MECHANICAL ENGINEERING (BS)

Program Description

Mechanical engineers apply hands-on physics to model, analyze, and design mechanical and energy systems such as automobiles, aircraft, ships, heating and cooling systems, prosthetics, robots, household appliances, or industrial equipment and machinery. In this major, you'll learn to think critically and solve quandaries through multiple, extended hands-on projects.

The BS in Mechanical Engineering degree is accredited by the Engineering Accreditation Commission of ABET (http://www.abet.org/).

Entering and Completing the Major

In order to earn a degree, you must complete at least one academic major. SPU encourages students to explore various academic paths, so if you change your mind about a major, or want to include an additional program, you are able to do so, as outlined below.

Note that the University encourages you to enter your chosen major(s) as soon as you have determined it and are eligible to join it, especially by the start of your junior year. Students who transfer as juniors and seniors should enter a major within their first two quarters at SPU.

- If this is your first quarter at SPU and you identified a major in this department as your first choice on your application for admission to the University, you have gained entry to the major. To change or add a major, follow these instructions (https://spu.atlassian.net/l/cp/a3th1keb).
- If you are an SPU student with an SPU cumulative GPA of 2.0 or better, follow these instructions (https://spu.atlassian.net/l/cp/a3th1keb) to enter a major in this department.
- The University requires a grade of C- or better in all classes that apply to a major; however, programs may require higher minimum grades in specific courses. You may repeat an SPU course only once for a higher grade.
- To advance in this program, meet with your faculty advisor regularly to discuss your grades, course progression, and other indicators of satisfactory academic progress. If your grades or other factors indicate that you may not be able to successfully complete the major or minor, your faculty advisor can work with you to explore options, which may include choosing a different major.
- You must complete the major requirements that are in effect in the SPU Undergraduate Catalog for the year you enter the major.

Mechanical Engineering (BS)

124 Credits Minimum, Including 45 Upper Division (UD)

Code	Title	Credits
Engineering Requirements		
CSC 2230	Computer Programming for Engineers	5
EE 2726	Electric Circuits I	5
EGR 1501	Computer Aided Design Applications for Engineers	1
EGR 1502	Machining and Fabricating	1
EGR 1503	Engineering Tools and Systems	1
EGR 3311	Experimental Methods I	3
EGR 3810	General Engineering Design	5
EGR 4811	Engineering Senior Design I	3
EGR 4812	Engineering Senior Design II	3
EGR 4899	Engineering Capstone and Senior Design	3
EGR 4941	Engineering Professional Experience [1]	1
GS 3001	Internship and Job Search Strategies	1
ME 2891	Statics	4
ME 3300	Properties of Materials	3
ME 3310	Mechanics of Materials	4
ME 3400	Dynamics	5
ME 3430	System Dynamics	5
ME 3500	Thermal Science I: Thermodynamics	5
ME 3501	Thermal Science II: Fluid Mechanics	5
ME 3502	Thermal Science III: Heat Transfer	5
ME 4410	Mechanical Design	4
Section Credits Required		72
Mathematics Requirements		
MAT 1234	Calculus I	5
MAT 1235	Calculus II	5
MAT 1236	Calculus III	5
MAT/EGR 2200	Engineering Probability and Statistics	3
MAT 2401	Linear Algebra	3
MAT 3237	Differential Equations	3
MAT 3238	Vector Calculus	3
Section Credits Required		27
Science Requirements		
CHM 1211	General Chemistry I	5
or CHM 1310	Survey of General Chemistry	
PHY 1121	Physics for Science and Engineering	5
PHY 1122	Physics for Science and Engineering	5
PHY 1123	Physics for Science and Engineering	5
Section Credits Required		20
Technical Electives		
Select 5 credits of the following:		5
EE 3500	Power Systems Fundamentals	
EGR 3250	Introduction to Robotics	
EGR 3611	Appropriate and Sustainable Engineering I: Alternative Energy Systems	
EGR 4450	Control Systems Design	
EGR 4950	Special Topics: General Engineering	
Section Credits Required		5
Total Credits		**124**

[1] An approved tech internship or professional experience must be completed before passing EGR 4941.

Suggested Course Sequences

Four Year Plan Starting with Calculus

Course	Title	Credits
Freshman		
Variable		
EGR 1502	Machining and Fabricating [1]	1

TCOR 1000	The Christian Faith	5
WRI 1000	Academic Inquiry and Writing Seminar	5
	Credits	**11**
Autumn		
EGR 1501	Computer Aided Design Applications for Engineers	1
FYS 1000	First Year Seminar [2]	3
MAT 1234	Calculus I	5
PHY 1121	Physics for Science and Engineering	5
	Credits	**14**
Winter		
MAT 1235	Calculus II	5
PHY 1122	Physics for Science and Engineering	5
	Credits	**10**
Spring		
EGR 1503	Engineering Tools and Systems	1
MAT 1236	Calculus III	5
PHY 1123	Physics for Science and Engineering	5
	Credits	**11**
Sophomore		
Variable		
Common Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/) and Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/)		
GS 3001	Internship and Job Search Strategies [3]	1
	Credits	**1**
Autumn		
CHM 1310 or CHM 1211	Survey of General Chemistry or General Chemistry I	5
EE 2726	Electric Circuits I	5
MAT 3237	Differential Equations	3
ME 2891	Statics	4
	Credits	**17**
Winter		
CSC 2230	Computer Programming for Engineers	5
MAT 3238	Vector Calculus	3
ME 3310	Mechanics of Materials	4
ME 3400	Dynamics	5
	Credits	**17**
Spring		
MAT 2200	Engineering Probability and Statistics	3
MAT 2401	Linear Algebra	3
ME 4410	Mechanical Design [7]	4
	Credits	**10**
Junior		
Variable		
Common Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/) and Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/) as needed		
Tech Electives [4]		0-5
	Credits	**0-5**
Autumn		
GS 3001	Internship and Job Search Strategies [6]	1
ME 3500	Thermal Science I: Thermodynamics	5
PHY 3311	Experimental Methods I	3
	Credits	**9**
Winter		
ME 3300	Properties of Materials [5]	3
ME 3430	System Dynamics [5]	5
ME 3501	Thermal Science II: Fluid Mechanics	5
	Credits	**13**
Spring		
EGR 3810	General Engineering Design	5
ME 3502	Thermal Science III: Heat Transfer	5
ME 4410	Mechanical Design [6, 7]	4
	Credits	**14**
Senior		
Variable		
Tech Electives [4]		0-5
Common Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/) and Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/) as needed		
	Credits	**0-5**
Autumn		
EGR 4811	Engineering Senior Design I	3
EGR 4941	Engineering Professional Experience [8]	1
	Credits	**4**
Winter		
EGR 4812	Engineering Senior Design II	3
ME 3300	Properties of Materials [5, 6]	3
ME 3430	System Dynamics [5, 6]	5
	Credits	**11**
Spring		
EGR 4899	Engineering Capstone and Senior Design	3
	Credits	**3**
	Total Credits	**145-155**

1. Or can be taken in the sophomore year if needed.
2. Engineering majors should take a FYS 1000 First Year Seminar taught by an engineering faculty member, if one is available.
3. Or Fall of junior year.
4. These credits can spread over junior and senior year. See link at the bottom of this page for a list.
5. ME 3430 System Dynamics and ME 3300 Properties of Materials are offered alternate years.
6. If not already completed.
7. ME 4410 can be taken in the Spring of the sophomore year or the junior year.
8. Must be taken AFTER completing or WHILE pursuing an approved internship or an approved certification.

Code	Title	Credits
Tech Elective		
Select tech elective(s). See bottom of page for link to the list.		5
Common Curriculum		
TCOR 2000	Christian Scripture	5
TCOR 3100	Christian Theology	5
UCOR 2100	World History, Faith, and Reconciliation	5
UCOR 3000	Faith, Philosophy, and Science	5
Exploratory Curriculum		
with DTA or AA see Advisor		
Ways of Knowing in the Arts (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/#wkatext)		20
Cultural Understanding and Engagement (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/#wetext)		

Ways of Knowing in the Social Sciences (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/#wksstext)

Ways of Knowing in the Humanities (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/#wkhtext)

Four Year Plan Starting with Algebra or Trigonometry

Course	Title	Credits
Freshman		
Variable		
EGR 1502	Machining and Fabricating [1]	1
TCOR 1000	The Christian Faith	5
WRI 1000	Academic Inquiry and Writing Seminar	5
	Credits	**11**
Autumn		
EGR 1501	Computer Aided Design Applications for Engineers	1
FYS 1000	First Year Seminar [2]	3
MAT 1141	Precalculus I (if needed)	5
	Credits	**9**
Winter		
CHM 1310 or CHM 1211	Survey of General Chemistry or General Chemistry I	5
MAT 1142	Precalculus II	5
	Credits	**10**
Spring		
EGR 1503	Engineering Tools and Systems	1
MAT 1234	Calculus I	5
Exploratory Curriculum		5
	Credits	**11**
Sophomore		
Variable		
GS 3001	Internship and Job Search Strategies [3]	1
Physics for Mech Engin during Sept Session if needed		2
Common Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/) and Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/)		
	Credits	**3**
Summer-optional		
PHY 1121	Physics for Science and Engineering [6]	5
	Credits	**5**
Autumn		
MAT 1235	Calculus II	5
ME 2891	Statics	4
PHY 1121	Physics for Science and Engineering [6]	5
	Credits	**14**
Winter		
CSC 2230	Computer Programming for Engineers	5
ME 3310	Mechanics of Materials	4
ME 3400	Dynamics	5
PHY 1122	Physics for Science and Engineering	5
	Credits	**19**
Spring		
MAT 1236	Calculus III	5
MAT 2401	Linear Algebra	3
ME 4410	Mechanical Design [7]	4
PHY 1123	Physics for Science and Engineering	5
	Credits	**17**
Junior		
Variable		
GS 3001	Internship and Job Search Strategies [6]	1
Common Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/) and Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/) as needed		
Tech Electives [4]		0-5
	Credits	**1-6**
Autumn		
EE 2726	Electric Circuits I	5
MAT 3237	Differential Equations	3
ME 3500	Thermal Science I: Thermodynamics	5
PHY 3311	Experimental Methods I	3
	Credits	**16**
Winter		
CSC 2230	Computer Programming for Engineers [6]	5
MAT 3238	Vector Calculus	3
ME 3300	Properties of Materials [5]	3
ME 3430	System Dynamics [5]	5
ME 3501	Thermal Science II: Fluid Mechanics	5
	Credits	**21**
Spring		
EGR 3810	General Engineering Design	5
ME 3502	Thermal Science III: Heat Transfer	5
ME 4410	Mechanical Design [6, 7]	4
	Credits	**14**
Senior		
Variable		
Tech Electives [4]		0-5
Common Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/) and Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/) as needed		
	Credits	**0-5**
Autumn		
EGR 4811	Engineering Senior Design I	3
EGR 4941	Engineering Professional Experience [8]	1
PHY 3311	Experimental Methods I [6]	3
	Credits	**7**
Winter		
EGR 4812	Engineering Senior Design II	3
ME 3300	Properties of Materials [5, 6]	3
ME 3430	System Dynamics [5, 6]	5
	Credits	**11**
Spring		
EGR 4899	Engineering Capstone and Senior Design	3
	Credits	**3**
	Total Credits	**172-182**

1. Or can be taken in the sophomore year if needed.
2. Engineering majors should take a FYS 1000 First Year Seminar taught by an engineering faculty member, if one is available.
3. Or Fall of junior year.
4. See the Requirements (p. 1) tab for a complete list of technical electives. These credits can be spread over junior and senior year.
5. ME 3430 System Dynamics and ME 3300 Properties of Materials are offered alternate years.
6. If not already completed.
7. ME 4410 can be taken in the sophomore year or the junior year.
8. Must be taken AFTER completing or WHILE pursuing an approved internship or an approved certification.

Code	Title	Credits
Tech Elective		
Select tech elective(s). See link at bottom of page.		5
Common Curriculum		
TCOR 2000	Christian Scripture	5
TCOR 3100	Christian Theology	5
UCOR 2100	World History, Faith, and Reconciliation	5
UCOR 3000	Faith, Philosophy, and Science	5
Exploratory Curriculum		
with DTA or AA see Advisor		
Ways of Knowing in the Arts (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/#wkatext)		20
Ways of Knowing in the Humanities (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/#wkhtext)		
Ways of Knowing in the Social Sciences (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/#wksstext)		
Cultural Understanding and Engagement (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/#wetext)		

Four Year Plan with Study Abroad

Course	Title	Credits
Freshman		
Variable		
EGR 1502	Machining and Fabricating [1]	1
TCOR 1000	The Christian Faith	5
WRI 1000	Academic Inquiry and Writing Seminar	5
	Credits	**11**
Autumn		
EGR 1501	Computer Aided Design Applications for Engineers	1
FYS 1000	First Year Seminar [2]	3
MAT 1234	Calculus I	5
PHY 1121	Physics for Science and Engineering	5
	Credits	**14**
Winter		
MAT 1235	Calculus II	5
PHY 1122	Physics for Science and Engineering	5
	Credits	**10**
Spring		
EGR 1503	Engineering Tools and Systems	1
MAT 1236	Calculus III	5
PHY 1123	Physics for Science and Engineering	5
Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/)		5
	Credits	**16**
Sophomore		
Variable		
Common Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/) and Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/)		
GS 3001	Internship and Job Search Strategies	1
	Credits	**1**
Autumn		
CHM 1310 or CHM 1211	Survey of General Chemistry or General Chemistry I	5
EE 2726	Electric Circuits I	5
MAT 3237	Differential Equations	3
ME 2891	Statics	4
	Credits	**17**
Winter		
CSC 2230	Computer Programming for Engineers	5
MAT 3238	Vector Calculus	3
ME 3310	Mechanics of Materials	4
ME 3400	Dynamics	5
	Credits	**17**
Spring		
MAT 2200	Engineering Probability and Statistics	3
MAT 2401	Linear Algebra	3
ME 4410	Mechanical Design [6]	4
	Credits	**10**
Junior		
Variable		
Common Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/) and Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/) as needed		
Tech Electives [3]		
	Credits	**0**
Autumn		
Study Abroad Quarter		**15**
Common Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/) and Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/)		
ME 3500	Thermal Science I: Thermodynamics	
	Credits	**15**
Winter		
ME 3300	Properties of Materials [4]	3
ME 3430	System Dynamics [4]	5
ME 3501	Thermal Science II: Fluid Mechanics	5
	Credits	**13**
Spring		
EGR 3810	General Engineering Design	5
ME 3502	Thermal Science III: Heat Transfer	5
ME 4410	Mechanical Design [6, 7]	4
	Credits	**14**
Senior		
Variable		
Tech Electives [3]		
Common Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/) and Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/) as needed		
	Credits	**0**
Autumn		
EGR 4811	Engineering Senior Design I	3
EGR 4941	Engineering Professional Experience [8]	1
PHY 3311	Experimental Methods I	3
	Credits	**7**
Winter		
EGR 4812	Engineering Senior Design II	3
ME 3300	Properties of Materials [4, 7]	3
ME 3430	System Dynamics [4, 7]	5
	Credits	**11**

Spring		
EGR 4899	Engineering Capstone and Senior Design	3
	Credits	**3**
	Total Credits	**159**

1 Or can be taken in the sophomore year if needed.
2 Engineering majors should take a FYS 1000 First Year Seminar taught by an engineering faculty member, if one is available.
3 See the Requirements (p. 1) tab for a complete list of technical electives. These credits can be spread over junior and senior year.
4 ME 3430 System Dynamics and ME 3300 Properties of Materials are offered alternate years.
5 Taken while abroad if offered at SPU that year.
6 ME 4410 can be taken in either the sophomore year or the junior year.
7 If not already completed.
8 Must be taken AFTER completing or WHILE pursuing an approved internship or an approved certification.

Code	Title	Credits
Tech Elective		
Select tech elective(s)		5
Common Curriculum		
TCOR 2000	Christian Scripture	5
TCOR 3100	Christian Theology	5
UCOR 2100	World History, Faith, and Reconciliation	5
UCOR 3000	Faith, Philosophy, and Science	5
Exploratory Curriculum		
with DTA or AA see Advisor		
Ways of Knowing in the Arts (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/#wkatext)		20
Ways of Knowing in the Humanities (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/#wkhtext)		
Ways of Knowing in the Social Sciences (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/#wksstext)		
Cultural Understanding and Engagement (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/#wetext)		

Two Year Plan for Transfer Students with or without a DTA

See below for the pre-requisite courses required to complete the degree in two years. Note also that without a DTA, it will depend on how many of the General Education Courses (Common Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/), Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/), etc (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/graduation-requirements-policies/).) are completed before transferring as to whether or not the degree can be completed in two years.

It is possible to transfer into SPU at any time, but if the expected prior coursework is not yet completed, then it may require more than two years at SPU.

Check the quarter, day and time in the current schedule as course offerings may change. Pay close attention to the pre-requisites of the courses

Course	Title	Credits
First Year		
Variable		
Tech Electives [1, 2]		0-5
Common Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/) and Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/) as needed [3]		
	Credits	**0-5**
Autumn		
EGR 1502	Machining and Fabricating	1
GS 3001	Internship and Job Search Strategies	1
ME 3500	Thermal Science I: Thermodynamics	5
PHY 3311	Experimental Methods I	3
	Credits	**10**
Winter		
ME 3300	Properties of Materials [4]	3
ME 3430	System Dynamics [4]	5
ME 3501	Thermal Science II: Fluid Mechanics	5
	Credits	**13**
Spring		
EGR 1503	Engineering Tools and Systems	1
EGR 3810	General Engineering Design	5
ME 3502	Thermal Science III: Heat Transfer	5
ME 4410	Mechanical Design	4
	Credits	**15**
Second Year		
Variable		
Tech Electives [1, 2, 5]		0-5
Common Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/) and Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/) as needed [3, 5]		
	Credits	**0-5**
Autumn		
EGR 4811	Engineering Senior Design I	3
EGR 4941	Engineering Professional Experience [6]	1
	Credits	**4**
Winter		
EGR 4812	Engineering Senior Design II	3
ME 3300	Properties of Materials [7]	3
ME 3430	System Dynamics [7]	5
	Credits	**11**
Spring		
EGR 4899	Engineering Capstone and Senior Design	3
MAT 2200	Engineering Probability and Statistics	3
	Credits	**6**
	Total Credits	**59-69**

1 May be taken the first or second year.
2 See the Requirements (p. 1) tab for a complete list of technical electives. Pay attention to pre-reqs. Spread between first and second year. See link at the bottom of this page for a list.
3 Spread between first and second year.
4 Offered alt years. May be taken in year 2.
5 If not already completed.

[6] Must be taken AFTER completing or WHILE pursuing an approved internship or an approved certification.
[7] If not already completed. Offered alt years.

Prerequisites for the Two Year Plan

The following courses must be completed before coming to SPU in order to finish at SPU in two years.

Code	Title	Credits
Calculus Equivalent to SPU's		
MAT 1234	Calculus I	
MAT 1235	Calculus II	
MAT 1236	Calculus III	
Additional Math Equivalents to SPU's		
MAT 2401	Linear Algebra	
MAT 3237	Differential Equations	
MAT 3238	Vector Calculus	
Physics Equivalent to SPU's		
PHY 1121	Physics for Science and Engineering	
PHY 1122	Physics for Science and Engineering	
PHY 1123	Physics for Science and Engineering	
Chemistry Equivalent to SPU's		
CHM 1310	Survey of General Chemistry (or a similar class)	
or CHM 1211	General Chemistry I	
Engineering Courses Equivalent to SPU's		
EGR 1501	Computer Aided Design Applications for Engineers	
ME 2891	Statics	
ME 3310	Mechanics of Materials	
ME 3400	Dynamics	
A Programming Course Equiivalent to SPU's		
CSC 2230	Computer Programming for Engineers	
or CSC 1230	Problem Solving and Programming	
A Circuits I Class with Lab		**0-5**

Technical Electives List

See the Requirements (p. 1) tab for a complete list of technical electives.