

**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	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 - Knowledge Area 3	Core	3
MS1017 Introduction to Materials Science	Core	2
Total		18

Pre-Req

Co-Req

** 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

Pre-Req

Co-Req

MS1017
MS1014/MS1016

Year 2 - Semester 1

Course Code and Title	Course Type	AU
CC0007 Science & Technology for Humanity	CC	3

Pre-Req

Co-Req

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

MS1017 MS1018
MS1016

MS2013

Year 2 Standing

^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^	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-Req Co-Req

MS1008

MH1810

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

Year 3 - Semester 1		
Course Code and Title	Course Type	AU
HW0288 Effective Communication 2	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

Pre-Req Co-Req

MS2016

MS2013/MS3011

MS3082

MS2013/MS3011

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

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

Pre-Req
Year 4 Standing

MS2013

Co-Req

MS3011

MS4014 Nanomaterials: Fundamentals And Applications	Core	2
EE4483 Artificial Intelligence & Data Mining - Knowledge Area 6	BDE	3
MPE1	MPE	3
Total		14

MS2018/MS3012/MS3013

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

Pre-Req
Year 4 Standing

Co-Req