

Materials Science & Engineering

Fall Semester				Spring Semester			
FIRST YEAR							
CHEM 1100	Chemistry I	4		MATH 1020	Calculus II	4	
MATH 1010	Calculus I	4		PHYS 1100	Physics I	4	
ENGR 1100	Intro. to Engineering Analysis	4		ENGR 1600	Materials Science ²	4	
MTLE 1200	Intro to Materials Science ¹	1			Hum., Arts or Soc. Sci. Elective	4	
	Hum., Arts or Soc. Sci. Elective	4					
SECOND YEAR							
ENGR 1200	Engineering Graphics & CAD ³	1		ENGR 2250	Thermal and Fluids Eng. I	4	
MTLE 2100	Structure of Engineering Materials	4		ENGR 2050	Intro to Engineering Design	4	
PHYS 1200	Physics II	4		CSCI 1190	Beginning C Progrmg for Engs	1	
MATH 2400	Intro. to Differential Equations	4		MTLE 4200	Electrical & Optical Prop of Mtls	4	
	Hum., Arts or Soc. Sci. Elective	4			Hum., Arts or Soc. Sci. Elective	4	
Summer Arch Semester		THIRD YEAR		Spring			
MTLE 4250	Mechanical Properties of Materials ⁴	4		MTLE 4100	Thermodynamics of Materials	4	
MTLE XXX	Skills in Materials Engineering	1		MTLE 4910	Materials Selection	3	
ENGR 2600	Modeling & Analysis of Uncertainty	3			Science Elective	4	
	Restricted Elective	4			Professional Development II ^{2,5}	2	
	Hum., Arts or Soc. Sci. Elective	4			Free Elective I ⁶	4	
FOURTH YEAR							
ENGR 4010	Professional Development III ²	1		MTLE 4400	Materials Synthesis & Processes	4	
MTLE 4150	Kinetics in Materials Sys.	4		MTLE 4920	Multidisciplinary Capstone Design ²	3	
MTLE 4500	Computational Materials Design	3			Free Elective III ⁶	4	
	Materials Elective I ⁷	3			Materials Elective II ⁷	3	
	Free Elective II ⁶	4					

129 credits minimum

RESTRICTED ELECTIVES

- ECSE 2010 - Electric Circuits 4 credit hours (Fall & Spring)
- ENGR 2090 - Engineering Dynamics 4 credit hours (Fall & Spring)
- ENGR 2300 - Electronic Instrumentation 4 credit hours (Fall & Spring)
- ENGR 2350 - Embedded Control 4 credit hours (Fall & Spring)
- ENGR 2530 - Strength of Materials 4 credit hours (Fall & Spring)
- BMED 2540 – Biomechanics ⁸ 4 credit hours (Fall)

MATERIALS ELECTIVES

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| MTLE 4030 - Glass Science Credit Hours: 3 | MTLE 4050 - Introduction to Polymers Credit Hours: 3 |
| MTLE 4310 - Corrosion Credit Hours: 3 | MTLE 4430 – Fundamentals Alloy Systems Credit Hours: 3 |
| MTLE 4440 – Thin Films Credit Hours: 3 | MTLE 4460 – Materials for Energy Credit Hours: 3 |
| MTLE 4470 – Biology in Materials Science Credit Hours: 3 | MTLE 4520 – Materials under Extreme Cond. Credits: 3 |
| MTLE 4960 - Topics in Materials Engineering Credit Hours: 3 | |

Note: The courses in the Materials Electives list may be substituted with any MTLE 4000- or 6000-level course. In order to take a 6000-level course, students may be required to obtain formal approval from the Office of Graduate Education, as specified in the course catalog. The free electives must total at least 12 credits.

1. May be replaced by ENGR 1300 or another engineering exploration course.
2. This course can be taken in either semester.
3. May be replaced by ENGR 1400.
4. Only offered during Summer Session 3 (second 6-week term).
5. This course will be fulfilled from a list published at the start of each semester.
6. Free electives must total at least 12 credits.
7. The courses in the Materials Electives list may be substituted with any MTLE 4000- or 6000-level course. In order to take a 6000-level course, students may be required to obtain formal approval from the Office of Graduate Education, as specified in the course catalog.
8. BMED 2540 is available to MTLE/BMED dual majors only.