

COURSE INFORMATION					
Course Title	Code	Semester	L+P Hour	Credits	ECTS
Neurosurgery (Clinical Clerkship)	MED 506	5/9-10	29+29	3	3*

\* ECTS credits are the university credits of the courses in Yeditepe University, Faculty of Medicine, Undergraduate Medical Education Program

<b>Prerequisites</b>	MED 203, MED 302 Phase IV MED (MED 402, MED 403, MED 404, MED 405, MED 406, MED 407, MED 408, MED 409, MED 410, MED 411, MED 412, MED 413).
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<b>Language of Instruction</b>	English
<b>Course Level</b>	First Cycle, (Bachelor of Science), Undergraduate, Directive 2005/36/EC; "Regulated Profession" (Exempt from EQF Level Scheme)
<b>Course Type</b>	Compulsory Professional/Clinical Clerkship (Professional and Clinical Skills: clinical skills performance at introductory clerkship level)
<b>Course Coordinator</b>	Prof. Dr. Uğur Türe
<b>Instructors</b>	Prof. Dr. M.Gazi Yaşargil Prof. Dr. Uğur Türe Prof. Dr. Ahmet Hilmi Kaya Assist. Prof. Aikaterini Panteli
<b>Assistants</b>	
<b>Goals</b>	To convey necessary knowledge on common neurosurgical diseases including pathology, symptomatology and clinical findings of neurosurgical diseases required to organize early treatment and referral of patients to appropriate center upon indication
<b>Content</b>	

Learning Outcomes	Program Learning Outcomes	Teaching Methods	Assessment Methods
<b>KNOWLEDGE:</b> 1) Recognize general clinical presentation in neurosurgical patients	1.1, 1.13, 1.14, 1.21, 1.22	1.1, 1.3, 2.1, 2.2, 4.2, 4.3,4.7	A.a, A.c, D.a
2) Describe neurosurgical emergencies (head and spinal trauma, intracerebral hemorrhage and peripheral nerve injuries)	1.1, 1.2, 1.3, 1.5, 1.8, 1.11, 1.13, 1.14, 1.16, 1.18, 1.21, 1.22	1.1, 1.3, 1.6, 2.1, 2.2, 4.2, 4.3,4.7	A.a, A.c, D.a
3) a. Describe intracranial hypertension and brain herniation syndromes b. Recognize skull base fractures and CSF fistulas	1.1, 1.3, 1.17	1.1, 1.3, 1.6, 2.1, 2.2, 4.2, 4.3,4.7, 4.8	A.a, A.c, D.a
4) Describe clinical findings in common brain tumors to refer patients to appropriate centers	1.1, 1.4, 1.7, 1.13, 1.14, 1.21, 1.22	1.1, 1.3, 1.6, 2.1, 2.2, 4.2, 4.3,4.7, 4.8	A.a, A.c, D.a

5) Describe spinal trauma and spinal cord injury in early period and transfer of patient to appropriate center based on knowledge of immobilization status.	1.1, 1.5, 1.11, 1.13, 1.16, 1.18, 1.21, 1.22	1.1, 1.3, 1.6, 2.1, 2.2, 4.2, 4.3,4.7, 4.8	A.a, A.c, D.a
6) Describe non-traumatic neck, dorsal and low back pain	1.1, 1.6, 1.13,1.14, 1.20, 1.21	1.1, 1.3, 1.6, 2.1, 2.2, 4.2, 4.3,4.7	A.a, A.c, D.a
7) Describe differential diagnosis of metastatic spinal tumors and primary spinal tumors with other spinal disorders.	1.1, 1.7, 1.21	1.1, 1.3, 1.6, 2.1, 2.2, 4.2, 4.3,4.7	A.a, A.c, D.a
8) Describe peripheral nerve compression syndromes and nerve injuries	1.1, 1.8, 1.13, 1.14,1. 21	1.1, 1.3, 1.6, 2.1, 2.2, 4.2, 4.3,4.7	A.a, A.c, D.a
9) Describe hydrocephalus, craniosynostosis and spinal dysraphism.	1.1, 1.9, 1.13, 1.14,1.19, 1.21, 1.22	1.1, 1.3, 1.6, 2.1, 2.2, 4.2, 4.3,4.7	A.a, A.c, D.a
10) Describe infections meningitis, brain abscess, tuberculosis, brucellosis	1.1, 1.10,1.13, 1.14, 1.21,1.22	1.1, 1.3, 1.6, 2.1, 2.2, 4.2, 4.3,4.7, 4.8	A.a, A.c, D.a
11) Describe management of plegic patients to prevent bedsores, encourage mobilization and hygiene.	1.1, 1.11, 1.21, 1.22	1.1, 1.3, 1.6, 2.1, 2.2, 4.2, 4.3,4.7	A.a, A.c, D.a
<b>SKILLS:</b>			
1. Performs patient history taking	1.13	1.1, 1.3, 1.6, 2.1, 2.2, 4.2, 4.3,4.7	A.a, A.c, D.a
2. Performs neurological examination in neurosurgical patients	1.14	1.1, 1.3, 1.6, 2.1, 2.2, 4.2, 4.3,4.7	A.a, A.c, D.a
3. Performs resuscitation, intravenous catheter placement, wound cleaning and closure in neurosurgical emergencies.	1.15	1.1, 1.3, 1.6, 2.1, 2.2, 4.2, 4.3,4.7, 4.8	A.a, A.c, D.a
4. Performs immobilization, applies corset in spinal trauma and knows how to transfer a patient with penetrating head trauma to start early emergent treatment	1.16	1.1, 1.3, 1.6, 2.1, 2.2, 4.2, 4.3,4.7, 4.8	A.a, A.c, D.a
5. Performs initial treatment of increased intracranial pressure	1.17	1.1, 1.3, 1.6, 2.1, 2.2, 4.2, 4.3,4.7, 4.8	A.a, A.c, D.a
6. Performs initial treatment of neurogenic, spinal and hemorrhagic shock.	1.18	1.1, 1.3, 1.6, 2.1, 2.2, 4.2, 4.3,4.7, 4.8	A.a, A.c, D.a
7. Performs wound cleaning in meningomyelocele for protection of sac	1.19	1.1, 1.3, 1.6, 2.1, 2.2, 4.2, 4.3,4.7	A.a, A.c, D.a
8. Provides advice on protective precautions in degenerative spinal diseases	1.20	1.1, 1.3, 1.6, 2.1, 2.2, 4.2, 4.3,4.7	A.a, A.c, D.a

**ATTITUDES:**

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|---|------|--|---------------|
| 1. Be alert to the importance of early treatment in neurosurgical emergencies and referral of patients to appropriate center when necessary | 1.21 | 1.1, 1.3, 1.6, 2.1,<br>2.2, 4.2, 4.3,4.7,<br>4.8 | C.d, D.d, E.d |
| 2. Be alert to protective precautions in neurosurgical patients in addition to referral   | 1.22 | 1.1, 1.3, 1.6, 2.1,<br>2.2, 4.2, 4.3,4.7,<br>4.8 | C.d, D.d, E.d |

**COMPETENCIES:**

1. Start emergency and early treatment in neurosurgical emergencies
  
2. Organize referral of patients

- **CONTACT HOURS (CH)**

1. Theoretical-Class/Auditorium/Conference Hall/Multimedia
  - 1.1. Lecture/Tutorial
  - 1.2. Case report
  - 1.3. Case presentation
  - 1.5. Research seminar Seminar
  - 1.6. Student seminar/Journal club
  - 1.7. Invited speaker
  - 1.8. Hospital conference
  - 1.9. Online/Distance or e-learning (paper based or ICT based)
  - 1.10. Other:
2. Theoretical-Group Activity/Interactive
  - 2.1. Case discussion
  - 2.2. Discussion class
  - 2.3. Small group study session/Problem solving session/Brainstorm session
  - 2.4. Exercise class
  - 2.5. Oral presentation and criticism
  - 2.6. Panel
  - 2.7. Workshop
  - 2.8. Online/Distance or e-learning (paper based or ICT based)
  - 2.9. Other:
3. Practice Based-Laboratory/Class
  - 3.1. Demonstration class
  - 3.2. Laboratory teaching
  - 3.3. Clinical skills laboratory
  - 3.4. Small group study session/Problem solving session
  - 3.5. Exercise class
  - 3.6. Workshop (practical class)
  - 3.7. Other:
4. Clerkship (Clinical practice and training)
  - 4.1. Field study/Fieldwork
  - 4.2. Outpatient clinic
  - 4.3. Patient bedside
  - 4.4. Imaging round
  - 4.5. Laboratory round
  - 4.6. Work based practice
  - 4.7. Grand round
  - 4.8. Operating room
  - 4.9. Invasive Intervention room
  - 4.10. Night shift at ward
  - 4.11. Night shift at intensive care unit
  - 4.12. Night shift at emergency care unit
  - 4.13. Other:
5. Work placement/Internship (Clinical performance under supervision)
  - 5.1. Field study/Fieldwork
  - 5.2. Outpatient clinic
  - 5.3. Patient bedside
  - 5.4. Imaging round
  - 5.5. Laboratory round

**Teaching Methods:**

	<ul style="list-style-type: none"> <li>5.6. Work based practice</li> <li>5.7. Grand round</li> <li>5.8. Operating room</li> <li>5.9. Invasive intervention room</li> <li>5.10. Night shift at ward</li> <li>5.11. Night shift at intensive care unit</li> <li>5.12. Night shift at emergency care unit</li> <li>5.13. Other:</li> <li>• <b>INDEPENDENT STUDY HOURS (ISH)</b></li> <li>6. KNOWLEDGE (Levels: Knowledge, Comprehension, Application, Analysis, Synthesis, Evaluation) <ul style="list-style-type: none"> <li>6.1. Theoretical/Written/Oral exam/s</li> <li>6.2. Presentation</li> <li>6.3. Seminar</li> <li>6.4. Discussion</li> <li>6.5. Session</li> <li>6.6. Research paper writing</li> <li>6.7. Project writing</li> <li>6.8. Report writing</li> <li>6.9. Dissertation writing</li> <li>6.10. Homework</li> <li>6.11. Investigation/Survey study</li> <li>6.12. Other:</li> </ul> </li> <li>7. SKILLS: (Levels: Imitation, Manipulation, Precision, Articulation, Naturalization) <ul style="list-style-type: none"> <li>7.1. Oral/practical exam/s</li> <li>7.2. Presentation</li> <li>7.3. Seminar</li> <li>7.4. Discussion</li> <li>7.5. Session</li> <li>7.6. Exercise</li> <li>7.7. Workshop</li> <li>7.8. Imaging round</li> <li>7.9. Laboratory round</li> <li>7.10. Grand round</li> <li>7.11. Other:</li> </ul> </li> <li>8. ATTITUDES (Receiving, Responding, Valuing, Organization, Characterization) <ul style="list-style-type: none"> <li>8.1. Questionnaire (self-assessment)</li> <li>8.2. Paper case</li> <li>8.3. Other:</li> </ul> </li> <li>9. COMPETENCY (Doing/Making, Co-ordinating/Operating, Observing/Analyzing/Listening to/ Controlling/Driving, Choosing/Communicating/Enhancing, Conceiving/Visioning/Foreseeing) <ul style="list-style-type: none"> <li>9.1. Portfolio preparation</li> <li>9.2. Clinical performance at outpatient wards</li> <li>9.3. Clinical performance at inpatient wards</li> <li>9.4. Clinical performance at night shifts (ward, emergency care unit, intensive care unit)</li> <li>9.5. Other: (e.g. mini-clinical exam, etc.)</li> </ul> </li> <li>10. PROFICIENCY (Doing/Making, Co-ordinating/Operating, Observing/Analyzing/Listening to/ Controlling/Driving, Choosing/Communicating/Enhancing, Conceiving/Visioning/Foreseeing) <ul style="list-style-type: none"> <li>10.1. Portfolio preparation</li> <li>10.2. Clinical performance at outpatient wards</li> <li>10.3. Clinical performance at inpatient wards</li> <li>10.4. Clinical performance at night shifts (ward, emergency care unit, intensive care unit)</li> <li>6.8. Other: (e.g. mini-clinical exam, etc.)</li> </ul> </li> </ul>
<b>Assessment Methods:</b>	<ul style="list-style-type: none"> <li>A. Knowledge Assessment <ul style="list-style-type: none"> <li>a. Written Exam (MCQ+EMQ+KFQ) (F, S)</li> <li>b. Objectively Structured Oral Examination (S)</li> <li>c. Oral Examination (F)</li> <li>d. Other:</li> </ul> </li> <li>B. Skills Assessment <ul style="list-style-type: none"> <li>a. Practical Examination (F)</li> <li>b. Objectively Structured Practical Examination (S)</li> <li>c. Mini Clinical Examination (S)</li> <li>d. Other:</li> </ul> </li> <li>C. Attitude Assessment</li> </ul>

<ul style="list-style-type: none"> <li>a. Mini Clinical Examination (S)</li> <li>b. Questionnaire (self-assessment) (F)</li> <li>c. Paper case (S)</li> <li>d. Observation of behaviour (360°) (F, S)</li> <li>e. Other:</li> </ul> <p>D. Competency Assessment</p> <ul style="list-style-type: none"> <li>a. Mini Clinical Examination (S)</li> <li>b. Clerkship/Internship Guide/Checklist Assessment (F, S)</li> <li>c. Professional Portfolio Assessment (F)</li> <li>d. Presentation Performance Assessment (F)</li> <li>e. Seminar Performance Assessment (F)</li> <li>f. Project Writing Assessment (S)</li> <li>g. Other:</li> </ul> <p>E. Proficiency Assessment</p> <ul style="list-style-type: none"> <li>a. Mini Clinical Examination (S)</li> <li>b. Clerkship/Internship Guide/Checklist Assessment (F, S)</li> <li>c. Professional Portfolio Assessment (F)</li> <li>d. Presentation Performance Assessment (F)</li> <li>e. Seminar Performance Assessment (F)</li> <li>f. Other:</li> </ul> <p>d. *F: Formative, S: Summative</p>
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<b>COURSE CONTENT</b>		
<b>For further details please see Academic Program Book of Phase V</b>		
<b>Week</b>	<b>Topics</b>	<b>Study Materials</b>
1	Neuroanatomy review	Textbook and PowerPoint Presentation
2	Neurological examination of the neurosurgical patient	Textbook and PowerPoint Presentation
3	Head Trauma	Textbook and PowerPoint Presentation
4	Spinal Trauma	Textbook and PowerPoint Presentation
5	Intracranial Hypertension	Textbook and PowerPoint Presentation
6	Hydrocephalus	Textbook and PowerPoint Presentation
7	Intracranial tumors	Textbook and PowerPoint Presentation
8	Spinal tumors	Textbook and PowerPoint Presentation
9	Vascular neurosurgery	Textbook and PowerPoint Presentation
10	Degenerative spinal disease	Textbook and PowerPoint Presentation
11	Spinal stenosis/ spondylolisthesis	Textbook and PowerPoint Presentation
12	Pediatric neurosurgery	Textbook and PowerPoint Presentation
13	Neurosurgical infections	Textbook and PowerPoint Presentation
14	Functional neurosurgery	Textbook and PowerPoint Presentation
15	Nerve entrapment syndromes and peripheral nerve injury	Textbook and PowerPoint Presentation

<b>RECOMMENDED SOURCES</b>
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<b>Textbook</b>	1- Handbook of Neurosurgery 9th edition M. Greenberg Thieme 2- Neurology and Neurosurgery Illustrated 5th Edition Elsevier 3- Bate's Guide to Physical Examination and History Taking 12th edition Wolters Kluwer
<b>Additional Resources</b>	Lecture notes

<b>MATERIAL SHARING</b>	
<b>Documents</b>	PowerPoint presentations
<b>Assignments</b>	Student seminars
<b>Exams</b>	Not shareable

<b>ASSESSMENT</b>		
<b>QUESTION TYPES (PENCIL-PAPER TESTS)</b>	<b>NUMBER</b>	<b>PERCENTAGE</b>
Multiple Choice Questions		60
Extended Matching Questions		20
Key Features		20
<b>Total</b>		<b>100</b>
<b>Other Assessment Methods and Tools</b>		
Oral exam (OE)		80
Evaluation Of Case Presentation		10
Evaluation of Student's Seminar		10
<b>Total</b>		<b>100</b>
<b>Pass/ Fail Decision</b>		
Pencil-Paper Tests		60
Other Assessment Methods and Tools		40
<b>Total</b>		<b>100</b>

<b>COURSE CATEGORY</b>	Expertise/Field Courses
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<b>COURSE'S CONTRIBUTION TO PROGRAMME</b>						
No	Program Learning Outcomes	Contribution				
		1	2	3	4	5
1						
2						
3						
4						

5
6
7
8
9
10

<b>ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION</b>			
<b>Activities</b>	<b>Quantity</b>	<b>Duration (Hour)</b>	<b>Total Workload (Hour)</b>
Course Duration (2 weeks)	10	6	60
Hours for off-the-classroom study (Pre-study, practice, review/week)	10	2	20
Homework	-	-	-
Exam	1	2	2
<b>Total Workload</b>			<b>82</b>
<b>Total Workload / 25 (h)</b>			<b>2.73</b>
<b>ECTS Credit of the Course</b>			<b>3</b>