

**Bachelor of Engineering (Materials Engineering)
University Scholars Programme (AY2023-24)**

Last Update: 13-Oct-23

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 (AY2023-24) - Semester 1		
Course Code and Title	Course Type	AU
PH1011 Physics ^{*/**}	Core	3
MH1810 Mathematics I [*]	Core	3
MS1013 Materials Chemistry I [*]	Core	2
MS1016 Thermodynamics of Materials	Core	3
MS1017 Introduction to Materials Science	Core	2
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 (AY2023-24) - Semester 2		
Course Code and Title	Course Type	AU
CC0002 Navigating the Digital World	CC	2
EG1001 Engineer & Society	Core	2
MS1008 Introduction to Computational Thinking	Core	3
MS1014 Materials Chemistry II	Core	2
MS1018 Properties of Materials	Core	2
MS2013 Introduction to Polymer Science	Core	3

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SP0002 Ethics	USP Core	3
SP0007 Fieldwork and Documentation	USP Core	3
Total		20

Year 2 (AY2024-25) - Semester 1

Course Code and Title	Course Type	AU
SP0061 Science & Technology for Humanity	CC	3
MH2811 Mathematics II	Core	3
MS2012 Introduction to Manufacturing Processes	Core	3
MS2015 Mechanical Behaviour of Materials	Core	3
MS2016 Introduction to Metallurgy	Core	2
MS2083 Laboratory on Structure-Property Relationship in Polymers	Core	1
^USP BDE1	USP BDE	3
^USP BDE2	USP BDE	3
Total		21

Year 2 (AY2024-25) - 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
MS2014 Materials Structure and Defects	Core	3
MS2018 Electronic & Magnetic Properties of Materials	Core	3
MS2084 Phase Transformations and Kinetics in Steels	Core	1
MS3082 Design Lab	Core	1
BDE1	BDE	3
^USP BDE3	USP BDE	3
Total		19

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Year 3 (AY2025-26) - Semester 1

Course Code and Title	Course Type	AU
MS3011 Metallic & Ceramic Materials	Core	3
MS3012 Micro/Nanoelectronic Materials Processing	Core	3
MS3013 Electrochemical Corrosion	Core	3
MS3014 Analysis of Materials	Core	3
MS3015 Industrial Design	Core	3
BDE2	BDE	3
Total		18

Year 3 (AY2025-26) - Semester 2

Course Code and Title	Course Type	AU
***MS3099 Professional Internship	FC	10
Total		10

***The school will assign students for Professional Internship in Year 3, either Semester 1 or 2.

Year 4 (AY2026-27) - Semester 1

Course Code and Title	Course Type	AU
MS4089 Final Year Project	Core	4
MS4012 Quality Control	Core	3
MS4013 Biomaterials	Core	2
[^] USP BDE4	USP BDE	3
MPE1	MPE	3
Total		15

Year 4 (AY2026-27) - Semester 2

Course Code and Title	Course Type	AU
MS4089 Final Year Project	Core	4
MS4014 Nanomaterials: Fundamentals and Applications	Core	2
MPE2	MPE	3

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MPE3	MPE	3
MPE4	MPE	2
Total		14
Total AU for Graduation		136

^This is the recommended study plan but students have the autonomy to arrange NTU-USP electives over Year 2 (AY2024-25)-4.