

ELECTRICAL ENGINEERING - BIOMEDICAL OPTION, BACHELOR OF SCIENCE

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Curriculum

Course	Title	Hours	Completed
Freshman			
Fall			
BIOL 1114	Principles of Biology	4	_____
CHEM 2124 & CHEM 2120	General Chemistry I and General Chemistry I Lab	4	_____
ELEG 1011	Introduction to Electrical Engineering	1	_____
ENGL 1013	Composition I ¹	3	_____
MATH 2914	Calculus I	4	_____
TECH 1001	Orientation to the University	1	_____
	Hours	17	
Spring			
BIOL 2014	Human Anatomy	4	_____
CHEM 2134 & CHEM 2130	General Chemistry II and General Chemistry II Lab	4	_____
ENGL 1023	Composition II ¹	3	_____
MATH 2924	Calculus II	4	_____
	Hours	15	
Sophomore			
Fall			
CHEM 3254	Fundamentals of Organic Chemistry	4	_____
ELEG 2103	Electric Circuits I	3	_____
MATH 3243	Differential Equations I	3	_____
PHYS 2114 & PHYS 2000	Calculus-Based Physics I and Physics Laboratory I	4	_____
	Hours	14	
Spring			
COMS 1011 & COMS 1013	Programming Foundations I Lab and Programming Foundations I	4	_____
ELEG 2111	Electric Circuits Laboratory	1	_____
ELEG 2113	Electric Circuits II	3	_____
SOC 1003	Introductory Sociology	3	_____
USHG 1XXX	U.S. History and Government ¹	3	_____
	Hours	14	
Junior			
Fall			
ELEG 3103	Electronics I	3	_____
MATH 2703	Discrete Mathematics	3	_____
MATH 2934	Calculus III	4	_____

PHYS 2124 & PHYS 2010	Calculus-Based Physics II and Physics Laboratory II	4	_____
Hours		14	
Spring			
ELEG 3123	Signals and Systems	3	_____
ELEG 3143	Electromagnetics	3	_____
ELEG 4103	Electronics II	3	_____
ELEG 4122	Electrical Systems Lab	2	_____
ELEG/MCEG 4202	Engineering Design	2	_____
STAT 3153	Applied Statistics	3	_____
Hours		16	
Senior			
Fall			
ELEG 2130 & ELEG 2134	Digital Logic Design Lab and Digital Logic Design	4	_____
ELEG/MCEG 3003	System Modeling and Analysis	3	_____
ELEG 4113	Digital Signal Processing ²	3	_____
ELEG 4143	Communication Systems I	3	_____
ELEG 4191	Electrical Design Project I	1	_____
PSY 2003	General Psychology	3	_____
Hours		17	
Spring			
BIOL 3074	Human Physiology	4	_____
ELEG 3133	Microprocessor Systems Design	3	_____
ELEG 4192	Electrical Design Project II	2	_____
ELEG 4303	Control Systems	3	_____
FAH 1XXX	Fine Arts and Humanities Courses ¹	3	_____
Hours		15	
Total Hours		122	

¹ See appropriate alternatives or substitutions in "General Education Requirements (<https://catalog.atu.edu/undergraduate/general-education-requirements/>)".

² This program partners the BSEE Biomedical option undergraduate degree with the MSEE degree. A maximum of 12 graduate level credit hours can be counted towards both the BSEE Biomedical option degree in Electrical Engineering and the MSEE degree. Four graduate level courses can be used to replace four upper-division undergraduate courses as follows:

- ELEG 5313 Modern Control Systems can replace ELEG 4313 Modern Control Systems
- ELEG 5113 Digital Signal Processing can replace ELEG 4113 Digital Signal Processing
- ELEG 5153 Communication Systems II can replace ELEG 4153 Communication Systems II
- ELEG 5133 Advanced Digital Design can replace ELEG 4133 Advanced Digital Design
- ELEG 5993 Special Problems in Engineering I can replace ELEG 4993 Special Problems in Engineering

The following courses are not required for the Biomedical Option major; however, they are recommended for application to an advanced medical degree program:

Course	Title	Hours	Completed
Sophomore			
Fall			
BIOL 3034	Genetics	4	_____
Hours		4	
Spring			
CHEM 3264	Mechanistic Organic Chemistry	4	_____
Hours		4	

Junior**Fall**

CHEM 3344	Principles of Biochemistry	4	_____
	Hours	4	

Senior**Spring**

BIOL 4033	Cell Biology	3	_____
	Hours	3	
	Total Hours	15	