

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)

Science

22 units minimum

At least 15 units must be from School of Engineering approved list. ¹

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) ²	3-5 units

Engineering Fundamentals

ENGR 40 (required)	5 units
ENGR 70A (required)	5 units
Fundamental elective ³	3 – 5 units

Technology in Society (TIS)

ME 120	3-4 units
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Engineering Depth

ENGR 14	3 units
ENGR 102M ⁴	1 unit
ME101	3 units
ME 203 ⁴	4 units
ME103D	1 unit
ME 80	3 units
ME112	4 units
ME115	3 units
ME116	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
ME110A	1 unit

Notes:

1. The School of Engineering list of approved courses can be found in Figure 3-2 of this handbook.
2. PSYCH Elective requirement waived if student takes a quarter abroad.
3. The list of approved courses for engineering fundamentals can be found in Figure 3-4 of this handbook.
4. 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			PSYCH1		5
	PHYSICS 45	4			PHYSICS 41	4			MATH 51	5	
	IHUM			5	IHUM			5	PHYSICS 43	4	
	Writing			3	Writing			3	IHUM		5
	<i>Subtotals</i>	<i>9</i>	<i>0</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>
Total			17	Total			17	Total			19
<i>Sophomore</i>	Language			5	Language			5	Language		5
	ENGR 14		3		ARTSTUDI 160			3	ME120		3
	ARTSTUDI 60			3	ME101		3		PSYCH elective		3
	ENGR 40		5		ME110A		1		ARTSTUDI elective		3
					STATS 60	5			GER		3
<i>Subtotals</i>	<i>0</i>	<i>8</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>
Total			16	Total			17	Total			17
<i>Junior</i>	ME203*		4		ME112		4		Overseas studies		3
	ME103D		1		ME115		3				
	ENGR 102M*		1		ENGR 70A		5				
	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>12</i>	<i>3</i>	<i>Subtotals</i>	<i>0</i>	<i>0</i>	<i>3</i>
Total			15	Total			15	Total			3
<i>Senior</i>	ME116		4		ME216A		4		ME216B		4
	Engr. Fund.		3		GER			3	GER		3
	Sci Elective	3			GER			3	Elective		3
	Math Elective	3			Elective		3		Elective		4
	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>7</i>	<i>7</i>	<i>Subtotals</i>	<i>0</i>	<i>7</i>
Total			17	Total			14	Total			14

Total Math & Science Units: 38
 Total Engineering Units: 57
 Total Other Units: 86
Total Units: 181

Notes:

* ME203 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 Patrick Ferguson (patrickf@stanford.edu) to let him know that you have declared your major so that he may approve it.
9. Obtain your undergraduate file from the UAC (or other department if changing your majors) and submit it to the Student Services Office.

Stanford University ♦ School of Engineering
Product Design
2006-2007 Sample 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.

Name: _____
 Local Address: _____

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

Mathematics and Science Requirement (delete courses and units not taken)

Dept	Course	Title	Units	Grade	✓ if Transfer	Transfer/AP Approval	
						Initials	Date
<i>Mathematics (20 units minimum; see note 1)</i>							
<i>Mathematics Unit Total</i>				<i>(20 units minimum)</i>			
<i>Science (22 units minimum; see note 1)</i>							
<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</i>				<i>(15 units minimum)</i>			
<i>Behavioral Sciences (7 units minimum; see note 3)</i>							
PSYCH	1	Intro to Psychology (req'd)	5				
PSYCH		Psychology Elective (PSYCH 20-95; see note 3)	3 to 5				
<i>Behavioral Science Unit Total</i>				<i>(7 units minimum)</i>			
<i>Science Unit Total (SOE + Behavioral)</i>				<i>(22 units minimum)</i>			
<i>Mathematics and Science Total</i>				<i>(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.
 - * 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 only be included under 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.

program sheet continues on page 2

Product Design Program Sheet (continued)

Engineering Fundamentals (3 courses required)

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

Product Design Depth (48 units minimum) *Be advised, no course may be listed twice on the sheet; no double-counting.*

Dept	Course	Title	Units	Grade	✓ if Transfer	Transfer/AP Approval	
						Initials	Date
ENGR	14	Applied Mechanics (req'd)	3				
ME	80	Stress, Strain & Strength (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 Systems (req'd)	4				
ME	115	Human Values in Design (req'd)	3				
ME	116	Advanced Product Design (req'd)	4				
ENGR	102M	Tech/Prof Writing (WIM; req'd; see note 4)	1				
ME	203	Manufacturing Technology (WIM; req't; see note 4)	4				
ME	216A	Advanced Product Design: Needfinding (req'd)	4				
ME	216B	Advanced Product Design: Synthesis (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</i>				<i>(48 units minimum)</i>			

Program Totals

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

Program Approvals

Advisor

Printed Name: _____ Date: _____
 Signature: _____

Departmental

Printed Name: _____ Date: _____
 Signature: _____

School of Engineering

Printed Name: _____ Date: _____
 Signature: _____

NOTES (continued from page 1)

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