

**Curriculum for CN Yang Scholars Programme
Materials Engineering
(For AY2017-18 intake)**

| Course Type | AU |
|----------------------------|------------|
| Core Courses | 107 |
| Major Prescribed Electives | 12 |
| GER-Core | 15 |
| GER-PE | 0 |
| Unrestricted Electives | 6 |
| Total | 140 |

| | Course Code | Course Title | Type | AU |
|------------------------------|--------------------|---|-------------|-----------|
| Year 1 Semester 1 | CY1001 | Introductory Biology | Core | 3 |
| | CY1101 | Principles of Modern Chemistry | Core | 3 |
| | CY1308 | Physics | Core | 3 |
| | CY1402 | Computing | Core | 3 |
| | CY1500 | Introductory Research Methodology | Core | 3 |
| | CY1601 | Mathematics I | Core | 4 |
| | GC0001 | Introduction to Sustainability: Multidisciplinary Approaches and Solutions | GER-Core | 1 |
| | | | | Total AUs |

| | Course Code | Course Title | Type | AU |
|------------------------------|--------------------|---|-------------|-----------|
| Year 1 Semester 2 | CY1007 | Living with Climate Change | Core | 3 |
| | CY1307 | Relativity and Quantum Physics | Core | 3 |
| | CY1400 | CNYSPP Undergraduate Research Experience | Core | 3 |
| | CY1602 | Mathematics II | Core | 4 |
| | MS1014 | Materials Chemistry II | Core | 3 |
| | ML0001 | Absolute Basics for Career | GER-Core | 1 |
| | | | | Total AUs |

| | |
|------------------------------------|---------------------------|
| Year 1 Special Term | Overseas Educational Trip |
|------------------------------------|---------------------------|

| | Course Code | Course Title | Type | AU |
|--------------------------|--------------------|---|-------------|-----------|
| Year 2 Semester 1 | CY2001 | Research Attachment 1 | Core | 4 |
| | CY0002 | Ethics | GER-Core | 3 |
| | MS1015 | Materials Science | Core | 3 |
| | MS1016 | Thermodynamics of Materials | Core | 3 |
| | MS2012 | Introduction to Manufacturing Processes | Core | 3 |
| | MS2013 | Polymers and Composites | Core | 3 |
| | MS2018 | Electronic & Magnetic Properties of Materials | Core | 3 |
| | MS2081 | Laboratory IIA | Core | 1 |
| | | | | Total AUs |

| | Course Code | Course Title | Type | AU | |
|--------------------------|--------------------|-----------------------------------|-------------|-----------|-----------|
| Year 2 Semester 2 | CY2002 | Research Attachment 2 | Core | 4 | |
| | CY0001 | Writing and Reasoning | GER-Core | 3 | |
| | MS2014 | Materials Structure and Defects | Core | 3 | |
| | MS2015 | Mechanical Behaviour of Materials | Core | 3 | |
| | MS2016 | Phase Transformation and Kinetics | Core | 3 | |
| | MS2082 | Laboratory IIB | Core | 1 | |
| | xxxxxx | Unrestricted Elective | UE | 3 | |
| | | | | Total AUs | 20 |

| | | | | |
|----------------------------|-------------------|--|--|--|
| Year 2 Special Term | Project at Garage | | | |
|----------------------------|-------------------|--|--|--|

| | Course Code | Course Title | Type | AU |
|--------------------------|--------------------|---|-------------|-----------|
| Year 3 Semester 1 | MS3011 | Metallic & Ceramic Materials | Core | 3 |
| | MS3012 | Micro/Nanoelectronic Materials Processing | Core | 3 |
| | MS46XX | School Major PE (choose from Table B) | Major PE | 3 |
| | MS46XX | School Major PE (choose from Table B) | Major PE | 3 |
| | CY0006 | Enterprise, Innovation and Leadership | GER-Core | 3 |
| | ML0002 | Career Power Up | GER-Core | 1 |
| | | | | Total AUs |

| | Course Code | Course Title | Type | AU |
|--------------------------|--------------------|------------------------------------|-------------|-----------|
| Year 3 Semester 2 | 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 |
| | MS4013 | Biomaterials | Core | 3 |

| | | | | |
|--|--------|--|-----------|-----------|
| | MS4014 | Nanomaterials: Fundamentals and Applications | Core | 3 |
| | | | Total AUs | 16 |

| | | | | |
|------------------------------------|--------------------|-------------------------|-------------|-----------|
| Year 3 Special Term | Course Code | Course Title | Type | AU |
| | MS3096 | Professional Attachment | Core | 5 |
| | | | | Total AUs |

| | | | | |
|------------------------------|--------------------|-----------------------------|-------------|-----------|
| Year 4 Semester 1 | Course Code | Course Title | Type | AU |
| | CY4002 | Overseas Final Year Project | Core | 8 |
| | | | | Total AUs |

| | | | | |
|------------------------------|--------------------|---------------------------------------|-------------|------------|
| Year 4 Semester 2 | Course Code | Course Title | Type | AU |
| | MS0002 | Engineers and Society | GER-Core | 3 |
| | MS4012 | Quality Control | Core | 3 |
| | MS46XX | School Major PE (choose from Table B) | Major PE | 3 |
| | MS46XX | School Major PE (choose from Table B) | Major PE | 3 |
| | xxxxxx | Unrestricted Elective | UE | 3 |
| | | | | Total AUs |
| GRAND TOTAL | | | | 140 |

Table A: School Core (54 AUs)

| School Core (54 AUs) | Type | AU |
|--|-------------|-----------|
| MS1014 Materials Chemistry II | Core | 3 |
| MS1015 Materials Science | Core | 3 |
| MS1016 Thermodynamics of Materials | Core | 3 |
| MS2012 Introduction to Manufacturing Processes | Core | 3 |
| 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 |
| MS2018 Electronic & Magnetic Properties of Materials | Core | 3 |
| MS2081 Laboratory IIA | Core | 1 |
| MS2082 Laboratory IIB | Core | 1 |
| MS3011 Metallic & Ceramic Materials | Core | 3 |
| 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 |
| MS4012 Quality Control | Core | 3 |
| MS4013 Biomaterials | Core | 3 |
| MS4014 Nanomaterials: Fundamentals and Applications | Core | 3 |
| Total | | 54 |

Table B: School Major PE (choose courses with a total of 12 AUs)

| School Major PE (12 AUs) | Type | AU |
|--|-------------|-----------|
| MS4600 Microelectronics Packaging | Major PE | 3 |
| MS4601 Principles of Semiconductor Devices | Major PE | 3 |
| MS4602 Materials and Processes for Electronic Displays | Major PE | 3 |
| MS4603 Microelectronics Process Integration | Major PE | 3 |
| MS4604 Photonic Materials and Devices | Major PE | 3 |
| MS4610 Advanced Biomaterials | Major PE | 3 |
| MS4611 Biomedical Devices | Major PE | 3 |
| MS4612 Drug Delivery and Tissue Engineering | Major PE | 3 |
| MS4620 Polymer Technology | Major PE | 3 |
| MS4621 Polymer Science | Major PE | 3 |
| MS4622 Composite Materials | Major PE | 3 |
| MS4630 Photovoltaic Devices and Energy Storage | Major PE | 3 |
| MS4631 Corrosion Engineering | Major PE | 3 |
| MS4640 Advanced Analysis of Materials | Major PE | 3 |
| MS4641 Introduction to Materials Simulation | Major PE | 3 |
| MS4650 Functional Nanostructured Materials | Major PE | 3 |
| MS4651 Thin Film Technology | Major PE | 3 |
| MS4699 Special Topics* | Major PE | 3 |