

Bachelor of Science Biomedical Engineering – Curriculum A 2021-2022

Name:

UID:

2IW and 2MC required in WSU core

Guide may be subject to program change

First Year	CR	IWMC	Sem	Gr	Title	Fa	Sp	Su
BME 1110	1.0	IW			Fundamentals of BIE Engineering-----	*	*	*
CHM 1210	3.0				General Chemistry I ----- (H S CHM, or CHM 1010), (MTH 1280 or ALEKS level 46), CHM 1210Lc	*	a	a
CHM 1210L	2.0				General Chemistry I Lab----- CHM 1210c	*	a	a
EGR 1010	4.0				Intro Math for Egr Applications (E-2)-----ALEKS level 61 or MPL 40 & HS Trig) or ACT MTH 25 or MTH 1350	*	a	a
ENG 1100	3.0				English (E-1)-----ACT 23 or SAT Verbal 530 or WPL 40	*	a	a
CHM 1220	3.0				General Chemistry II-----CHM 1210, CHM 1210L, CHM 1220Lc	a	*	a
CHM 1220L	2.0				General Chemistry II Lab-----CHM 1220c	a	*	a
MTH 2300	4.0				Calculus I (E-2 Additional)-----MTH 1350 or MPL 50 or ALEKS 76	a	*	a
PHY 2400	4.0				General Physics I (E-6)----- (MTH 2300 or EGR 1010 C or better), PHY 2400Lc	a	*	a
PHY 2400L	1.0				General Physics Lab (E-6)-----PHY 2400c	a	*	a

Credit Hours Per Semester in the Model Program

13 14 0

Second Year	CR	IWMC	Sem	Gr	Title	Fa	Sp	Su
BME 3211	4.0				Human Biomechanics I-----MTH 2300, PHY 2400, BME 3211Rc	*	*	*
ANT 2100 OR	4.0				Human Anatomy and Physiology I-----ANT 2100Lc	*	a	*
ANT 3100	4.0				Human Structure & Function I----- (CHM 1020 or CHM 1210 C or better), ANT 3100Lc	*	a	a
MTH 2310	4.0				Calculus II (E-2 Additional)-----MTH 2300	*	a	a
	3.0				Global Traditions/History (E-3)-----	*	a	a
BME 3212	3.0				Human Biomechanics II-----BME 3211	*	*	*
ANT 2120 OR	4.0				Human Anatomy and Physiology II-----ANT 2100 C or Better, ANT 2100Lc	*	*	a
ANT 3120	4.0				Human Structure & Function II-----ANT 3100 C or Better, ANT 3120Lc	*	*	a
PHY 2410	4.0				General Physics II (E-6)-----PHY 2400, MTH 2300, {MTH 2310}, PHY 2410Lc	a	*	a
PHY 2410L	1.0				General Physics II Lab (E-6)-----PHY 2410c	a	*	a
MTH 2350	4.0				Differential Equations w/Matrix Algebra-----MTH 2310	a	*	a

Credit Hours Per Semester in the Model Program

15 16 0

Third Year	CR	IWMC	Sem	Gr	Title	Fa	Sp	Su
BME 3511	4.0				Bioelectronics I-----MTH 2300, PHY 2410, BME 3511Lc	*	*	*
BME 3540	3.0				Biomedical Computation-----MTH 2350	*	*	*
BME 4703	4.0				Medical Imaging----- (ANT 3120 or ANT 3120), PHY 2410, BME 4703Rc	*	*	*
ISE 2211	3.0				Statistics for Engineers-----EGR 1010 or MTH 2300	*	a	a
	3.0				**Department Approved Technical Elective-----	*	a	a
BME 3512	4.0				Bioelectronics II-----BME 3511, BME 3512Lc	*	*	*
BME 3530	3.0				Biomedical Signals & Systems-----BME 3540, BME 3511	*	*	*
BME 4421	3.0				Biotransport----- (ANT 2120 or ANT 3120), MTH 2350	*	*	*
	3.0				Global Tradition/Interdisciplinary (E-3)-----	a	*	a
EGR 3350	3.0				Tech Comm for Engineers & Computer Scientists (E-1)-----ENG 1100	a	*	*

Credit Hours Per Semester in the Model Program

17 16 0

Fourth Year	CR	IWMC	Sem	Gr	Title	Fa	Sp	Su
BME 4550	4.0	IW			Bioinstrumentation----- (ANT 2120 or ANT 3120), BME 3512, BME 3530, BME 4550Lc	*	*	*
BME 4440	4.0				Biomaterials-----BME 3212, BME 3540, BME 4440Lc	*	*	*
BME 4910	3.0				Senior Design I-----BME 3212, BME 3512, (ANT 2100 or ANT 3100), EGR 3350	*	*	*
	3.0				Arts/Humanities (E-4)-----	*	a	a
	3.0				Social Sciences (E-5)-----	a	*	a
	3.0				Social Sciences (E-5)-----	a	*	a
	3.0				**Department Approved Technical Elective-----	a	*	a
	3.0				**Department Approved Technical Elective-----	a	*	a
BME 4920	3.0				Senior Design II-----BME 4910	*	*	*

Credit Hours Per Semester in the Model Program

14 15 0

Total Semester Credit Hours = 120.0

Meets or exceeds ABET minimum requirements of 37.5% engineering credit hours(45 semester credit hours).

Advisor Initials:

General Information:

1. **Curriculum A** prepares the graduate for the engineering industry employment. Graduates are also prepared for graduate training in biomedical engineering or in a traditional engineering area.
2. **Curriculum B** also satisfies the admission requirements for medical, osteopathic, dental, or veterinary schools. Graduates are also well prepared to pursue graduate training in engineering or the life sciences.
3. **Program Planning** - the student, in cooperation with his/her advisor, should use a Program Guide and the corresponding catalog to plan his/her program. Any problem which arises in connection with a particular Program Guide should be referred to the student's advisor.
4. Except for BME 3211 and 3212, students must have met the CECS entrance requirements in order to register for BIE courses numbered 3000 or higher.

Additional Requirements:

- Students are required to have two Multicultural Competence (MC) courses from any of the Wright State Core MC designated courses, Study Abroad courses, or Service Learning courses.
- Students are also required to have two Integrated Writing (IW) courses from the Wright State Core.

Notes:

1. **Use this guide, advisor consultations, and the Undergraduate Catalog to carefully plan a program of study.** Most courses are offered only once or twice a year. Complete mathematics and physics courses early since they are prerequisite to many engineering courses. Delaying these courses may delay completion of the program. Pay close attention to prerequisite and corequisite information listed on the right of the guide.
2. **In the right hand columns:**
 (*) denotes courses in a model program with a non-conflicting schedule for a full-time student;
 (a) denotes courses likely to be available;
 (•) denotes courses normally not available. Check the Class Schedule for current information.
3. Prerequisites to a course in { } may be taken concurrently with the course.
4. Course number followed by "c" denotes a corequisite course.
5. **Choose Technical Electives from this Department Approved List.
6. Independent Study or Undergraduate Research including Departmental Honors research can fulfill a maximum of three credit hours of TE requirements.

****Any course to fulfill a technical elective requirement that is not on this list of approved technical elective must have preapproval prior to the semester in which the course is being taken.**

Approved Technical Electives			Fa	Sp	Su
ISE 4150	3.0	Advanced Probability and Statistics-----ISE 2211	a	•	•
BME 4350	3.0	Computational Neuroergonomics & Hlthcare App.-----BME students must submit a pre-req petition to take this course	a	•	•
BME 4450	3.0	Tissue Engineering and Regenerative Medicine----- (ANT 2120 or ANT 3120), BME 4440	•	a	•
BME 4460	3.0	Nanomedicine Fundamentals----- (ANT 2120 or ANT 3120), BME 4440	TBA		
BME 4710	3.0	Optical Imaging-----PHY 2410, PHY 2410L	a	•	•
BME 4720	3.0	Biomedical Optics----- (ANT 2120 or ANT 3120), PHY 2410	•	a	•
BME 4850	3.0	Six sigma for Engineers (offered distance)-----ISE 2211	a	•	•
BME 4950	1-5	Undergraduate Research in Biomedical Engineering II----- (Department Permission)	a	a	a
BME 4960	1-4	Departmental Honors Research----- (Application and Department Permission)	a	a	a
BME 4980	1-5	Undergraduate Special Topics in Biomedical Engineering II----- (Department Permission)	a	a	a
BME 4990	1-5	Undergraduate Independent Study in Biomedical Engineering II----- (Department Permission)	a	a	a
BME 3940	3.0	Engineering Internship----- 30 hours per week or 450 hours total of internship will count at 3 cr hr technical elective	a	a	a
BME 4940	3.0	Engineering Internship----- 30 hours per week or 450 hours total of internship will count at 3 cr hr technical elective	a	a	a
ISE 4300	3.0	Fundamentals of Human Factors Engineering-----ISE 2211, PSY 1010	a	•	•
ISE 4310	3.0	Ergonomics-----ISE 2211	a	•	•
ISE 4320	3.0	Human Systems Interaction & Usability Engineering -----ISE 2211, ISE 4300	•	a	•
ISE 4400	3.0	Engineering Economy-----MTH 2300 or EGR 1010	a	•	•
ME 4120	3.0	Finite Element Analysis-----MTH 2350, ME 3120	a	•	•
ME 3870	3.0	Machining----- (ME 2210 and ME 2700) or (BME 3212), ME 3870Lc	a	•	•
EE 4190	4.0	Introduction to Intelligent Control Systems-----MTH 2350(available odd years)	a	•	•