

**LESSON PLAN**

**Subject : BIOMECHANICS**  
**Class : BPT II year III Semester (2016)**  
**Class Incharge : Dr. Amita Aggarwal (PT)**  
**Subject Teacher/s : Dr. Neha Kulkarni (PT)**  
**Total Hours prescribed: -144 (Didactic-64, Practical/laboratory-32, SPT- 48)**

Sr No.	Topic	No. of hours required		Mode of teaching
		Th	Pr	
1	<p><b><u>Section- 1: Mechanics</u></b></p> <ul style="list-style-type: none"> <li>• Introduction to mechanics including motion, forces, parallel forces system, kinetics, kinematics</li> <li>• Newton’s law of motion, concurrent force system- composition forces, muscle action line etc.</li> <li>• Centre of gravity, line of gravity, stability and equilibrium.</li> <li>• Introduction to bio-mechanics and terminology</li> <li>• Axes and planes with movements occurring at each joint in respective plan</li> </ul>	2  1  1	1   1	Lecture, Group discussion, Demonstrations
2	<p><b><u>Section-2- Muscle Structure and Function</u></b></p> <ul style="list-style-type: none"> <li>• Muscle structure: composition, unit, structure, architecture of muscle</li> <li>• Classification of muscles</li> <li>• Functions of muscles and factors affecting its function.</li> <li>• Effect of immobilization, injury and aging on muscle</li> <li>• Group action of muscle</li> </ul>	3  1  1  1	2  1   1	PowerPoint presentation, Question and Answer Sessions, Demonstrations.
3	<ul style="list-style-type: none"> <li>• Basic principles of joint design and a human joint</li> <li>• Joint function</li> </ul>	1  2	  1	PowerPoint presentation, Question and Answer Sessions, Demonstrations

<ul style="list-style-type: none"> <li>Tissues present in human joint including fibrous tissue, bone cartilage and connective tissue.</li> </ul>	1		PowerPoint presentation, Question and Answer Sessions, Demonstrations.
<ul style="list-style-type: none"> <li>Classification of joints</li> </ul>	1	1	
<ul style="list-style-type: none"> <li>Recall anatomy and study the biomechanics in detail of following joints:</li> </ul>			PowerPoint presentation, Question and Answer Sessions, Demonstrations
<ul style="list-style-type: none"> <li>➤ <u>Upper limb:</u></li> </ul>	<b>18</b>	<b>5</b>	
1. Biomechanics of shoulder			PowerPoint presentation, Question and Answer Sessions, Demonstrations
<ul style="list-style-type: none"> <li>Introduction</li> </ul>	1		
<ul style="list-style-type: none"> <li>Kinematics</li> <li>kinetics</li> </ul>	3	1	
2. Biomechanics of elbow:			PowerPoint presentation, Question and Answer Sessions, Demonstrations
<ul style="list-style-type: none"> <li>Introduction and kinematics</li> <li>kinetics</li> </ul>	1	1	
3. Biomechanics of wrist:			PowerPoint presentation, Question and Answer Sessions, Demonstrations
<ul style="list-style-type: none"> <li>Introduction and kinematics</li> <li>kinetics</li> </ul>	1	1	
4. Biomechanics of hand:			
<ul style="list-style-type: none"> <li>Introduction</li> <li>Kinematics</li> <li>kinetics</li> </ul>	1	1	
<ul style="list-style-type: none"> <li>Introduction</li> <li>Kinematics</li> <li>kinetics</li> </ul>	3		
<ul style="list-style-type: none"> <li>Introduction</li> <li>Kinematics</li> <li>kinetics</li> </ul>	3		
<ul style="list-style-type: none"> <li>➤ <u>Lower limb:</u></li> </ul>	<b>18</b>	<b>5</b>	
1. Biomechanics of hip			PowerPoint presentation, Question and Answer Sessions, Demonstrations
<ul style="list-style-type: none"> <li>Introduction</li> <li>Kinematics</li> <li>kinetics</li> </ul>	1		
<ul style="list-style-type: none"> <li>Introduction</li> <li>Kinematics</li> <li>kinetics</li> </ul>	3	1	
2. Biomechanics of knee			PowerPoint presentation, Question and Answer Sessions, Demonstrations
<ul style="list-style-type: none"> <li>Introduction</li> <li>Kinematics</li> <li>kinetics</li> </ul>	1		
<ul style="list-style-type: none"> <li>Introduction</li> <li>Kinematics</li> <li>kinetics</li> </ul>	3	1	
3. Biomechanics of ankle			PowerPoint presentation, Question and Answer Sessions, Demonstrations
<ul style="list-style-type: none"> <li>Introduction and kinematics</li> <li>kinetics</li> </ul>	1	1	
4. Biomechanics of foot			PowerPoint presentation, Question and Answer Sessions, Demonstrations
<ul style="list-style-type: none"> <li>Introduction</li> <li>Kinematics</li> <li>kinetics</li> </ul>	1	-	
<ul style="list-style-type: none"> <li>Introduction</li> <li>Kinematics</li> <li>kinetics</li> </ul>	1		

