

# Bachelor of Engineering (Materials Engineering)

## 2<sup>nd</sup> Major in Medical Biology (AY2018-19)

### Professional Internship (PI) Option

#### ACADEMIC UNIT (AU) REQUIRED FOR GRADUATION

2nd Major in Medical Biology Programme	Year of Study	Core	Core Electives	GER			Unrestricted Electives	Total AU	
				Core	Electives				
					BM	LA	STS		MB <sup>^</sup>
Year 1 Admission	1	24/25 <sup>+</sup>	-	1	-	-	-	15	40/41 <sup>+</sup>
	2	23	-	7	3		-	9	42
	3	26	-	3	-	-	-	-	29
	4	17	12	3	-	-	-	9	41
	All Years								152/153 <sup>+</sup>

<sup>^</sup> Medical Biology

<sup>+</sup> Students without H2 Level Physics will take PH1012 Physics A (4 AU)

#### Description of Abbreviation

BM – Business & Management

LA – Liberal Arts

STS – Science, Technology & Society

**YEAR 1 2nd Major in Medical Biology – PI Option**

Course Code and Title	Type	AU
<b>YEAR 1 SEMESTER 1</b>		
HW0001 English Proficiency		0
GC0001 Introduction to Sustainability: Multidisciplinary Approaches and Solutions	GER Core	1
MH1810 Mathematics I*	Core	3
MS1013 Materials Chemistry*	Core	3
PH1011 Physics***	Core	3
BS1001 Introductory Biology	Unrestricted Elective (MB)	3
BS1002 Biophysical Chemistry	Unrestricted Elective (MB)	3
BS1008 Biostatistics	Unrestricted Elective (MB)	3
<b>TOTAL</b>		<b>19</b>

\*\* Students without H2 Level Physics will take PH1012 Physics A (4AU).

\* Students who obtained at least 3 'A's in H2 level subjects and at least grade 'E' or 'C6' in General Paper (GP) or Knowledge Inquiry (KI) will be eligible for exemption if a grade 'A' is obtained in the corresponding subject at H2 level.

<b>YEAR 1 SEMESTER 2</b>		
MS1008 Introduction to Computational Thinking	Core	3
MS1012 Materials Physics	Core	3
MS1014 Materials Chemistry II	Core	3
MS1015 Materials Science	Core	3
MS1016 Thermodynamics of Materials	Core	3
BS1007 Molecular and Cell Biology I	Unrestricted Elective (MB)	3
BS1005 Biochemistry I	Unrestricted Elective (MB)	3

<b>TOTAL</b>	<b>21</b>
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**YEAR 2 2nd Major in Medical Biology – PI Option**

Course Code and Title	Type	AU
<b>YEAR 2 SEMESTER 1</b>		
HY0001 Ethics and Moral Reasoning	GER Core	1
HW0188 Engineering Communication I	GER Core	2
MH2811 Mathematics II	Core	3
MS2014 Materials Structure and Defects	Core	3
MS2016 Phase Transformations and Kinetics	Core	3
MS2082 Laboratory IIB	Core	1
BS2001 Physiology	Unrestricted Elective (MB)	3
GER-PE (LA/BM)	GER Elective	3
<b>TOTAL</b>		<b>19</b>

<b>YEAR 2 SEMESTER 2</b>		
MS2012 Introduction to Manufacturing Processes	Core	3
MS2013 Polymers and Composites	Core	3
MS2015 Mechanical Behaviour of Materials	Core	3
MS2018 Electronic & Magnetic Properties of Materials	Core	3
MS2081 Laboratory IIA	Core	1
MS0003 Introduction to Data Science and Artificial Intelligence	GER Core	3
ML0003 Kickstart your Career Success	GER Core	1
BS2004 Molecular and Cell Biology II	Unrestricted Elective (MB)	3
BS3109 Fundamental of Immunology	Unrestricted Elective (MB)	3
<b>TOTAL</b>		<b>23</b>

**YEAR 3 2nd Major in Medical Biology – PI Option**

<b>Course Code and Title</b>	<b>Type</b>	<b>AU</b>
<b>YEAR 3 SEMESTER 1</b>		
ET0001 Enterprise and Innovation	GER Core	1
HW0288 Engineering Communication II	GER Core	2
MS3011 Metallic & Ceramic Materials	Core	3
MS3012 Micro/Nanoelectronic Materials Processing	Core	3
MS3013 Environmental Effects on Materials	Core	3
MS3014 Analysis of Materials	Core	3
MS3015 Materials Aspects in Design	Core	3
MS3081 Laboratory III	Core	1
<b>TOTAL</b>		<b>19</b>

<b>YEAR 3 SEMESTER 2</b>		
MS3099 Professional Internship	Core	10
<b>TOTAL</b>		<b>10</b>

**YEAR 4 2nd Major in Medical Biology – PI Option**

Course Code and Title	Type	AU
<b>YEAR 4 SEMESTER 1</b>		
MS4013 Biomaterials	Core	3
EG0001 Engineers & Society	GER Core	3
MS4089 Final Year Project	Core	4
Major Prescribed Elective 1	Core Elective	3
Major Prescribed Elective 2	Core Elective	3
BSxxxx PE1	Unrestricted Elective (MB)	3
BSxxxx PE2	Unrestricted Elective (MB)	3
<b>TOTAL</b>		<b>22</b>

<b>YEAR 4 SEMESTER 2</b>		
MS4012 Quality Control	Core	3
MS4014 Nanomaterials: Fundamentals and Applications	Core	3
MS4089 Final Year Project	Core	4
Major Prescribed Elective 3	Core Elective	3
Major Prescribed Elective 4	Core Elective	3
BSxxxx PE3	Unrestricted Elective (MB)	3
<b>TOTAL</b>		<b>19</b>

