

Sample 4 year Degree Plan 2016-17 Catalog



Note: This is just a guide; please consult with your academic advisor, the *Catalog*, and your degree audit for specific requirements.

Materials Science and Engineering (251-001)

The following is a hypothetical schedule for a Bachelor of Science degree for the Comprehensive major in Materials Science and Engineering (a 128-credit degree program). It is based on the 2016-2017 Catalog, and assumes no transferred credits, no requirements waived by placement tests, and no courses taken in the summer. The Materials Science Program cannot guarantee that all courses will be offered as shown, but it will provide a range of courses that will enable prepared students to fulfill their requirements in a four-year period.

First Year

FIRST SEMESTER			SECOND SEMESTER		
Subj/Area/Course	Title	Crs	Subj/Area/Course	Title	Crs
MATH 114	Calculus I (S2)	4	MATH 215	Calculus II	4
WRIT 114 or 116	Blugold Seminar (S1)	5	PHYS 231	University Physics I (K1)	5
CHEM 103	General Chemistry I (K1)	4	CHEM 104	General Chemistry II	4
MSE 120	Introduction to Engineering	2	MSE 221	A Materials World	3
TOTAL		15	TOTAL		16

Second Year

FIRST SEMESTER			SECOND SEMESTER		
Subj/Area/Course	Title	Crs	Subj/Area/Course	Title	Crs
PHYS 232	University Physics II (K1)	5	MATH 312	Differential Eqns. & Linear Algebra	4
PHYS 255	Statics	3	MSE 334	Soft Materials	4
MSE 256	Introduction to CAD	1	MSE 315	Materials Characterization (S3)	4
CHEM 325	Organic Chemistry I	4	LE Core Elective	Civic, Social, Environmental Responsibility (R3)	3
LE Core Elective	Communication (S1)	3			
TOTAL		16	TOTAL		15

Third Year

FIRST SEMESTER			SECOND SEMESTER		
Subj/Area/Course	Title	Crs	Subj/Area/Course	Title	Crs
MATH 345	Probability and Statistics	4	MSE 367	Macroprocessing of Materials	3
MSE 350	Thermodynamics of Materials	4	MSE 368	Macroprocessing Lab	2
MSE 357	Phase Transformations	3	MSE 372	Transport Phenomena	3
MSE 386	Engr. Jr. Seminar I	0.5	MSCI 387	Engr. Jr. Seminar II	0.5
LE Core Elective	Equity, Diversity, Inclusivity and Humanities (R1 + K3)	3	LE Core Elective	Social Science and Global Learning (K2 + R2)	3
ELECTIVES ^a	Any appropriate elective	2	LE Core Elective	Humanities; EDI; Design for Diversity (K3, R1 + DD)	3
			LE Core Elective	Integrative Learning (I1)	3
TOTAL		16.5	TOTAL		17.5

Fourth Year

FIRST SEMESTER			SECOND SEMESTER		
Subj/Area/Course	Title	Crs	Subj/Area/Course	Title	Crs
MSE 362	Microelectronic Materials Processing	2	MSE 451	Computational Materials Science	4
MSE 374	Physics of Solids	4	MSE 475	Nanomaterials	3
MSE 486	Engr. Capstone I (I1)	2	MSE 487	Engr. Capstone II	2
MSE Elective	Science or Engr. Elective	3	MSE Elective	Science or Engr. Elective	3
LE Core Elective	Social Science (K2)	3	LE Core Elective	Fine Arts (K4)	3
ELECTIVES ^a	Any appropriate elective	2	ELECTIVES ^a	Any appropriate elective	1
TOTAL		16	TOTAL		16

Liberal Education Core (LE Core)

The LE Core comprises 17 learning experiences across 11 learning outcomes. Students must complete a minimum of 36 credits in courses approved for the LE Core.

- K1 – Natural Science; two experiences (one lab science experience is required in K1 or K2).
- K2 – Social Science; two experiences (one lab science experience is required in K1 or K2).
- K3 – Humanities; two experiences.
- K4 – Fine Arts; one experience.
- S1 – Communication; two experiences (one experience must satisfy the University writing requirement).
- S2 – Mathematics; one experience (must satisfy the University math competency requirement).
- S3 – Creativity; one experience (can be fulfilled in a student's major).
- R1 – Equity, Diversity, Inclusivity; two experiences (one experience must meet the UW System Design for Diversity (DD) requirement).
- R2 – Global Learning; one experience.
- R3 – Civic, Social, Environmental Responsibility; one experience.
- I1 – Integrative Learning; two experiences (one experience can be fulfilled in a student's major).

Additional LE Core Information

- Most LE Core learning experiences are course based, and many courses meet more than one learning outcome (e.g., K3 and R2 or K1 and R3). The plan outlined above takes advantage of no such dual-experience course, but doing so will meet degree requirements sooner.
- Some learning experiences can also be met outside of a traditional course (e.g., undergraduate research (S3), study abroad (I1)).
- S1 – An English placement score that fulfills the University writing requirement fulfills one S1 experience.
- S1 – A foreign Language placement score that qualifies the student to enter the 102 level satisfies one S1 experience.
- S1, R2 – A foreign language placement score that qualifies the student to enter the 202 level satisfies one experience in S1 and the R2 experience.
- S2 – A math placement score that qualifies the student to enter Math 111, 112, 113 or 114 fulfills the S2 experience.
- S3 – Any two approved music ensembles fulfills the S3 experience.
- I1 – Any semester long study abroad program can fulfill one I1 experience.

Notes

^a Electives can be selected from any discipline as long as the student meets the course prerequisites, but courses *outside* of science and engineering are especially recommended. Note that completing the major also meets the 39 credits of upper division courses (300-400 level), not counting courses in MSE Electives or LE Core.

^b MSE Elective – Appropriate Engineering or Science courses from UW-EC and partner campuses (UW-River Falls, UW-Stout, and Chippewa Valley Technical College) should be chosen in consultation with an academic adviser. Courses already identified.

UW-River Falls

AE 255 – Welding and Metal Manufacturing
GE 450 – Engineering Project Management

UW-Stout

ENGGR 210 - Engr. Graphics Using Solid Modeling
INMGT 335 – Lean Manufacturing Systems
MECH 294 - Mechanics of Materials
MFGT 341 - Injection Molding Technology (pre-req is their Intro to Plastics)
PLE 305 - Extrusion Theory and Application (pre-req is Thermo and Transport)

CVTC

MSE 363

UW-EC

PHYS 340, 350, 356, 360, 361, 362
CHEM 213, 326, 352
CS 145, 163, 170, 245, 252, 330
MATH 216, 313, 314, 315, 316, 317, 318, 324, 351, 352, 354, 355, 358, 440, 441, 443