

# PRODUCT DESIGN

Product Design focuses on the experience of product conception and design for the benefit of society. It encourages creativity, craftsmanship, and personal expression, while serving larger goals of common good. Students studying Product Design generally follow the Mechanical Engineering curriculum and focus on a process that resolves constraints arising from technical, human, aesthetic and business concerns. The course work provides the skills necessary to carry projects from initial concept to completion of working prototypes.

Students who also complete the requirements for Mechanical Engineering will receive the ME degree and a transcript that says “Has completed all the requirements of Product Design.”

## REQUIREMENTS

### Mathematics

20 units minimum (one course in statistics recommended, e.g. STATS 60)

### Science

22 units minimum

At least 15 units must be from School of Engineering approved list. <sup>1</sup>

Required: one year of Physics 40 series

At least 7 units must be from behavioral science

Behavioral Science

PSYCH 1 (required)	5 units
PSYCH Elective (courses numbered 20-95) <sup>2</sup>	3-5 units

### Engineering Fundamentals

ENGR 40 (required)	5 units
ENGR 70A (required)	5 units
Fundamental elective <sup>3</sup>	3-5 units

### Technology in Society (TIS)

ME 120	3-4 units
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## Engineering Depth

ENGR 14	3 units
ENGR 102M <sup>4</sup>	1 unit
ME 101	3 units
ME 203 <sup>4</sup>	4 units
ME 103D	1 unit
ME 80	4 units
ME 112	4 units
ME 115A	3 units
ME 115B	3 units
ME 116	4 units
ME 216A	4 units
ME 216B	4 units
ARTSTUDI 60	3 units
ARTSTUDI 160	3 units
Two Studio Art courses (ARTSTUDI 70 recommended)	6 units
ME 110A	1 unit

### Notes:

1. The School of Engineering list of approved science courses can be found in Chapter 3, Figure 3-2.
2. PSYCH Elective requirement waived if student takes a quarter abroad.
3. Choose one more fundamental from: ENGR 10, 15, 20, 25, 30, 50, 50M, 60, 62
4. ME 203 and ENGR 102M must be taken concurrently to fulfill the "Writing in the Major" requirement.

## Product Design

*Typical 4 Year Plan*

	<i>Fall</i>			<i>Winter</i>			<i>Spring</i>				
	Math/ Sci.	Engr.	Other	Class	Math/ Sci.	Engr.	Other	Class	Math/ Sci.	Engr.	Other
<i>Freshman</i>	MATH 41	5			MATH 42	5			MATH 51		5
	ENGR 14		3		PHYSICS 41	4			PHYSICS 43	5	
	IHUM			5	IHUM		5		IHUM	4	
	Writing			3	Writing		3		PSYCH1		5
	<i>Subtotals</i>	<i>5</i>	<i>3</i>	<i>8</i>	<i>Subtotals</i>	<i>9</i>	<i>0</i>	<i>8</i>	<i>Subtotals</i>	<i>9</i>	<i>0</i>
<b>Total</b>	<b>16</b>			<b>Total</b>	<b>17</b>			<b>Total</b>	<b>19</b>		
<i>Sophomore</i>	Language			5	Language		5	Language			5
	PHYSICS 45	4			ARTSTUDI 160		3	ME 120		3	
	ARTSTUDI 60			3	ME 101		3	PSYCH elective			3
	ENGR 40		5		ME 110A		1	ARTSTUDI elective			3
					STATS 60	5			GER		3
<i>Subtotals</i>	<i>4</i>	<i>5</i>	<i>8</i>	<i>Subtotals</i>	<i>5</i>	<i>4</i>	<i>8</i>	<i>Subtotals</i>	<i>0</i>	<i>3</i>	<i>14</i>
<b>Total</b>	<b>17</b>			<b>Total</b>	<b>17</b>			<b>Total</b>	<b>17</b>		
<i>Junior</i>	ME 203*		4		ME 115		3	Overseas studies			3
	ME 103D		1		ENGR 70A		5				
	ENGR 102M*		1		GER		3				
	ARTSTUDI elective			3	GER		3				
	ME80		3								
GER			3								
<i>Subtotals</i>	<i>0</i>	<i>9</i>	<i>6</i>	<i>Subtotals</i>	<i>0</i>	<i>8</i>	<i>6</i>	<i>Subtotals</i>	<i>0</i>	<i>0</i>	<i>3</i>
<b>Total</b>	<b>15</b>			<b>Total</b>	<b>14</b>			<b>Total</b>	<b>3</b>		
<i>Senior</i>	ME 116		4		ME 216A		4	ME 216B		4	
	Engr. Fund.		3		ME 112		4	GER			3
	Sci Elective	3			GER		3	Engr Elective		3	
	Math Elective	3			Engr Elective		3	ME 115B			3
	GER			4	Elective		1	Sci Elective	3		
<i>Subtotals</i>	<i>6</i>	<i>7</i>	<i>4</i>	<i>Subtotals</i>	<i>0</i>	<i>11</i>	<i>4</i>	<i>Subtotals</i>	<i>0</i>	<i>7</i>	<i>6</i>
<b>Total</b>	<b>17</b>			<b>Total</b>	<b>15</b>			<b>Total</b>	<b>13</b>		

Total Math & Science Units:	38
Total Engineering Units:	57
Total Other Units:	86
<b>Total Units:</b>	<b>181</b>

**Notes:**

\* ME 203 must be taken concurrently with ENGR 102M to fulfill the "Writing in the Major" requirement.

# INSTRUCTIONS FOR DECLARING MAJOR IN ENGINEERING: PRODUCT DESIGN (BS-PD)

Detailed instructions can be obtained from the ME Student Services Office (Building 530, Room 125)

1. Print a copy of your transcript from Axess.
2. Download and complete the program sheet from the School of Engineering web site at <http://ughb.stanford.edu>. If you need instructions on how to download, consult the School of Engineering Student Affairs Office in Terman 201. Please note: When completing the sheet, include courses you plan to take as well as those you have already taken.
3. Pick up a Product Design major declaration form from the Student Services Office in Building 530.
4. Identify an undergraduate program advisor from the list on the back of the major declaration form. If you prefer, the Student Services Office will assign one for you.
5. Discuss the program with your advisor and have him/her approve the program sheet AND the declaration form.
6. Return completed documents to the ME Student Services Office
7. Login to Axess and formally declare your major. **NOTE: Select “Engineering” as your major (NOT Mechanical Engineering), with a subplan in Product Design.**
8. E-mail Christine Crapps ([crapps@stanford.edu](mailto:crapps@stanford.edu)) to let her know that you have declared your major so that she may approve it.

**Note: The online version of the UGHB is considered the definitive and final version of SoE requirements for each major.** Since corrections or updates may have been made after this Handbook went to press in August 2008, download the online PD program sheet from [ughb.stanford.edu](http://ughb.stanford.edu) to ensure you are using an accurate major plan.

**Stanford University ♦ School of Engineering**  
**Product Design**  
**2008–2009 Program Sheet**

*Final version of completed and signed program sheet due to the department no later than one month prior to the last quarter of senior year.*

**\*Follow all requirements as stated for the year of the program sheet used.\***

Name: _____	SU ID: _____
Email: _____	Local Phone: _____
Date: _____	Date B.S. expected: _____

**Mathematics and Science Requirement**

Dept	Course	Title	Transfer/AP Approval			Units	Grade
			✓ if Transfer	Initials	Date		
<i>Mathematics (20 units minimum; see note 1)</i>							
<i>Mathematics Unit Total (20 units minimum)</i>							

*Science (22 units minimum; see note 1)*

<i>School of Engineering Approved Science Courses (15 units minimum; see note 2)</i>							
PHYS	41	Mechanics (req'd)				4	
PHYS	43	Light and Heat (req'd)				4	
PHYS	45	Electricity and Magnetism (req'd)				4	
<i>SOE Science Unit Total (15 units minimum)</i>							

*Behavioral Sciences (7 units minimum; see note 3)*

PSYCH	1	Intro to Psychology (req'd)				5	
PSYCH		Psychology Elective (PSYCH 20-95; see note 3)				2 to 5	
<i>Behavioral Science Unit Total (7 units minimum)</i>							
<i>Science Unit Total (SOE + Behavioral) (22 units minimum)</i>							
<i>Mathematics and Science Total ( 42 units minimum)</i>							

**Technology in Society Requirement (1 course required)**

ME	120	History and Philosophy of Design (req'd)				3 or 4	
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**NOTES**

- \* This form is available as an Excel file at <http://ughb.stanford.edu/>. The printed form must be signed by the advisor and by the ME Student Services Manager. Changes must be initialed in ink.
- \* All courses listed on this form must be taken for a letter grade if offered by the instructor.
- \* Read all emails from the Office of Student Affairs; this is the SoE's only method of conveying key information to Eng majors
- \* Minimum Grade Point Average (GPA) for all courses in Engineering Fundamentals and Product Design Depth (combined) is 2.0.
- \* Transfer and AP credits in Math, Science, Fundamentals, & TIS must be approved by the SoE Dean's office. Transfer credits in Engineering Depth must be approved by the Advisor. Transfer credit information and petitions are available at <http://ughb.stanford.edu/transfer.html>.
- \* All courses listed on this form must be listed under only one category; no double-counting. Delete courses not taken.
- (1) AP units can be applied; have these approved by SoE Dean's Office before final quarter.
- (2) At least 15 units must be from the School of Engineering approved science list in the undergraduate handbook (Figure 3-2 and at <http://ughb.stanford.edu>).
- (3) Psych elective requirement waived if student takes a quarter abroad.

## Product Design Program Sheet (continued)

### Engineering Fundamentals (3 courses required)

ENGR	40	Introductory Electronics (req'd)				5
ENGR	70A	Programming Methodology (req'd)				5
		Fundamentals Elective				3-5
<i>Engineering Fundamentals Total (3 courses required)</i>						

### Product Design Depth (48 units minimum)

Dept	Course	Title	Transfer/AP Approval			Units	Grade
			✓ if Transfer	Initials	Date		
ENGR	14	Applied Mechanics (req'd)				3	
ME	80	Strength of Materials (req'd)				4	
ME	101	Visual Thinking (req'd)				3	
ME	103D	Engineering Drawing (req'd)				1	
ME	110A	Design Sketching (req'd)				1	
ME	112	Mechanical Engineering Design (req'd)				4	
ME	115A	Introduction to Design Methods (req'd)				3	
ME	115B	Human Values in Design (req'd)				3	
ME	116	Advanced Product Design: Formgiving (req'd)				4	
ENGR	102M	Tech/Prof Writing (req'd) WIM; see note 4				1	
ME	203	Manufacturing Technology (req'd) WIM; see note 4				4	
ME	216A	Advanced Product Design: Needfinding (req'd)				4	
ME	216B	Advanced Product Design: Implementation (req'd)				4	
ARTSTUDI	60	Basic Design (req'd)				3	
ARTSTUDI	160	Intermediate Design (req'd)				3	
ARTSTUDI		Studio Art Course				3	
ARTSTUDI		Studio Art Course				3	
<i>Product Design Engineering Depth Total (48 units minimum)</i>							

### Program Totals

<i>Mathematics and Science (42 units minimum)</i>	
<i>Product Design Depth (48 units minimum)</i>	
<i>Engineering (Fundamentals + Depth) Units (61 units minimum)</i>	

### Program Approvals

#### Advisor

Printed Name: \_\_\_\_\_  
Signature: \_\_\_\_\_

Date: \_\_\_\_\_

#### Departmental

Printed Name: \_\_\_\_\_  
Signature: \_\_\_\_\_

Date: \_\_\_\_\_

#### School of Engineering (signature not required prior to graduation)

Printed Name: \_\_\_\_\_  
Signature: \_\_\_\_\_

Date: \_\_\_\_\_

### NOTES (continued from page 1)

- (4) Fulfills the "Writing in the Major" requirement. ENGR102M and ME203 must be taken concurrently.