BIOMEDICAL ENGINEERING

BACHELOR OF SCIENCE IN BIOMEDICAL ENGINEERING

Of approximately 100 Historically Black Colleges and Universities (HBCUs) nationwide, the University of the District of Columbia (UDC) is one of a few with a Bachelor's of Science in Biomedical Engineering (BME)! UDC students have access to unique research and educational opportunities in the state-of-the-art BME laboratory (Center for Biomechanical & Rehabilation Engineering, CBRE) focused on balance and mobility in impaired and unimpaired populations, aids and devices, and injury prevention and treatment.

The overall mission of the BME program is to prepare and equip students to become competitive graduates, meeting the needs and demands of a growing technological era aimed towards solving medical-related problems. BME is a rapidly growing, multidisciplinary field that involves the application of engineering principles and design concepts to solve problems that affect human quality of life. Biomedical Engineers utilize science and engineering to solve a vast array of problems in human health.

The four-year Bachelor of Science in Biomedical Engineering program, in the Department of Mechanical Engineering, enables students to enter the BME workforce upon graduation or to proceed to graduate programs in Biomedical Engineering, Mechanical Engineering, other related fields, and/or medical school.
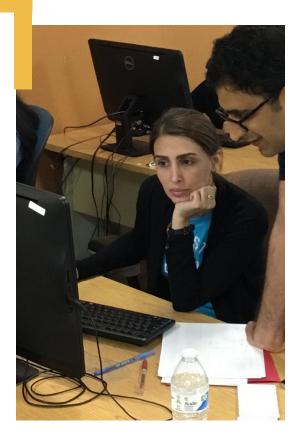
Your total 126-credit-hour curriculum consists of:

General Education Courses …………………...…………...21

Engineering Science and Mathematics Courses ……………40

Engineering Design Courses …………………………….. 50

Biomedical Engineering Design Project/Technical Electives ………………………………………….………15

WHY BIOMEDICAL ENGINEERING AT UDC?

| Affordable and accessible **|** Student-focused campus mission **|** Average class size is small (<15 students) **|** Lower tuition compared to other schools **|** Student scholarship, internship, and research opportunities **|** Convenient to Metropolitan DC Area residents **|** Easy access to world-renowed institutions conducting BME research **|**

What makes UDC's Biomedical Engineering Program different?

The Biomedical Engineering program at UDC is designed with success of the individual student in mind. With smaller class sizes, students will benefit from a personal teaching, research, and educational environment focused on individual attention.

How will my credits transfer?

Once you are enrolled, a Biomedical or Mechanical Engineering faculty member will evaluate your previous academic record and let you know about transfer credits. We have articulation agreements with metropolitan D.C. region community colleges, including Montgomery College and NOVA.

May I speak to a current UDC student?

Absolutely. Contact your faculty advisor to be connected with a continuing or recently graduated student who will share their experience with you.

For more information about Biomedical Engineering visit www.udc.edu/seas or contact:

Department Chair, Dr. Kate Klein
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Program Director, Dr. Lara Thompson
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UNIIVERSITY OF THE DISTRICT OF COLUMBIA
SCHOOL OF ENGINEERING AND APPLIED SCIENCES
Department of Mechanical Engineering
BACHELOR OF SCIENCE IN BIOMEDICAL ENGINEERING
Effective Fall 2019

Student _____   Student ID # _____

First Semester				Second semester			
Course #	Course Name	Credits	Grade	Course #	Course Name	Credits	Grade
IGED-110	Found Writ Arts & Hum	3		IGED-111	Found Writ Soc. & Nat Sc.	3	
IGED-130	Found Oral Comm.	3		IGED-140	Found Ethics & Values	3	
CHEM-111	General Chemistry I Lec	3		MATH-152	Calculus II Lec	3	
CHEM-113	General Chemistry I Lab	1		MATH-156	Calculus II Lab	1	
MATH-151	Calculus I Lec	3		PHYS-201	University Physics I Lec	3	
MATH-155	Calculus I Lab	1		PHYS-205	University Physics I Lab	1	
CCEN-101	Intro to Engineering	2		BMEG-101	Survey of Biomedical Engineering	3	
	Total	16			Total	17	

Third semester				Fourth semester			
Course #	Course Name	Credits	Grade	Course #	Course Name	Credits	Grade
PHYS-202	University Physics II Lec	3		MATH-254	Differential Eq. (or 260)	3	
PHYS-206	University Physics II Lab	1		CVEN-202	Engineering Mechanics II	3	
CVEN-201	Engineering Mechanics I	3		BIOL-101	Biological Science Lec	3	
MECH-107	ME Computer Graphics	3		BIOL-103	Biological Science Lab	1	
BMEG-235	Engineering Software & Prog.	3		MECH-208	Thermodynamics	3	
ELEC-225	Electric Circuits Lec	3		BMEG-301	Bioinstrumentation Lec	3	
ELEC-226	Electric Circuits Lab	1		BMEG-300	Bioinstrumentation Lab	1	
	Total	17			Total	17	

Fifth semester				Sixth semester			
Course #	Course Name	Credits	Grade	Course #	Course Name	Credits	Grade
IGED-210	Discov Expos Writing	3		MATH-253	Calculus III Lec	3	
CVEN-308	Appl. Num Analysis	3		MATH-255	Calculus III Lab	1	
MECH-381	Microcontrollers in ME	3		MECH-351	Heat Transfer Lec	3	
MECH-321	Fluid Mechanics Lec	3		BMEG-302	Prof. Issues in Biomed. Eng.	3	
BIOL-111	Human Anatomy and Physiology Lec	3		BMEG-371	Analysis of Physio. Sys. Lec	3	
				BMEG-373	Analysis of Physio. Sys. Lab	1	
				BMEG-304	Biomechanics	3	
	Total	15			Total	17	

Seventh Semester				Eighth semester			
Course #	Course Name	Credits	Gade	Course #	Course Name	Credits	Grade
IGED-280	Discov Civ/Ser/Team	3		BMEG-492	Capstone Sr. Design Pr. II*	3	
MECH-406	Engineering Economics	3		BMEG-xxx	BMEG Technical Elective**	3	
MATH-381	Probability & Statistics	3		BMEG-xxx	BMEG Technical Elective**	3	
BMEG-491	Capstone Sr. Design Proj I*	3		IGED-270	Discov Loc/Glob Cul	3	
BMEG-405	Biomed. Research & Clinical Exp.	3					
	Total	15			Total	12	
					GRAND TOTAL CREDITS	126	

Advisor Signature_____ Date _____   Student Signature _____ Date _____

1. *Contains intensive writing component
2. **BMEG Technical Electives: BMEG 405, BMEG 402 and/or BMEG 495, and up to one of the following: MECH 302, MECH 465, MECH 473, MECH 478, MECH 483, or MECH 484.
3. A completed copy of this form must accompany each student's Graduation Clearance Form

BIOMEDICAL ENGINEERING COURSE Co/Pre-Requisite List

Course No	Course Name	Co-Req	Pre-Requisite
CVEN-201	Engineering Mechanics-I	-	PHYS-201
CVEN-202	Engineering Mechanics-II	-	CVEN-201
BIOL-101	Biological Science Lec	BIOL 103	-
BIOL-103	Biological Science Lab	BIOL 101	-
MECH-208	Thermodynamics	-	PHYS-201
ELEC-225	Electrical Circuits	ELEC-226	PHYS-201
BMEG-301	Bioinstrumentation Lec	BMEG-300	ELEC-225/226 or by permission of instructor
BMEG-300	Bioinstrumentation Lab	BMEG-301	-
BMEG-302	Professional Issues in Biomedical Engineering	-	Junior standing, or by permission of instructor.
BMEG-304	Biomechanics	-	CVEN-201, CVEN-202
MECH-381	Microcontrollers in ME	-	ELEC-225, jr standing
BIOL-111	Human Anatomy and Physiology Lec	BIOL 113 (waived)	
MECH-321	Fluid Mechanics Lec	MECH-322 (waived)	MATH-254 or 260 MECH-208
CVEN-308	Applied Numerical Analysis for Engineers	-	MATH-254 or 260
MECH-351	Heat Transfer Lec	-	MECH-321 MATH-254 or 260
BMEG-371	Analysis of Physio. Sys. Lec	BMEG-373	MATH 151/155, MATH 152/156, and MATH 254, or by permission of instructor
BMEG-373	Analysis of Physio. Sys. Lab	BMEG-371	-
MECH-406	Engineering Economics	-	Senior Standing
BMEG-491/492	BME Capstone Sr. Design Proj I/II	-	Senior Standing
BMEG-402	Biomedical Imaging Systems and Signal Processing	-	Junior standing, or by permission of instructor
BMEG-405	Biomedical Research & Clinical Experience	-	Senior Standing
BMEG-495	Special Topics in Biomedical Engineering	-	Senior Standing and permission of instructor
MECH-302	Res Exp & Tech Comm	-	CCEN-101
MECH-465	Advanced Manufacturing	-	
MECH-473	Microelectromechanical Systems (MEMS)	-	MECH-205, MECH-321 or by permission of instructor
MECH-478	Mechatronics	-	MECH-381, Senior Standing
MECH-483	Robot Mechanics and Control	-	MECH-341, MECH-371, or by permission of instructor
MECH-484	Design of Robot Mechanisms		MECH-483