ◦ NEURO 2	

naslovna asistentica Kolbah Barbara, dr. med. [1960] · naslovni asistent Kvas Zvonimir, dr. med. [1961] · naslovni asistent Vidak Ozren, dr. med. [1958] · doc. dr. sc. Šimić Hrvoje, dr. med. [295]		
12.10.2026		
		S1 Basics in surgical neuroanatomy: • P5-111 (08:30 - 10:00) [1960] ○ 1 S2 CSL derivation - VPA: • P5-111 (08:30 - 10:00) [1960] ○ 1 S3 Contemporary and future treatment methods in NS: • P5-111 (10:00 - 11:30) [295] ○ 1 S4 Exam preparations: • P5-111 (10:00 - 11:30) [295] ○ 1
naslovna asistentica Kolbah Barbara, dr. med. [1960] · doc. dr. sc. Šimić Hrvoje, dr. med. [295]		
15.10.2026		

	P1 Getting used to the NS wards, neurosurgical op. theater Intensive care unit in NS:
	• KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [1958] [2724] [1961]
	  ◦ NEURO 5
	  ◦ NEURO 6
	  ◦ NEURO 4
	
	P2 Brain tumours:
	• KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [1958] [2724] [1961]
	  ◦ NEURO 5
	  ◦ NEURO 6
	  ◦ NEURO 5
	  ◦ NEURO 6
	  ◦ NEURO 4
	
	P3 Degenerative spine diseases:
	• KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [1958] [2724] [1961]
	  ◦ NEURO 5
	  ◦ NEURO 6
	  ◦ NEURO 5
	  ◦ NEURO 6
	  ◦ NEURO 5
	  ◦ NEURO 6
	  ◦ NEURO 4
	
	P4 Neurotraumatology, Neurorehabilitation:
	• KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [1958] [2724] [1961]
	  ◦ NEURO 5
	  ◦ NEURO 6
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	  ◦ NEURO 5
	  ◦ NEURO 6
	  ◦ NEURO 4
	
	P5 VPA systems; spine – immobilization; typical head bandages.:
	• KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [1958] [2724] [1961]
	  ◦ NEURO 5
	  ◦ NEURO 6
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	P6 Peripheral nerves – typical diseases and injuries:
	• KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [1958] [2724] [1961]
	  ◦ NEURO 5
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naslovna asistentica Gavranić Ana, dr. med. [2724] · naslovni asistent Kvas Zvonimir, dr. med. [1961] · naslovni asistent Vidak Ozren, dr. med. [1958]
19.10.2026

	P1 Getting used to the NS wards, neurosurgical op. theater Intensive care unit in NS:
	• KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [2727] [295] [3603]
	  ◦ NEURO 7
	  ◦ NEURO 9
	  ◦ NEURO 8
	
	P2 Brain tumours:
	• KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [2727] [295] [3603]
	  ◦ NEURO 7
	  ◦ NEURO 9
	  ◦ NEURO 7
	  ◦ NEURO 9
	  ◦ NEURO 8
	
	P3 Degenerative spine diseases:
	• KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [2727] [295] [3603]
	  ◦ NEURO 7
	  ◦ NEURO 9
	  ◦ NEURO 7
	  ◦ NEURO 9
	  ◦ NEURO 7
	  ◦ NEURO 9
	  ◦ NEURO 8
	
	P4 Neurotraumatology, Neurorehabilitation:
	• KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [2727] [295] [3603]
	  ◦ NEURO 7
	  ◦ NEURO 9
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	  ◦ NEURO 9
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	  ◦ NEURO 9
	  ◦ NEURO 7
	  ◦ NEURO 9
	  ◦ NEURO 8
	
	P5 VPA systems; spine – immobilization; typical head bandages.:
	• KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [2727] [295] [3603]
	  ◦ NEURO 7
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	P6 Peripheral nerves – typical diseases and injuries:
	• KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [2727] [295] [3603]
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	  ◦ NEURO 9	

naslovni asistent Blaić Mrđenović Boris, dr. med. [2727] · naslovni doc. Vukas Duje, dr. med. [3603] · doc. dr. sc. Šimić Hrvoje, dr. med. [295]
22.10.2026

	P1 Getting used to the NS wards, neurosurgical op. theater Intensive care unit in NS: • KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [1960] [1958] [2724] [1961] ◦ NEURO 13 ◦ NEURO 12 ◦ NEURO 10 ◦ NEURO 11 P2 Brain tumours: • KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [1960] [1958] [2724] [1961] ◦ NEURO 13 ◦ NEURO 12 ◦ NEURO 10 ◦ NEURO 13 ◦ NEURO 12 ◦ NEURO 10 ◦ NEURO 11 P3 Degenerative spine diseases: • KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [1960] [1958] [2724] [1961] ◦ NEURO 13 ◦ NEURO 12 ◦ NEURO 10 ◦ NEURO 13 ◦ NEURO 12 ◦ NEURO 10 ◦ NEURO 13 ◦ NEURO 12 ◦ NEURO 10 ◦ NEURO 11 P4 Neurotraumatology, Neurorehabilitation: • KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [1960] [1958] [2724] [1961] ◦ NEURO 13 ◦ NEURO 12 ◦ NEURO 10 ◦ NEURO 13 ◦ NEURO 12 ◦ NEURO 10 ◦ NEURO 13 ◦ NEURO 12 ◦ NEURO 10 ◦ NEURO 13 ◦ NEURO 12 ◦ NEURO 10 ◦ NEURO 11 P5 VPA systems; spine – immobilization; typical head bandages.: • KBC Sušak - Neurosurgery - meeting room (08:00 - 14:00) [1960] [1958] [2724] [1961] ◦ NEURO 13 ◦ NEURO 12 ◦ NEURO 10 ◦ NEURO 13 ◦ NEURO 12 ◦ NEURO 10 ◦ NEURO 13 ◦ NEURO 12	

naslovna asistentica Gavranić Ana, dr. med. [2724] · naslovna asistentica Kolbah Barbara, dr. med. [1960] · naslovni asistent Kvas Zvonimir, dr. med. [1961] · naslovni asistent Vidak Ozren, dr. med. [1958]

List of lectures, seminars and practicals:

LECTURES (TOPIC)	Number of hours	Location
L1 Introduction – what is Central Nervous System – how to treat it surgically and Historical development of Neurosurgery (NS	1	P5-111
L2 Patophysiology of the elevated Intracranial Pressure (ICP) – External CSL drainage	1	P5-111
L3 Spinal neurosurgery – degenerative spine	1	P5-111
L4 Pediatric neurosurgery	1	P5-111
L5 Tumors of the brain and spine – principles of diagnostic, operative indications, basic operative techniques	1	P5-111
L6 Neurotraumatology – head injuries	1	P5-111
L7 Neurotraumatology – spine injuries	1	P5-111
L8 Vascular neurosurgery – intracranial aneurysms	1	P5-111

PRACTICALS (TOPIC)	Number of hours	Location
P1 Getting used to the NS wards, neurosurgical op. theater Intensive care unit in NS	1	KBC Sušak - Neurosurgery - meeting room
P2 Brain tumours	1	KBC Sušak - Neurosurgery - meeting room
P3 Degenerative spine diseases	1	KBC Sušak - Neurosurgery - meeting room
P4 Neurotraumatology, Neurorehabilitation	1	KBC Sušak - Neurosurgery - meeting room
P5 VPA systems; spine – immobilization; typical head bandages.	1	KBC Sušak - Neurosurgery - meeting room
P6 Peripheral nerves – typical diseases and injuries	1	KBC Sušak - Neurosurgery - meeting room
P7 Ambulatory patients	1	KBC Sušak - Neurosurgery - meeting room
P8 Presence in the operating theater	1	KBC Sušak - Neurosurgery - meeting room

SEMINARS (TOPIC)	Number of hours	Location
S1 Basics in surgical neuroanatomy	1	P5-111
S2 CSL derivation - VPA	1	P5-111
S3 Contemporary and future treatment methods in NS	1	P5-111
S4 Exam preparations	1	P5-111

EXAM DATES (final exam):

1.	27.10.2026.
2.	17.02.2027.
3.	28.06.2027.
4.	03.09.2027.
5.	18.09.2027.