INTRODUCTION

This document provides enrollment guidance for all students in the School of Electrical and Computer Engineering (ECE) on Degree Plans for the B.S. degree in Electrical Engineering and for the B.S. degree in Computer Engineering. This document is intended to correspond to degree requirements included on the official Degree Requirement Sheet for Electrical Engineering and Computer Engineering as they exist in 2015.

ELECTIVE CHOICES and AREAS OF SPECIALIZATION

Students in the School of Electrical and Computer Engineering pursuing the B.S. degree in Electrical Engineering are required to declare an Area of Specialization (AoS) prior to entering their junior year (generally, prior to or at the time of admission to Professional School). The AoS is an advising mechanism that assists students in choosing a reasonable and coordinated set of electives in order to achieve both breadth and depth in the curriculum. Regular advisement from a faculty member in the chosen area is an important part of this process.

Students pursuing the B.S. degree in Computer Engineering are expected to follow the curriculum requirements specified for that degree. Regular advisement from a faculty member in Computer Engineering is an important part of this process.

The Electrical Engineering AoS and the Computer Engineering curriculum help students achieve a comprehensive education in Electrical Engineering or Computer Engineering that is aligned with their interests and career objectives. Each student develops a plan of study in consultation with an ECE faculty member. The AoS is not intended to “lock” a student into a particular set of elective choices – students are encouraged to discuss their particular career objectives and course choices with a faculty member. If an exception is deemed appropriate, permission may be sought from the department head for each requested alternate course.
Degree requirements are specified in the Degree Requirement Sheet valid for each student. The applicable Degree Requirement Sheet is normally the one that was in effect when the student enrolled for the first time (usually as a freshman). The AoS requirements are designed to meet the specific curriculum requirements set by the corresponding Degree Requirement Sheet. In any case where a conflict occurs, the applicable Degree Requirement Sheet will prevail.

This document applies specifically to the ECE Degree Requirement Sheets in effect in 2015. In general, this document only addresses requirements listed under Specific Professional School Requirements and Controlled Electives on the Degree Requirement Sheet. The student is expected to meet all requirements listed on their corresponding Degree Requirement Sheet.

Prior to enrolling for the junior year, all ECE students should either select an Area of Specialization within the requirements for the B.S. degree in Electrical Engineering or they should select the B.S. degree in Computer Engineering. This decision helps determine particular curriculum choices for each student.

The particular requirements for each Electrical Engineering Area of Specialization currently in effect are included in this document. These include

a) Communications, Controls, and Signal Processing
b) Electromagnetics and Photonics
c) Power and Energy
d) Electronics and Solid State
e) Computers and Digital

Also included are the particular requirements for the B.S. degree in Computer Engineering.

All B.S. Electrical Engineering students (not B.S. Computer Engineering) are required to take the following ECEN-prefix courses: ECEN 2011, ECEN/ENSC 3213, ECEN 3233, ECEN 3314, ECEN 3513, ECEN 3714, ECEN 4013, ECEN 4024, and ECEN 4503, as well as other requirements specified in their AoS and the B.S. Electrical Engineering Degree Requirement Sheet. A total of 125 semester hours is required.

All students in the B.S. Computer Engineering program are required to take the following ECEN-prefix courses: ECEN 2011, ECEN/ENSC 3213, ECEN 3233, ECEN 3314, ECEN 3513, ECEN 3613, ECEN 3714, ECEN 4013, ECEN 4024, ECEN 4213, ECEN 4243, ECEN 4303, and ECEN 4503, as well as other requirements specified in the B.S. Computer Engineering Degree Requirement Sheet. A total of 126 semester hours is required.

Additional requirements for all B.S. degree in Electrical Engineering Areas of Specialization and the B.S. degree in Computer Engineering must be chosen in consultation with and approved by an area faculty member. All requirements specified on the corresponding Degree Requirement Sheet must be met in order to complete the degree. Please consult with Ms. Helen Daggs, helen.daggs@okstate.edu,
in 202 ES regarding specific requirements and clearance for graduation. Course Alternates and Exceptions appropriate for a student’s career objectives must be approved by the Department Head in addition to an area faculty member.

There are flow charts available corresponding to these AoS requirements and the current Degree Requirement Sheets for both Electrical Engineering and Computer Engineering. When using the flow charts please keep in mind that although they are designed to correspond to the current Degree Requirement Sheets they are also just an advising instrument and what is best for a given student will depend on his/her specific circumstances. In any case, where the flow charts conflict with the Degree Requirement Sheets or requirements specified in the University Catalog the latter will always prevail.

The following pages describe the current specific requirements for the various Areas of Specialization within the B.S. degree in Electrical Engineering and the B.S. degree in Computer Engineering. Faculty members in each area are listed. Full instructions for enrolling under your chosen AoS are given on the department web site. Additional procedural assistance is available from Ms. Daggs (see below).

**Note:** The ECE program offerings on the OSU/Tulsa campus are being phased out beginning fall 2014. A limited number of senior ECE courses will be available on the Tulsa campus, either locally or by distance, during the 2015-16 academic year to allow existing students the opportunity to complete their degrees. Inquiries regarding enrollment and advising should be directed to Ms. Daggs on the main campus in Stillwater.
B.S. Degree in Electrical Engineering, Area of Specialization in Communications, Controls, and Signal Processing

Area Requirements$^{1,2}$

24 Hours of Area Requirements in addition to common ECEN requirements as specified on the 2015-2016 Degree Requirement Sheet

**Junior Block Requirements (6 hours):**

ECEN 3613
ECEN 3723

**Core Area Courses (9 hours):**

ECEN 4413
ECEN 4523$^3$ or ECEN 4533$^4$
ECEN 4763

**Area List (not more than one outside the department), choose two (6 hours):**

Any “4”, “5” or “7” area course, 4000 level or above
ECEN 4133    MATH 4283
ECEN 4213    MATH 4513
ECEN 4243    MATH 4553
ECEN 4283

Other courses may be added to this list from time to time as agreed upon by the Area Faculty.

**Technical Electives (3 hours):**

At most one additional technical elective (3 hours), as defined on the Communications, Controls, and Signal Processing Area List (given above), Junior Block ECEN courses not taken above$^5$, or other technical courses such as MATH, CS, STAT, other engineering disciplines, etc. Advisor approval is required.

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$^1$ Corresponding to the 2015-2016 Degree Requirement Sheet
$^2$ These Area Requirements are in addition to the Specific Professional School Requirements (#1) required of all Electrical Engineering students as specified on the 2015-2016 Degree Requirement Sheet (28 Hours, including ECEN 2011, 3233, 3314, 3513, 3714, 4013, 4024, 4503, and IEM 3503) and all additional requirements as specified on the Degree Requirement Sheet.
$^3$ ECEN 4523 requires ECEN 4503 as a prerequisite and is offered in the spring.
$^4$ ECEN 4533 allows ECEN 4503 to be taken concurrently or as a prerequisite and is offered in the fall.
$^5$ ECEN 3113, 3613, 3723, 3913
## Area Faculty Contacts

<table>
<thead>
<tr>
<th>Name</th>
<th>Office</th>
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</thead>
<tbody>
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</tbody>
</table>
B.S. Degree in Electrical Engineering, Area of Specialization in Electromagnetics and Photonics

Area Requirements

24 Hours of Area Requirements in addition to common ECEN requirements as specified on the 2015-2016 Degree Requirement Sheet

Junior Block Requirements (6 hours):

ECEN 3613
ECEN 3913

Core Area Courses (9 hours):

ECEN 3623
ECEN 4823
ECEN 4613 or ECEN 4843

Area List (suggested groupings), choose two (6 hours):

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<tr>
<th>Microwaves</th>
<th>Photonics</th>
<th>Devices</th>
<th>Miscellaneous</th>
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<td>ECEN 4763</td>
<td>ECEN 4613</td>
<td>ECEN 4303</td>
<td>ECEN 3113</td>
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<tr>
<td>ECEN 4843</td>
<td>ECEN 5833</td>
<td>ECEN 4313</td>
<td>ECEN 4353</td>
</tr>
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<td>ECEN 5613</td>
<td>ECEN 5853</td>
<td>ECEN 4613</td>
<td>ECEN 4523</td>
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</table>

Other courses may be added to this list from time to time as agreed upon by the Area Faculty.

Technical Electives (3 hours):

At most one additional technical elective (3 hours), as defined on the Electromagnetics and Photonics Area List (given above), Junior Block ECEN courses not taken above, or other

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1 Corresponding to the 2015-2016 Degree Requirement Sheet
2 These Area Requirements are in addition to the Specific Professional School Requirements (#1) required of all Electrical Engineering students as specified on the 2015-2016 Degree Requirement Sheet (28 Hours, including ECEN 2011, 3233, 3314, 3513, 3714, 4013, 4024, 4503, and IEM 3503) and all additional requirements as specified on the Degree Requirement Sheet.
3 ECEN 4613 Required in this grouping
4 ECEN 4843 Required in this grouping
5 Students may take either ECEN 4613 or ECEN 4843 as an elective in addition to the course they took as a Core Area Course.
6 ECEN 3113, 3613, 3723, 3913
technical courses such as MATH, CS, STAT, other engineering disciplines, etc. Advisor approval is required.

Area Faculty Contacts

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</tbody>
</table>
B.S. Degree in Electrical Engineering, Area of Specialization in Energy and Power Systems

Area Requirements¹²

24 Hours of Area Requirements in addition to common ECEN requirements as specified on the 2015-2016 Degree Requirement Sheet

Junior Block Requirements (6 hours):

ECEN 3613
ECEN 3723

Core Area Courses (9 hours):

ECEN 3113 (or an approved substitute)
ECEN 4133
ECEN 4153

Area List (not more than one outside the department), choose two (6 hours):

Any “1” area courses, 4000 level or above
ECEN 3913   ECEN 5113   ECEN 4213   INDEN 4713
ECEN 4413   ECEN 5123   ECEN 4273   INDEN 5023
ECEN 4763   ECEN 5153   ECEN 4283   MAE 4733
MATH 4513   ECEN 5193   ECEN 5713   MSIS 4013
ECEN 5353

Other courses may be added to this list from time to time as agreed upon by the Area Faculty.

Technical Electives (3 hours):

At most one additional technical elective (3 hours), as defined in the Energy and Power Systems Area List (given above), Junior Block ECEN courses not taken above³, or other technical courses such as MATH, CS, STAT, other engineering disciplines, etc. Advisor approval is required.

¹ Corresponding to the 2015-2016 Degree Requirement Sheet
² These Area Requirements are in addition to the Specific Professional School Requirements (#1) required of all Electrical Engineering students as specified on the 2015-2016 Degree Requirement Sheet (28 Hours, including ECEN 2011, 3233, 3314, 3513, 3714, 4013, 4024, 4503, and IEM 3503) and all additional requirements as specified on the Degree Requirement Sheet.
³ ECEN 3113, 3613, 3723, 3913
Area Faculty Contacts

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</table>
B.S. Degree in Electrical Engineering, Area of Specialization in Electronics and Solid State

Area Requirements\(^1,2\)

24 Hours of Area Requirements in addition to common ECEN requirements as specified on the 2015-2016 Degree Requirement Sheet

Junior Block Requirements (6 hours):

ECEN 3613
ECEN 3913

Core Area Courses (12 hours):

<table>
<thead>
<tr>
<th>Analog Mixed Signal VLSI/Electronics</th>
<th>Communications VLSI/Electronics</th>
<th>Digital VLSI with emphasis on Digital Signal Processing and Computers</th>
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<tr>
<td>ECEN 4303 or ECEN 5253</td>
<td>ECEN 4313 or ECEN 5363</td>
<td>ECEN 4303 or ECEN 5253</td>
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<tr>
<td>ECEN 4313 or ECEN 5363</td>
<td>ECEN 4353</td>
<td>ECEN 4763</td>
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<td>AND 2 of 4</td>
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<tr>
<td>ECEN 3723</td>
<td>ECEN 4523</td>
<td>ECEN 4243 or ECEN 5253</td>
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<td>ECEN 4353</td>
<td>ECEN 4533</td>
<td>ECEN 4283</td>
</tr>
<tr>
<td>ECEN 4413</td>
<td>ECEN 4763</td>
<td>ECEN 4773</td>
</tr>
<tr>
<td>ECEN 5483</td>
<td>ECEN 5833</td>
<td>ECEN 5483</td>
</tr>
</tbody>
</table>

Area List (not more than one outside the department), choose one (3 hours):

Any “3” or “9” area course, 4000 level or above

| ECEN 4133 | ECEN 4213 | MATH 4283 |
| ECEN 4283 | MATH 4513 | MATH 4553 |
| ECEN 4703 | ECEN 4523 |            |

Other courses may be added to this list from time to time as agreed upon by the Area Faculty.

Technical Electives (3 hours):

At most one additional technical elective (3 hours), as defined on the Electronics and Solid State Area List (given above), or other technical courses such as MATH, CS, STAT, other engineering disciplines, etc. Advisor approval is required.

\(^1\) Corresponding to the 2015-2016 Degree Requirement Sheet

\(^2\) These Area Requirements are in addition to the Specific Professional School Requirements (#1) required of all Electrical Engineering students as specified on the 2015-2016 Degree Requirement Sheet (28 Hours, including ECEN 2011, 3233, 3314, 3513, 3714, 4013, 4024, 4503, and IEM 3503) and all additional requirements as specified on the Degree Requirement Sheet.
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</tbody>
</table>
B.S. Degree in Electrical Engineering, Area of Specialization in Computers and Digital

Area Requirements\(^1\)^\(^2\)

24 Hours of Area Requirements in addition to common ECEN requirements as specified on the 2015-2016 Degree Requirement Sheet

Junior Block Requirements (6 hours):

ECEN 3613
ECEN 3913

Core Area Courses (9 hours):

ECEN 4213
ECEN 4243
ECEN 4303

Area List (not more than one outside the department), choose two (6 hours):

Any “2” area course, 4000 level or above
ECEN 4773
CS 3653
CS 4323
CS 4343

Other courses may be added to this list from time to time as agreed upon by the Area Faculty.

Technical Electives (3 hours):

At most one additional technical elective (3 hours), as defined on the Computer Engineering Area List (given above), Junior Block ECEN courses not taken above\(^3\), or other technical courses such as MATH, CS, STAT, other engineering disciplines, etc. Advisor approval is required.

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\(^1\) Corresponding to the 2015-2016 Degree Requirement Sheet
\(^2\) These Area Requirements are in addition to the Specific Professional School Requirements (#1) required of all Electrical Engineering students as specified on the 2015-2016 Degree Requirement Sheet (28 Hours, including ECEN 2011, 3233, 3314, 3513, 3714, 4013, 4024, 4503, and IEM 3503) and all additional requirements as specified on the Degree Requirement Sheet.
\(^3\) ECEN 3113, 3613, 3723, 3913
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</table>
B.S. Degree in Computer Engineering
Program Requirements\textsuperscript{1,2}

27 Hours of Program Requirements in addition to common ECEN requirements as specified on the 2015-2016 Degree Requirement Sheet

Junior Block Requirements (3 hours):

ECEN 3613

Core Area Courses (18 hours):

ECEN 4213    CS 3653
ECEN 4243    CS 4323
ECEN 4303    CS 4343

Area List (not more than one outside the department), choose one (3 hours):

Any “2” area course, 4000 level or above
Other technical courses chosen in consultation with Computer Engineering faculty

Technical Electives (3 hours):

At most one additional technical elective (3 hours), as defined on the Computer Engineering Area List (if one exists, Junior Block ECEN courses not taken above\textsuperscript{3}, or other technical courses such as MATH, CS, STAT, other engineering disciplines, etc. Advisor approval is required.

\textsuperscript{1} Corresponding to the 2015-2016 Degree Requirement Sheet

\textsuperscript{2} These Requirements are in addition to the Specific Professional School Requirements required of all Computer Engineering students as specified on the 2015-2016 Degree Requirement Sheet (28 Hours, including ECEN 2011, 3233, 3314, 3513, 3714, 4013, 4024, 4503, and IEM 3503) and all additional requirements as specified on the Degree Requirement Sheet.

\textsuperscript{3} ECEN 3113, 3723, 3913
<table>
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<tr>
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<th>E-Mail Address</th>
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