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

Academic Unit (AU) Required for graduation						
Year of Study	Core	MPE	CC	FC	BDE	Total AU
1	25 / 26[+]	-	9	-	3	37 / 38[+]
2	20	-	8	3	10	41
3	15	-	-	12	3	30
4	15	11	-	-	6	32
	75 / 76[+]	11	17	15	22	140 / 141[+]

[+] Students without H2 Level Physics will take PH1012 (4 AU)

Year 1 - Semester 1		
Course Code and Title	**Course Type**	**AU**
CC0003 Ethics & Civics in a Multi-Cultural World	CC	2
CC0005 Healthy Living & Wellbeing	CC	3
PH1011 Physics[*/**]	Core	3
MH1810 Mathematics I[*]	Core	3
MS1013 Materials Chemistry I[*]	Core	2
MS1008 Introduction to Computational Thinking - Knowlede Area 3	Core	3
MS1017 Introduction to Materials Science	Core	2
Total		**18**

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

Year 1 - Semester 2		
Course Code and Title	**Course Type**	**AU**
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
MS2013 Introduction to Polymer Science	Core	3
BDE - 2nd Major Elective	BDE	3
Total		**19**

Year 2 - Semester 1		
Course Code and Title	**Course Type**	**AU**
CC0007 Science & Technology for Humanity	CC	3
MS2014 Materials Structure and Defects	Core	3
MS2016 Phase Transformation and Kinetics	Core	3
MS2083 Laboratory on Structure-Property Relationship in Polymers	Core	1
MS2018 Electronic & Magnetic Properties of Materials	Core	3
IE2107 Engineering Mathematics II^	BDE	3
BC 2406 Analytics I: Visual and Predictive Techniques - Knowledge Area 7	BDE	4
Total		**20**

^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 & Enviroment	CC	3
MS0003 Introduction to Data Science and Artificial Intelligence^	FC	3
MS2012 Introduction to Manufacturing Processes	Core	3
MS2015 Mechanical Behaviour of Materials	Core	3
MS3082 Design Lab	Core	1
MH2811 Mathematics II - Knowledge Area 2	Core	3
BDE - 2nd Major Elective	BDE	3
Total		**21**

^pre-requisite for EE4483 Artificial Intelligence & Data Mining (3AU)

Year 3 - Semester 1		
Course Code and Title	**Course Type**	**AU**

HW0288 Effective Communication	FC	2
MS3011 Metallic & Ceramic Materials	Core	3
MS3012 Micro/Nanoelectronic Materials Processing	Core	3
MS3013 Corrosion of Materials	Core	3
MS3014 Analysis of Materials	Core	3
MS3015 Industrial Design	Core	3
BDE - 2nd Major Elective	BDE	3
Total		**20**

Year 3 - Semester 2		
Course Code and Title	**Course Type**	**AU**
MS3099 Professional Internship	FC	10
Total		**10**

Year 4 - Semester 1		
Course Code and Title	**Course Type**	**AU**
MS4089 Final Year Project	Core	4
MS4013 Biomaterials	Core	2
MS4014 Nanomaterials: Fundamentals And Applications	Core	2
EE4483 Artificial Intelligence & Data Mining - Knowledge Area 6	BDE	3
MPE1	MPE	3
Total		**14**

Year 4 - Semester 2		
Course Code and Title	**Course Type**	**AU**
MS4089 Final Year Project	Core	4
MS4012 Quality Control - Knowledge Area 1	Core	3
MS4671 Introduction to Materials Simulation - Knowledge Area 4	MPE	3
EE4791 Database Systems (3AU) - Knowledge Area 5	BDE	3
MPE3	MPE	3
MPE4	MPE	2^
Total		**16**
	Total AU for Graduation	**138**

^Students can take 3 AU MPE to clear this requirement

Recommended electives (no pre-req):

Course Code	Course Title	AUs
EE4497	Pattern Recognition & Machine Learning	3
MA4829	Machine Intelligence	3
MA4830	Real Time Software for Mechatronics System	3
MA4832	Microprocessor System	3