

Transition Principles

The Department of Electrical and Computer Engineering proposes to allow students present during the transition the choice of either continuing to fulfill quarter requirements or switching to semester requirements. Thus four sets of transition principles are required – two for the EES program and two for the CES program. In each case there are requirements that specific topics be completed, and other requirements that a specified number of credit hours be taken in certain categories. These different types of requirements are not mutually exclusive – courses taken to meet topical requirements may also count toward a credit hour requirement in one or more categories. This section describes these different types of requirements.

Students present during the transition will in general be meeting these requirements with a mix of quarter and semester courses. Since the curricula of the ECE programs and the ECE courses have been redesigned and not just translated from quarters to semesters there will usually be mismatches between hours earned toward specific topic requirements met with quarter courses vs. semester courses. This section also describes how these mismatches in hours earned will be managed.

For students who elect to meet the requirements of the quarter curriculum for their program, credit hour requirements will be stated in terms of equivalent qtr-cr-hrs, calculated by multiplying sem-cr-hrs earned after the transition by $3/2$ and adding that to the number of qtr-cr-hrs earned before the transition.

For students who elect to meet the requirements of the semester curriculum for their program, credit hour requirements will be stated in terms of equivalent sem-cr-hrs, calculated by multiplying qtr-cr-hrs earned before the transition by $2/3$ and adding that to the number of sem-cr-hrs earned after the transition.

A mathematical description of the various requirements is presented in Attachment #7 of the full ECENG-BS Q2S transition proposal.

Total hours to degree

This specifies the minimum number of hours to degree. The requirement is the same for the EES and CES programs. Students who elect to meet quarter requirements must achieve the equivalent of at least 196 qtr-cr-hrs. Students who elect to meet semester requirements must achieve the equivalent of at least 128 sem-cr-hrs.

This requirement will largely be met by completing the requirements of each of the categories described later in this section. But, due to the mix of quarters and semesters courses used to meet those requirements, it is possible a student may satisfy each of the categories but still be short a few hours toward the total to degree. In such a case the student must take additional courses to meet this minimum.

Excerpt from the ECENG-BS Q2S proposal sent to CAA 12/7/2010 (pp. 15-23). Updated 6/20/11 to fix a credit hour error in Table 13-2 (ECE 567 had 3 hr; 2 is correct).

GEC/GE

This is a requirement that specific topics be satisfied. Students accepted into the College of Engineering after the start of semesters will be required to satisfy the eight GE liberal arts requirements of the semester system, as described in the College of Engineering Core proposal. Any student accepted into the College of Engineering prior to the start of semesters will be required to satisfy the seven GEC liberal arts requirements of the quarter system, also as described in the College of Engineering Core proposal. They may use either quarter courses or semester courses to fulfill each of the requirements. This will be in effect until the Summer of 2017 at which time those students will be required to meet the semester GE liberal arts requirements.

Core

The topics in the Core are identified by the courses listed in the Core section of the quarter bingo sheets and semester bingo sheets. Note that the Core includes Math and Basic Science (MBS) courses, as well as ECE, CSE and other required courses. Thus there is overlap between the Core topical requirements and the MBS credit hour requirements. There are differences in how mismatches in credit hours will be handled for students who elect to meet quarter requirements vs. those who elect to meet semester requirements in both the EES and CES programs, so they will be described in four separate discussions.

Core – EES Program – Quarter Requirements

For EES students who elect to meet quarter requirements a mapping of semester courses onto quarter requirements will be used to assign credit for meeting specific course requirements. This is shown in Table 13-1.

Math and Basic Science: Students who elect to meet quarter requirements must achieve the equivalent of at least 48 qtr-cr-hrs of Math and Basic Science. This stems from ABET accreditation requirements. If, in the transition from quarter to semesters, the mix of quarter and semester courses taken by a student to meet the topical MBS requirements results in equivalent qtr-cr-hrs below the minimum, they must take additional MBS courses to satisfy the minimum. Students may use courses that also count as Outside Technical Electives for this. If the mix of quarter and semester courses used to meet MBS topical requirements results in more than 50 equivalent qtr-cr-hrs, those excess hours will count toward Outside Technical Electives.

ECE Topical Core: If the mix of quarter and semester courses used to meet ECE topical requirements results in fewer than 43 equivalent qtr-cr-hrs, the student will be required to take additional ECE Technical Electives to make up the difference. If the mix of quarter and semester courses used to meet ECE topical requirements results in more than 43 equivalent qtr-cr-hrs, those excess hours will count toward ECE Technical Electives.

Non-ECE, non-MBS: Similarly, credit mismatches resulting from the mix of quarter and semester courses used to meet non-ECE, non-MBS topical requirements will either add to or subtract from technical electives in the Outside Technical Elective category, based on the difference from 16 equivalent qtr-cr-hrs.

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Table 13-1: EES program core - for students meeting quarter requirements. The table is broken into three sections to facilitate explanation of how mismatches in credit hour requirements will be handled.

Quarter Requirement	qtr-cr-hr	Semester Courses	sem-cr-hr	Equiv qtr-cr-hr	Excess equiv qtr-cr-hr
Math 151, 152, 153 & 254	20	Math 1151 & 1172	10	15.0	-5.0
Math 415	4	Math 2415	3	4.5	0.5
Math 571	3	Math 2568	3	4.5	1.5
Physics 131, 132 & 133	15	Physics 1250 & 1251	10	15.0	0.0
Chemistry 121	5	Chemistry 1250	4	6.0	1.0
Statistics 427	3	Statistics 3470	3	4.5	1.5
Total MBS	50			49.5	

Engr 181	3	Engr 1181	2	3.0	0.0
Engr 183	3	Engr 1182	2	3.0	0.0
EnGraph 167	4	CSE 1222	3	4.5	0.5
ECE 331*	3	MSE 2010	3	4.5	1.5
Ind Eng 504	3	ISE 2040	2	3.0	0.0
Total Non-ECE/Non-MBS	16			18.0	

ECE 205, 206, 209, 261, 301 & 351	15	ECE 2000 & 2100	8	12.0	-3.0
ECE 265	3	ECE 2560	2	3.0	0.0
ECE 311 & 312	6	ECE 3010	3	4.5	-1.5
ECE 323	3	ECE 3020	3	4.5	1.5
ECE 432	3	ECE 3030	3	4.5	1.5
ECE 341	3	ECE 3040	3	4.5	1.5
ECE 352	3	ECE 3050	3	4.5	1.5
ECE 481	1	ECE 3080	1	1.5	0.5
ECE 582	3	ECE 3090	1	1.5	-1.5
ECE 682	3	ECE 4900	3	4.5	1.5
Total ECE	43			46.5	

* ECE 331 is included with Non-ECE/Non-MBS since it is a required course that also meets a college selected core requirement, and a semester course to meet that selected core topic will not be offered by ECE.

Core – CES Program – Quarter Requirements

For CES students who elect to meet quarter requirements a mapping of semester courses onto quarter requirements will be used to assign credit for meeting specific course requirements. This is shown in Table 13-2.

Math and Basic Science: Students who elect to meet quarter requirements must achieve the equivalent of at least 48 qtr-cr-hrs of Math and Basic Science. This stems from ABET accreditation requirements. If, in the transition from quarter to semesters, the mix of quarter and semester courses taken by a student to meet the topical MBS requirements results in equivalent qtr-cr-hrs below the minimum, they must take additional MBS courses to satisfy the minimum. Students may use courses that also count as Outside

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Technical Electives for this. If the mix of quarter and semester courses used to meet MBS topical requirements results in more than 53 equivalent qtr-cr-hrs, those excess hours will count toward Outside Technical Electives.

Table 13-2: CES program core - for students meeting quarter requirements. The table is broken into three sections to facilitate explanation of how mismatches in credit hour requirements will be handled.

Quarter Requirement	qtr-cr-hr	Semester Courses	sem-cr-hr	Equiv qtr-cr-hr	Excess equiv qtr-cr-hr
Math 151, 152, 153 & 254	20	Math 1151 & 1172	10	15.0	-5.0
Math 415	4	Math 2415	3	4.5	0.5
Math 571	3	Math 2568	3	4.5	1.5
Math 366	3	Math 3366 or CSE 2321	3	4.5	1.5
Physics 131, 132 & 133	15	Physics 1250 & 1251	10	15.0	0.0
Chemistry 121	5	Chem 1250	4	6.0	1.0
Statistics 427	3	Statistics 3470	3	4.5	1.5
Total MBS	53			54.0	

Engr 181	3	Engr 1181	2	3.0	0.0
Engr 183	3	Engr 1182	2	3.0	0.0
EnGraph 167	4	CSE 1222	3	4.5	0.5
CSE 221, 222 & 321	12	CSE 2221 & 2231	8	12.0	0.0
CSE 560	5	CSE 3901	4	6.0	1.0
CSE 660	3	CSE 2451 & 2431	5	7.5	4.5
ECE 331*	3	MSE 2010	3	4.5	1.5
Ind Eng 504	3	ISE 2040	2	3.0	0.0
Total Non-ECE/Non-MBS	36			43.5	

ECE 205, 206, 209, 261, 301 & 351	15	ECE 2000 & 2100	8	12.0	-3.0
ECE 265	3	ECE 2560	2	3.0	0.0
ECE 323	3	ECE 3020	3	4.5	1.5
ECE 352	3	ECE 3050	3	4.5	1.5
ECE 561	3	ECE 3367	3	4.5	1.5
ECE 567	2	ECE 3567	1	1.5	-0.5
ECE 662	3	ECE 5362	3	4.5	1.5
ECE 481	1	ECE 3080	1	1.5	0.5
ECE 582	3	ECE 3090	1	1.5	-1.5
ECE 682	3	ECE 4900	3	4.5	1.5
Total ECE	39			42.0	

* ECE 331 is included with Non-ECE/Non-MBS since it is a required course that also meets a college selected core requirement, and a semester course to meet that selected core topic will not be offered by ECE.

ECE Topical Core: If the mix of quarter and semester courses used to meet ECE topical requirements results in fewer than 39 equivalent qtr-cr-hrs, the student will be required to take additional ECE Technical Electives to make up the difference. If the mix of quarter

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and semester courses used to meet ECE topical requirements results in more than 39 equivalent qtr-cr-hrs, those excess hours will count toward ECE Technical Electives.

Non-ECE, non-MBS: Similarly, credit mismatches resulting from the mix of quarter and semester courses used to meet non-ECE, non-MBS topical requirements will either add to or subtract from technical electives in the Outside Technical Elective category, based on the difference from 36 equivalent qtr-cr-hrs.

Core – EES Program – Semester Requirements

For EES students who elect to meet semester requirements a mapping of quarter courses onto semester requirements will be used to assign credit for meeting specific course requirements. This is shown in Table 13-3.

Table 13-3: EES program core - for students meeting semester requirements. The table is broken into three sections to facilitate explanation of how mismatches in credit hour requirements will be handled.

Semester Requirement	sem-cr-hr	Quarter Courses	qtr-cr-hr	Equip sem-cr-hr	Excess equiv sem-cr-hr
Math 1151 & 1172	10	Math 151, 152, 153 & 254	20	13.33	3.33
Math 2415	3	Math 415	4	2.67	-0.33
Math 2568	3	Math 571	3	2.00	-1.00
Physics 1250 & 1251	10	Physics 131, 132 & 133	15	10.00	0.00
Chem 1250	4	Chemistry 121	5	3.33	-0.67
Statistics 3470	3	Statistics 427	3	2.00	-1.00
Total MBS	33			33.33	

Engr 1100	1	Engr 100	1	0.67	-0.33
Engr 1181	2	Engr 181	3	2.00	0.00
Engr 1182	2	Engr 183	3	2.00	0.00
CSE 1222	3	EnGraph 167	4	2.67	-0.33
ISE 2040	2	Ind Eng 504	3	2.00	0.00
Total Non-ECE/Non-MBS	10			9.33	

ECE 2000 & 2100	8	ECE 294.01, 294.02 & 294.03	12	8.00	0.00
ECE 2560	2	ECE 265	3	2.00	0.00
ECE 3010	3	ECE 311 & 312	6	4.00	1.00
ECE 3020	3	ECE 323	3	2.00	-1.00
ECE 3030	3	ECE 331 & 432	6	4.00	1.00
ECE 3040	3	ECE 341	3	2.00	-1.00
ECE 3050	3	ECE 352	3	2.00	-1.00
ECE 3080	1	ECE 481	1	0.67	-0.33
ECE 3090	1	ECE 582	3	2.00	1.00
ECE 4900	3	ECE 682	3	2.00	-1.00
Total ECE	30			28.67	

Math and Basic Science: Students who elect to meet semester requirements must achieve the equivalent of at least 32 sem-cr-hrs of Math and Basic Science. This stems from

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ABET accreditation requirements. If, in the transition from quarter to semesters, the mix of quarter and semester courses taken by a student to meet the topical MBS requirements results in equivalent sem-cr-hrs below the minimum, they must take additional MBS courses to satisfy the minimum. Students may use MBS courses from the Directed Elective list for this. If the mix of quarter and semester courses used to meet MBS topical requirements results in more than 33 equivalent sem-cr-hrs, those excess hours will count toward Directed Electives.

ECE Topical Core: If the mix of quarter and semester courses used to meet ECE topical requirements results in fewer than 30 equivalent sem-cr-hrs, the student will be required to take additional ECE Technical Electives to make up the difference. If the mix of quarter and semester courses used to meet ECE topical requirements results in more than 30 equivalent sem-cr-hrs, those excess hours will count toward ECE Technical Electives.

Non-ECE, non-MBS: Similarly, credit mismatches resulting from the mix of quarter and semester courses used to meet non-ECE, non-MBS topical requirements will either add to or subtract from the Directed Elective category, based on the difference from 10 equivalent sem-cr-hrs.

Core – CES Program – Semester Requirements

For CES students who elect to meet semester requirements a mapping of quarter courses onto semester requirements will be used to assign credit for meeting specific course requirements. This is shown in Table 13-4.

Math and Basic Science: Students who elect to meet semester requirements must achieve the equivalent of at least 32 sem-cr-hrs of Math and Basic Science. This stems from ABET accreditation requirements. If, in the transition from quarter to semesters, the mix of quarter and semester courses taken by a student to meet the topical MBS requirements results in equivalent sem-cr-hrs below the minimum, they must take additional MBS courses to satisfy the minimum. Students may use MBS courses from the Directed Elective list for this. If the mix of quarter and semester courses used to meet MBS topical requirements results in more than 36 equivalent sem-cr-hrs, those excess hours will count toward Directed Electives.

ECE and CSE Topical Core: If the mix of quarter and semester courses used to meet ECE and CSE topical requirements results in fewer than 38 equivalent sem-cr-hrs, the student will be required to take additional ECE or CSE Technical Electives to make up the difference. If the mix of quarter and semester courses used to meet ECE and CSE topical requirements results in more than 38 equivalent sem-cr-hrs, those excess hours will count toward ECE/CSE Technical Electives.

Non-ECE/CSE, non-MBS: Similarly, credit mismatches resulting from the mix of quarter and semester courses used to meet non-ECE/CSE, non-MBS topical requirements will either add to or subtract from the Directed Elective category, based on the difference from 10 equivalent sem-cr-hrs.

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Table 13-4: CES program core - for students meeting semester requirements. The table is broken into three sections to facilitate explanation of how mismatches in credit hour requirements will be handled.

Semester Requirement	sem-cr-hr	Quarter Courses	qtr-cr-hr	Equiv sem-cr-hr	Excess equiv sem-cr-hr
Math 1151 & 1172	10	Math 151, 152, 153 & 254	20	13.33	3.33
Math 2415	3	Math 415	4	2.67	-0.33
Math 2568	3	Math 571	3	2.00	-1.00
Math 3366 or CSE 2321	3	Math 366	3	2.00	-1.00
Physics 1250 & 1251	10	Physics 131, 132 & 133	15	10.00	0.00
Chem 1250	4	Chemistry 121	5	3.33	-0.67
Statistics 3470	3	Statistics 427	3	2.00	-1.00
Total MBS	36			35.33	-0.67
Engr 1100	1	Engr 100	1	0.67	-0.33
Engr 1181	2	Engr 181	3	2.00	0.00
Engr 1182	2	Engr 183	3	2.00	0.00
CSE 1222*	3	EnGraph 167	4	2.67	-0.33
ISE 2040	2	Ind Eng 504	3	2.00	0.00
Total Non-ECE&CSE/Non-MBS	10			9.33	-0.67

ECE 2000 & 2100	8	ECE 294.01, 294.02 & 294.03	12	8.00	0.00
ECE 2560	2	ECE 265	3	2.00	0.00
ECE 3020	3	ECE 323	3	2.00	-1.00
ECE 3367	3	ECE 561 & ECE 667	6	4.00	1.00
ECE 3567	1	ECE 567	2	1.33	0.33
ECE 5362	3	ECE 662	3	2.00	-1.00
ECE 3080	1	ECE 481	1	0.67	-0.33
ECE 3090	1	ECE 582	3	2.00	1.00
ECE 4900	3	ECE 682	3	2.00	-1.00
CSE 2221 & 2231	8	CSE 221, 222 & 321	12	8.00	0
CSE 2451	2	no quarter equivalent	0	0	-2
CSE 2431	3	CSE 660	3	2.00	-1.00
Total ECE&CSE	38			34	

* The programming course CSE 1222 is not included with the other CSE courses since it is a pre-major course that must be completed prior to acceptance into the major.

Selected Core

The Selected Core requirement is a College of Engineering quarter core requirement. In the EES and CES programs most of the courses to meet this requirement are specified and are thus included in the ECE EES or CES core, but some are left to student choice, from a pick list. The requirements are different for the EES and CES programs, so each will be described in a separate paragraph.

A student in the EES program who elects to meet quarter requirements must achieve the equivalent of at least 3 qtr-cr-hrs from the EES Selected Core pick list. A maximum of 9

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qtr-cr-hrs from the EES Selected Core pick list is allowed. Semester courses comparable to those on the EES Selected Core pick list may be used. The EES Selected Core pick list is shown on the EES quarter bingo sheet. The allowed Selected Core credits count against Outside Technical Electives.

A student in the CES program who elects to meet quarter requirements is not required to take any additional courses from the CES Selected Core pick list as the minimum College of Engineering Selected Core requirements are met by courses required in the CES program. However they are permitted to count up to 9 qtr-cr-hrs from the CES Selected Core pick list against Outside Technical Electives. Semester courses comparable to those on the CES Selected Core pick list may be used. The CES Selected Core pick list is shown on the CES quarter bingo sheet.

For students in either the EES or CES program who elect to meet semester requirements, there is no Selected Core requirement. However it is possible that such a student may have already taken Selected Core courses prior to the transition to semesters. In such a case, any of those courses that would have met quarter Selected Core requirements for their program that do not meet semester Core requirements in their program will count as Directed Electives.

ECE Technical Electives

Since the technical elective requirements are different for the EES and CES programs, and also different for the quarter curriculum and semester curriculum, each will be described in a separate discussion.

ECE Technical Electives – EES Program – Quarter Requirements

EES students who elect to meet quarter requirements must take at least 37 equivalent qtr-cr-hrs of ECE Technical Electives. (This leaves up to 15 equivalent qtr-cr-hrs of technical electives outside ECE, including Selected Core.) The ECE Technical Elective requirement has additional structure. The student must take at least 11 equivalent qtr-cr-hrs in one area of concentration, with at least one 700-level quarter course or 5000-level semester course. In addition the student must take either:

- A second area of concentration with at least 11 equivalent qtr-cr-hrs and at least one 700-level quarter course or 5000-level semester course, or
- Two additional areas of concentration with at least 5 equivalent qtr-cr-hrs each.

The student must also take at least 7 equivalent qtr-cr-hrs of ECE Technical Elective labs. The labs may also count toward meeting the areas of concentration requirements.

Quarter courses in each of the areas of concentration are listed on EES quarter bingo sheet. Semester courses that would count in each of the areas of concentration are listed on the EES semester bingo sheet (called domains on the semester advising sheet).

ECE Technical Electives – CES Program – Quarter Requirements

CES students who elect to meet quarter requirements must take at least 15 equivalent qtr-cr-hrs of ECE Technical Electives. (This leaves up to 18 equivalent qtr-cr-hrs of technical electives outside ECE, including Selected Core.) The Technical Elective requirement has additional structure. The student must take at least 12 equivalent qtr-cr-

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hrs from a pick list of ECE and CSE courses. (See the CES quarter bingo sheet for the pick list.) Semester courses that are available to undergraduates that are comparable to those on the current pick list may be used. ECE courses selected from this pick list also count toward the 15 qtr-cr-hr ECE Technical Elective requirement.

ECE Technical Electives – EES Program – Semester Requirements

EES students who elect to meet semester requirements must take at least 16 equivalent sem-cr-hrs of ECE Technical Electives. (This leaves up to 15 equivalent sem-cr-hrs of Directed Electives outside ECE.) The ECE Technical Elective requirement has additional structure. The student must take at least 6 equivalent sem-cr-hrs in one domain. The student must also take at least 3 equivalent sem-cr-hrs in each of two additional domains. At least one of the ECE Technical Elective courses must be either a 5000-level semester course or a 700-level quarter course. The student must also take at least two ECE Technical Electives that are lab courses or courses with lab content. Semester courses in each of the domains are listed on the EES semester bingo sheet. Quarter courses that would count in each of the domains are listed on the EES quarter bingo sheet (called areas of concentration on the quarter advising sheet).

ECE and CSE Technical Electives – CES Program – Semester Requirements

CES students who elect to meet semester requirements must take at least 9 equivalent sem-cr-hrs of Technical Electives from a pick list of ECE and CSE courses. (This leaves up to 11 equivalent sem-cr-hrs of Directed Electives outside ECE.) See the CES semester bingo sheet for the pick list. Quarter courses that are comparable to those on the semester pick list may be used. At least one of the courses selected from the pick list must be either a 5000-level semester course, or 700-level comparable quarter course.

Transfer Student Residency

The transition policy for the residency requirement for transfer students is a direct conversion calculation. For transfer students that elect to meet quarter requirements, at least 45 equivalent qtr-cr-hrs must be ECE or CSE courses taken at OSU. For transfer students that elect to meet semester requirements, at least 30 equivalent sem-cr-hrs must be ECE or CSE courses taken at OSU. Classes taken under senior petition may be included for the residency requirement.