

## Course Checksheet for Concurrent Majors in Biomedical and Mechanical Engineering

### APPLICATION FOR APPROVAL OF CONCURRENT MAJORS

#### In Biomedical and Mechanical Engineering

Applicant information (please print):

PSU ID \_ - \_ - \_ - \_ - \_ - \_ -

Last name:	First name:	MI:
Local address:		Local phone:
Campus location:		E-mail address:

Current college(s): <b>* Engineering</b>	Major(s): <b>Biomedical Engineering</b>	Option(s): <b>Biomechanics Option</b>	Degree(s): <b>B.S.</b>
Proposed concurrent college: <b>* Engineering</b>	Major(s): <b>Mechanical Engineering</b>	Option(s): <b>None</b>	Degree(s): <b>B.S.</b>

\* If you are currently enrolled in more than one major, please attach a copy of that approved application to this one.

**Brief statement of justification for proposed concurrent majors in terms of your education and career objectives:**

**Student:** Obtain the following signatures of approval (Advisers, Department Heads or Equivalent and Deans) on this form in the order indicated.

**Advisers, Department Heads or Equivalent and Deans:** Note that your signature on this form signifies acceptance of the course requirements listed on the back.

**Current College (first) Approval Signatures:**

**1** \_\_\_\_\_  
Adviser Date

**2** \_\_\_\_\_  
Department Head or Equivalent Date

**3** \_\_\_\_\_  
Dean Date

**Proposed Concurrent College Approval Signatures:**

**4** \_\_\_\_\_  
Adviser Date

**5** \_\_\_\_\_  
Department Head or Equivalent Date

**6** \_\_\_\_\_  
Dean Date

When approval is granted, the dean of the college in which the new major is located will reproduce and distribute copies of the approved form as follows: 1 copy to each concurrent college dean; 1 copy to the Registrar's Office; 1 copy to the department or school and 1 copy to the student.

**THE EARLIEST THIS FORM MAY BE SUBMITTED FOR REVIEW IS FINALS WEEK OF YOUR ETM SEMESTER**

## Course Checksheet for Concurrent Majors in Biomedical and Mechanical Engineering

Name:	Student Number:
Expected Date of Graduation:	Total Credits to Complete Programs: 148
Cumulative GPA:	Total Number of Semesters of Study at Penn State:
Number of Credits Earned to Date:	Number of credits scheduled this semester:

Course	CR	Required Course in	Grade Received or Sem to be Taken	Course	CR	Required Course in	Grade Received or Sem to be Taken
<b>Communications (9 credits)</b>				<b>Major Requirements</b>			
ENGL 015/030 - Composition	3	BME, M E		EDSGN 100 - Intro Engr. Design	3	BME, M E	
CAS 100 A/B Speech	3	BME, M E		First Year Seminar	1	BME, M E	
ENGL 202C - Tech Writing	3	BME, M E		CMPSC 200 - MATLAB	3	BME, M E	
				<b>*BME 201 – Fund. Of Cells and Mole.</b>	3	BME	
<b>AHS (18 credits)</b>				<b>*BME 301 – Analysis of Phys. Sys.</b>			
Arts (GA)	3	BME, M E					
Arts (GA)	3	BME, M E		<b>*BME 303 – Bio-continuum Mechanics</b>	3	BME <sup>b</sup> , M E <sup>b</sup>	
Humanities (GH)	3	BME, M E		<b>*BME 401 – Numerical Simulations in BME (ETE – M E)</b>	3	BME	
Humanities (GH)	3	BME, M E		<b>*BME 402 – Biomedical Instr. Measur.</b>	3	BME <sup>a</sup> , M E <sup>a</sup>	
Social Science (GS)	3	BME, M E		<b>*BME 403 – Biomedical Instr. Lab</b>	1	BME <sup>a</sup> , M E <sup>a</sup>	
Social Science (ECON 102/104)	3	BME, M E		<b>*BME 429 – Biomechanics and Techniques Lab</b>	2	BME <sup>a</sup> , M E <sup>a</sup>	
**US Cultures and IL Cultures are satisfied in conjunction with AHS courses above							
US Cultures Completed	3	BME, M E		<b>*BME 409 – Biofluid Mechanics</b>	3	BME <sup>b</sup> , M E <sup>b</sup>	
IL Cultures Completed	3	BME, M E					
				BME 440 – Prof Seminar in BME	1	BME	
<b>Health and Physical Activity (3 credits)</b>				BME 450W – Bioenr. Senior Design			
GHA	1.5	BME, M E		BME Related Elective/ME ETE	3	BME <sup>e</sup> , M E <sup>e</sup>	
GHA	1.5	BME, M E		BME Related Elective	3	BME	
<b>Mathematics</b>				<b>*E MCH 210 – Statics &amp; Strength of Materials</b>			
<b>*MATH 140 - Calculus I</b>	4	BME, M E		<b>*E MCH 212 - Dynamics</b>	3	BME, M E	
<b>*MATH 141 - Calculus II</b>	4	BME, M E		E MCH 315 - Engr. Materials	2	BME, M E	
MATH 220 - Matrices	2	M E		E MCH 316 – Materials Lab	1	BME, M E	
MATH 230 - Calculus III	4	BME, M E		<b>*M E 300 - Engr. Thermo. I</b>	3	BME <sup>d</sup> , M E <sup>d</sup>	
<b>*MATH 251 - Diff. Equations</b>	4	BME, M E		<b>*M E 340 – M E Design Methodology</b>	3	M E	
<b>Science</b>				<b>*M E 360 - Mechanical Design (Biomechanics Elective)</b>			
<b>*PHYS 211 - Gen. Phys., Mech.</b>	4	BME, M E		<b>*M E 370 – Dyn. of Mech. Sys. (Biomechanics Elective)</b>	3	BME, M E	
<b>*PHYS 212 - Gen. Phys., Elec.</b>	4	BME, M E					
PHYS 214 - Gen. Phys., Waves.	2	M E		<b>*M E 410 - Heat Transfer</b>	3	BME <sup>d</sup> , M E <sup>d</sup>	
<b>*CHEM 110 - Chem. Princp. I</b>	3	BME, M E		<b>*M E 450 - Modeling. (Biomech Elect.)</b>	3	M E	
CHEM 111 – Exp. Chemistry I	1	BME, M E		M E Lab	1	M E	
CHEM 112 – Chem Principles II	3	BME, M E		M E Technical Elective	3	M E	
CHEM 113 – Exp. Chemistry II	1	BME, M E		MATSE 259 - Engr. Materials	3	M E	
<b>*BIOL 141 or BIOL 240W (GTE – M E)</b>	3	BME, M E		I E 312 - Manuf. Process (BME Sci/Eng)	3	BIOE, M E	
<b>*BIOL 142 ( or 1 cr of BIOL 240W)</b>	1	BME					

<sup>a</sup> BME 402, BME 403 and BME 429 will substitute for M E 345.

<sup>c</sup> BME 301 will substitute for E E 212.

**\*BOLDFACE** courses require a C or better.

A "Petition for Course Substitution and Academic Exception" form must be completed for a course substitution or for an amended plan.

The petition must be approved by the Engineering Dean's Office.

<sup>b</sup> BME 303 AND BME 409 will substitute for M E 320.

<sup>d</sup> M E 300 AND M E 410 will substitute for BIOE 313.

<sup>e</sup> Must meet criteria for both BME related elective and M E ETE

Student's Signature \_\_\_\_\_

Date \_\_\_\_\_

3/26/2014