

## Materials and Textiles

### BS Degree in Materials: Materials and Biomaterials Engineering Option

#### Requirements:

Semester Credits  
**First Second**

This option emphasizes science and engineering principles and how these interact with processing to produce high-performance materials, for students who are more inclined towards careers in research and development, rather than in management.

New freshman students should discuss their readiness for this option during an initial advising session before the beginning of their first semester. Admissions will look for a secondary school background in mathematics and science similar to that expected for admission to study biology, engineering, medical laboratory science, and nursing

#### Department Policy Statements

1) Upper-division students with at least a 2.5 grade point average may, upon approval of the department chairperson, earn up to 3 credits in Experiential Learning, which may be applied to fulfill a free or a textile elective.

2) Students must consult with their academic advisor prior to registering for any classes. Transfer students should be aware of possible scheduling problems due to the sequential nature of the Department's curricula, that may cause a delay in meeting graduation requirements. Transfer students are therefore especially encouraged to meet with their academic advisor early in order to satisfy prior-year requirements as soon as possible. In any case, final responsibility for keeping pace with the curriculum and taking required courses in sequence rests with each student.

#### First Year

TES 105	Contemporary Issues in Materials Science	3	
TES 110	Environmental Science and Business		3
CHM 151, 152	Principles of Modern Chemistry I, II	3	3
CHM 161, 162	Introduction to Applied Chemistry I, II	1	1
ENL 101, 102	Critical Writing and Reading I, II	3	3
MTH 111, 112	Analytic Geometry and Calculus I. II	4	4
	General Education Electives	3	3
		<b>17</b>	<b>17</b>

#### Second Year

TES 201	Mechanical Properties of Materials		3
TES 252	Materials Seminar	1	
TES 255	Biology for Engineers		1
BIO 101	General Biology I	3	
EGR 232	Thermodynamics		3
EGR 241	Engineering Mechanics I: Statics	3	
ENL 266	Technical Communications		3
MNE 231	Engineering Materials	4	
MTH 104	Statistics		3
MTH 211	Analytic Geometry and Calculus III		4
PHY 113	Classical Physics I	4	
		<b>15</b>	<b>17</b>

#### Third Year

TES 300	Textile Structures and Properties	4	
TES 301	Materials Processing I	4	
TES 304	Elec & Optical Properties of Materials		3
TES 305	Materials Testing		4
TES 310	Statistical Quality Control	3	
TES 321	Soft Materials and Fluids	3	
	General Education Electives		6
		<b>14</b>	<b>13</b>

#### Fourth Year

TES 401	Materials Processing II	4	
TES 402	Advanced Materials and Composites		3
TES 422	Advanced Electronic Properties	3	
TES 421	Biological and Biomedical Materials	3	
TES 460	Materials Selection and Design		3
TES 463	Senior Project		3
	Technical Electives	6	6
		<b>16</b>	<b>15</b>
	<b>Total Credits</b>	<b>123</b>	

*Note:* In the junior and senior years some specific courses maybe offered every other year. Upperclass students must take these courses when offered as soon as possible. Otherwise they will not graduate on time.

The senior year technical electives may be selected from upper division courses in any science or engineering subject.

#### General Education Departmental Requirements

Students majoring in Textile Science: Materials and Biomaterials Engineering Option will meet their departmentally-controlled General Education requirements as follows:

Area E: Satisfied by TES 105

Area I, Tier 2: Satisfied by TES 402 or TES463

Area W, Tier 2: Satisfied by ENL 266

Area O: Satisfied by TES 252 or TES 463