## Material Science and Engineering

AY2021 cohort

| E-Scholars 3-years schedule (MSE) | | | |
|---|---|---|---|
| **Semester 0 (APT)** | | | |
| EG1311 Design and Make | | | 4 |
| MA1505 Mathematics I (4 MC but it is mapped to MA1511 which is 2 MC) | | | 4 |
| CS1010E Programming Methodology | | | 4 |
| **Sub-total** | | | 12 |
| **Semester 1** | | **Semester 2** | |
| GEA1000 Quantitative Reasoning | 4 | MLE2105 Electronic Properties of Materials | 4 |
| DTK1234 Design Thinking | 4 | UE | 4 |
| MA1513 Linear Algebra with Differential Equations | 2 | UTCP #2 | 4 |
| MLE1001B Materials Science & Engineering Principles & Practice I | 4 | UE | 4 |
| PF1101 Fundamentals of Project Management | 4 | MA1512 Differential Equations for Engineering | 2 |
| CE2407A Engineering Uncertainty Analysis | 2 | MLE2001A Materials Science & Engineering Principles & Practice II | 4 |
| UTCP #1 | 4 | EG2101 Pathways to engineering Leadership | 2 |
| | | UE (or IE2141 if not staying at RC4) | 4 |
| **Sub-total** | 24 | **Sub-total** | 28 |
| **Semester 3** | | **Semester 4** | |
| EG2501 Liveable Cities | 4 | Three options:<br>1. NOC experience (20 MC)<br>mappable to EG3611A (10 MC) + 10 MCs UE<br>2. EG3611A (10 MCs) + EG3611B (2 MCs) + 8 MCs UE<br>3. EG3612 (Vacation Industrial Attachment) + EG2605 (Undergraduate Research Opportunity, UROP) + 10 MC UE<br><br>Note that option 2 can be done in Semester 3 as well<br>Note that, for option 3, UROP can be done in Semester 3 as well. | 20 |
| MLE2102 Principles of Renewable Energy | 4 | | |
| MLE2103 Phase Transformation and Kinetics | 3 | | |
| MLE3111 Materials Properties & Processing Laboratory | 4 | | |
| UTCP #3 | 4 | | |
| UTCP #4 | 4 | | |
| EE2211 Introduction to Machine Learning | 4 | | |
| | | | |
| **Sub-total** | 27 | **Sub-total** | 20 |
| **Semester 5** | | **Semester 6** | |
| MLE4101 BEng Dissertation OR MLE4102A Design Project | 4 | MLE4101 BEng Dissertation OR MLE4102A Design Project | 4 |
| Technical Elective | 4 | Technical Elective | 4 |
| Xxxx Creating Narratives | 4 | UE | 4 |
| MLE3101A Materials Characterization | 3 | UE | 4 |
| MLE3101 Materials Characterization Laboratory | 3 | UE | 4 |
| MLE3103 Materials Selection & Design: Aerospace to Biomedical Applications<br>OR<br>MLE3103 Materials Design and Selection | 4 | UE | 4 |
| Xxxxx To be advised (*replace MLE3112*) | 4 | | |
| **Sub-total** | 26 | **Sub-total** | 24 |
| | | Grand total | 161 |

Notes:

1. If APT modules are not cleared, those modules must be cleared during the normal semesters
2. Improtant rules for NOC:
- You MUST be on campus the semester BEFORE going to NOC.
- You MUST have cleared at least 70 MC before applying to NOC
3. MLE3111 (4 MC) will map to graduation requirement MLE3111A (2MC) + 2 UE credits
4. MLE2103 (3 MC) will map to graduation requirement MLE2103A (2MC) + 1 UE credit
5. Xxxxx Module to be advised to replace graduation requirement MLE3112 Machine Learning Approaches in Materials Engineering Laboratory (2MC) + 2 UE credits