

**Bachelor of Engineering (Materials Engineering)  
Second Major in Data Analytics (AY2022-23)**

Updated: 25-May-22

**Academic Unit (AU) Required for graduation**

Year of Study	Core	MPE	CC	FC	BDE	Total AU
1	22 / 23 <sup>+</sup>	-	9	-	3	34 / 35 <sup>+</sup>
2	19	-	8	3	7	37
3	22	-	-	7	7	36
4	12	11	-	-	6	29
	75 / 76 <sup>+</sup>	11	17	10	23	136 / 137 <sup>+</sup>

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

**Year 1 - Semester 1**

Course Code and Title	Course Type	AU	Pre-Req	Co-Req
CC0003 Ethics & Civics in a Multi-Cultural World	CC	2		
CC0005 Healthy Living & Wellbeing	CC	3		
PH1011 Physics <sup>**</sup>	Core	3		
MH1810 Mathematics I <sup>†</sup>	Core	3		
MS1013 Materials Chemistry I <sup>†</sup>	Core	2		
MS1008 Introduction to Computational Thinking	Core	3		
MS1017 Introduction to Materials Science	Core	2		
<b>Total</b>		<b>18</b>		

<sup>†</sup> 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.

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

**Year 1 - Semester 2**

Course Code and Title	Course Type	AU	Pre-Req	Co-Req
CC0001 Inquiry and Communication in the Interdisciplinary World	CC	2		
CC0002 Navigating the Digital World	CC	2		
EG1001 Engineer & Society	Core	2		
MS1014 Materials Chemistry II	Core	2		
MS1018 Properties of Materials	Core	2		
MS1016 Thermodynamics of Materials	Core	3		MS1017
BDE - 2nd Major Elective	BDE	3		
<b>Total</b>		<b>16</b>		

**Year 2 - Semester 1**

Course Code and Title	Course Type	AU	Pre-Req	Co-Req
CC0007 Science & Technology for Humanity	CC	3		
MS2013 Introduction to Polymer Science	Core	3		MS1014/MS1016
MS2014 Materials Structure and Defects	Core	3	MS1017	MS1018
MS2016 Phase Transformation and Kinetics	Core	3		MS1016
MS2083 Laboratory on Structure-Property Relationship in Polymers	Core	1	MS2013	
EE/IM2007/EE2107 Engineering Mathematics <sup>^</sup>	BDE	3		
BC 2406 Analytics I: Visual and Predictive Techniques - Knowledge Area 7	BDE	4		
<b>Total</b>		<b>20</b>		

<sup>^</sup>Pre-requisite for EE4483 Artificial Intelligence & Data Mining (3AU)

Year 2 - Semester 2		
Course Code and Title	Course Type	AU
ML0004 Career and Entrepreneurial Development for the Future World	CC	2
CC0006 Sustainability: Society, Economy & Environment	CC	3
MS0003 Introduction to Data Science and Artificial Intelligence <sup>^</sup>	FC	3
MS2012 Introduction to Manufacturing Processes	Core	3
MS2015 Mechanical Behaviour of Materials	Core	3
MH2811 Mathematics II - Knowledge Area 2	Core	3
<b>Total</b>		<b>17</b>

Pre-Req

Co-Req

MS1008

MH1810

<sup>^</sup>Pre-requisite for EE4483 Artificial Intelligence & Data Mining (3AU)

Year 3 - Semester 1		
Course Code and Title	Course Type	AU
MS2018 Electronic & Magnetic Properties of Materials	Core	3
MS3011 Metallic & Ceramic Materials	Core	3
MS3012 Micro/Nanoelectronic Materials Processing	Core	3
MS3082 Design Lab	Core	1
BDE - 2nd Major Elective	BDE	3
BDE1	BDE	1
<b>Total</b>		<b>14</b>

Pre-Req

Co-Req

MS2016

Year 3 - Semester 2		
Course Code and Title	Course Type	AU
HW0288 Effective Communication 2	FC	2
MS3013 Corrosion of Materials	Core	3
MS3014 Analysis of Materials	Core	3
MS3015 Industrial Design	Core	3
MS4012 Quality Control - Knowledge Area 1	Core	3
BDE - 2nd Major Elective	BDE	3
<b>Total</b>		<b>17</b>

Pre-Req

Co-Req

MS2013/MS3011

MS3082

MS2013/MS3011

Year 3 - Special Term		
Course Code and Title	Course Type	AU
MS3096 Professional Attachment	FC	5
<b>Total</b>		<b>5</b>

Pre-Req

Co-Req

Year 4 - Semester 1		
Course Code and Title	Course Type	AU
MS4089 Final Year Project	Core	4
MS4013 Biomaterials	Core	2
EE4483 Artificial Intelligence & Data Mining - Knowledge Area 6	BDE	3
MPE1	MPE	3
<b>Total</b>		<b>12</b>

Pre-Req

Co-Req

Year 4 Standing

MS2013

MS3011

Year 4 - Semester 2		
Course Code and Title	Course Type	AU
MS4089 Final Year Project	Core	4
MS4014 Nanomaterials: Fundamentals And Applications	Core	2
MS4671 Introduction to Materials Simulation - Knowledge Area 4	MPE	3

Pre-Req

Co-Req

Year 4 Standing

MS2018/MS3012/MS3013

EE4791 Database Systems (3AU) - Knowledge Area 5	BDE	3
MPE3	MPE	3
MPE4	MPE	2
<b>Total</b>		<b>17</b>