

# **BACHELOR OF SCIENCE BIOMEDICAL ENGINEERING**

Biomedical Engineering students develop the ability to design, develop and test systems that combine engineering principles with science and mathematics. Biomedical Engineering provides engaging learning experiences designed to help students pursue careers that examine ways to integrate engineering with science to produce solutions that meet the needs of the public health, safety and welfare of citizens as well as global, cultural, social, environmental and economic factors. Graduates of the program are prepared for careers in a wide variety of fields such as research and development, healthcare, and instrument manufacturing.

*College of  
Science,  
Engineering, &  
Technology*



## COURSE TYPE DESCRIPTIONS

General Education Core	GEC	<b>General Education Core (GEC)</b> courses are courses that every student must take in order to obtain a degree from Jackson State University. GEC courses are essential to every undergraduate degree at Jackson State University. Collectively, there are 30 credit hours of GEC course requirements.
General Education Pathway	PATH	<b>General Education Pathway (PATH)</b> courses are courses that are connected through interdisciplinary themes and are selected at the student's discretion to fulfill the general education curriculum. Through experiential learning and reflective writing, students will have the opportunity to integrate knowledge across courses, develop their skills and an enhanced sense of civic responsibility. Students select nine (9) hours from the pathway of choice. Each pathway concludes with a related one (1) credit hour a University Required (UR) course.
University Required	UR	<b>University Required (UR)</b> courses are courses that are specific to Jackson State University and are designed to integrate students within the Jackson State University community by promoting student success resources, strategies and high impact practices.
Degree Program Requirement	DPR	<b>Degree Program Required (DPR)</b> courses are courses that are required for completion of a degree program within the specified major.
Electives	DPE or GEL	<b>Electives</b> are courses selected at a student's discretion and provide opportunities for students to pursue their academic interests. There are two types of electives. <b>Degree Program Elective (DPE)</b> courses are elective courses that are partially restricted such that students select courses from a specified group of identified courses (e.g., departmental elective courses) to fulfill a particular requirement. <b>General Elective (GEL)</b> courses are courses that may be selected from any program for which the student has fulfilled the proper prerequisites.
Professional Concentrations	PC	<b>Professional Concentration (PC)</b> courses complement Degree Program Required courses and allow students to have a concentrated area of study within the major.



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Biomedical Engineering Technical Electives		
Students must choose nine (9) hours of technical electives from the following list of courses:		
COURSE	COURSE TITLE	CREDIT HOURS
BIO 318 & BIOL 318	Introduction to Environmental Sciences & Lab	4 hours
BIO 393	Introduction to Medical Terminology	3 hours
BIO 443	Biotechnology	3 hours
ECE 355	Control Systems	3 hours
ECE 451	Digital Sign Processing	3 hours
ECE 493	Special Topics	3 hours
Comments: Course substitutions require the Department Chair's approval.		

Student Name: \_\_\_\_\_

J-Number: \_\_\_\_\_

Advisor: \_\_\_\_\_



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Entering Term: \_\_\_\_\_

Expected Graduation Date: \_\_\_\_\_

Pathway: \_\_\_\_\_

FRESHMAN YEAR FALL 1ST SEMESTER					
COURSE	COURSE TITLE	CREDIT HOURS	COURSE TYPE	GRADE	SUCCESS MARKER/NOTE
UNIV 100	University Success	2	UR		
ENG 104	Composition I	3	GEC		
MATH 241	Calculus I	3	GEC		
BIO 111& BIOL 111	General Biology I & Lab	4	GEC		
	Humanities & Fine Arts Option	3	GEC		
	TOTAL CREDIT HOURS	15	TERM GPA:		
Comments:					
FRESHMAN YEAR SPRING 2ND SEMESTER					
COURSE	COURSE TITLE	CREDIT HOURS	COURSE TYPE	GRADE	SUCCESS MARKER/NOTE
ENG 105	Composition II	3	GEC		
MATH 242	Calculus II	3	DPR		
CHEM 141 & CHML 141	General Chemistry I & Lab	4	GEC		
ECE 212 & ECEL 212	Digital Logic & Lab	4	DPR		
	Pathway Option	3	PATH		
	TOTAL CREDIT HOURS	17	TERM GPA:		
Comments:					
SOPHOMORE YEAR FALL 1ST SEMESTER					
COURSE	COURSE TITLE	CREDIT HOURS	COURSE TYPE	GRADE	SUCCESS MARKER/NOTE
MATH 243	Calculus III	3	DPR		
PHY 211 & PHYL 211	General Physics I & Lab	4	DPR		
CSC 118	Computer Science I	3	DPR		
BIO 112 & BIOL 112	General Biology II	4	DPR		
	Pathway Option	3	PATH		
	TOTAL CREDIT HOURS	17	TERM GPA:		
Comments:					
SOPHOMORE YEAR SPRING 2ND SEMESTER					
COURSE	COURSE TITLE	CREDIT HOURS	COURSE TYPE	GRADE	SUCCESS MARKER/NOTE
UNIV 200	Civic Engagement	1	UR		
MATH 244	Calculus IV	3	DPR		
ECE 220 & ECEL 220	Circuit Theory & Lab	4	DPR		
PHY 212 & PHYL 212	General Physics II & Lab	4	DPR		
	Pathway Option	3	PATH		
	TOTAL CREDIT HOURS	15	TERM GPA:		
Comments:					

JUNIOR YEAR FALL 1ST SEMESTER					
COURSE	COURSE TITLE	CREDIT HOURS	COURSE TYPE	GRADE	SUCCESS MARKER/NOTE
ECE312	Computer Organization	3	DPR		
ECE 471	Biomedical Signal Processing	3	DPR		
CHEM 142 & CHML 142	General Chemistry II & Lab	4	DPR		
BIO 470 & BIOL 470	Human Physiology & Lab	4	DPR		
MATH 368	Ordinary Differential Equations	3	DPR		
TOTAL CREDIT HOURS		17	TERM GPA:		
Comments:					
JUNIOR YEAR SPRING 2ND SEMESTER					
COURSE	COURSE TITLE	CREDIT HOURS	COURSE TYPE	GRADE	SUCCESS MARKER/NOTE
ECE 360 & ECEL 360	Embedded Microprocessor & Lab	4	DPR		
ECE 472	Biomedical Materials	3	DPR		
CIV 222	Engineering Analysis	3	DPR		
CHEM 241 & CHML 241	Organic Chemistry I & Lab	4	DPR		
	Humanities & Fine Arts Option	3	GEC		
TOTAL CREDIT HOURS		17	TERM GPA:		
Comments:					
SENIOR YEAR FALL 1ST SEMESTER					
COURSE	COURSE TITLE	CREDIT HOURS	COURSE TYPE	GRADE	SUCCESS MARKER/NOTE
BIO 440 & BIOL 440	Cell Biology & Lab	4	DPR		
ECE 470	Biomedical Instrumentation	3	DPR		
BME 490	Senior Project Design I	3	DPR		
MATH 307	Probability & Statistics	3	DPR		
	Social & Behavioral Science Option	3	GEC		
TOTAL CREDIT HOURS		16	TERM GPA:		
Comments:					
SENIOR YEAR SPRING 2ND SEMESTER					
COURSE	COURSE TITLE	CREDIT HOURS	COURSE TYPE	GRADE	SUCCESS MARKER/NOTE
BME 491	Senior Project Design II	3	DPR		
	Technical Elective I	3	DPE		
	Technical Elective II	3	DPE		
	Technical Elective III	3	DPE		
TOTAL CREDIT HOURS		12	TERM GPA:		
Comments:					

TOTAL HOURS: 126 REQUIRED

Candidates that transfer 12 or more hours of college credit are exempt from UNIV 100: University Success; however, the student must take 2 hours of general electives to replace the UNIV courses.

Student Signature: \_\_\_\_\_ Advisor Signature: \_\_\_\_\_