**T.C.**

**ATILIM UNIVERSITY MEDICAL FACULTY**

**EDUCATION IN 2022-2023 ACADEMIC YEAR**

**ACADEMIC CALENDAR**

**Laboratory Lessons:**

1. The superficial back and The suboccipital region and deep muscles of the back (1 hour, Dr. Öktem & Dr. Brohi)
2. The anterior and posterior aspects of the shoulder, arm and the mammary glands (1 hour, Dr. Öktem & Dr. Brohi)
3. The axilla and the brachial plexus (1 hour, Dr. Öktem & Dr. Brohi)
4. The flexor and extensor aspects of the forearm and the cubital fossa , Anatomy of the (1 hour, Dr. Öktem & Dr. Brohi)
5. Nerve conductance rate (1 hour, Dr. Sarıkaya)
6. The gluteal region and lateral and posterior aspects of the thigh and popliteal fossa (1 hour, Dr. Öktem & Dr. Brohi)
7. The anterior, medial of the thigh and popliteal fossa (1 hour, Dr. Öktem & Dr. Brohi)
8. The lateral, anterior and posterior aspects of the leg and Anatomy of the foot (1 hour, Dr. Öktem & Dr. Brohi)
9. Peripheral nerve diseases and muscle (1 hour, Dr. Boduroğlu & Dr. Yurdakan)

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| **COMMITTEE NAME** | **STARTING DATE** | **COMPLETION DATE** |
| **MED 102** | 16.01.2023 | 03.03.2023 |
| **MED 104** | 06.03.2023 | 14.04.2023 |
| **MED 106** | 17.04.2023 | 12.05.2023 |

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| **COMMITTEE NAME** |
|  | **MED 101** | **MED 102** | **MED 103** | **MED 104** | **MED 105** | **MED 106** |
| **ANATOMY PRACTICAL EXAM DATE** |  |  |  |  |  |  |
| **COMMITTEE EXAM DATE** |  |  |  |  |  |  |

**MED104 LOCOMOTION**

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| **PHASE I COORDINATOR** | Prof. Dr. Veli Cengiz ÖZALP |
| **CHAIR OF THE MED 104 COMMITTEE** | Assoc. Prof. Dr. Hale ÖKTEM |
| **MED 104 COMMITTEE DATE RANGE** | 06.03.2023 - 14.04.2023 |
| **ACADEMIC STAFF AT THE MED 104 COMMITTEE** | Prof. Dr. Necla TÜLEK- Medical MicrobiologyProf. Dr. Nedret KILIÇ- Medical BiochemistryProf. Dr. Ali ACAR- Medical MicrobiologyProf. Dr. Gamze YURDAKAN- Medical PathologyProf. Dr. Yekbun ADIGÜZEL- BiophysicsAssoc. Prof. Dr. Hale ÖKTEM- AnatomyAsst. Prof. Dr. Esin BODUROĞLU- Medical PathologyAsst. Prof. Dr. Ali Doğan DURSUN – PhysiologyAsst. Prof. Dr. Fatma YERLİKAYA ÖZKURT - BiostatisticsAsst. Prof. Dr. Gökşen ÖZ – Medical PharmacologyAsst. Prof. Dr. Badegül SARIKAYA – PhysiologyAsst. Prof. Dr. Recep Ali BROHİ- Anatomy |
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**ACADEMIC STAFF** | **THEORETICAL LESSON TIME** | **PRACTICAL LESSON TIME** | **INTERACTIVE EDUCATION****TIME** | **TOTAL TIME** |
| **Anatomy** | 22 | 7 | 1(3 hours for CBL) | 30 |
| **Medical Microbiology** | 6 | - | 2(2 hours for CBL) | 8 |
| **Medical Biochemistry** | 7 | - | - | 7 |
| **Pathology** | 6 | 1 | - | 7 |
| **Physiology** | 14 | 1 | 1(1 hour for Case Discussion) | 16 |
| **Medical Pharmacology** | 4 | - | - | 4 |
| **Biostatistics** | 7 | - | - | 7 |
| **Biophysics** | 6 | - | - | 6 |
| **TOTAL** | 72 | 9 | 4 | 85 |

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| **CONTENT OF THE MED 104 COMMITTEE**  |
| Muscles general consideration and introduction to nervous system, Electrical Excitability and Action Potential in Neuron Model, Organization and process of nervous system, conduction properties of peripheral nervous system, Synapses, types of synapse, chemical synaptic transmission, Synaptic integration, The superficial back, Biochemistry of nervous tissue, Sensory physiology, sensory receptors and receptor potentials, Neurotransmitters, The suboccipital region and deep muscles of the back, The innervation of skeletal muscle and skeletal muscle potentials, The innervation of smooth muscle and smooth muscle potentials , Pathology of the peripheral nerve injury, atrpohy, neuropathy, Polyneuritis, inflammatory neuropathies, Peripheral nerve sheath tumors, Force-velocity relationship ,Hill's equation, electromyography, Clostridium tetani, Clostridium botulinum, The posterior aspect of the shoulder and arm, The anterior aspect of the shoulder and arm, Mammary glands, Overview Anaerobic Bacteria, Biochemistry of muscle tissue, The flexor aspect of the forearm and the cubital fossa, The extensor aspect of the forearm, The molecular structure of skeletal muscle, The neuro muscular function, The axilla and the brachial plexus, Anatomy of the hand, The molecular mechanism of skeletal muscle contraction, the types of contraction and tetanus, The structure and innervation of smooth muscle, The contraction and relaxation mechanism of smooth muscles and latch mechanism, Pathology of Neuromuscular junction, muscle injury, atrophy, myopathies, Univariate charts, Bivariate and multivariate graphs, The gluteal region, The lumbosacral plexus, Skeletal Muscle Relaxants, Local anesthetics, The lateral and posterior aspects of the thigh and the popliteal fossa, Probability, Introduction to soft tissue and adipose neoplasms& Soft tissue neoplasms: Fibrohistiocytic neoplasms, The anterior and medial aspects of the thigh, Soft tissue neoplasms of muscular origin & unknown origin, Clostridium perfringes and other clostridium species, Biochemical markers of muscle-skeleton system diseases, Other anaerobic bacilli and cocci, Cross tables, Frequency Tables, The lateral and anterior aspects of the leg, The posterior aspect of the leg, Anatomy of the foot, Sectional and clinical anatomy, Peripheral nerve diseases and muscle, Nerve conductance rate. |
| **MED 104 COMMITTEE AIM** |
| Identify examples of the primary causes of infections due to anaerobics and which factors contribute to the development of diseases. Describes the diagnosis, emergency approach and prevention of tetanus. To define soft tissue tumors and to give their general characteristics.To describe the etiopathogenetic features of common soft tissue tumors. To explain the mechanisms of peripheral nerve damage and to describe inflammatory neuropathies with their developmental mechanisms Introduction to neuromuscular junction disorders. To give general characteristics of peripheral nerve sheath tumors. Learning the local anesthetics mechanism of action, usage and toxicity. Learning the effects of skeletal muscle relaxants. Describe and understand the one of the important pathogen causing food poisoning and causing weakness of muscles. Understand the gas gangren and learn emergency approach. Definition of origin, insertion, functions and innervation of suboccipital and back muscles to describe the disfunctions of these muscles like fibromyalgia, disc herniations, trauma, injuries. Definition of origin, insertion, functions and innervation of upper extremity muscles to describe the disfunctions of these muscles like fibromyalgia, disc herniations, trauma, injuries. Definition of origin, insertion, functions and innervation of lower extremity muscles to describe the disfunctions of these muscles like fibromyalgia, disc herniations, trauma, injuries. Defines the muscle tissiue with subtypes in order to correlate muscular patologies in skeletal in cardiovascular systems. Defines the neurons and neroglial cells as well as peripheral components of nervous tissue in order to correlate the neuromuscular patologies, peripheral nerve pathologies with microanatomic compartments. |
| **MED 104 COMMITTEE LEARNING OBJECTIVES** |
| The students who succeeded in this course;1. Describe the classification of bacteria based upon oxygen requirements, and list examples of each.
2. Describe how aerobic respiration (or fermentation) differs from anaerobic
3. Explain the harmful activities of the anaerobic microorganisms.
4. Name the most important ones and explain which factor contribute to the development of diseases
5. Describe exotoxins of Clostridium tetani.
6. Explain what are important virulance factors for Clostridium tetani and how do these factors contribute to the pathogenesis of tetanus?
7. Explain which kind of wounds are typically necessary for development of tetanus
8. Recall the signs and symptoms of Clostridium tetani infection.
9. Summarize the treatment options for Clostridium tetani.
10. Explain how can tetanus be prevented.
11. Defines the general properties of soft tissue.
12. Describe the etiopathogenetic features of adipose tissue tumors and tumors of fibrous tissue origin.
13. Explain the physiopathology of tumor-like proliferative lesions of fibrous tissue.
14. Defines the etiopathogenetic and morphological features of frequently seen tumors of skeletal muscle.
15. Describes benign and malignant tumors of smooth muscle origin. Explain the differences between malignant and benign tumors.
16. Identify common soft tissue tumors of uncertain origin, simple and complex karyotype.
17. Explain the general histomorphological features of soft tissue tumors of uncertain origin.
18. Defines peripheral nerve damage patterns and explains the physiopathological features of common peripheral neuropathies associated with this damage.
19. Explain the disorders affecting the neuromuscular junction with their mechanisms.
20. Defines the damage and atrophy patterns of skeletal muscle.
21. Describes hereditary and acquired disorders of skeletal muscle with physiopathological and morphological features.
22. Describes the etiopathogenetic and general histomorphological features of peripheral nerve sheath tumors that are part of special syndromes and observed sporadically.
23. Explain the different features of malignant and benign peripheral nerve sheath tumors.
24. Know the elements in a neuromuscular junction
25. Know the importance of myelin sheath around the nerves for controlling skeletal muscle
26. Describe the events in axon terminal, synaptic cleft and muscle membrane in sequential order
27. Know the function T-tubules
28. Know that the sarcoplasmic reticulum releases Ca2+ upon arrival of an action potential
29. Describe the possible outcomes when Ach receptor protein is blocked
30. Describe the possible outcomes when vesicle fusion is interrupted for any reason
31. Know that nerve fibers do not make direct contact with the muscle sheet
32. Know that hormones, chemical factors and neurotransmitters can excite a smooth muscle
33. Know that some visceral muscle cells self-excite
34. Know that a smooth muscle can be excited as well as inhibited
35. Able to compare the mechanism of excitation of smooth muscle to that of skeletal muscle
36. Describe the phases of muscle contraction
37. Know the factors affecting the tension developed in muscle
38. Define and differentiate tetanus and twitch
39. Know the terms concentric, isometric, eccentric and isotonic contraction.
40. Define active and passive forces for the development of total tension
41. Be familiar with Hill's equation and know that the relation between force and velocity is inverse
42. Describe the working principle of electromyography
43. List the factors affecting nerve conduction speed
44. Know the difference between neuropathy and myopathy by the amplitude of EMG signal
45. Describes the function of muscle tissue within the body
46. Defines the transduction of chemical energy into mechanical energy in muscles.
47. Describes major proteins and filaments in muscles and their mechanism of contraction.
48. Explains biochemical process of muscle tissue contraction and its alterations in diseases
49. Explains the biochemical markers of musculoskeletal diseases.
50. Defines the biochemical process of direct and indirect damages in muscle-skeleton system diseases.
51. Describes the crucial serum markers in direct and indirect damages in muscle-skeleton system diseases.
52. Explains the muscle enzymes in the diagnosis of neuromuscular disorders.
53. Explains the function of nervous tissue in the human body.
54. Defines the biochemical composition of neuronal cell membrane.
55. Describes the biochemical process of impulse initiation and propagation in the neuron.
56. Lists the steps in cell signaling process.
57. Defines the neurotransmitters and their functions in signaling.
58. Explains the biochemical process of nervous tissue signaling and its alterations in diseases
59. Describe the mechanism of action of local anesthetics.
60. Explain the relationship among tissue pH, drug pKa, and the rate of onset of local anesthetic action.
61. Describe the major toxic effects of the local anesthetics.
62. Learning how to use local anesthetics for
63. Describe the transmission process at the skeletal neuromuscular end plate and the points at which drugs can modify this process.
64. Describe the differences between depolarizing and nondepolarizing blockers.
65. Describe the method of reversal of nondepolarizing blockade.
66. Know the difference between NM blockers and the drugs for treatment of skeletal muscle spasticity
67. Describe the pathophysiology and characteristics of Clostridium botulinum.
68. What are important virulance factors for Clostridium botulinum.
69. Describes the food factors contribute the development of diseases.
70. Review the appropriate history, physical, and evaluation of Clostridium botulinum infections.
71. Outline the treatment and management, prevention options available for Clostridium botulinum infections.
72. Name the most important cause of gas gangrene.
73. What are important virulance factors for C. perfringes? How do thse factors contribute to the virulence of organismhis pathogen?
74. Explain why wounds are important in the pathogenesis of gas gangrene.
75. Identify the etiology and epidemiology of Clostridium-related diseases, medical conditions, and emergencies.
76. Review the appropriate history, physical, and evaluation of Clostridium infections.
77. How is Clostridium perfringes identified from gangrenous tissue and how is the disease diagnosed and treated.
78. Outline the treatment and management options available for Clostridium infections.
79. Determine the types of muscular tissue
80. Determine the supportive structures of muscular system
81. Determine the muscles according to their morphological structure
82. Determine the types of muscular contraction
83. Determine the meanings of origin and insertion
84. Identify the muscles of the back according to their general topography
85. Describe their innervation and major actions.
86. Describe the boundaries and major contents of the auscultatory, lumbar, and suboccipital triangles.
87. Identify the major features of the back in a standard surface anatomy examination.
88. Identify the muscles of the suboccipital region
89. Determine the origins, insertions, innervations and the major actions of these muscles.
90. Describe the boundaries and major contents of the suboccipital triangle.
91. Defines the fascia of shoulder region
92. Counts the muscles of posterior aspect of shoulder and arm
93. Defines the origin, insertion, innervation and function of triceps brachii muscle, deltoid muscle, supraspinatus, infraspinatus, subscapular, teres major, and teres minor mucsles
94. Says the arteries and branches suppling the posterior region of the shoulder and arm
95. Counts the nerve branches of brachial plexus of posterior region of arm
96. Says the sensory innervation of the anterior posterior of shouldera and arm
97. Describe the borders of triangles and their contents
98. Defines the fascia of brachial region
99. Arrays the compartmans of arm
100. Counts the muscles of anterior region of arm
101. Defines the origin, insertion, innervation and function of biceps brachii muscle, coracobrachialis muscle and brachialis muscle
102. Says where long head of biceps brachii passes through
103. Says the arteries and branches suppling the anterior region of the arm
104. Counts the nerve branches of brachial plexus of anterior region of arm
105. Says the sensory innervation of the anterior region of the arm
106. Counts the superficial veins of anterior region of the arm
107. Lists the location and name of the vein used for intravenous intervention in the clinic
108. Describe pectoral region
109. Describe the fascias related with pectoral region
110. Determine the coetaneous innervations of the pectoral region
111. Counts the muscles of the region, their functions and innervations
112. Describe the anatomic structures of mammary glands
113. Describe the location and borders of the axilla
114. State the structures located within the axilla
115. Describe and identify the brachial plexus including all of its branches
116. Recognize brachial plexus injuries and explain their clinical presentation.
117. Name the major nerves that have a sensory distribution to the upper limb
118. Describe the clinical significance of the axillary lymph nodes
119. Describe and identify the origin, course and function of the axillary, radial, musculocutaneous, median and ulnar nerves. Name the major muscles and muscle groups that the axillary, radial, musculocutaneous, median and ulnar nerves supply.
120. Predict the consequences of injury to these nerves
121. Descibe the parts of the axillary artery and its branches
122. Define the osseofascial compartments of the forearm
123. Identify the muscles contained in flexor compartment of the forearm
124. Describe the attachments, innervation, and major actions of each muscle of flexor aspect of the forearm
125. Describe the innervation of each compartment as a whole and the major actions governed by that innervation
126. Predict the functional consequences of loss of action of each muscle and each compartment
127. Describe the mechanisms of pronation and supination. Note the muscles involved, their sites of attachment, and their innervation.
128. Describe the arrangement of synovial sheaths in the wrist and hand.
129. Explain the clinical significance of such a patterning.
130. Trace the course of motor and cutaneous innervation in the upper limb.
131. Define the boundaries of the cubital fossa and identify its contents.
132. Define the extensor compartment of the forearm
133. Identify the muscles contained in extensor compartment of the forearm
134. Describe the attachments, innervation, and major actions of each muscle of extensor aspect of the forearm
135. Describe the arrangement of synovial sheaths in the wrist and hand.
136. Define the “anatomical snuffbox” and identify its major contents.
137. Trace the course of motor and cutaneous innervation and vessels of the extensor region of forearm.
138. Defines the cutaneous innervations of hand
139. Defines palmar aponeurosis
140. Defines palmar compartments and the structures located in them
141. Counts the muscles of hand and says their functions
142. Defines the courses of the nerves in hand region
143. Defines the pathological disorders of hand based on anatomy
144. Identify the gluteal region and the defining boundaries of each.
145. Determine the muscles of the gluteal region, indicating their attachments, innervation, and major actions. Describe the roles of the gluteal muscles during locomotion.
146. Describe the topographic relationships of the neurovascular structures in the gluteal region and the consequences of intragluteal injections into specific quadrants of the region.
147. Says the functional consequences of loss of action of each muscle of gluteal region
148. Trace the course of cutaneous and motor innervation in the lower limb
149. Describe the formation of lumbosacral plexus (site, roots)
150. List the main branches of lumbosacral plexus
151. Describe the important clinical anatomy related to lumbosacral plexus
152. Defines the fascial compartments of the thigh region
153. Identify the muscles, nerves and vessels of anterior and medial regions of thigh
154. Describe the attachments, innervation, and major actions of each muscle of the anterior and medial aspect of the thigh
155. Trace the course of cutaneous and motor innervation of the thigh
156. Describe the borders and contents of femoral triangle and adductor canal
157. Defines the fascial compartments of the thigh region
158. Identify the muscles, nerves and vessels of posterior and lateral regions of thigh
159. Describe the attachments, innervation, and major actions of each muscle of the posterior and lateral aspect of the thigh
160. Trace the course of cutaneous and motor innervation of the thigh
161. Describe the borders and contents of popliteal fossa
162. Defines the fascial compartments of the leg
163. Identify the muscles, nerves and vessels contained in each compartment.
164. Describe the attachments, innervation, and major actions of each muscle of the anterior and lateral aspect of the leg.
165. Predict the functional consequences of loss of action of each muscle and each compartment.
166. Trace the course of cutaneous and motor innervation of the leg
167. Defines the fascial compartments of the leg
168. Identify the muscles, nerves and vessels of posterior compartment of leg
169. Describe the attachments, innervation, and major actions of the posterior aspect of the leg.
170. Trace the course of cutaneous and motor innervation of theposterior aspectof leg
171. Names the bones of the foot skeleton and joints between them
172. Describes the sensory innervation of the dorsal and plantar surface of the foot
173. Describes the flexor and extensor retinaculum around the ankle and lists the structures passing beneath them.
174. Describes the muscles of the foot, the origins and insertions of these muscles and the layers they are located in.
175. Describes the innervation of the foot muscles
176. Defines the longitudinal and transvers arches of the foot
177. Says the muscles and ligaments that support the arches
178. Evaluate the most common entrapment neuropathies of the upper and lower extremity
179. Says the injuries of nerves of brachial plexus and lumbosacral plexus
180. Describe the signs of the compartment syndromes of the upper and lower extremity on sectional anatomy base
181. Describe the vessel patologies of upper and lower extremity
182. Identify the muscles, nerve and vessel structures in different sections
183. Defines the components of the nervous system; Describes the structure, types and conduction properties of the neuron
184. Explains the synapse structure, defines the synaptic cleft, and chemical transduction.
185. Explains the synaptic integration mechanisms
186. Lists neurotransmitters, defines their receptors, explains their synthesis and degradation pathways.
187. Defines the sensory receptors and explains their properties
188. Defines touch and proprioception senses, explains the ways of conduction to the central nervous system
189. Defines pain and temperature senses, explains the ways of conduction to the central nervous system
190. Explains the structure and the contraction mechanism of skeletal muscle fibers; Explains the nerve muscle junction, motor end plate potential, acetyl choline production, release and inhibition
191. Defines the contraction types of skeletal muscle; Explains the mechanism of tetanus
192. Explains the structure; Defines neuronal and hormonal stimulation properties of smooth muscle, Explains similarities and differences between smooth muscle and skeletal muscle.
193. Explains the contraction-relaxation mechanism of smooth muscle fibers and the latch mechanism
194. Defines cardiac muscle, explains properties and contraction of cardiac muscle, explains similarities and differences between cardiac muscle and skeletal-smooth muscle.
195. Explains the effect of curare on neuromuscular junction, defines the mechanisms of direct and indirect stimulation responses of the muscle.
196. Defines the conduction velocity of sensory and motor nerves, defines the factors affecting the conduction velocity.
 |
| **RECOMMENDED BOOKS** 1. Basic & Clinical Pharmacology (13th Edition); Bertram G. Katzung,‎ Anthony J. Trevor; McGraw-Hill, 2015.
2. Braddom's Physical Medicine and Rehabilitation (5th Edition); David X. Cifu MD; Elsevier, Philadelphia, 2016.
3. Gray’s Anatomy for Students (3rd Edition); Richard L. Drake, A. Wayne Vogl, Adam W. M. Mitchell; Churchill Livingston Elsevier, Philadelphia, 2015.
4. Guyton and Hall Textbook of Medical Physiology (13th Edition); John E. Hall; Elsevier, Philadelphia, 2016.
5. Molecular and Cellular Biophysics; Meyer B. Jackson; Cambridge University Press, Cambridge, 2006.
6. Rheumatology Textbook (5th Edition); Marc Hochberg, Alan J. Silman, Joseph Smolen, Michael Weinblatt, Michael Weisman; Mosby Elsevier, Philadelphia, 2011.
7. Robbins Basic Pathology (10th Edition); Vinay Kumar, Abul K. Abbas, Jon C. Aster; Elsevier Saunders, Philadelphia, 2018.
8. Textbook of Biochemistry with Clinical Correlations (7th Edition); Thomas M. Devlin; John Wiley & Sons, 2010
9. Cell and molecular biology (2th edition); Nalini Chandar, PhD, Susan Viselli, PhD, Lipincot Wiliams & Wilkins, 2019.
10. Molecular cell biology (8th edition); Harvey Lodish, W.H.Freeman & Co Ltd, 2016.
11. Molecular biology of the cell (6th edition); Bruce Alberts, W. W. Norton & Company,2015.
12. Jawetz, Melnick, & Adelberg's Medical Microbiology, 28e, 2019, McGraw-Hill Education
13. Medical Microbiology 9th Edition . Murray . Rosenthal, . Pfaller, ,2021
14. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases, 9th Edition, Bennett, JE, Dolin R, Blaser MJ. Elsevier, 2019
15. Basic Immunology: Functions and Disorders of the Immune System, 5e, Abbas, Lichmann, Pillai, Elsevier, 2016
16. Gray’s Anatomy. Editor: Susan Standring, 41st Edition, 2015, Elsevier
17. Moore Clinically Oriented Anatomy. Authors: Keith L. Moore, Anne M. R. Agur, Arthur F. Dalley. 7th Edition, 2013, Lippincott Williams Wilkins
18. Sobotta Atlas of Human Anatomy. English: Musculoskeletal system, internal organs, head, neck, neuroanatomy by Friedrich Paulsen (Author), Jens Waschke (Author), Sabine Hombach-Klonisch (Translator), Thomas Klonisch (Translator). 15th Edition, 2013, Urban and Fischer, Elsevier
19. Atlas of Human Anatomy (Netter Basic Science). Author: Frank H. Netter. 7th Edition, 2019, Elsevier
20. Medical Physiology 3rd Edition by Boron MD PhD, Walter F, Boulpaep MD, Emile L. (2017)
21. Physiology 6th Edition by Costanzo PhD, Linda S. (2017)
22. Principles of Neural Science, Fifth Edition (Principles of Neural Science (Kandel)) 5th Edition by Eric R. Kandel, James H. Schwartz, Thomas M. Jessell, Steven A. Siegelbaum, A. J. Hudspeth. (2013)
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| **MED 104 COMMITTEE EXAM WEEK** |
| **DATE** | **EXAM NAME** | **EXAM HOUR** |
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| **Teaching Methods and Techniques** |

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| [x]  Lecture | [x]  Case based learning | [x] Case discussion | [ ] Student presentation |
| [ ]  Role playing | [ ]  Problem based learning | [ ] Project | [ ] Homework |
| [x] Laboratory practice | [ ]  Team based learning | [x]  Free Study |  |

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| **Evaluation Method** | Will be determined due to the decision of Council of High Education- YÖK |
| **Language of lectures, practicals and all other applications** | English |