

**Bachelor of Engineering (Materials Engineering)
University Scholars Programme (AY2022-23)**

Updated: 25-May-22

Academic Unit (AU) Required for graduation

Year of Study	Core	USP Core	MPE	USP BDE	CC	FC	BDE	Total AU
1	25 / 26 ⁺	12	-	-	2	-	-	39 / 40 ⁺
2	20	-	-	9	5	3	-	37
3	15	-	-	-	-	10	6	31
4	15	-	11	3	-	-	-	29
	75 / 76 ⁺	12	11	12	7	13	6	136 / 137 ⁺

⁺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
PH1011 Physics ^{*/**}	Core	3		
MH1810 Mathematics I [*]	Core	3		
MS1013 Materials Chemistry I [*]	Core	2		
MS1017 Introduction to Materials Science	Core	2		
MS1008 Introduction to Computational Thinking	Core	3		
SP0001 Writing and Reasoning	USP Core	3		
SP0008 Living Well	USP Core	3		
Total		19		

** 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	Pre-Req	Co-Req
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
MS2013 Introduction to Polymer Science	Core	3		MS1014/MS1016
SP0002 Ethics	USP Core	3		
SP0007 Fieldwork and Documentation	USP Core	3		
Total		20		

Year 2 - Semester 1

Course Code and Title	Course Type	AU	Pre-Req	Co-Req
CC0007 Science & Technology for Humanity	CC	3		
MH2811 Mathematics II	Core	3		MH1810

MS2014 Materials Structure and Defects	Core	3
MS2016 Phase Transformation and Kinetics	Core	3
MS2083 Laboratory on Structure-Property Relationship in Polymers	Core	1
USP BDE1	USP BDE	3
USP BDE2	USP BDE	3
Total		19

MS1017 MS1018
MS1016
MS2013

Year 2 - Semester 2		
Course Code and Title	Course Type	AU
ML0004 Career and Entrepreneurial Development for the Future World	CC	2
MS0003 Introduction to Data Science and Artificial Intelligence	FC	3
MS2012 Introduction to Manufacturing Processes	Core	3
MS2015 Mechanical Behaviour of Materials	Core	3
MS2018 Electronic & Magnetic Properties of Materials	Core	3
MS3082 Design Lab	Core	1
USP BDE3	USP BDE	3
Total		18

Pre-Req Co-Req
MS1008

Year 3 - Semester 1		
Course Code and Title	Course Type	AU
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
BDE1	BDE	3
BDE2	BDE	3
Total		21

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
MS4014 Nanomaterials: Fundamentals And Applications	Core	2
MS4013 Biomaterials	Core	2
USP BDE4	USP BDE	3
MPE1	MPE	3
Total		14

Pre-Req Co-Req
Year 4 Standing
MS2018/MS3012/MS3013
MS2013 MS3011

Year 4 - Semester 2		
Course Code and Title	Course Type	AU
MS4089 Final Year Project	Core	4
MS4012 Quality Control	Core	3
MPE2	MPE	3
MPE3	MPE	3
MPE4	MPE	2
Total		15

Pre-Req
Year 4 Standing

Co-Req