

**DEGREE/PROGRAM CHANGE  
FORM C  
Form Number: C1365**

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 Computer 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)

[CompE-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)  
See Attached documentation

[CompE-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)

[CompE-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 Computer Engineering Curriculum

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

FRESHMAN YEAR					
FALL SEMESTER			SPRING SEMESTER		
Course #	core	Cr	Course #	core	Cr
MATH 162: Calculus I		4	MATH 163: Calculus II		4
ECE101: Intro to ECE		1	ECE 231: Intermediate Programming		3
ECE 131: Programming Fundamentals		3	PHYS161: General Physics		3
PHYS160: General Physics	*PNS	3	PHYS161L: General Physics Lab	*PNS	1
<i>ENGL 101: Composition I</i>	*WS	3	<i>ENGL 102: Composition II</i>	*WS	3
<b>Total</b>		<b>14</b>	<b>Total</b>		<b>14</b>
SOPHOMORE YEAR					
FALL SEMESTER			SPRING SEMESTER		
Course #	core	Cr	Course #	core	Cr
ECE 203: Circuit Analysis I		3	ECE 206L: Instrumentation		2
ECE 238L: Computer Logic Design		4	ECE 213: Circuit Analysis II		3
Basic Science with Laboratory	*PNS	4	ECE 300: Advanced Eng. Mathematics		4
ENGL 219: Technical Writing	*WS	3	MATH 264: Calculus III		4
<i>ECON 105 or 106 * Macro/Microeconomics</i>	*SB	3	ECE 330: Software Design <i>(Spring Only)</i>		3
<b>Total</b>		<b>17</b>	<b>Total</b>		<b>16</b>
JUNIOR YEAR					
FALL SEMESTER			SPRING SEMESTER		
Course #	core	Cr	Course #	core	Cr
ECE 314: Signals and Systems <i>(Fall Only)</i>		3	ECE 331: Data Structure Alg. <i>(Spring Only)</i>		3
ECE 321L: Electronics I <i>(Fall Only)</i>		4	ECE 344L: Microprocessors		4
MATH 327: Discrete Structures		3	ECE Track Elective**		3
ECE 340: Probabilistic Methods		3			
<i>Foreign Language Core*</i>	*FL	3	<i>Soc/Beh Science Core Elective</i>	*SB	3
<b>Total</b>		<b>16</b>	<b>Total</b>		<b>13</b>
SENIOR YEAR					
FALL SEMESTER			SPRING SEMESTER		
Course #	core	Cr	Course #	core	Cr
ECE 419: Senior Design I <i>(Fall Only)</i>		3	ECE 420: Senior Design II <i>(Spring Only)</i>		3
ECE 437: Operating Systems <i>(Fall Only)</i>		3	ECE 440: Comp. Networks <i>(Spring Only)</i>		3
ECE Track Elective**		3	Senior Technical Elective***		3
Senior Technical Elective***		3	<i>Humanities Core Elective*</i>	*HU	3
<i>Humanities Core Elective*</i>	*HU	3	<i>Fine Arts Core*</i>	*FA	3
<b>Total</b>		<b>15</b>	<b>Total</b>		<b>15</b>

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

\*\*ECE track electives for Computer Engineering consist of ECE 338 and 438, or ECE 335 and 435

\*\*\*Senior technical electives are developed in consultation with your academic advisor and can be taken from ECE, Computer Science, Physics, or other engineering-related courses.

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

Updated December 11, 2013

# BS Computer Engineering Graduation Requirements

**Effective Fall 2014**

Total credit hours: 120; All grades must be C or better in the Computer Engineering Program  
For more information, see the ECE Undergraduate Handbook at [www.ece.unm.edu/classes/undergrad.html](http://www.ece.unm.edu/classes/undergrad.html)

## General Education Component

### Written Communication (9 credits)

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 (19 credits)

Math 162♦, 163♦, 264 Calculus I, II, III (12)  
Math 316 Differential Equations (3)  
Math 314, 321 or 375  
—Linear Algebra or Numerical Computing (3)  
Math 327 Discrete Mathematics (3)  
ECE 300- Advanced Engineering Mathematics

### Science (11 credits)

Phys 160\*, 161\*, 161L\*, General Physics (7)  
Additional approved basic sciences:\* (4)  
(Biol 110 w/112L, 123 w/124L, 201, 202; Chem 121 w/  
123L; Phys 262 w/262L; or Astr 270 w/270L, 271 w/271L)

## Computer Engineering Component

### Required (51 credits)

ECE 101 Introduction to ECE (1)  
ECE 131 Programming Fundamentals (3)\*  
ECE 231 Intermediate Programming (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 330 Software Design (3)  
ECE 331 Data Structures & Algorithms (3)  
ECE 337 Computer Architecture & Organization (3)  
ECE 340 Probabilistic Methods (3)  
ECE 344L Microprocessors (4)  
ECE 437 Operating Systems (3)  
ECE 440 Computer Networks (3)  
ECE 419 Senior Design I (3)  
ECE 420 Senior Design II (3)

### Track Electives (6 credits)

#### Hardware Emphasis

ECE 338 Intermediate Logic Design (3)  
ECE 438 Design of Computers (3)

--or--

#### Software Emphasis

ECE 335 Integrated Software Systems (3)  
ECE 435 Software Engineering (3)

### Technical Electives (6 credits)

ECE technical elective (6)  
Approved 300-level and above courses developed in  
consultation with your faculty advisor

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

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

Eighteen hours of prerequisite courses must be completed prior to applying to the department.

A GPA of 2.5 or better on prerequisite coursework is required for admission to the department. A student's overall GPA must not fall below 2.0.



## **Bachelor of Science in Computer Engineering**

- A change from 128 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)
  - Remove ECE 377- Computer Architecture and Design. This is a course that has been broken down and inserted into other courses (i.e. ECE 238L Computer Logic Design).
  - Remove three (3) credit hours of Technical Electives
    - Before, BSCPE required nine (9) credit hours of technical electives
    - Now, BSCPE will require six (6) 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 ECE 337- Three (3) Credit hours
  - Remove two technical electives – Three (3) credit hours
  - **Total hours removed- Eight (8) 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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ECE 131: Programming Fundamentals		3	PHYS161: General Physics		3
PHYS160: General Physics	*PNS	3	PHYS161L: General Physics Lab	*PNS	1
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ECE 321L: Electronics I <i>(Fall Only)</i>		4	ECE 344L: Microprocessors		4
MATH 327: Discrete Structures		3	ECE Track Elective**		3
ECE 340: Probabilistic Methods		3			
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ECE 437: Operating Systems <i>(Fall Only)</i>		3	ECE 440: Comp. Networks <i>(Spring Only)</i>		3
ECE Track Elective**		3	Senior Technical Elective***		3
Senior Technical Elective***		3	<i>Humanities Core Elective*</i>	*HU	3
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ECE 321L Electronics I (4)  
ECE 330 Software Design (3)  
ECE 331 Data Structures & Algorithms (3)  
ECE 337 Computer Architecture & Organization (3)  
ECE 340 Probabilistic Methods (3)  
ECE 344L Microprocessors (4)  
ECE 437 Operating Systems (3)  
ECE 440 Computer Networks (3)  
ECE 419 Senior Design I (3)  
ECE 420 Senior Design II (3)

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