



B.S. in Computer Engineering & Physics (dual degree) Academic Plan of Study

*William States Lee College of Engineering + College of Liberal Arts & Sciences
Dept. of Electrical and Computer Engineering + Dept. of Physics & Optical Science
ece.uncc.edu & physics.uncc.edu*

PROGRAM SUMMARY

- **Credit Hours:** 131 hours
- **Concentrations:** No
- **Declaring the Major:** Students should declare a dual degree in Physics and Engineering by their sophomore or junior year.
- **Advising (For the Major):** (Engineering) Mrs. Nikki Redman, nreynol5@uncc.edu or another Engineering advisor; (Physics) Dr. Tom Suleski, tsuleski@uncc.edu
- **Advising (For General Education):** Engineering Advisor
- **Minimum Grades/GPA:** Students must have a 2.0 or higher average in Physics courses to graduate. A “C” or better is required in most PHYS classes before students can progress to the next PHYS course. Students must have a 2.0 overall GPA as well as in engineering courses.
- **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):** (Engineering) Mrs. Nikki Redman Undergraduate Student Services Specialist (nreynol5@uncc.edu, 704-687-8445, EPIC 2242); (Physics) Dr. Tom Suleski, tsuleski@uncc.edu

PROGRAM REQUIREMENTS

To obtain a dual B.S. degree in Computer Engineering and Physics, an undergraduate student must complete all requirements for the B.S.Cp.E. degree as established by the Department of Electrical and Computer Engineering. In addition, the student must complete 12 hours of upper division physics courses specified by the Department of Physics and Optical Science with an average grade of C or above. To meet the upper-division physics requirements, students must complete the following courses: PHYS 3121 (Classical Mechanics), PHYS 3141 (Introduction to Modern Physics), PHYS 4231 (Electricity and Magnetism), PHYS 4241 (Quantum Mechanics). **Students must also complete MATH 2241.** A B.S. in Physics under this program will be awarded at the same time as or after the B.S.Cp.E.; the B.S. Physics degree will not be awarded in advance of the engineering degree. Dual degree students complete the “W” in the major requirement through their Engineering degree requirements. Students in this dual degree program are not required to fulfill the College of Liberal Arts & Sciences foreign language requirement (see the CLAS General Education section in the *Undergraduate Catalog* for additional information).

Areas	Credit Hours	Description
Pre-Major/Prerequisites	-	
Major (Engineering)	54	
Major (Physics)	12*	These hours are in addition to physics classes required by the engineering major
General Education <i>(not satisfied by other major requirements)</i>	24	6 hours English (ENGL 1101, ENGL 1102), 12 hours Liberal Studies (LBST 11xx, LBST 2101, LBST 2102, LBST 22xx), 3 hours Social Sciences (ECON 2101), and 3 hours Writing Intensive (W) Requirement
Related Work	38	15 hours Mathematics (MATH 1241, MATH 1242, MATH 2171, MATH 1165, STAT 2122), 12 hours Natural Sciences (PHYS 2101+Lab, PHYS 2102+Lab, CHEM 1251+Lab), 3 hours Science or Math Restricted Elective (Mathematics, statistics, or natural sciences at a higher level than in Plan of Study), 5 hours Engineering (ENGR 1201, ENGR 1202-E, ENGR 3295), 3 hours Advanced Problem Solving (Any of MATH 2164, 2241, 3116, 3166; OPRS 3111, 3113; PHYS 3121, 3141)
Foreign Language	-	
Electives	9	6 hours Depth Elective Requirements, 3 hours Restricted Elective
Total Credit Hours	131	*3 credit hours may be used to fulfill Science Restricted Elective requirement, and 3 credit hours may be used to fulfill Restricted Elective requirement.

SUGGESTED PLAN OF STUDY

Freshman Year

Course Number	Course Title	Credit Hours	General Education	W/O Course	Notes
<i>Fall Semester</i>					
ENGL 1101	Writing and Inquiry in Academic Contexts I	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			*new course listing beginning Fall 2012
MATH 1241	Calculus I	3	X		
<i>Spring Semester</i>					
ENGL 1102	Writing and Inquiry in Academic Contexts II	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			*new course listing beginning Fall 2012
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			
LBST 110X	LBST 1100 Series: Arts and Society	3	X		
<i>Spring Semester</i>					
ECGR 2112	Network Theory II	3			
ECGR 2156	Logic and Networks Laboratory	1		W	
ECGR 3181	Logic System Design II	3			
MATH 1165	Introduction to Discrete Structures	3			
STAT 2122	Probability and Statistics	3			
ECON 2101	Principles of Economics Macro	3	X		Fulfills Social Science General Edu Requirement

33 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	
ENGR 3295	Professional Development	1			
ECGR 3183	Computer Organization	3			
LBST 2101	Western Cultural and Historical Awareness	3	X		
LBST 221X	LBST 2200 Series: Ethical Issues and Cultural Critique	3	X		
<i>Spring Semester</i>					
ECGR 2255	Digital Design Laboratory	2			
ECGR 3123	Data Communications and Networking	3			
ECGR 3132	Electronics	3			
PHYS 3141	Intro to Modern Physics (Math or Science Restricted Elective)	3			(Available Summer also)
MATH 2241	Calculus III (Advanced Problem Solving)	3			
LBST 2102	Global and Intercultural Connections	3	X		

34 Credit Hours for Year

Senior Year

Course Number	Course Title	Credit Hours	General Education	W/O Course	Notes
<i>Fall Semester</i>					
ECGR 3253	Senior Design I	2		W,O	
XXXX XXXX	2XXX Level Writing Intensive	3	X	W	
ECGR 4101	Embedded Systems	3			
ECGR 4146	Introduction to VHDL	3			
PHYS 3121	Classical Mechanics I	3			
<i>Spring Semester</i>					
ECGR 3254	Senior Design II	3	X	W,O	
ECGR 3159	Professional Practice	2			
ECGR 4124	Digital Signal Processing	3			
XXXX XXXX	Depth Elective #1	3			
PHYS 4231	Electromagnetic Theory I (Restricted Elective)	3			

28 Credit Hours for Year

Additional Semester

Course Number	Course Title	Credit Hours	General Education	W/O Course	Notes
<i>Fall Semester</i>					
PHYS 4241	Quantum Mechanics I	3			
XXXX XXXX	Depth Elective #2	3			

6 Credit Hours for Year

Other layouts are possible, particularly with summer courses. For whatever layout students choose, they must abide by the prerequisites and progression policies of both departments.

ADVISING RESOURCES

- General Education Requirements for ALL Students: ucol.uncc.edu/general-education
- Undergraduate Catalog: catalog.uncc.edu
- Central Advising website: advising.uncc.edu
- College of Liberal Arts & Sciences advising website: clas.uncc.edu/students/Advising-News/
- William States Lee College of Engineering advising website: coe.uncc.edu/current-students/advising.html
- University Advising Center website: advisingcenter.uncc.edu