ELECTRICAL & COMPUTER ENGINEERING

4 Year Roadmap
Bachelor of Science Electrical Engineering
Beginning Fall 2019 Catalog

Course Subject and Title	Cr.	Pre-Admit Req	Gen. Ed (formerly Core)	Can be taken at CNM	Min. Grade	CNM equivalents
Semester One:						
ENGL 1120 [120]: Compostion II	3	Y	COMM	Y	C	ENGL 1102
MATH 1512 [162]: Calculus I	4	Y	MTH	Y	C	MATH 1710
PHYS 1310 [160]: Calc-based Phys I	3	*	GE-choice	Y	C	PHYS 1710
ECE 101: Intro to ECE	1	*		N	C	
ECE 131L: Programming Fundamentals	4	*		Y	C	CSCI 1151 or CIS 1275+2275
PHYS 1311: Problems in PHYS I	1			N/A	N/A	Recommended
Total:	**15**					
Required Advisement: Attend orientation follow-up appointment and Intro to UNM Workshop						
Things to Consider: Attend SOE Career Fair						
Semester Two:						
MATH 1522 [163] : Calculus II	4	Y	GE-choice	Y	C	MATH 1715
PHYS 1320: Calc-based Physics II	3	*	PNS	Y	C	PHYS 1810
PHYS 1320L: Calc-based Physics II Lab	1	*	PNSL	Y	C	PHYS 1892
ENGL 2210: Prof. & Tech. Writing	3		COMM	Y	C	ENGL 2219
ECON 2110/2120[105/106]: Macro or Micro	3		SB	Y	C	ECON 2200/2201
PHYS 1321: Problems in PHYS II	1			N/A	N/A	Recommended
Total:	**14**					
Required Advisement: Attend Degree Planning Workshop						
Things to Consider: Join a student organization ess.unm.edu, ieee.unm.edu						
Semester Three:						
ECE 203: Circuits I	3	*		Y	C	ENGR 2910 or ELEC 1004
ECE 238L: Computer Logic Design	4	*		N	C	
MATH 2530 [264]: Calculus III	4	*		Y	C	MATH 2710
PHYS 2310 [262]: Calc-based Physics III	3	*		Y	C	PHYS 2710
PHYS 2311: Problems in PHYS III	1			N/A	N/A	Recommended
Total	**14**					
Required Advisement: Attend Department Orientation (if pre-admit reqs are complete), or Pre-major Advisement.						
Things to Consider: study abroad or national exchange, geo.unm.edu						
Semester Four:						
ECE 213: Circuits II	3	*		Y	C	ENGR 2915
ECE 300: Advanced Eng. Mathematics	4			Y	C	MATH 2810 + 2910
ECE 206L: Instrumentation	2	*		Y	C	ELEC 1092
Basic Science or Math Elective	3	*		Y	C	See audit for options
Humanities #	3		HUM	Y	C	See audit for options
Total	**15**					
Required Advisement: Attend Faculty Advisement						
Things to Consider: Summer Internships						
Semester Five:						
ECE 314L: Signals and Systems	4			N	C	
ECE 321L: Electronics I Fall Only	4			N	C	
ECE 340: Probabilistic Methods	3			N	C	
ECE 371: Materials and Devices Fall Only	3			N	C	
Second Language #	3		SL	Y	C	See audit for options
Total	**17**					
Required Advisement: Attend Faculty Advisement						
Things to Consider: Apply to 4+1 Shared Credit						
Semester Six:						
ECE 322L: Electronics II Spring Only	4			N	C	
ECE 344L: Microprocessors	4			N	C	
ECE 360: EM Flds & Waves Spring Only	4			N	C	
ECE 381: Intro Elec. Power Sys. Spring Only	3			N	C	
Total	**15**					
Required Advisement: Attend Faculty Advisement						
Apply for graduation. Schedule an appointment with an Academic Advisor						
Semester Seven:						
ECE 341: Intro to Comm. Systems	3			N	C	
ECE 345/ME 380 Intro to Control Syst.	3			N	C	
ECE 419: Senior Design I	3			N	C	
ECE Track Elective	3			N	C	See audit for options
Art and Design	3		AD	Y	C	
Total	**15**					
Required Advisement: Attend Faculty Advisement						
Things to Consider: Apply for Graduate School, start gathering letters of recommendation						
Semester Eight:						
ECE 420: Senior Design II	3			N	C	
ECE Track Elective	3			N	C	See audit for options
ECE Tech Elective	3			N	C	See audit for options
Diversity	3			N	C	See audit for options
Elective any course	3			N	C	
Total	**15**					
Required Advisement: Attend Faculty Advisement						
Sign up for commencements/convocation graduation.unm.edu						
Degree Total	**120**					

General Education Component (15 credit hours)

Writing and Speaking: (6 credit hours)	ENGL 1120 Composition III (3) & ENGL 2210 Tech Writing (3) **Students that test out of ENGL 1120 will need to replace the credit hours with another writing/speaking course.*
Social/Behavioral: (3 credit hours)	ECON 2110/2120: Macro or Micro
Humanities: (3 credit hours)	3 credit (one course) your choice. See approved list of general education electives in the UNM Course Catalog, or LoboTrax degree audit.
Art and Design: (3 credit hours)	3 credits (one course) your choice. See approved list of general education electives in the UNM Course Catalog, or LoboTrax degree audit.
Second Language: (3 credit hours)	3 credits (one course) your choice. See approved list of general education electives in the UNM Course Catalog, or LoboTrax degree audit.

Mathematics (12 credit hours)

MATH 1512*, MATH 1522*, MATH 2530* Calculus I, II and III

Science (13 credit hours)

PHYS 1310*, PHYC 1320*, 1320L*, 2310* Physics I, II and II lab & III

Basic Science or Mathematics (3 credit hours)*: MATH 300 level or above (3 credit hours) or, CHEM 1215, 1225, BIOL 1110, 1140, ASTR 2110, 2115

Diversity (3 credit hours)

The U.S. & Global Diversity & Inclusion undergraduate requirement promotes a broad-scale understanding of the culture, history or current circumstance of diverse groups of people who have experienced historic and/or contemporary inequitable treatment in the U.S. or in a global context. See LoboTrax for full list of courses.
# Denotes UNM general education courses that may be double counted to satisfy both.

ECE Departmental Admission Criteria (pre-major to degree seeking)

ENGL 1110 or above, MATH 1512 &1522, plus an additional 10 credit hours of MATH and Science-based courses (technical courses) with a minimum 2.5 GPA in these courses. A 2.2 cumulative GPA is also required.
* Denotes courses that qualify for ECE departmental admission
Students must be admitted as ECE degree seeking to take 300 and 400-level courses.

For more information see the catalog at catalog.unm.edu

Department Website: ece.unm.edu

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Electrical Engineering Requirements (62 Credit Hours)

ECE 101 Introduction to ECE (1)*
ECE 131L Programming Fundamentals (4)*
ECE 203 Circuit Analysis I (3)*
ECE 206L Instrumentation (2)
ECE 213 Circuit Analysis II (3)
ECE 238L Computer Logic Design (4)
ECE 300 Advanced Engineering Mathematics (4)
ECE 314L Signals & Systems (4)
ECE 321L Electronics I (4)
ECE 322L Electronics II (4)
ECE 340 Probabilistic Methods (3)
ECE 341 Intro to Communication Systems (3)
ECE 344L Microprocessors (4)
ECE 345 Intro to Control Systems (3)
ECE 360 Electromagnetic Fields & Waves (4)
ECE 371 Materials & Devices (3)
ECE 381 Intro to Power Systems (3)
ECE 419 Senior Design I (3)
ECE 420 Senior Design II (3)

ECE Track Electives (6 hours)

Two courses from one of the following available tracks (6):
Digital Systems: ECE 338 & 438 or ECE 231 and 331
Electromagnetics: ECE 460 & 469, or ECE 495 Comp. Methods & ECE 495 Plasma Physics
Microelectronics: ECE 471 & 474L or 421 & 424
Optoelectronics: ECE 471 & 475
Power/Energy Systems: 2 courses from ECE 482, 483, 484, 488, 489
Signals and Communications: ECE 439 & 442
Systems and Controls: ME 481 & ECE 446

ECE Technical Electives (3 credit hours)

ECE Technical Elective (3 credits) one course can be taken from ECE 300-400 level courses, or any Engingeering course; ME, CE, CS, NE, CHME, MATH or PHYC. This should be decided in consultation with your faculty advisor. See UNM Course Catalog for the full list of course options.

Important Notes

1) * Denotes courses that qualify for ECE departmental admission
2) # Denotes UNM general education courses that may be double counted to satisfy both UNM Gen. Ed. (formerly Core) and Diversity.
3) Cells filled with Grey represent courses that complete UNM Gen. Edu (formerly UNM Core)
4) Beginning Fall 2019 the State of New Mexico requires that most 100- and 200- level courses across all institutions of higher learning share common course numbers (CCNs). This curriculum sheet identifies UNM's old course number in brackets [ ].