

**Bachelor of Engineering (Materials Engineering)  
Double Degree in Materials Engineering and Economics (AY1920-20)**

| Academic Unit (AU) Required for graduation |        |                            |          |             |            |              |                        |          |
|--|--------|----------------------------|----------|-------------|------------|--------------|------------------------|----------|
| Year of Study                              | Core   | Major Prescribed Electives | GER-Core | GER-PE (BM) | GER-PE(LA) | GER-PE (STS) | Unrestricted Electives | Total AU |
| 1  | 36/37* | -                          | 1        | -           | -          | -            | -                      | 37/38*   |
| 2  | 25     | 9                          | 7        | -           | -          | -            | -                      | 41       |
| 3  | 23     | 12                         | 3        | -           | -          | -            | -                      | 38       |
| 4  | 23     | 6                          | -        | -           | -          | -            | -                      | 29       |
| 5  | 8      | 24                         | 3        | -           | -          | -            | -                      | 35       |
|  |        |                            |          |             |            |              |                        | 180/181* |

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

Description of Abbreviation

BM – Business & Management

LA – Liberal Arts

STS – Science, Technology & Society

| Year 1 - Semester 1   |             |           |
|---|-------------|-----------|
| Course Code and Title   | Course Type | AU        |
| HW0001 Introduction to Academic Communication                                     |             | 0         |
| GC0001 Introduction to Sustainability: Multidisciplinary Approaches and Solutions | GER-Core    | 1         |
| MH1810 Mathematics I <sup>†</sup>   | Core        | 3         |
| MS1013 Materials Chemistry <sup>†</sup>   | Core        | 3         |
| PH1011 Physics <sup>†***</sup>  | Core        | 3         |
| MS1008 Introduction to Computational Thinking                                     | Core        | 3         |
| HE1001 Microeconomic Principles   | Core        | 3         |
| HE1002 Macroeconomic Principles   | Core        | 3         |
| <b>Total</b>  |             | <b>19</b> |

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

\* 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.

| Year 1 - Semester 2                          |             |           |
|--|-------------|-----------|
| Course Code and Title                        | Course Type | AU        |
| MS1012 Materials Physics                     | Core        | 3         |
| MS1014 Materials Chemistry II                | Core        | 3         |
| MS1015 Materials Science                     | Core        | 3         |
| HE1005 Intro to Prob & Statistical Inference | Core        | 3         |
| HE2001 Intermediate Microeconomics           | Core        | 3         |
| HE2002 Intermediate Macroeconomics           | Core        | 3         |
| <b>Total</b>                                 |             | <b>18</b> |

| Year 2 - Semester 1                            |                            |    |
|--|----------------------------|----|
| Course Code and Title                          | Course Type                | AU |
| HY0001 Ethics and Moral Reasoning              | GER-Core                   | 1  |
| HW0188 Engineering Communication I             | GER-Core                   | 2  |
| MS1016 Thermodynamics of Materials             | Core                       | 3  |
| MS2012 Introduction to Manufacturing Processes | Core                       | 3  |
| HE2005 Principles of Econometrics              | Core                       | 3  |
| HExxxx Econs PE1                               | Major Prescribed Electives | 3  |
| HExxxx Econs PE2                               | Major Prescribed Electives | 3  |

|                  |                            |           |
|------------------|----------------------------|-----------|
| HExxxx Econs PE3 | Major Prescribed Electives | 3         |
| <b>Total</b>     |                            | <b>21</b> |

| Year 2 - Semester 2   |             |           |
|---|-------------|-----------|
| Course Code and Title   | Course Type | AU        |
| MS2013 Polymers and Composites                                  | Core        | 3         |
| MS2014 Materials Structure and Defects                          | Core        | 3         |
| MS2015 Mechanical Behaviour of Materials                        | Core        | 3         |
| MS2016 Phase Transformation and Kinetics                        | Core        | 3         |
| MS2081 Laboratory IIA   | Core        | 1         |
| MS0003 Introduction to Data Science and Artificial Intelligence | GER-Core    | 3         |
| ML0003 Kickstart your Career Success                            | GER-Core    | 1         |
| HE3021 Intermediate Econometrics                                | Core        | 3         |
| <b>Total</b>  |             | <b>20</b> |

| Year 3 - Semester 1                                  |                            |           |
|--|----------------------------|-----------|
| Course Code and Title                                | Course Type                | AU        |
| ET0001 Enterprise and Innovation                     | GER-Core                   | 1         |
| HW0288 Engineering Communication II                  | GER-Core                   | 2         |
| MH2811 Mathematics II                                | Core                       | 3         |
| MS2018 Electronic & Magnetic Properties of Materials | Core                       | 3         |
| MS2082 Laboratory IIB                                | Core                       | 1         |
| MS3011 Metallic & Ceramic Materials                  | Core                       | 3         |
| HExxxx Econs PE4                                     | Major Prescribed Electives | 3         |
| HExxxx Econs PE5                                     | Major Prescribed Electives | 3         |
| <b>Total</b>   |                            | <b>19</b> |

| Year 3 - Semester 2                              |                            |           |
|--|----------------------------|-----------|
| Course Code and Title                            | Course Type                | AU        |
| MS3012 Micro/Nanoelectronic Materials Processing | Core                       | 3         |
| MS3013 Environmental Effects on Materials        | Core                       | 3         |
| MS3014 Analysis of Materials                     | Core                       | 3         |
| MS3015 Materials Aspects in Design               | Core                       | 3         |
| MS3081 Laboratory III                            | Core                       | 1         |
| HExxxx Econs PE6                                 | Major Prescribed Electives | 3         |
| HExxxx Econs PE7                                 | Major Prescribed Electives | 3         |
| <b>Total</b>                                     |                            | <b>19</b> |

| Year 4 - Semester 1                                 |                            |           |
|---|----------------------------|-----------|
| Course Code and Title                               | Course Type                | AU        |
| MS4012 Quality Control                              | Core                       | 3         |
| MS4013 Biomaterials                                 | Core                       | 3         |
| MS4014 Nanomaterials: Fundamentals and Applications | Core                       | 3         |
| HE4010 Singapore Economy in a Globalized World      | Core                       | 4         |
| HExxxx Econs PE8                                    | Major Prescribed Electives | 3         |
| HExxxx Econs PE9                                    | Major Prescribed Electives | 3         |
| <b>Total</b>  |                            | <b>19</b> |

| Year 4 - Semester 2            |             |           |
|--------------------------------|-------------|-----------|
| Course Code and Title          | Course Type | AU        |
| MS3099 Professional Internship | Core        | 10        |
| <b>Total</b>                   |             | <b>10</b> |

| Year 5 - Semester 1         |                            |           |
|-----------------------------|----------------------------|-----------|
| Course Code and Title       | Course Type                | AU        |
| EG0001 Engineers & Society  | GER-Core                   | 3         |
| MS4089 Final Year Project   | Core                       | 4         |
| Major Prescribed Elective 1 | Major Prescribed Electives | 3         |
| Major Prescribed Elective 2 | Major Prescribed Electives | 3         |
| HExxxx Econs PE10           | Major Prescribed Electives | 4         |
| <b>Total</b>                |                            | <b>17</b> |

| Year 5 - Semester 2         |                            |           |
|-----------------------------|----------------------------|-----------|
| Course Code and Title       | Course Type                | AU        |
| MS4089 Final Year Project   | Core                       | 4         |
| Major Prescribed Elective 3 | Major Prescribed Electives | 3         |
| Major Prescribed Elective 4 | Major Prescribed Electives | 3         |
| HExxxx Econs PE11           | Major Prescribed Electives | 4         |
| HExxxx Econs PE12           | Major Prescribed Electives | 4         |
| <b>Total</b>                |                            | <b>18</b> |