



# Bachelor of Science in Computer Engineering (BSCpE)

## Academic Plan of Study

William States Lee College of Engineering  
Department of Electrical and Computer Engineering  
[ece.uncc.edu](http://ece.uncc.edu)

### PROGRAM SUMMARY

- **Credit Hours:** 124 hours
- **Concentrations:** None
- **Declaring the Major:** Minimum GPA of 2.0 required if already in the College of Engineering, 2.5 if transferring from outside of the College of Engineering; must have completed freshman year requirements. For freshman and transfer admission requirements; and the online application, please visit the UNC Charlotte's Undergraduate Admissions website at <http://admissions.uncc.edu>.
- **Advising (For the Major):** Required, college advisors for freshmen or departmental advisors for sophomore-seniors.
- **Advising (For General Education):** by CLAS advising center.
- **Minimum Grades/GPA:** GPA of 2.0 overall and in the major required for graduation.
- **Teacher Licensure:** No
- **Evening Classes Available:** Some but need to take day classes to complete requirements.
- **Weekend Classes Available:** No
- **Other Information:** College Internships, Co-ops, Leadership Academy, Freshmen Learning Community.
- **Contact(s):** Ms. Jerena McNeil Undergraduate Student Services Specialist ([jmcnei34@uncc.edu](mailto:jmcnei34@uncc.edu), 704-687-8445, EPIC 2242)

### PROGRAM REQUIREMENTS

The Bachelor of Science in Computer Engineering (B.S.Cp.E.) degree has a very structured curriculum. An eight-semester sequence of courses at more than a full-time load forms the core of the curricula to develop the concepts and design and analysis techniques fundamental to the various areas of specialization. This program should be initiated early while at UNC Charlotte. Beginning the program late or after transferring from another institution will likely delay completion within 4 years. Students interested in majoring in Computer Engineering must complete all freshman level courses with a C or above and earn a minimum GPA of 2.5 before completing a Change of Major form to apply to the program.

Emphasis is placed on the utilization of computers throughout the curricula. Our graduates have a wide range of job opportunities as power engineers, communication engineers, digital design engineers, test engineers, embedded system developers, network engineers, control engineers, project engineers, robotic system engineers, optoelectronic engineers, application engineers, analog engineers, medical product engineers, and process engineers.

Areas	Credit Hours	Description
<b>Pre-Major/ Prerequisites</b>	24	8 hours natural science (CHEM 1251+Lab, PHYS 2101+Lab), 6 hours mathematics (MATH 1241, MATH 1242), 4 hours of introduction to engineering (ENGR 1201, ENGR 1202), and ECGR 2103 and ECGR 2104.
<b>Major</b>	44	
<b>General Education (not satisfied by other major requirements)</b>	18	3 or 4 hours English (UWRT 1103 or UWRT 1104), 12 hours Liberal Studies (LBST 11xx, LBST 2301, and two of LBST 2101, LBST 2102, LBST 22XX), and 3 hours Social Sciences (ECON 2101 or ECON 2102)
<b>Related Work</b>	20	15 hours Mathematics (MATH 2171, MATH 1165, MATH 2241, MATH 2164, STAT 3128), 4 hours Natural Sciences (PHYS 2102+Lab), 1 hour Engineering (ENGR 3295)
<b>Foreign Language</b>	-	
<b>Electives</b>	18	9 hours depth elective requirements, 9 hours technical elective requirements
<b>Total Credit Hours</b>	124	

### Computer Engineering – Technical Electives

The Fall 2015 B.S.Cp.E. curriculum requires nine (9) hours of technical electives. Six (6) credits of these electives must be chosen from among any 4000 level or higher ECGR course that is not required as part of the curriculum. The remaining three (3) credits may be chosen from among any 3000 level and higher ECGR, MATH, PHYS, or ITCS course that is not part of the degree requirements, with prior approval of the student’s academic advisor. Co-op students may count up to three (3) hours of ECGR 3695 co-op course toward their technical elective requirements. Individual study, and undergraduate research courses may not be taken as technical electives.

### Computer Engineering - Depth Electives

The Fall 2015 B.S.Cp.E. curriculum requires nine (9) hours of depth electives. These electives must be chosen exclusively from the courses in the list below. Individual study, and undergraduate research courses may not be taken as depth electives.

ECGR 4090	Special Topic (approved case-by-case)
ECGR 4103	Applied Computer Graphics
ECGR 4111	Control Systems Theory I
ECGR 4123	Analog/Digital Communication
ECGR 4131	Linear Integrated Electronics
ECGR 4146	Introduction to VHDL
ECGR 4161	Introduction to Robotics
ECGR 4181	Computer Arithmetic
ECGR 4187	Data Communications
ECGR 4422	Random Processes and Optimum Filtering

# SUGGESTED PLAN OF STUDY

Freshman Year					
Course Number	Course Title	Credit Hours	General Education	W/O Course	Notes
<i>Fall Semester</i>					
LBST 110X	LBST 1100 Series: Arts and Society	3	X		
ENGR 1201	Introduction to Engineering Practices and Principles I	2			
CHEM 1251	Principles of Chemistry	3	X		
CHEM 1251L	Principles of Chemistry Lab	1	X		
ECGR 2103	Computer Utilization in C++	3			
MATH 1241	Calculus I	3	X		
<i>Spring Semester</i>					
UWRT 1103	Writing and Inquiry in Academic Contexts I & II (Or UWRT 1104)	3	X		
ENGR 1202	Introduction to Engineering Practices and Principles II	2			
PHYS 2101	Physics for Science and Engineering I	3	X		
PHYS 2101L	Physics for Science and Engineering I Lab	1			
ECGR 2104	Computer Engineering Programming II	3			
MATH 1242	Calculus II	3	X		

30 Credit Hours for Year

Sophomore Year					
Course Number	Course Title	Credit Hours	General Education	W/O Course	Notes
<i>Fall Semester</i>					
ECGR 2111	Network Theory I	3			
ECGR 2155	Instrumentation and Networks Laboratory	1		W	
ECGR 2181	Logic Systems Design I	3			
MATH 2171	Differential Equations	3			
PHYS 2102	Physics for Science and Engineering II	3			
PHYS 2102L	Physics for Science and Engineering II Lab	1			
<i>Spring Semester</i>					
ECGR 2112	Network Theory II	3			
ECGR 2156	Logic and Networks Laboratory	1		W	
ECGR 2252	ECE Sophomore Design	2		O	
MATH 2241	Calculus III	3			
MATH 2164	Matrices and Linear Algebra	3			
LBST 2301	Critical Thinking and Communication	3	X		

29 Credit Hours for Year

Junior Year					
Course Number	Course Title	Credit Hours	General Education	W/O Course	Notes
<i>Fall Semester</i>					
ECGR 3111	Signals and Systems	3			
ECGR 3131	Fundamentals of Electronics and Semiconductors	3			
ECGR 3155	Systems and Electronics Lab	1		W	
ECGR 3183	Computer Organization	3			
MATH 1165	Introduction to Discrete Structures	3			
LBST 2XXX	Liberal Studies Course (LBST 2101, LBST 2102, or LBST 22XX)	3	X		
<i>Spring Semester</i>					
ECGR 3101	Embedded Systems	3		O	
ECGR 3123	Data Communications and Networking	3			
ECGR 3132	Electronics	3			
ECGR 3157	ECE Junior Design	2			
ECON 2101	Principles of Econ. Macro or ECON 2102 Principles of Econ. Micro	3	X		
LBST 2XXX	Liberal Studies Course (LBST 2101, LBST 2102, or LBST 22XX)	3	X		

33 Credit Hours for Year

Senior Year					
Course Number	Course Title	Credit Hours	General Education	W/O Course	Notes
<i>Fall Semester</i>					
ECGR 4251	Computer Engineering Senior Design I	2		W,O	
XXXX XXXX	Depth Elective #1	3			
ECGR 4XXX	Technical Elective #1	3			
ECGR 4124	Digital Signal Processing	3			
ENGR 3295	Professional Development	1			
STAT 3128	Probability & Statistics for Engineers	3			
<i>Spring Semester</i>					
ECGR 4252	Computer Engineering Senior Design II	3		W,O	
ECGR 3159	Professional Practice	2			
XXXX XXXX	Depth Elective #2	3			
XXXX XXXX	Depth Elective #3	3			
ECGR 4XXX	Technical Elective #2	3			
ECGR 4XXX	Technical Elective #3	3			

32 Credit Hours for Year

## **ADVISING RESOURCES**

- General Education Requirements for ALL Students: [ucol.uncc.edu/general-education](http://ucol.uncc.edu/general-education)
- Undergraduate Catalog: [catalog.uncc.edu](http://catalog.uncc.edu)
- Central Advising website: [advising.uncc.edu](http://advising.uncc.edu)
- William States Lee College of Engineering advising website: [coe.uncc.edu/current-students/advising.html](http://coe.uncc.edu/current-students/advising.html)
- University Advising Center website: [advisingcenter.uncc.edu](http://advisingcenter.uncc.edu)