Revised 3/29/2016 (effective Fall 2016)

PURDUE UNIVERSITY

Materials Engineering

College of Engineering

code-BS-MSE
126 Credits for Graduation
Students must have a graduation index of 2.0
Student must have a minimum average GPA of 2.0 in MSE 200 and 300 level courses.

Materials Engineering Major Courses (42 credits) (https://engineering.purdue.edu/MSE/Academics/Undergrad/undergrad_manual.pdf)

Required MSE Courses (42 credits)

____ (3) MSE 23000- Structure and Properties of Materials
____ (3) MSE 23500 – Materials Properties Lab
____ (3) MSE 25000- Physical Properties in Eng. Systems
____ (3) MSE 26000- Thermodynamics of Materials
____ (3) MSE 27000- Bonding and Crystallography
____ (3) MSE 33000 – Proc. and Props. of Materials
____ (3) MSE 33500 – Material Characterization Lab
____ (3) MSE 34000 – Transport Phenomena
____ (3) MSE 36700 – Materials Processing Lab
____ (3) MSE 37000 – Elec, Opt, Mag Props. of Materials
____ (3) MSE 38200 - Mechanical Response of Materials
____ (0) MSE 39000 – Seminar (taken each semester)
____ (3) MSE 43000 – Materials Processing and Design I
____ (3) MSE 44000 – Materials Processing And Design II
____ (3) MSE 44500 – Materials Engineering Systems Analysis

MSE technical Electives (18 credits) *(See the MSE undergraduate manual for an approved list)*

_____ (3) Technical Elective I
_____ (3) Technical Elective II
_____ (3) Technical Elective III
_____ (3) Technical Elective IV
_____ (3) Technical Elective V or Support Area Elective I
_____ (3) Technical Elective VI or Support Area Elective II

Other Departmental /Program Course Requirements (66 credits)

General Engineering Requirements (4 credits)

____(2) ENGR 13100/14100 (honors) - Transforming Ideas to Innovation I
____(2) ENGR 13200/14200 (honors)- Transforming Ideas to Innovation II

Mathematics Requirements (18 credits).

____(4/5) MA 16500/16100 - Analytic Geometry And Calculus I (satisfies Quantitative Reasoning Selective for core)
____(4/5) MA 16600/16200 - Analytic Geometry And Calculus II
____(4) MA 26100 - Multivariate Calculus
____(3) MA 26500 - Linear Algebra
____(3) MA 26600 - Ordinary Differential Equations

Alternative sequence to MA 265/266 is MA 26200 followed by either MA 30300 or MA 35100

Science Requirements (20 credits)

____(4) CHM 11500/13600 (honors) - General Chemistry I (satisfies Science Selective for core)
____(4) CHM 11600/13600 (honors) – General Chemistry II
____(4) CHM 25700 - Organic Chemistry
____(4) PHYS 17200 – Modern Mechanics (satisfies Science Selective for core)
____(3/4) PHYS 24100/27200- Electricity and Optics
____(1) PHYS 25200 - Elec. And Optics Lab

PHYS 25200 may be replaced by another 1-cr hour science laboratory as listed in the MSE undergraduate manual
PHYS 27200 replaces both PHYS 24100 & PHYS 25200

MSE General Education Requirement (24)

Foundation Core (http://www.purdue.edu/provost/initiatives/curriculum/course.html)

_____ (4/3) ENGL 1060 Engl. Composition or equivalent *(satisfies Information Literacy and Written Communications Selectives)*
_____ (3) COM 11400 – Fundamentals of Speech *(satisfies Oral Communication for core)*
_____ (3) G.E. I – (satisfies Human Cultures Humanities for core)
_____ (3) G.E. II – (satisfies Human Culture Behavioral/Social Science for core)
_____ (3) G.E. III – (satisfies Science, Technology & Society Selective for core)

MSE General Education Electives *(See the MSE undergraduate manual for an approved list)*

_____ (3) G.E IV
_____ (3) G.E. V
_____ (3)G.E. VI

University Core Requirements (included above) (http://www.purdue.edu/provost/initiatives/curriculum/course.html)

Human Cultures Humanities	_____	*Science, Technology & Society Selective*	_____
Human Cultures Behavioral/Social Science	_____	*Written Communication*	_____
Information Literacy	_____	*Oral Communication*	_____
Science Selective	_____	*Quantitative Reasoning*	_____
Science Selective	_____		

The student is ultimately responsible for knowing and completing all degree requirements.
Degree Works is knowledge source for specific requirements and completion

Materials Engineering

https://engineering.purdue.edu/MSE/Academics/Undergrad/Advising/PlanofStudy.pdf

Suggested Arrangement of Courses:

Credits	Fall 1st Year	Prerequisite	Credits	Spring 1st Year	Prerequisite
4	MA 16500		4	MA 16600	MA 16500
4	CHM 11500		4	PHYS 17200	
4 (3)	ENGL 10600 (or equivalent (3)		4	CHM 11600	CHM 11500
2	ENGR 13100		2	ENGR 13200	ENGR 13100
			3	COM 11400	
14 (13)			**17**		

Credits	Fall 2nd Year	Prerequisite	Credits	Spring 2nd Year	Prerequisite
3	MSE 23000	CHM 11500, MA 16500	3	MSE 25000	PHYS 17200,**MSE 23000*** **MA 26500*** **(or MSE 26200)***
	MSE 23500	CHM 11500, MA 16500, **MSE 23000***	3	MSE 26000	**CHM 11600***, MA 26100,**MSE 23000***
4	MA 26100	MA 16600/ 16200	3	MSE 27000	MA 26100, **MA26500* (or 26200)*** **MSE 2300***
3	PHYS 241000	PHYS 17200	3	MA 26600	MA 26100
3	MA 26500	MA 16200/16600	3	General Education Elective I	
0	MSE 39000		1	PHYS 25200	PHYS 24100
			0	MSE 39000	
16			**16**		

Credits	Fall 3rd Year	Prerequisite	Credits	Spring 3rd Year	Prerequisite
3	MSE 33500	MSE 23500	3	MSE 33000	MSE 26000
3	MSE 34000	MA 26600 or 26200	3	MSE 36700	MSE 26000
3	MSE 37000	MSE 23000, MSE 27000 PHYS 24100 or 27200	3	MSE 38200	MSE 25000, MA 26500 or 26200
4	CHM 25700	CHM 11600	3	Technical Elective I	
3	General Education Elective II		3	General Elective III	
0	MSE 39000		0	MSE 39000	
16			**15**		

Credits	Fall 4th Year	Prerequisite	Credits	Spring 4th Year	Prerequisite
3	MSE 43000	MSE 33500, 36700	3	MSE 44000	MSE 33500,34000, 37000,43000
3	MSE 44500	MSE 33000, 34000 **MSE 43000***	3	Technical Elective IV	
0	MSE 39000		3	Technical Elective V	
3	General Elective IV		3	Technical Elective VI	
3	Technical Elective II		3	General Elective V	
3	Technical Elective III		3	General Elective VI	
15			**18**		

Note: may be taken concurrently

126 semester credits required for Bachelor of Engineering degree.

Students must have a graduation index of 2.0 and must have a minimum average GPA of 2.0 in MSE 200 and 300 level courses.

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The student is ultimately responsible for knowing and completing all degree requirements.

Degree Works is knowledge source for specific requirements and completion

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SUPPORT AREA ELECTIVES **revised 4-15-16**

The list of Support Area Electives below is divided into three categories: Communication, Mathematics and Basic Science, and Engineering Support. These courses are not directly related to Materials Engineering, but will help you improve you written or oral communication skills (e.g., Speech Writing and Analysis) or provide greater depth to topics touched on in MSE courses (e.g., Statistics). Up to 6 credit hours of your Technical Elective Program may be satisfied using Support Area Electives. The Support Area Electives list is also available in the Undergraduate section of the MSE website.

Communication:

COM 25200	Journalistic Writing
COM 31400	Advanced Public Speaking
COM 32500	Interviewing – Principle and Practice
COM 35800	Newspaper Reporting
COM 41400	Speech Writing and Analysis
COM 45300	Reporting of Science News
COM 45500	Advocacy Journalism
ENGL 30400	Advanced Composition
ENGL 39100	Composition for English Teachers
ENGL 40600	Review Writing
ENGL 40900	Introduction to Fiction Writing
ENGL 42000	Business Writing
ENGL 42100	Technical Writing
PSY 27200	Industrial Organizational Psychology
Foreign Language	#Any level 201 or higher

Engineering Support:

AAE 25100	Introduction to Aerospace Design
AAE 37200	Jet Propulsion Power Plants
AAE 53500	Propulsion Design, Build, Test
BME 55100	Tissue Engineering
CE 52400	Legal Aspects in Engineering Practice
EAPS 37500	Fossil Fuels & Society
ECE 17000	EPICS for Freshmen – 3 hrs total
ECE 49500	Entrepreneurship
EPICS	EPICS – 2 semesters required (EPCS 201-202, 301-302, 401-2)
ECE 20100	Linear Circuit Analysis
ECE 20200	Linear Circuit Analysis II
ECE 20700	Electronic Measurement Techniques
EEE 300/CE 55900	Environmental & Ecological Systems
IE 33000	Probability & Statistics for Engineers II
IE 34300	Engineering Cost Analysis
IE 59000	Advanced Manufacturing
ME 27400	Basic Mechanics II
ME 49200	Technology & Values
MGMT	(courses 3XX or greater are acceptable; however, may require MGMT 200 as a prerequisite)
MSE 48900	Ethics in Engineering Practice
MSE 49700	Manufacturing and Assembly
MSE 49700	Matls Engr System Analysis
NUCL 56300	Direct Energy Conversion
OBHR 30000	Mgmt of Human Resources (under MGMT)

Mathematics and Basic Sciences

BIOL 23000	The Biology of the Living Cell
CHM 26200	Organic Chemistry
CHM 26300	Organic Chemistry Lab
CHM 26400	Organic Chemistry Lab
CHM 37300	Physical Chemistry
CHM 37400	Physical Chemistry
EAPS 24300	Earth Materials
EAPS 37500	Fossil Fuels & Society
IPPH 56200	Intro to Pharmaceutical Manufacturing Process
MA 30300	Diff. Eqs. and Partial Diff. Eqs. for Eng. and the Sciences
MA 30400	Diff. Eqs. and Analysis of Nonlinear Systems for Eng. and the Sciences
MA 36200	Topics in Vector Calculus
MA 41000	Elements of Vector Calculus
PHYS 33000	Intermediate Electricity & Magnetism
PHYS 34200	Modern Physics
PHYS 55000	Quantum Mechanics
STAT 31100	Introductory Probability
STAT 350 /51100	Statistical Methods (equivalent courses)
STAT 51200	Applied Regression Analysis
STAT 51300	Statistical Quality Control
STAT 51400	Design of Experiment
STAT 51600	Basic Probability and Applications

Support Electives cannot be taken pass/no pass, or satisfied by exam or test out.

Other courses may be acceptable, subject to approval by petition to the Undergraduate Committee.

#200 level or higher. These courses appear on BOTH General Education and Support Elective Lists. However, they can be taken to fulfill only ONE requirement. THESE COURSES ARE EXCEPTIONS. OTHER GENERAL EDUCATION COURSES ARE NOT PERMITTED AS SUPPORT ELECTIVES.

GENERAL EDUCATION COURSES MSE updated 4/2016

Approved for all Schools of Engineering

(Based on EFD 55-98 Approved by the Engineering Faculty on April 26, 2001; list revised May 05, 2003.)

The General Education Program for Engineering Students

Humanities and social sciences courses encompass the breadth of human experience and culture, both past and present, including individual behavior, social and political structures, aesthetic values, modes and dynamics of communication, philosophical and ethical thought, and cognitive processes. Such courses are an integral part of all engineering curricula which complements technical and professional content by enabling engineering students to appreciate the world in which they live and work, and to contribute as both educated members of society and aware, ethical professionals. Humanities and social sciences courses also provide a framework for rational inquiry, critical evaluation, judgment and decisions when dealing with issues that are non-quantifiable, ambiguous, or controversial. Of equal importance, they offer opportunities for engineering students to develop interests and insights that guide, enrich and expand their perceptions of the world they live in.

To these ends, all B.S. students in the Schools of Engineering are required to complete a general education program of 18 credit hours in approved humanities and social sciences electives. Students are strongly encouraged to develop a coherent general education plan, and distribute their general education credits throughout their academic program.

Courses Eligible Under the General Education Program

Condition 1 of the General Education program (EFD 55-98) states: "Courses [used to satisfy the General Education Program] must be drawn from those offered by the departments of Agricultural Economics, Audiology and Speech Sciences, Child Development and Family Studies, Communication, Economics, English, Foreign Languages and Literatures, History, Interdisciplinary Studies, Philosophy, Political Sciences, Psychological Sciences, Sociology and Anthropology, and Visual and Performing Arts. Any course offered by these departments is allowable, provided that it is open to students in the offering department and is not focused primarily on professional training, natural science or mathematics."

This list represents a consensus across all of the Schools of Engineering of courses that are approved as General Education Electives in Engineering. This list is maintained by the Engineering Education Committee and will be updated every two years.

SOCIAL SCIENCES	
AGEC	250, **296, 340, 406, 410, 415, 423, 450**
ANTH	100, 105, 201*, 203, 204, 205, 250, **303, 312*, 320, 335, 336, 341, 350, 368, 379,380*, 390, 392, 404, 414, 415, 420, 425, 435, 436, 460, 473, 478, 479**
ASAM	24000 (intro), 34000 (Up)
ASL	101, **102, 201, 202,** 280
AUS	115, **309, 401, 419**
AUSL	227, **368, 381**
HDFS (cdfs)	201, **210, 211,** 255, **301, 311, 312, 315, 325, 411, 424, 430, 432, 434**
COM	102*, 204, **210,** 212, 224, **240,** 250, 251, **253,** 256, **303, 312, 314, 316, 318, 320, 324, 325, 329, 330, 351, 352, 368, 372, 374, 376, 381, 412, 414, 416, 424, 435,491**
CSR	**342***
ECON	251, 252, **340, 352, 355, 361, 365, 368, 370, 375, 380, 385, 422, 456, 461, 466,470,471**
POL	101, 120, 130, 141, 190, **200,** 221, 222, 223, 230, 231, 232, 235, 237, 290,**300, 301, 303, 304, 314, 320, 322, 323, 326, 327, 338, 342, 344, 345, 347,348, 350, 351, 352, 353, 360, 364, 370, 371, 372, 373, 380, 410, 411, 412,413, 415, 416, 417, 418, 419, 423, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 444, 445, 446, 447, 449, 452, 453,454, 455, 456, 460, 461, 462, 463, 493**
PSY	120, 121, 200, **213,** 220, 235, **236, 239, 240, 241, 242,** 250, 251,**272,** 285, **310,311, 314,** 333, 335, 336, 337, 338, 339, 350, **360, 361, 364, 365, 366, 367,368,** 370, 372, 380, 388, 391, 392, 415, 420, 425, 426, 428, 440, 442, 443,444, 450, 463, 464, 473, 475, 476, 484, 485, 493**
SOC	100, 220, **310, 312, 316, 324, 328, 334, 338, 339, 340, 341, 342, 350, 367, 368,374, 391, 402, 411, 416, 419, 420, 421, 425, 426, 429, 450, 454, 474, 475, 493**

Please Note: Introductory Courses are shown in normal font; non-introductory courses in **bold** font. Departments with courses considered to have global/societal content have their desigators underlined.

Engineering Policy futher requires:

1. At least 9 credit hours of courses with global/societal content must be taken
2. At least 6 credit hours must be taken and no more than 12 credit hours may be taken in one department.
3. At least 6 credit hours of non-introductory courses must be taken.
4. If a foreign language is taken, at least 6 credit hours are required in the same language. Credit is not allowed for language courses in the student's native tongue(s), but literature, culture, drama and related courses are allowed.
5. Credit by examination or granted credit, conditioned solely at the discretion of the awarding department, can be used to satisfy any part of the requirement.
6. No course may be used more than once, even if the offering department allows it to be repeated for credit.

Additional School Requirements are as follows:

To be added by individual schools as appropriate.

HUMANITIES	
A&D	105, **106, 113,** 125, **200, 205, 206,** 207, **213, 214,** 215, 216, 217, **221,** 226, 227, **230, 235,** 242, **245, 246, 250,** 255, **259, 262,** 265, 266, 270, 271, **275, 276, 307, 311, 312, 314, 316, 327, 330, 332, 333, 341, 342, 350, 351, 353, 357, 358, 359, 362, 363, 365, 366, 368, 369, 370, 371, 376, 380, 381, 382, 383, 384, 385, 390, 391, 395, 398, 400, 421, 442, 450, 451, 452, 454, 455, 458, 462, 468, 470, 475, 476, 485, 490, 492**
ARAB	101, **102, 201, 202, 301, 302**
ASAM	24000*, **34000***
CHNS	101, **102, 107,201, 202, 220,** 230, 241, 280, 285, **301, 302, 305, 313, 341, 342, 490, 493 (101&102=107)**
CLCS	230, 237, **330, 331,333*, 335, 336, 337, 338*, 339*, 385**
DANC	101, 102, 103, 130, **140, 201, 202, 203, 240, 241,** 250, **301, 302**
ENGL	201, 227, 230, 231, 232, 233, 234, 235, 237, 238, 239, 240, 241, 250, 257, 258, 262, 264, 266, 267, 276, 279, **304*, 305, 327, 331, 333, 335, 337, 350, 351, 352, 356, 358, 360, 361, 362, 364, 365, 366, 368, 372, 373, 374, 375, 376, 377, 379, 381, 382, 383, 386, 387, 396, 406, 407, 409, 411, 412, 413, 414, 441, 442, 444, 455, 460, 462, 463, 466, 468, 469, 470**
LC (fll)	101, **102, 201, 202,** 230, 233, 235, 239, 261, 331, 361, **368, 371, 490**
FR	**101, 102, 103, 112, 201, 202, 211, 212,** 230, 231, **241, 260, 280, 301, 302, 330, 341, 342, 361, 362, 380, 394, 396, 401, 402, 443, 480**
GER	**101, 102, 103, 112, 201, 202, 211, 212,** 230, 231, **241, 260, 280, 301, 302, 323, 330, 341, 342, 360, 385, 401, 402, 441, 442, 446, 480, 483**
GREK	101, **102, 201, 202, 344, 446, 490**
HEBR	101, **102, 201, 202**
HIST	102, 103, 104, 105, 151, 152, 228, 229, 240, 241, 243, 245, 271, 272, 290,**302*, 303, 304, 307, 312, 317, 318, 320, 322, 323, 324, 326, 327, 328, 329, 330,331, 332, 333, 334, 335, 337, 339, 340, 341, 342, 343, 344, 345, 349, 350, 351,352, 353, 355, 356, 357, 358, 359, 360, 361, 362, 365, 366, 368, 371, 372, 376, 377, 381, 382, 383, 385, 386, 387, 391, 392*, 395*,396, 398, 399, 402, 403, 404, 405, 406, 407, 408, 409, 412, 414, 415, 416, 417, 419, 420, 427, 438, 439, 440, 441, 443, 450, 460, 461, 463, 465, 467, 468, 469, 471, 472, 473, 475, 492, 493, 494, 497, 595***
IDIS	220, 260, 271, 280, **330, 370, 371, 371F, 372, 373, 375, 376, 378, 380, 381, 420, 460, 473, 480, 481, 482, 483, 490, 490B**
ITAL	101, **102, 105, 112, 201, 202, 211, 212,** 231, **241, 260,** 301, **302,** 330, **335,** 341, **342, 394**
JPNS	101, **102, 201, 202,** 230, **241,** 280, **301, 302, 341, 342, 361, 362, 363, 401, 402, 480, 490**
LATN	101, **102, 201, 202, 343, 344, 345, 346, 442, 443, 444, 445, 446, 490, 492**
MUS	**250, 361, 362, 363, 364, 371, 372, 373, 374, 375, 377, 378, 490**
PHIL	110, 111,114*,120*, 150*, 206, 219, 221, 225, 240, 242, 260, 270, 275, 280, 290, **293, 301, 302, 303, 304, 306, 319, 330, 331, 402, 406, 411, 421, 425, 430, 431, 432, 435, 465, 490, 493**
PTGS	101, **102, 105, 112, 201, 202, 211, 212**
RUSS	101, **102,** 111, **112, 201, 202, 211, 212, 223,** 230, 231, 232, 233, 234, 236, 237, **241,** 281, 289, **301, 302, 330, 341, 342, 361, 362, 401, 402, 480**
SPAN	101, **102, 103,** 112, **201, 202, 211, 212, 230,** 231, 235, **241, 260, 280, 301, 302, 330, 335, 341, 342, 361, 362, 401, 402, 480, 481, 482**
THTR	133*,168, 201, 202, **213, 233,** 260, **323, 333, 334, 336, 380, 413, 433, 434, 440, 480**
WGSS	28000*
NS*	214*, **413***
AFT*	**351*, 361*, 471*, 481***

*course approved by MSE Undergraduate Committee

Please Note: Introductory Courses are shown in normal font; non-introductory courses in **bold** font. Departments with courses considered to have global/societal content have their desigators <u>underlined</u>.

To the Academic Advisor: Courses not appearing on this list may be approved as General Education Electives depending on your School's particular requirements. Questions about the acceptability of a course not on this list should be directed to your undergraduate office.

To the Student: You may petition to take courses not appearing on this list as General Education Electives. Please contact your Academic Advisor for details. However, if you are in Freshman Engineering or considering a CODO, you are advised to take only courses that appear on this list.

Eighteen credit (18) hours of Technical Electives must be selected from lists of courses approved by the faculty of the School of Materials Engineering.

At least 12 of the 18 hours are to be selected from the approved list *of materials courses* below. Up to 6 hrs can be chosen from a separate list of courses, which includes other *support areas*.

MSE 49700	Structure & Properties of Organic Materials (Erk) (TECH)
MSE 49700	Industrial Ecol & Life Cycle CA (Howarter)
MSE 49900	Independent Research (Faculty)
MSE 50200	Defects in Solids (Kvam)
MSE 50500	Modeling and Simulation of Materials Processing (Krane) *(MSE 340)*
MSE 50800	**Phase Transformation in Solids (Kvam)**
MSE 51000	Microstructural Characterization Techniques (Ortalan)
MSE 51200	Powder Processing (Trumble)
MSE 52200	Rate Phenomena in Process Metallurgy (Spitzer) *(MSE 340/260 – prereq)*
MSE 52300	**Physical Ceramics (Blendell**
MSE 52500	Struc, Prop Relationships of Engineering Polymers (Howarter)
MSE 52700	Introductory Biomaterials (59700) (Stanciu)
MSE 53100	**Quantitative Analysis of Microstructure (Dayananda)**
MSE 53600	Solidification of Casting (MSE 340/ 250 - consent w/o 250) (Krane)
MSE 54700	Introduction to Surface Science (Youngblood)
MSE 54800	Deposition Processing of Thin Films and Coatings (Bahr)
MSE 55000	Properties of Solids (Strachan)
MSE 55500	**Deformation Mechanisms in Crystalline Solids (Johnson)** *(MSE 382)*
MSE 55600	Fracture of Materials (Johnson) *(MSE 382)*
MSE 55700	Deformation Processing
MSE 55900	**Phase Equilibria in Multicomponent Systems (MSE 260-prereq) (Sandhage)**
MSE 56000	Production of Inorganic Materials (MSE 260) (Krane)
MSE 56700	Polymer Synthesis (Youngblood)
MSE 57500	Transport Phenomena in Solids (Dayananda)
MSE 57600	Corrosion (Spitzer)
MSE 59700	Archeology & Materials Science (Handwerker / Cooper)
MSE 59700	Manufactur Advanced Composite Materials (Pipes)
MSE 59700	**Characterization of Advanced Composite Materials (Pipes)**
MSE 59700	Dynamic Behavior of Materials - (Chen)
MSE 59700	Simulation (Strachan/ Garcia)
MSE 59700	Intro to Materials Science of Rechargeable Batteries (Garcia)
MSE 59700	Modeling / Intro to Computational Materials Science (Garcia)
MSE 59700	Lean Manufacturing (Owen)
MSE 59700	Rheology (Erk)
MSE 59700	**Steel & Al: Proc & Properties (Trumble)**
MSE 59700	**Soft Materials (Martinez)**
MSE 59700	Kinetics of Materials (Garcia)
MSE 59700	Chemical Admixtures in Concrete (Erk) - (1.5 credit hr)
MSE 59700	Dislocation Dynamics (El-Azab)
MSE 59700	Polymer Physics (Erk) – (1.5 credit hr)
MSE 59700	**Design Global Sustainability (Handwerker)**
MSE 59700	Design Global Sustainability II (Handwerker)
MSE 59700	Metal Deformation Processing (Trumble)
MSE 59700	Solid State Materials (Ramanathan

A&AE 55200	Nondestructive Evaluation of Structures & Materials
A&AE 55300	Elasticity in Aerospace Engineering (Sun)
A&AE 55400	Fatigue of Structures & Materials (Grandt)
A&AE 55500	Mechanics of Composite Materials *(AAE 553 -prereq)*
A&AE 55900	Mechanics of Friction and Wear *(AAE 204 and MA 303 or equiv)*
A&AE 59000	Characterization of Advanced Composite Materials (Pipes)
BME 59600	Biomaterials
CHE 44200	Chemistry & Engineering of High Polymers
CHE 54300	Polymerization Reaction Engineering and Reactor Analysis (CHE 348)
CHE 54400	Structure & Physical Behavior of Polymer Systems *(Chm 262 & 370 or consent)*
CHE 59700	Organic Electronic Materials & Devices (Boudouris)
EE 30500	Semiconductor Devices
EE 55700	Integrated Circuit Fab Lab
IPPH 56200	Introduction to Pharmaceutical Manufacturing Processes
ME 41300	Noise Control
ME 47300	Engineer Design Modem Materi
ME 50700	Laser Processing (old 597C)
ME 55400	Patents, Licensing and Tech Entrepreneurship (Ramani) *(old 597R) – ONLY 1 credit hour course*
ME 55500	Composites & Polymer Processing (Ramani) *(old 597P)*
ME 55900	Micromechanics of Materials (Siegmund) *(old 597T)*
ME 59700	Environmentally Sustainable Design & Manufacturing
ME 597/PHYS 570	Fundamental Atomic Force Microscopy
NUCL 470/497	Fuel Cell Engineering
PHYS 54500	Solid State Physics
PHYS 54700	Physics of Semiconductor Devices
PHYS 57000	Propulsion Design, Build, Test
PHYS 57000	Phys Chemistry & Nanomaterials
PHYS 57000	Phys & material Science of Semiconductor Nanostructures

These course lists are updated and approved periodically by the faculty of the School of Materials Engineering. Other courses may be acceptable, subject to approval by petition to the Undergraduate Committee.