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Academic Programs

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UL Lafayette NEW Minor Proposal Request

Name of Minor: **Biomedical Engineering Minor** (for Engineering majors only)

This Minor is only open to undergraduate students enrolled in engineering majors (Chemical, Civil, Electrical and Computer, Mechanical or Petroleum Engineering). Engineering undergraduate students may use no more than 12 hours of courses used for degree credit in their discipline in meeting the requirements for this Minor.

Submitted by (Name/Date/Department):

College of Engineering

Describe **existing** resources (faculty, GA's, labs, equipment, etc.) that will be used to support the minor:

The College of Engineering, especially the Departments of Mechanical Engineering and Chemical Engineering, has faculty members who teach and conduct research in this area. Course offerings from other departments will also support the Minor.

Describe any **new** resources that will be needed to support the minor:

The minor can be offered using the existing resources (e.g., courses, facilities).

Similar Programs in Louisiana and in neighboring states that have been identified and benchmarked:

*Texas Tech, Bioengineering Minor
Old Dominion, Biomedical Engineering Minor
Louisiana Tech, Biomedical Engineering Minor
Texas A&M, Biomedical Engineering Minor
Georgia Tech, Biomedical Engineering Minor*

Total Number of SCHs Required:

19

Are there any accreditation requirements or issues?

No

Short Description:

The Biomedical Engineering minor prepares students for bioengineering challenges related to biomaterial choice, in situ demands, and tissue characterization. The coursework has been designed to

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develop competitive skillsets for employment and satisfy many entrance requirements for graduate programs in this field. The curriculum is 19 credit hours with up to twelve hours can be used for credit toward the student's engineering degree. This Minor is only open to undergraduate students enrolled in engineering majors (Chemical, Civil, Electrical and Computer, Mechanical or Petroleum Engineering).

Courses Required for/Applicable to Minor:

Required

Core Courses List: 13 credit hours must be selected from this list:

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Course		Credit
CHEE 317 ✓	Materials of Engineering	3
BIOL 110 ✓	Fundamentals of Biology I	3
BIOL 220 ✓	Survey of Human Anatomy and Physiology	3
BIOL 221 ✓	Survey of Human Anatomy and Physiology Lab	1
CHEM 123*	Survey of General, Organic and Biological	3
or		
CHEM 317**	Biochemistry I	3

* For Non-CHEE majors, ** For CHEE major

Choose

Elective Courses List: 6 credit hours must be selected from this list:

Course		Credit
CHEE 422(G) ✓	Biomaterials and Biomedical Engineering	3
MCHE 488(G) ✓	Biomechanics	3
MCHE 470 ✓	Artificial Organs	3
CHEE 417(G) ✓	Polymer Engineering	3
CHEE 416(G) ✓	Biochemical Engineering	3
CHEE 402(G) ✓	Corrosion Engineering	3
BIOL 423 ✓	Neurobiology	3
BIOL 261 ✓	General Microbiology	3
CHEM 240* ✓	Introductory Organic Chemistry	3
CHEM 280* ✓	Introduction to Biochemistry	3
CHEM 417G** ✓	Biochemistry II	3
KNES 305 ✓	Motor Behavior and Control	3
KNES 415 ✓	Biomechanics	3

* For Non-CHEE majors, ** For CHEE major

Are there any other requirements for the minor?

No

Student Learning Outcomes (please list between three and five SLOs in terms of the knowledge, skills, and abilities that students will attain as a result of pursuing this minor).

- (1) Understand the considerations to be made in the application of biomaterials*
- (2) Obtain foundational knowledge in mammalian anatomy and physiology*
- (3) Demonstrated ability to apply mechanical properties of living tissues to the design of medical products*
- (4) Preparation for a graduate degree program in bioengineering or biomedical engineering*

How will these SLOs be assessed?

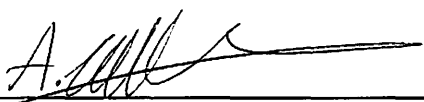
These SLOs will be assessed using the following measures: (a) performance of students in the minor courses, (b) periodic interviews with students upon graduation to gather self-assessment and self-perception data, (c) post-graduation tracking of students who graduated with the minor to assess impact on careers, (d) interviews with employers who employed graduates with the minor.

How will students be advised through their pursuit of the minor?

Students will be advised by their regular advisors assigned by the department; all advisors in the College will be informed by the requirements of this Minor and will be offered with any future updates/changes.

Student Demand or Need for Program (Who might want to enroll and why? Please consider employer needs, occupational trends, the value of credential, etc):

The minor fulfills a critical need for the University to provide biomedical engineering preparation for College of Engineering students. This preparation seeks to create a competitive cohort of graduates that can pursue graduate studies and careers in the biomedical engineering. The minor addresses the current barriers of preparatory coursework that are typically required as leveling courses for graduate studies and essential to employment in the field. Recipients of the minor will be able to transact their preparation in this domain with the additional value of their respective degree strengths in bioprocessing and machine design. All will benefit from the materials science strength at the University. This composite student profile aligns with an industry that has seen sustained growth for 60 years and is one of the strongest job markets worldwide.



Ahmed Khattab, Ph.D.
Interim Dean of Engineering

2/27/19

Date

Approved
Fabrizio
3/28/19