

## Subject Description Form

<b>Subject Code</b>	ABCT3109
<b>Subject Title</b>	Haematology and Transfusion Science
<b>Credit Value</b>	3
<b>Level</b>	3
<b>Pre-requisite</b>	Cell Biology (ABCT2103) and Immunology (ABCT3101)
<b>Objectives</b>	<p>Through lectures and practical sessions:</p> <ol style="list-style-type: none"> <li>1. to provide students an understanding of the fundamental knowledge of diagnostic technologies and their applications in Haematology &amp; Blood Transfusion laboratories;</li> <li>2. to equip students to perform appropriate laboratory tests and evaluate results for diagnosis haematological disorders and blood transfusion.</li> </ol>
<b>Intended Learning Outcomes</b>	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> <li>a. identify and differentiate peripheral blood cells</li> <li>b. understand the basic principles of various diagnostic technologies in Haematology &amp; Blood Transfusion laboratories.</li> <li>c. perform Haematology and blood serology tests with appropriate skills.</li> <li>d. interpret results based on quality evaluation and health conditions of human subjects.</li> </ol>
<b>Subject Synopsis/ Indicative Syllabus</b>	<p><b>Haematopoiesis:</b></p> <ul style="list-style-type: none"> <li>• Origin of erythrocytes, leukocytes and thrombocytes</li> <li>• Blood cells maturation</li> </ul> <p><b>Erythrocytes and haemoglobin:</b></p> <ul style="list-style-type: none"> <li>• Production, structure and function of normal erythrocytes</li> <li>• Morphology of erythrocytes</li> <li>• Pathophysiology of red blood cells and haemoglobin disorders, such as anaemia; thalassaemia; malaria</li> </ul> <p><b>Leucocytes:</b></p> <ul style="list-style-type: none"> <li>• Production, structure and function of normal leucocytes</li> <li>• Morphology of leucocytes</li> <li>• Pathophysiology of white blood cells, such as infectious mononucleosis, leukaemia; multiple myeloma</li> </ul> <p><b>Laboratory investigation of erythrocyte and leucocyte disorders:</b></p> <ul style="list-style-type: none"> <li>• Sample collection and preparation for haematological diagnostic tests</li> </ul>

	<ul style="list-style-type: none"> <li>• Preparation and examination of peripheral blood film</li> <li>• Complete blood counts, differential counts and red cell indices</li> <li>• Automations in haematology</li> <li>• Erythrocyte sedimentation rate (ESR)</li> <li>• Reticulocyte count</li> <li>• Haemoglobin pattern analysis</li> <li>• Molecular investigation of blood diseases</li> </ul> <p><b>Haemostasis:</b></p> <ul style="list-style-type: none"> <li>• Production, structure and function of normal platelets</li> <li>• Morphology of platelets</li> <li>• Haemostatic mechanism</li> <li>• Abnormalities in blood coagulation, fibrinolysis, and platelet activation</li> <li>• Laboratory investigation of haemostatic disorders</li> <li>• Laboratory monitoring of therapeutic anticoagulation</li> </ul> <p><b>Transfusion Science:</b></p> <ul style="list-style-type: none"> <li>• Immunohaematology</li> <li>• Clinical use blood component preparation and storage</li> <li>• Blood-banking techniques</li> <li>• Pretransfusion testing and post-transfusion reaction investigation</li> <li>• Laboratory investigation of haemolytic anaemia</li> </ul>																																		
<p><b>Teaching/Learning Methodology</b></p>	<p><b>Lecture:</b> to introduce and reinforce knowledge, principles and concepts</p> <p><b>Practical session:</b> to perform laboratory tests and result interpretation</p> <p><b>Tutorial:</b> to relate theories to clinical scenarios through case studies</p>																																		
<p><b>Assessment Methods in Alignment with Intended Learning Outcomes</b></p>	<table border="1"> <thead> <tr> <th rowspan="2">Specific assessment methods/tasks</th> <th rowspan="2">Percentage weighting</th> <th colspan="4">Intended subject learning outcomes to be assessed</th> </tr> <tr> <th>a</th> <th>b</th> <th>c</th> <th>d</th> </tr> </thead> <tbody> <tr> <td>1. Laboratory assignments</td> <td>30%</td> <td>✓</td> <td></td> <td>✓</td> <td>✓</td> </tr> <tr> <td>2. Quizzes / Tests</td> <td>30%</td> <td>✓</td> <td>✓</td> <td></td> <td>✓</td> </tr> <tr> <td>3. Examination</td> <td>40%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>Total</td> <td>100%</td> <td colspan="4"></td> </tr> </tbody> </table> <p>Laboratory assignment will assess students' laboratory skills, result accuracy and the ability to analyze clinical data based on quality evaluation and health conditions of human subjects.</p>	Specific assessment methods/tasks	Percentage weighting	Intended subject learning outcomes to be assessed				a	b	c	d	1. Laboratory assignments	30%	✓		✓	✓	2. Quizzes / Tests	30%	✓	✓		✓	3. Examination	40%	✓	✓	✓	✓	Total	100%				
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	<p>Quizzes and tests will assess students' the ability to identify and differentiate blood cells; the understanding of the basic knowledge in haematology and transfusion science; and thee clinical meaning of laboratory findings.</p> <p>Students are required to attend at least 75% of scheduled sessions for subjects. Failure to fulfill the attendance requirement would result in a failing grade in this subject.</p>	
<b>Student Study Effort Expected</b>	Class contact:	
	▪ Lectures	18 Hrs.
	▪ Tutorials / Laboratory Practical	21 Hrs.
	Other student study effort:	
	▪ Self and Guided Study	70 Hrs.
	▪ Assignment	20 Hrs.
	Total student study effort	129 Hrs.
<b>Reading List and References</b>	<p>Linne &amp; Ringsrud's Clinical Laboratory Science: Concepts, Procedures, and Clinical Applications. (2019) Turgeon ML. 8th Ed. Elsevier: Maryland Heights.</p> <p>Hoffbrand's Essential Haematology. (2020) Hoffbrand AV, Steensma DP, Hoboken NJ. 8th Ed. Wiley-Blackwell: New Jersey.</p> <p>Color Atlas of Hematology: An Illustrated Field Guide Based on Proficiency Testing, 2nd Edition (2018) Glassy EF. (2<sup>nd</sup> ed). College of American Pathologists.</p> <p>Modern Blood Banking &amp; Transfusion Practices. (2019) 7th ed. Denise Harmening. Davis Company: F.A.</p>	