

Course Title	Cellular and Molecular Biology				
Course Code	MD105				
Course Type	Compulsory				
Level	1 st Cycle (MD)				
Year / Semester	1 st Year / 1 st Semester				
Teacher's Name	TBA				
ECTS	6	Lectures / week	3 hrs / 14 weeks	Laboratories / week	4 hrs / 14 weeks
Course Purpose and Objectives	<p>This course is intended to give the student a broad overview of cellular and molecular biology with respect to human cells. It is designed to acquaint students with the fundamental terms, concepts, and principles of the functioning of human cells in normal and abnormal states. The course will prepare the students to be more familiarized with their courses in cellular physiology and cellular histology. A key part of the course will be the ability to dissect problem scenarios into its key features by thinking in an integrated manner and to looking at problems from different perspectives.</p>				
Learning Outcomes	<p>Upon successful completion of this course, students will be able to:</p> <ul style="list-style-type: none"> • Describe the intricate relationship between various cellular structures and their corresponding functions. • Describe the relationships existing between the cells and their environment. • Explain cellular processes and mechanisms that lead to changes in cellular functions as well as examples of pathological state • Discuss the different transmembrane transport mechanisms and their importance in the cellular physiology. • Describe the mechanisms of cellular division, the phases of the cell-division cycle and its regulatory mechanisms. • Describe the general characteristics of the processes of gametogenesis and insemination. • Explain the processes of cell division: cleavage, blastulation and gastrulation in the human embryo. • Discuss the effects of ageing on the cellular structure and function and to understand the process of cellular differentiation and apoptosis. • Gene transcription and regulation. • Protein synthesis • Describe the nature of progenitor stem cells and their principal characteristics. 				

	<ul style="list-style-type: none"> • Understand the process of cell differentiation and its role in the production of specialized cells • Define the fundamental changes in the normal structure and function of cells and their relationships to the appearance of different types of pathological states. • Students will demonstrate that they can perform a set of basic laboratory skills 		
Prerequisites	None	Co-requisites	None
Course Content	<ul style="list-style-type: none"> • Normal structure and function of the eukaryotic cells. • Relationships between cells and their environment. • Transport mechanisms through membranes. • Cell division mechanisms, the cell-division cycle and control Mechanisms. • Gene expression and regulation • Cleavage, blastulation and gastrulation in the human embryo. • Effects of ageing and apoptosis in normal and disease processes • Progenitor stem cell differentiation and specialized cells. • Fundamental Changes in the normal structure and function of Cells. • Basic laboratory techniques for the analysis of DNA, RNA and proteins • Also techniques for culturing cells. 		
Teaching Methodology	Face-to-face		
Bibliography	<p>Essential Cell Biology (third edition) Alberts, Bray, Hopkins, Johnson, Lewis, Raff, Roberts, Walter</p> <p>The Cell (0); Geoffrey M. Cooper and Robert E. Hausman; 978-0878933006; Sinauer Associates;</p> <p>The Cell (0); Geoffrey M. Cooper and Robert E. Hausman; 978-0878933006; Sinauer Associates;</p>		
Assessment	Examinations:	70%	
	Assignment/Lab	20%	
	Class Participation:	10%	
Language	English		