

**DEGREE/PROGRAM CHANGE  
FORM C  
Form Number: C1364**

Fields marked with \* are required

**Name of Initiator:** Christina Garcia    **Email:** [cgarci29@unm.edu](mailto:cgarci29@unm.edu)    **Phone Number:** 505 277-1435    **Date:** 11-21-2013

Associated Forms exist? Yes   
Initiator's Title Academic Advisor: Electrical Computer Engineering  
Faculty Contact Ramiro Jordan    Administrative Contact Christina Garcia  
Department Electrical and Computer Engineering    Admin Email [cgarci29@unm.edu](mailto:cgarci29@unm.edu)  
Branch    Admin Phone 505-277-1435

**Proposed effective term**

Semester Fall  Year 2015

**Course Information**

Select Appropriate Program Undergraduate Degree Program   
Name of New or Existing Program Bachelor of Science in Electrical Engineering  
Select Category Degree  Degree Type  
Select Action Revision

Exact Title and Requirements as they should appear in the catalog. If there is a change, upload current and proposed requirements.

See current catalog for format within the respective college (upload a doc/pdf file)

[EE-120-12Dec13.docx](#)

**Does this change affect other departmental program/branch campuses? If yes, indicate below.**

Reason(s) for Request (enter text below or upload a doc/pdf file)  
Please see the attached document.

[EE-120-12Dec13.docx](#)

Upload a document that includes justification for the program, impact on long-range planning, detailed budget analysis and faculty workload implications.(upload a doc/pdf file)

[EE-120-Narration.docx](#)

**Are you proposing a new undergraduate degree or new undergraduate certificate? If yes, upload the following documents.**

Upload a two-page Executive Summary authorized by Associate Provost. (upload a doc/pdf file)

Upload memo from Associate Provost authorizing go-ahead to full proposal. (upload a doc/pdf file)

# BS Electrical Engineering Curriculum

Effective **Fall 2014** (120 hours)  
UNM Core Curriculum, Fall 2014

FRESHMAN-FIRST YEAR					
FALL SEMESTER			SPRING SEMESTER		
Course #	core	CR	Course #	core	CR
Math 162: Calculus I		4	Math 163: Calculus II		4
ECE 101: Intro to ECE		1	Phyc 161: General Physics II		3
ECE 131: Programming Fundamentals		3	Phyc 161L: General Physics II Lab		1
Phyc 160: General Physics I		3	Econ 105 or 106* Macro/Microeconomics	*SB	3
English 101: Composition I		3	English 102: Composition II		3
		14			14
SOPHOMORE-SECOND YEAR					
FALL SEMESTER			SPRING SEMESTER		
Course #	core	CR	Course #	core	CR
ECE 203: Circuit Analysis I		3	ECE 213: Circuit Analysis II		3
ECE: 238L: Comp. Logic Design		4	ECE 206L: instrumentation		2
Phyc 262: General Physics III		3	ECE 300: Advanced Eng. Mathematics		4
Math 264: Calculus III		4	Basic Science or Math Elective		3
English 219: Technical Writing	*WS	3	Humanities	*HU	3
		17			15
JUNIOR-THIRD YEAR					
FALL SEMESTER			SPRING SEMESTER		
Course #	core	CR	Course #	core	CR
ECE 314: Signals and Systems		3	ECE 344L: Microprocessors		3
ECE 321L: Electronics I		4	ECE Completeness Course ECE 322L		4
ECE 340: Probabilistic Methods		3	ECE Completeness Course ECE 360		4
ECE Completeness Course ECE 371		3	ECE Completeness Course ECE 381		3
Social/Behavioral Science	*SB	3	Humanities	*HU	3
		16			17
SENIOR -FOURTH YEAR					
FALL SEMESTER			SPRING SEMESTER		
Course #	core	CR	Course #	core	CR
ECE 419:		3	ECE 420: Senior Design II		3
ECE Completeness Course ECE 345		3	ECE Track Elective**		3
ECE Completeness Course ECE 341		3	Senior Tech Elective***		3
ECE Track Elective**		3			
Fine Arts	*FA	3	Foreign Language	*FL	3
		15			12

◆EE Completeness courses ONLY offered in Fall are ECE 345 (3), ECE 371 (3), and ECE 341 (3).

◆EE Completeness courses ONLY offered in Spring are ECE 322L (4), ECE 360 (3), and ECE 381 (3).

\*See approved list of core electives in the ECE Undergraduate Handbook.

\*\*ECE track electives for Electrical Engineering must be from a listed track.

\*\*\*Senior technical elective is developed in consultation with your academic advisor and can be taken from ECE, Computer Science, Physics, or other engineering-related courses. (\*ECE 231: Intermediate Programming is the only exception)

No grades below a 'C' are allowed in the Electrical Engineering Program.

# Electrical Engineering Graduation Requirements

Effective Fall 2014

Total credit hours: 120; All grades must be C or better

For more information, see the other pages in this Undergraduate Handbook, available online at [www.ece.unm.edu/classes/underGrad.html](http://www.ece.unm.edu/classes/underGrad.html)

## General Education Component

### Written Communication (9 credit)

Engl 101♦, 102 Composition I, II (6)  
Engl 219 Technical Writing (3)

### Area of Knowledge (18 credits)

Core Social/Behavioral Science Elect. (3)  
Econ 105 or 106 (Social & Beh. Science) (3)  
Core Humanities Elective (6)  
Core Fine Arts Elective (3)  
Core Second-Language Elective (3)

## Mathematics & Sciences Component

### Mathematics (16 credits)

Math 162♦, 163♦, 264 Calculus I, II, III (12)  
Math 316 Differential Equations (3)  
Math 314 Linear Algebra (3)  
ECE 300- Advanced Engineering Mathematics (4)

### Science (13 credits)

Phys 160\*, 161\*, 161L\*, 262\* General Physics (10)  
Chem 121 and Chem 123L\*-General Chemistry (4)  
Basic Science or Mathematics 300 level and above (3)  
(Chem 121 or 122, Bio 110 or 123 or 202, Astr 270 or 271)

## Electrical Engineering Component

### Required (36 credits)

ECE 101 Introduction to ECE (1)  
ECE 131 Programming Fundamentals (3)\*  
ECE 203 Circuit Analysis I (3)\*  
ECE 206L Instrumentation (2)  
ECE 213 Circuit Analysis II (3)  
ECE 238L Computer Logic Design (4)  
ECE 314 Signals & Systems (3)  
ECE 321L Electronics I (4)  
ECE 340 Probabilistic Methods (3)  
ECE 344L Microprocessors (4)  
ECE 419 Senior Design I (3)  
ECE 420 Senior Design II (3)

### EE Completeness (19 credits)

ECE 322L Electronics II (4)  
ECE 345 Intro to Control Systems (3)  
ECE 360 Electromagnetic Fields & Waves (3)  
ECE 371 Materials & Devices (3)  
ECE 341 Intro to Communication Systems (3)  
ECE 381 Intro to Power Systems (3)

### Track Electives (6 credits - depth)

Two courses from six tracks (6). The available tracks are:

- Digital Systems
- Electromagnetics
- Microelectronics
- Optics
- Power/Energy Systems
- Signals and Systems
- Systems and Controls

### Technical Elective (3 credits - breadth)

~~ECE technical elective (9)~~ ECE Technical Elective (3)  
Approved 300-level and above courses may include ECE 231,  
Intermediate Programming (3). Consult with the advisor.

.....  
*Eighteen hours of prerequisite technical courses must be completed prior to applying to the department. A GPA of 2.50 or better on prerequisite coursework is required for admission into the department, and a student's overall GPA must not fall below 2.0*

♦ Denotes required prerequisites that must be completed prior to applying for admission to ECE.

\* Ten additional hours of prerequisite course work must be chosen from these courses

## **Bachelor of Science in Electrical Engineering**

- A change from 129 credit hours to 120 credit hours. The plan to make this a reality is as follows:
  - Remove six (6) credit hours
    - Math 316- Applied Ordinary Differential Equations (3 credit hours)
    - Math 314- Linear Algebra (3 credit hours)
  - Add four (4) credit hours
    - ECE 300- Advanced Engineering Math- First and second order Ordinary Differential Equations are solved with various methods including Laplace Transforms, matrices, eigenvalues and other techniques involving linear algebra. Applications will be emphasized using MATLAB. (Currently being offered as ECE 495.013)
  - Add additional options for the Basic Science requirement. They will remove a single (1) credit hour from the lab since it will no longer be required. Also the math courses are typically three (3) credit hours only. They are as follows:
    - Chem 121 or 122
    - Bio 110 or 123 or 202
    - Astr 270 or 271
    - OR an additional math course at 300 level and above
    - **NOTE: Originally, the requirement consisted of Chem 121 with the 123L. This will allow for more options that will lead to broader master degree programs.**
  - Remove six (6) credit hours of Technical Electives
    - Before, BSEE required nine (9) credit hours of technical electives
    - Now, BSEE will require three (3) credit hours of technical electives
- **In Total, the degree program will be reduced by nine (9) credit hours**
  - Remove Math 316 and 314- Six Credit hours
  - Add ECE 300- four (4) credit hours
  - Remove Science Lab requirement- one (1) credit hour
  - Remove two technical electives – Six (6) credit hours
  - **Total hours removed- Nine (9) credit hours**

These actions will allow the degree to move to 120 credit hours without touching the Electrical and Computer Engineering Core Curriculum requirements. The changes are highlighted in yellow on the course curriculum sheet below.

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Effective **Fall 2014** (120 hours)  
UNM Core Curriculum, Fall 2014

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ECE 131: Programming Fundamentals		3	Phyc 161L: General Physics II Lab		1
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ECE Completeness Course ECE 371		3	ECE Completeness Course ECE 381		3
Social/Behavioral Science	*SB	3	Humanities	*HU	3
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ECE 344L Microprocessors (4)  
ECE 419 Senior Design I (3)  
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