

Course Code and Title	BG7004 Advanced Cell Biology	
Details of Course	<p>Summary of course content (<i>please note that this information provided will also be uploaded to the web for viewing at large</i>)</p> <p>Understanding cell biology is fundamental to all of the biological sciences and necessary for molecular bioengineering research. The course comprises 9 major topics:</p> <ol style="list-style-type: none"> 1. Introduction to basic cell biology 2. Membrane structure and properties <ul style="list-style-type: none"> • Lipid bilayer, membrane proteins, membrane transport, carrier proteins, ion channels and electrical properties. 3. Intracellular Compartments and Protein Sorting <ul style="list-style-type: none"> • Cell compartmentalization, transport, peroxisomes and endoplasmic reticulum. 4. Intracellular Vesicular Traffic 5. Cell communication <ul style="list-style-type: none"> • Signaling; Receptors; Pathways 6. The Cytoskeleton <ul style="list-style-type: none"> • Cytoskeleton filaments, Molecular motions, Regulation of Filaments. 7. Cell Junctions, Cell-cell adhesions, extracellular matrix and Integrins 8. Cell Cycle and Programmed Cell Death 9. Current topics in Cell Biology <p>Rationale for introducing this course This core course stipulated by the Division of Bioengineering will be imparted to the postgraduate students, who come from diverse backgrounds and different universities, a solid foundation in and broad understanding of advanced cell biology fundamentals and prepare them to conduct their research with greater efficiency.</p> <p>Aims and objectives This course is designed for students who have successfully completed an undergraduate course in cell biology. The objective of the course is to provide students with further advanced knowledge cell biology. Topics include the principles of cellular organization and function, regulation of the cell cycle, interactions between cells and cellular signaling pathways.</p>	
Assessment	<i>Final Examination:</i> <i>Test / Projects</i>	60% 40%
Hours of Contact/Academic Units	Lecture hours per week: 2 Tutorial hours per week: 1 <i>Total: 3 hours / week; 3 AU</i>	