

# ***Lesson Plan of Practical Physiology***

## ***For International Medical Students***

<b>Grade:</b> <i>General Medicine</i>	<b>Subject:</b> <i>Physiology of Blood Circulation</i>	<b>Date:</b> 2024	<b>Time:</b> 90 min
<b>Topic:</b> <b><i>Blood Pressure Assessment</i></b>			
<b>Lesson Focus and Goals:</b> <i>Teaching different methods of blood pressure measurement.</i>			
<b>Materials Needed:</b> <ul style="list-style-type: none"><li>✓ <i>Video projector</i></li><li>✓ <i>Whiteboard</i></li><li>✓ <i>Sphygmomanometer (Mercury and Aneroid)</i></li><li>✓ <i>Stethoscope</i></li></ul>			
<b>Learning Objectives:</b> <i>Students will:</i> <ol style="list-style-type: none"><li>1. <i>Define blood pressure and know its normal values.</i></li><li>2. <i>Explain the Systolic and Diastolic pressure.</i></li><li>3. <i>Measure the blood pressure by two palpatory and auscultatory methods with partners in small groups.</i></li><li>4. <i>Calculate the mean arterial blood pressure.</i></li><li>5. <i>Know the cause of Korotkoff sounds.</i></li><li>6. <i>Explain the effective factors in blood pressure.</i></li></ol>			
<b>Assessment:</b> <i>OSCE exam at the end of the course</i>			

<b>Grade:</b> <i>General Medicine</i>	<b>Subject:</b> <i>Heart Physiology</i>	<b>Date:</b> 2024	<b>Time:</b> 90 min
<b>Topic:</b> <b><i>Electrocardiography (ECG) or (EKG)</i></b>			
<b>Lesson Focus and Goals:</b> <i>Teaching the basics of electrical activity of the heart, teaching the steps of taking an ECG, description of the electrocardiograph.</i>			
<b>Materials Needed:</b> <ul style="list-style-type: none"><li>✓ <i>Video projector</i></li><li>✓ <i>Whiteboard</i></li><li>✓ <i>Electrocardiograph</i></li><li>✓ <i>Electrocardiographic leads</i></li><li>✓ <i>ECG strips</i></li></ul>			
<b>Learning Objectives:</b> <i>Students will:</i> <ol style="list-style-type: none"><li>1. <i>Know the basics of electrical activity of the heart.</i></li><li>2. <i>Review the conduction system.</i></li><li>3. <i>Explain each part of a normal electrocardiogram, waveforms (P wave, QRS complex, T wave), intervals and segments.</i></li><li>4. <i>Know the Electrocardiographic leads.</i></li><li>5. <i>Know the procedure of ECG recording with electrocardiograph device by placing electrodes on the surface of patient's skin correctly.</i></li><li>6. <i>Determine the heart rate.</i></li><li>7. <i>Determine the cardiac axis.</i></li><li>8. <i>Determine heart rhythm and whether displaying regular or irregular rhythm.</i></li></ol>			
<b>Assessment:</b> <i>OSCE exam at the end of the course</i>			

<b>Grade:</b> <i>General Medicine</i>	<b>Subject:</b> <i>Blood Physiology (First Session)</i>	<b>Date:</b> 2024	<b>Time:</b> 90 min
<b>Topic:</b> <i>Bleeding Time (BT) and Clotting Time (CT) Test</i>			
<b>Lesson Focus and Goals:</b> <i>Teaching the methods of measuring bleeding time and blood clotting time.</i>			
<b>Materials Needed:</b> <ul style="list-style-type: none"> <li>✓ <i>Video projector</i></li> <li>✓ <i>Whiteboard</i></li> <li>✓ <i>For BT test: Cotton, Alcohol, Lancet, Timer, Absorbent Paper</i></li> <li>✓ <i>For CT test: Cotton, Alcohol, Lancet, Timer, Slides</i></li> </ul>			
<b>Learning Objectives:</b> <i>Students will:</i> <ol style="list-style-type: none"> <li>1. <i>Learn the basis of blood flow test and platelets function.</i></li> <li>2. <i>Learn the basis of blood coagulation test and the function of coagulation factors.</i></li> <li>3. <i>Perform BT and CT tests with partners in small groups.</i></li> <li>4. <i>Know the normal values of each of the tests.</i></li> </ol>			
<b>Assessment:</b> <i>OSCE exam at the end of the course</i>			

<b>Grade:</b> <i>General Medicine</i>	<b>Subject:</b> <i>Blood Physiology (Second Session)</i>	<b>Date:</b> 2024	<b>Time:</b> 90 min
<b>Topic:</b> <i>Hemoglobin Measurement (Hb)</i> <i>Hematocrit Measurement (Hct)</i> <i>Measurement of Erythrocyte Sedimentation Rate (ESR)</i>			
<b>Lesson Focus and Goals:</b> <i>Teaching methods of measuring hemoglobin, hematocrit and blood sedimentation rate.</i>			
<b>Materials Needed:</b> <ul style="list-style-type: none"> <li>✓ <i>Video projector</i></li> <li>✓ <i>Whiteboard</i></li> <li>✓ <i>For Hb measurement test: Blood sample, Drabkin's solution, Micropipette, Cuvettes, Spectrophotometer</i></li> <li>✓ <i>For Hct measurement test: Blood sample, Glass capillary tubes, Capillary tube sealant, Microhematocrit centrifuge, Hct ruler</i></li> <li>✓ <i>For ESR test: Blood sample, Sodium Citrate 3.8%, Westergren ESR pipette, ESR rack</i></li> </ul>			
<b>Learning Objectives:</b> <i>Students will:</i> <ol style="list-style-type: none"> <li>1. <i>Explain the basis of experiments.</i></li> <li>2. <i>Know the normal ranges and the measurement unit of each experiment.</i></li> <li>3. <i>Explain reasons for the decrease and increase of each of the tests.</i></li> <li>4. <i>Learn how to set up and work with a spectrophotometer.</i></li> <li>5. <i>Know the ingredients in Drabkin's solution and the reason for using them.</i></li> <li>6. <i>Perform hematocrit, hemoglobin and ESR tests with partners in small groups.</i></li> <li>7. <i>Interpret the results of the experiments.</i></li> </ol>			
<b>Assessment:</b> <i>OSCE exam at the end of the course</i>			

<b>Grade:</b> <i>General Medicine</i>	<b>Subject:</b> <i>Gastrointestinal Physiology</i>	<b>Date:</b> 2024	<b>Time:</b> 90 min
<b>Topic:</b> <i>Basal Metabolism Rate (BMR)</i>			
<b>Lesson Focus and Goals:</b> <i>Teaching methods of measuring basal metabolism.</i>			
<b>Materials Needed:</b>			
<ul style="list-style-type: none"> <li>✓ <i>Video projector</i></li> <li>✓ <i>Whiteboard</i></li> <li>✓ <i>Spirometer</i></li> </ul>			
<b>Learning Objectives:</b> <i>Students will:</i>			
<ol style="list-style-type: none"> <li>1. <i>Define basal metabolism.</i></li> <li>2. <i>Know the unit of measurement and its normal values.</i></li> <li>3. <i>Know the necessary and basic conditions for the test.</i></li> <li>4. <i>Describe physiological and pathological factors that affect BMR.</i></li> <li>5. <i>Can use a spirometer to determine the amount of consumed oxygen volume in a certain period of time.</i></li> <li>6. <i>Do the calculations of BMR percentage by an example test.</i></li> <li>7. <i>Report and interpret the test result.</i></li> </ol>			
<b>Assessment:</b> <i>OSCE exam at the end of the course</i>			

*Prepared by Dr. Elnaz Nakhjiri*