



Alabama Commission on Higher Education

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New Program Proposal

The following must be submitted to complete a new program request:

Submission Checklist:

- ☒ New Program Proposal
- ☒ Business Plan (<https://www.ache.edu/index.php/forms/>)
- ☒ Undergraduate or Graduate Curriculum Plan (<https://www.ache.edu/index.php/forms/>)

Primary Contact Information

Institution: Troy University

Contact: Mary Anne Templeton

Title: Associate Provost for Academic Affairs

Email: mtempleton@troy.edu

Telephone: 334-670-3240

Program Information

Date of Proposal Submission: 6/1/2026

Award Level: Bachelor's Degree

Award Nomenclature (e.g., BS, MBA): BS

Field of Study/Program Title: Biomedical Engineering

CIP Code (6-digit): 14.0501

Administration of the Program

Name of Dean: Govind Menon

Name of College/School: College of Science and Engineering

Name of Chairperson: Dr. Jaqueline Jones

Name of Department/Division: Biology

Implementation Information

Proposed Program Implementation Date: 8/1/2027

Anticipated Date of Approval from Institutional Governing Board: 6/19/2026

Anticipated Date of ACHE Meeting to Vote on Proposal: 9/11/2026

SACSCOC Sub Change Requirement (Notification, Approval, or NA): Approval

Other Considerations for Timing and Approval (e.g., upcoming SACSCOC review):



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I. Program Description

A. Concise Program Summary (one paragraph) to be included in ACHE Agenda:

The Bachelor of Science in **Biomedical Engineering** program provides an interdisciplinary foundation in engineering principles, biology, and medical sciences to prepare students to develop technologies that improve human health. The curriculum integrates engineering design, biomedical instrumentation, biomaterials, and biomechanics with hands-on laboratory and project-based learning. Students are encouraged to pursue internships, undergraduate research, and industry partnerships to gain practical experience. Experiential learning is reinforced through a multi-semester engineering design sequence and a 6-credit hour senior capstone project focused on solving real-world biomedical challenges.

B. Specific Rationale (Strengths) for the Program

List three (3) to five (5) strengths of the proposed program as specific rationale for recommending approval of this proposal.

1. Interdisciplinary Integration of Engineering and Biomedical Sciences.

The proposed Biomedical Engineering program integrates engineering principles with biological and medical sciences to address challenges in healthcare technology. The curriculum combines coursework in engineering, biology, chemistry, and physiology to prepare students to design and evaluate biomedical devices, sensors, diagnostic tools, and healthcare technology.

2. Hands-On Laboratory and Design Experiences.

The program emphasizes experiential learning through laboratory courses, biomedical instrumentation training, and engineering design projects. Students will apply theoretical knowledge through hands-on activities and a multi-semester capstone design sequence, strengthening their ability to solve real-world biomedical problems.

3. Research Opportunities in Biomedical and Translational Sciences.

Students will have opportunities to participate in undergraduate research with faculty working in areas such as biomedical devices and sensors, biomaterials, cell signaling, disease mechanisms, and translational biomedical research. These experiences allow students to gain valuable laboratory skills while contributing to ongoing scientific discovery.

4. Preparation for Diverse Career Pathways.

Graduates of the program are well prepared for careers in biomedical engineering, sensor and device development, biotechnology, healthcare technology, and research laboratories. The program also provides a strong foundation for students pursuing



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graduate studies in engineering or admission to professional programs such as medicine, dentistry, and other health-related fields.

5. **Alignment with Workforce Needs in Healthcare and Biomedical Technology.**

The demand for professionals trained at the intersection of engineering and healthcare continues to grow as advances in medical technology, diagnostics, and personalized medicine expand. The Biomedical Engineering program will help meet workforce needs by preparing graduates with the technical and interdisciplinary skills required in modern healthcare and biomedical industries.

C. **External Support (Recommended)**

List external entities (more may be added) that may have supplied letters of support attesting to the program's strengths and attach letters with the proposal at the end of this document.

1. Hudson Alpha
2. IFDC

D. **Student Learning Outcomes**

List four (4) to seven (7) of the student learning outcomes of the program.

1. **Apply Core Engineering and Biomedical Principles:**

Students will demonstrate the ability to apply fundamental engineering principles along with biological and physiological concepts to analyze and solve problems related to biomedical systems and healthcare technologies.

2. **Design and Analyze Biomedical Systems:**

Graduates will be able to design, analyze, and evaluate biomedical systems and devices, including biomedical instrumentation, biomaterials, and medical diagnostic technologies.

3. **Hands-On Experimental and Laboratory Skills:**

Students will gain hands-on experience with laboratory equipment and experimental techniques relevant to biomedical engineering, enabling them to collect, analyze, and interpret biological and engineering data accurately.

4. **Knowledge of Emerging Biomedical Technologies:**

Students will develop knowledge in areas such as biomedical instrumentation, biomaterials, biomechanics, and medical related imaging, preparing them to contribute to innovation in biomedical and healthcare technologies.



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5. Integrate Multidisciplinary Knowledge:

Graduates will demonstrate the ability to integrate knowledge from engineering, biology, chemistry, mathematics, and computer science to address complex biomedical and healthcare challenges.

6. Effective Communication and Teamwork:

Students will develop strong communication, problem-solving, and teamwork skills, enabling them to collaborate effectively in multidisciplinary environments and communicate technical information to both scientific and non-scientific audiences.

E. Similar Programs at Other Alabama Public Institutions

List programs at other Alabama public institutions of the same degree level and the same (or similar) CIP codes. If no similar programs exist within Alabama, list similar programs offered within the 16 SREB states. If the proposed program duplicates, closely resembles, or is similar to any other offerings in the state, provide justification for any potential duplication.

CIP Code	Degree Title	Institution with Similar Program	Justification for Duplication
14.0501	Biomedical Engineering	UAB	While UAB offers a Biomedical Engineering program, its primary service area is central Alabama and it operates within a large research-intensive medical campus. The proposed program at Troy University will expand access to biomedical engineering education for students in southeastern Alabama and the Wiregrass region who may not have the opportunity to relocate to larger metropolitan areas.
14.0501	Biomedical Engineering	USA	The University of South Alabama offers a Biomedical Sciences program with biomedical engineering-related training; however, Troy University's proposed Biomedical Engineering program will focus on integrating engineering design with biomedical applications while serving students in the Wiregrass and surrounding areas who may not have direct access
14.0501	Biomedical Engineering	ASU	Alabama State University offers a Biomedical Engineering program primarily serving the Montgomery region. The proposed program at Troy University will provide expanded access to biomedical engineering education for students in southeastern Alabama and surrounding rural areas.

F. Relationship to Existing Programs within the Institution



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Nearly all new programs have some relationship to existing offerings through shared courses, faculty, facilities, etc. Is the proposed program associated with any existing offerings within the institution, including options within current degree programs? **Yes** ☒ **No** ☐

If **yes**, please describe these relationships including whether or not the program will replace or compete with existing offerings: (**Note:** If this is a graduate program, list any existing undergraduate programs which are directly or indirectly related. If this is a doctoral program, also list related master's programs.)

Related Degree Program Level	Related Degree Program Title	Explanation of the Relationship Between the Programs
BS	EEE	The program builds on existing foundational engineering coursework and introduces specialized biomedical content, creating a distinct and interdisciplinary pathway in healthcare-focused engineering.
BS	BMS	The program builds on existing foundational engineering coursework and introduces specialized biomedical content, creating a distinct and interdisciplinary pathway in healthcare-focused engineering.

If **not**, please describe how the institution plans to support a program unrelated to existing offerings.

G. Collaboration

Have any collaborations **within your institution** (i.e., research centers, across academic divisions, etc.) been explored? **Yes** ☒ **No** ☐

If **yes**, provide a brief explanation of the proposed collaboration plan(s) for the program:

The proposed Biomedical Engineering program will be developed as an interdisciplinary initiative that integrates the strengths of the Electrical and Electronics Engineering program within the Department of Chemistry and Physics and the Biomedical Sciences program within the Department of Biological and Environmental Sciences at Troy University. This program integrates expertise in engineering, biology, chemistry, and physics to deliver a cohesive curriculum. Faculty will collaboratively provide foundational and advanced coursework, enabling students to apply engineering principles to biological systems and address complex healthcare challenges.

Have collaborations with **other institutions or external entities** (i.e., local business, industries, etc.) been explored? **Yes** ☐ **No** ☒

If **yes**, provide a brief explanation of the proposed collaboration plan(s) for the program:



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H. Programmatic Accreditation

Select the appropriate program accreditor from the drop-down menu below:

Accreditation Board for Engineering and Technology (ABET)

Provide a detailed timeline for gaining accreditation (i.e., when will full candidacy be reached?):

This program aims to secure external accreditation from ABET. As per ABET requirements, at least one graduate is needed before applying. We plan to initiate the ABET application process once we have our first graduate from the program.

The proposed Biomedical Engineering program is expected to begin in Fall 2027. The first cohort of students is anticipated to graduate in Spring 2031. Since ABET requires that a program have at least one graduating cohort before seeking initial accreditation, the program will begin ABET readiness activities and conduct a comprehensive review of assessment and continuous improvement data during the 2031–2032 academic year. The program anticipates submitting its initial ABET accreditation application and supporting documentation during the 2032–2033 academic year, in accordance with ABET eligibility requirements and timelines.

The program will be developed and assessed from its inception using ABET criteria and continuous improvement practices to facilitate a successful accreditation review.

I. Professional Licensure

Will the program be considered a Professional Licensure Program based on the following definition: Yes ☐ No ☒

Professional Licensure Program: As defined in federal regulations, an instructional program that is designed to meet educational requirements for a specific professional license or certification that is required for employment in an occupation or is advertised as meeting such requirements.

If **yes**, please explain:

Select the appropriate licensure body from the table below:

Choose an item.

Select the appropriate license from the table below:

Choose an item.

J. Professional Certification

Will students earn industry certifications while completing the degree or be prepared for industry certifications upon graduation? Yes ☐ No ☒



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If **yes**, please explain:

K. Admissions

Provide any additional admissions requirements beyond the institution's standard admissions process/policies for this degree level. Include prerequisites, prior degrees earned, etc.

NA

L. Mode of Delivery

Provide the planned delivery format(s) of the program as defined in policy (i.e., in-person, online, hybrid). Please also note whether any program requirements can be completed through competency-based assessment.

The proposed Biomedical Engineering program will be delivered primarily through in-person instruction on the main campus in Troy, Alabama, providing students with access to laboratory facilities and hands-on learning experiences essential to biomedical engineering education. The curriculum includes laboratory courses, design projects, and collaborative research opportunities that require direct engagement with instrumentation, experimental procedures, and biomedical technologies.

All program requirements will be fulfilled through traditional coursework and laboratory instruction, with no components available for completion through competency-based assessment. This delivery approach ensures that students develop the technical, analytical, and experimental skills necessary for success in biomedical engineering and related fields.

Can students complete the entire degree program through distance education (100% online) based on the following definition? Yes ☐ No ☒

Distance Education: An academic program for which required instructional activities can be completed entirely through distance education modalities. A distance education program may have in-person requirements that are non-instructional (e.g., orientation, practicum).

M. Instructional Site(s)

Provide the planned location(s) where the program will be delivered (i.e., main campus, satellite campus, off-campus site.) If the program will be offered at an off-campus site, provide the existing site name or submit an **Off-Campus Site Request** if new.

Troy Campus



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Will more than 50% of this program be offered at an off-campus site(s) Yes ☐ No ☒

If **yes**, which sites?

N. Industry Need

Using the federal **Standard Occupational Code (SOC) System**, indicate the top three occupational codes related to post-graduation employment from the program. A full list of SOC codes can be found at <https://www.onetcodeconnector.org/find/family/title#17>.

SOC 1 (required):

17-2031 Biomedical Engineers

SOC 3 (optional):

19-1042 Medical Scientists (except Epidemiologists)

Briefly describe how the program fulfills a specific industry or employment need for the State of Alabama. As appropriate, discuss alignment with Alabama's Statewide or Regional Lists of In-Demand Occupations (<https://www.ache.edu/index.php/policy-guidance/>) or with emerging industries as identified by [Innovate Alabama](#) or the [Economic Development Partnership of Alabama](#) (EDPA).

The demand for professionals trained in biomedical engineering continues to grow nationally, regionally, and within the state of Alabama. According to the U.S. Bureau of Labor Statistics Occupational Outlook Handbook, the median annual salary for biomedical engineers is approximately \$106,950, with experienced professionals earning more than \$165,000 annually. Employment of biomedical engineers is projected to grow approximately 5 percent from 2024 resulting in an estimated 1,300 job openings each year nationwide as healthcare providers increasingly rely on advanced technologies for diagnosis, treatment, and patient care. Biomedical engineers design and improve medical devices, imaging systems, diagnostic equipment, prosthetics, and biomedical software that support modern healthcare systems.

In Alabama, continued expansion of healthcare systems, medical research institutions, biotechnology companies, and biomedical device development has increased the need for graduates with expertise at the intersection of engineering and life sciences. Hospitals, medical device manufacturers, pharmaceutical companies, and research laboratories require professionals who can design, evaluate, and maintain medical technologies.

The proposed Biomedical Engineering program will help meet these workforce needs by preparing students with interdisciplinary training in engineering design, biomedical instrumentation, biomaterials, biomechanics, and biological systems. Graduates will be well prepared for careers in the biomedical device industry, biotechnology companies, healthcare technology development, and research laboratories.



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In addition to direct workforce entry, the program will also support students pursuing graduate study in biomedical engineering or related engineering fields, as well as those seeking admission to medical, dental, veterinary, and other health professional programs. This dual pathway aligns with Troy University's strong tradition of preparing students for both advanced study and professional careers in healthcare and biomedical sciences.

<https://www.bls.gov/ooh/architecture-and-engineering/biomedical-engineers.htm>

O. Additional Education/Training

Please explain whether further education/training is required for graduates of the proposed program to gain entry-level employment in the SOC occupations selected above.

NA

P. Student Demand

Please explain how you projected the student enrollment numbers in the **Business Plan, Lines 24-27** and provide evidence to substantiate student demand (i.e., surveys, enrollments in related courses, etc.).

Briefly describe the primary method(s) used to determine the level of student demand for this program using evidence, such as enrollments in related coursework at the institution, or a survey of student interest conducted (indicate the survey instrument used), number and percentage of respondents, and summary of results.

The Alabama Wiregrass and Black Belt regions, historically underserved in access to advanced STEM and engineering programs, are well positioned to benefit from a Biomedical Engineering program. These regions continue to experience growth in healthcare services, biomedical technology, and life sciences research, creating a need for graduates with interdisciplinary training that bridges engineering and biomedical sciences.

Establishing a Biomedical Engineering program at Troy University would expand opportunities for students in southeastern Alabama who may not otherwise have access to engineering programs focused on healthcare innovation. The program's emphasis on hands-on learning, interdisciplinary collaboration, and biomedical research aligns with both student expectations and workforce needs in healthcare technology and biomedical industries.

To assess projected student demand, a brief three-question survey instrument was distributed to upper-level high school students interested in biomedical sciences and current undergraduate students enrolled in biomedical sciences-related programs. Current undergraduate students were asked to respond to the survey as if the proposed Bachelor of Science in Engineering with a concentration in Biomedical Engineering were available for enrollment beginning in the upcoming fall semester.



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A total of 139 students completed the survey. When asked whether they would be interested in pursuing a Bachelor of Science in Engineering with a concentration in Biomedical Engineering, 91% of respondents indicated "Yes," while 9% indicated "No." Similarly, when asked whether they would be interested in enrolling in such a program at Troy University, 91% responded affirmatively. Additionally, 98% of respondents indicated that they were seeking internship or cooperative education (co-op) opportunities that would provide hands-on learning experiences related to biomedical engineering and healthcare technology.

The survey results demonstrate strong student interest in a biomedical engineering program that integrates applied engineering principles with biomedical sciences while emphasizing experiential learning opportunities. The high level of interest in internships and co-op experiences further supports the need for a program that provides workforce preparation through hands-on training, industry engagement, and research experiences. Collectively, these findings suggest significant regional demand for a Biomedical Engineering program at Troy University and support the development of this degree to address both student interest and workforce needs in Alabama and the surrounding region.

II. Program Resources and Expenses

A. All Proposed Program Personnel

Provide all personnel counts for the proposed program.

Employment Status of Program Personnel		Personnel Information		
		Count from Proposed Program Department	Count from Other Departments	Subtotal of Personnel
Current	Full-Time Faculty	18	11	29
	Part-Time Faculty	2		2
	Administration	2	2	4
	Support Staff	1	2	3
**New To Be Hired	Full-Time Faculty	2	1	3
	Part-Time Faculty			
	Administration			
	Support Staff			
Personnel Total				41

Provide justification that the institution has proposed a sufficient number of faculty (full-time and part-time) for the proposed program to ensure curriculum and program quality, integrity, and review:

The proposed Biomedical Engineering program will leverage existing faculty expertise across multiple disciplines, including Biology, Chemistry, Physics, Mathematics and Electrical and Electronics Engineering. Foundational science and mathematics courses will be delivered by



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existing faculty within the respective departments, while engineering and Biomedical Engineering-specific courses will be taught by dedicated Biomedical Engineering faculty and Engineering faculty. This interdisciplinary approach allows the program to efficiently utilize existing institutional resources while ensuring adequate instructional coverage for both foundational and specialized coursework. As enrollment grows, additional faculty resources will be evaluated and added as needed to maintain program quality and support student success.

Note: Include *any new funds* designated for compensation costs (faculty, administration, and/or support staff to be hired) in the **Business Plan, Line 7 - Personnel Salaries and Benefits**. Current personnel salary/benefits *should not be included* in the Business Plan.



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B. Proposed Faculty Roster*

Complete the following **Faculty Roster** to provide a brief summary and qualifications of current faculty and potential new hires specific to the program.

***Note:** Institutions must maintain and have current as well as additional faculty curriculum vitae available upon ACHE request for as long as the program is active, but CVs are **not** to be submitted with this proposal.

CURRENT FACULTY

Current Faculty			
1	2	3	4
CURRENT FACULTY NAME (FT, PT)	COURSES TAUGHT including Term, Course Number, Course Title, & Credit Hours (D, UN, UT, G, DU)	ACADEMIC DEGREES and COURSEWORK Relevant to Courses Taught, including Institution and Major; List Specific Graduate Coursework, if needed	OTHER QUALIFICATIONS and COMMENTS Related to Courses Taught and Modality(ies) (IP, OL, HY, OCIS)
Note: At Troy University, Term 1 and Term 2 overlap the Fall semester; Term 3 and Term 4 overlap the Spring semester. The Term/Semester designations below reflect AY 2024-2025 current and projected teaching assignments. These assignments reflect a typical academic year.			
EEE Core Courses: Faculty in this section are from the proposed program Department.			
Raj Vinnakota (FT)	EEE 4480 Capstone Project I, 3 credit hours, Fall semester EET 4444 Fundamentals of Optics, 3 credit hours, Fall semester EEE L444 Fundamentals of Optics Lab, 1 credit hour, Fall semester EEE 4481 Capstone Project II, 3 credit hours, Spring semester	PhD in Engineering (Engineering Physics concentration), Louisiana Tech University, USA M.S. in Microsystems Engineering, Louisiana Tech University, USA M.S. in Applied Physics, Louisiana Tech University, USA M.S. in Engineering (Electrical Engineering concentration), Louisiana Tech University, USA Bachelors in Electronics and Communications, Jawaharlal Nehru Technological University, India	
Shaimum Shahriar (FT)	EEE 3313 Electronic Properties of Materials, 3 credit hours, Fall semester EET L313 Electronic Properties of Materials Lab, 1 credit hour, Fall semester	Ph.D. in Electrical and Computer Engineering, The University of Texas at El Paso, USA M.Sc. in Electrical Engineering, The University of Texas at El Paso, USA B.Sc. in Electrical and Electronics Engineering, East West University, Bangladesh	
Common Engineering Courses:			
Rakshak Adhikari (FT)	PHY 3321 Scientific Computing, 3 credit hours, Spring semester	Ph.D. in Cosmology, The University of Kansas, USA B.Sc. in Physics and Mathematics, Troy University, USA	



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CURRENT FACULTY NAME (FT, PT)	COURSES TAUGHT including Term, Course Number, Course Title, & Credit Hours (D, UN, UT, G, DU)	ACADEMIC DEGREES and COURSEWORK Relevant to Courses Taught, including Institution and Major; List Specific Graduate Coursework, if needed	OTHER QUALIFICATIONS and COMMENTS Related to Courses Taught and Modality(ies) (IP, OL, HY, OCIS)
Arun Ghosh (FT)	EEE 2220 Introduction to Engineering, 3 credit hours, Fall semester	PHD (Polymer/Rubber), Rubber Technology Center, Indian Institute of Technology Kharagpur. MS (Chemistry), Department of Chemistry, University of North Bengal, India. BS (Chemistry), Department of Chemistry, University of North Bengal, India.	
Yanjun Zhao (FT)	CS-2250 Computer Science I, 3 credit hours, Term I, Term III, Term IV, Spring and Fall semester	Ph.D., Georgia State University M.S., Georgia State University M.E., Southwest JiaoTong University B.S., Jilin University	
General Education Courses:			
Faculty in this section are from <i>outside</i> the proposed program Department.			
Amanda Kennell (FT)	PHY 2262 Physics I With Calculus, 3 credit hours, Fall Semester PHY L253 Physics I Lab, 1 credit hours, Spring, Summer, Fall semester	Ph.D. in Physics, University of Alabama at Birmingham M.Sc. in Physics, University of Alabama at Birmingham B.Sc. in Physics, University of North Georgia	
Michael Smith (PT)	PHY 2262 Physics I With Calculus, 3 credit hours, Spring Semester	M.Sc. in Physics, Auburn University B.Sc. in Physics and Mathematics, Jacksonville State University	
Bruno Arderucio Costa (FT)	PHY L252 Physics I Lab, 1 credit hours, Spring, Summer, Fall Semester, Term I, Term III	Ph.D. in Physics, The University of British Columbia, Canada M.Sc. in Physics, Universidade de São Paulo, Brazil B.Sc. in Physics, Universidade de São Paulo, Brazil	
Yafet Erasmo Sanchez (FT)	PHY-2263 Physics II with Calculus, 3 credit hours, Fall Semester, Spring Semester PHY L252 Physics I Lab, 1 credit hours, Spring, Summer, Fall Semester, Term I, Term III PHY L253 Physics I Lab, 1 credit hours, Spring, Summer, Fall semester	PhD in Mathematics, University of Southampton, UK BS in Physics, National Autonomous University of Mexico.	



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1	2	3	4
CURRENT FACULTY NAME (FT, PT)	COURSES TAUGHT including Term, Course Number, Course Title, & Credit Hours (D, UN, UT, G, DU)	ACADEMIC DEGREES and COURSEWORK Relevant to Courses Taught, including Institution and Major; List Specific Graduate Coursework, if needed	OTHER QUALIFICATIONS and COMMENTS Related to Courses Taught and Modality(ies) (IP, OL, HY, OCIS)
Quratulann Ijaz (PT)	PHY L252 Physics I Lab, 1 credit hours, Spring, Summer, Fall Semester, Term I, Term III	Ph.D. in Engineering Physics, Mississippi State University	
Michael Smith (PT)	PHY-2263 Physics II with Calculus, 3 credit hours, Fall Semester, Spring Semester PHY L253 Physics I Lab, 1 credit hours, Spring, Summer, Fall semester	M.Sc. in Physics, Auburn University B.Sc. in Physics and Mathematics, Jacksonville State University	
Brooke Otten (FT)	CHM 1142 General Chemistry I, 3 credit hours, Fall, Spring, Summer semester, Term I, II, III, V CHM L142 General Chemistry I Lab, 1 credit hours, Fall, Spring, Summer semester, Term I, II, III, V CHM L143 General Chemistry II Lab, 1 credit hours, Summer, Fall, Spring semester	Ph.D. in Chemistry, The University of North Texas B.Sc. in Chemistry, The University of North Texas	
Mojtaba Enayati (FT)	CHM 1142 General Chemistry I, 3 credit hours, Fall, Spring, Summer semester, Term I, II, III, V CHM L142 General Chemistry I Lab, 1 credit hours, Fall, Spring, Summer semester, Term I, II, III, V CHM L143 General Chemistry II Lab, 1 credit hours, Summer, Fall, Spring semester	Ph.D. in Polymer Chemistry, The University of Tehran M.Sc. in Chemistry, The University of Tehran	
Arun Ghosh (FT)	CHM 1142 General Chemistry I, 3 credit hours, Fall, Spring, Summer semester, Term I, II, III, V CHM L142 General Chemistry I Lab, 1 credit hours, Fall, Spring, Summer semester, Term I, II, III, V CHM 1143 General Chemistry II, 3 credit hours, Summer, Fall, Spring semester CHM L143 General Chemistry II Lab, 1 credit hours, Summer, Fall, Spring semester	PHD (Polymer/Rubber), Rubber Technology Center, Indian Institute of Technology Kharagpur. MS (Chemistry), Department of Chemistry, University of North Bengal, India. BS (Chemistry), Department of Chemistry, University of North Bengal, India.	



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CURRENT FACULTY NAME (FT, PT)	COURSES TAUGHT including Term, Course Number, Course Title, & Credit Hours (D, UN, UT, G, DU)	ACADEMIC DEGREES and COURSEWORK Relevant to Courses Taught, including Institution and Major; List Specific Graduate Coursework, if needed	OTHER QUALIFICATIONS and COMMENTS Related to Courses Taught and Modality(ies) (IP, OL, HY, OCIS)
Shaoyang Liu (FT)	CHM 1142 General Chemistry I, 3 credit hours, Fall, Spring, Summer semester, Term I, II, III, V CHM L142 General Chemistry I Lab, 1 credit hours, Fall, Spring, Summer semester, Term I, II, III, V	Ph.D. in Analytical Chemistry, University of Science and Technology of China B.S. in Applied Chemistry, University of Science and Technology of China	
Suzanne Lukjan (FT)	CHM 1142 General Chemistry I, 3 credit hours, Fall, Spring, Summer semester, Term I, II, III, V CHM L142 General Chemistry I Lab, 1 credit hours, Fall, Spring, Summer semester, Term I, II, III, V CHM L143 General Chemistry II Lab, 1 credit hours, Summer, Fall, Spring semester	Ph.D. in Biochemistry, The University of Florida	
Michelle Armstrong (FT)	MTH 1125 Calculus I, 4 credit hours, Summer, Fall, Spring semester, Term I, II, III, V	MS in Secondary Mathematics Education, Troy University	
Patrick Rossi (FT)	MTH 1125 Calculus I, 4 credit hours, Summer, Fall, Spring semester, Term I, II, III, V MTH 1126 Calculus II, 4 credit hours, Summer, Fall, Spring semester, Term II, III, IV, V	Ph.D. in Mathematics, Auburn University	
Sergey Belyi (FT)	MTH 1126 Calculus II, 4 credit hours, Summer, Fall, Spring semester, Term II, III, IV, V	Ph.D. in Mathematics, University of South Florida	
Hoa Dinh (FT)	MTH 1126 Calculus II, 4 credit hours, Summer, Fall, Spring semester, Term II, III, IV, V MTH 2227 Calculus III, 4 credit hours, Summer, Fall, Spring semester, Term I, IV, V	Ph.D. in Mathematics, Kazan Federal University	
Ken Roblee (FT)	MTH 2227 Calculus III, 4 credit hours, Summer, Fall, Spring semester, Term I, IV, V	Ph.D. in Mathematics, Auburn University	
Danush Wijekularathna (FT)	STAT 2210 Introductory Statistics, 3 credit hours, Summer, Fall, Spring semester, Term I, II, III, IV, V	Ph.D. in Mathematics, Texas Tech University	



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CURRENT FACULTY NAME (FT, PT)	COURSES TAUGHT including Term, Course Number, Course Title, & Credit Hours (D, UN, UT, G, DU)	ACADEMIC DEGREES and COURSEWORK Relevant to Courses Taught, including Institution and Major; List Specific Graduate Coursework, if needed	OTHER QUALIFICATIONS and COMMENTS Related to Courses Taught and Modality(ies) (IP, OL, HY, OCIS)
Nicholas Newman (FT)	MTH 3311 Differential Equations, 3 credit hours, Spring Semester	Ph.D. in Discrete Mathematics, Auburn University	
Trang Dinh (FT)	MTH 2230 Applied Linear Algebra, 3 credit hours, Spring Semester	Ph.D. in Mathematics, The University of Alabama in Tuscaloosa	
Huijun Yi (FT)	MTH 2215 Applied Discrete Mathematics, 3 credit hours, Spring Semester, Fall Semester, Term I, IV, V	Ph.D. in Statistics, Southern Illinois University Carbondale	
BME Courses			
Jacqueline Jones (FT)	BIO 3320 Genetics w/Lab 4 credits (All Fall, Spring, T5) BIO 4484 Senior Seminar 1 credit (Fall & Spring)	PhD in Integrative Biosciences, Tuskegee University and UAB Post-Doc- Bone Immunology and Cancer Pathology, University of Michigan	
Ronda Carter (FT)	BIO 3347 Human Anatomy & Physiology I w Lab 4 credits (All Fall, Spring, T5) BIO 3348 Human Anatomy & Physiology II w Lab 4 credits All (Fall, Spring, T5) BIO 3382 Immunology 3 credits Spring	MD in General Medicine, UAB Residency in General Medicine	
Temetria Bonds (FT)	BIO 3347 Human Anatomy & Physiology I w Lab 4 credits (Fall Spring, T5) BIO 3348 Human Anatomy & Physiology II w Lab 4 credits (Fall Spring, T5)	PhD in Pharmacology, University of South Florida College of Medicine	
Kristina Boyd (FT)	BIO 3347 Human Anatomy & Physiology I w Lab 4 credits (Fall Spring, T5) BIO 3348 Human Anatomy & Physiology II w Lab 4 credits (Fall Spring, T5)	D.C. In Chiropractic Medicine, Logan College	
Michael Donnelly (FT)	BIO 3320 Genetics w Lab 4 credit hours (T1,T3) Fall & Spring)	PhD in Genetics, Yale University	
Gopal Agarwal (FT)	BME XXX Biomaterials w Lab 4 credit hours Fall/Spring	PhD in Biotechnology, NIPER-Ahmedabad, India	



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Current Faculty			
1	2	3	4
CURRENT FACULTY NAME (FT, PT)	COURSES TAUGHT including Term, Course Number, Course Title, & Credit Hours (D, UN, UT, G, DU)	ACADEMIC DEGREES and COURSEWORK Relevant to Courses Taught, including Institution and Major; List Specific Graduate Coursework, if needed	OTHER QUALIFICATIONS and COMMENTS Related to Courses Taught and Modality(ies) (IP, OL, HY, OCIS)
Rebecca Frederick (FT)	BME XXX Biomechanics w Lab 4 credit hours Fall/Spring	Master of Science, Pharm (Biotechnology), NIPER-Mohali, India	
	BME XXX Tissue Engineering w Lab 4 credit hours Fall/Spring	PhD in Biomedical Engineering, The University of Texas at Dallas	
	BME XXX Biomechanics w Lab 4 credit hours Fall/Spring	M.S. in Biomedical Engineering, Tulane University B.S.E. in Biomedical Engineering Tulane University	

ADDITIONAL FACULTY (TO BE HIRED)

1	2	3	4
FACULTY POSITION (FT, PT)	COURSES TO BE TAUGHT including Term, Course Number, Course Title, & Credit Hours (D, UN, UT, G, DU)	ACADEMIC DEGREES and COURSEWORK Relevant to Courses Taught, including Institution and Major; List Specific Graduate Coursework, if needed	OTHER QUALIFICATIONS and COMMENTS Related to Courses Taught and Modality(ies) (IP, OL, HY, OCIS)

Abbreviations: (FT, PT): Full-Time, Part-Time; (D, UN, UT, G, DU): Developmental, Undergraduate Nontransferable, Undergraduate Transferable, Graduate, Dual: High School Dual Enrollment
Course Modality: (IP, OL, HY, OCIS): In-Person, Online, Hybrid, Off-Campus Instructional Site



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C. Equipment

Will any special equipment be needed specifically for this program? Yes ☐ No ☒

If **yes**, list the special equipment and include all special equipment costs in the **Business Plan, Line 8**:

D. Facilities

Will new facilities or renovations to existing infrastructure be required specifically for the program? Yes ☐ No ☒

If **yes**, describe the new facilities or renovations and include all *new* facilities and/or *renovation* costs in the **Business Plan, Line 9**:

E. Assistantships/Fellowships

Will the institution offer any assistantships specifically for this program? Yes ☐ No ☒

If **yes**, provide the number of assistantships to be offered and include all *new* costs for assistantships in the **Business Plan, Line 10**.

Explain the function of the Assistantships (i.e., teaching, research, etc.)?:

F. Library

Will any **additional** library resources be purchased to support the program? Yes ☐ No ☒

If **yes**, briefly describe new resources to be purchased and include the cost of new library resources in the **Business Plan, Line 11**:

G. Accreditation Expenses

If programmatic accreditation was indicated above, please include all accreditation costs in the **Business Plan, Line 12** and itemize and explain below:

The estimated cost associated with pursuing initial ABET accreditation for the proposed Biomedical Engineering program is approximately **\$23,000–\$36,000**. This estimate includes ABET readiness and training activities (e.g., ABET Bridge or similar workshops), the initial accreditation application fee, evaluation visit expenses, evaluator travel costs, assessment support activities, and related accreditation preparation costs. Following initial accreditation, annual ABET maintenance fees are expected to be approximately **\$2,000–\$3000 per year**, subject to ABET's published fee schedule. Please see the estimated breakdown below.



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<u>Item</u>	<u>Estimated Cost</u>
ABET Readiness / ABET Bridge Training	\$5,000–\$8,000
Initial ABET Application Fee	\$5,000–\$7,000
ABET Evaluation Visit Fee	\$8,000–\$12,000
Evaluator Travel Expenses	\$3,000–\$6,000
Annual ABET Maintenance Fees	\$2,000–\$3,000 per year
Estimated Initial Accreditation Cost	\$23,000–\$36,000

H. Other Costs

Please include all other costs incurred with program implementation, such as marketing or recruitment, in the **Business Plan, Line 13** and explain below:

III. Program Revenue and Funding

- A. Tuition Revenue:** Please describe how you calculated the tuition revenue that appears in the **Business Plan, Line 17**. Specifically, did you calculate using cost per credit hour or per term? Did you factor in differences between resident and non-resident tuition rates?

Note: Tuition Revenue should be proportional to total enrollment.

Assuming students are taking 12 semester hours each semester (two semesters per year) x current cost per credit hour x number of students each year

- B. External Funding:** Will the proposed program require external funding (e.g., Perkins, Foundation, Federal Grants, Sponsored Research, etc.)? Yes ☐ No ☒

If **yes**, please include all external funding in the **Business Plan, Line 18** and explain specific sources and funding below:

- C. Reallocations:** For each year will tuition revenue and/or external funding cover projected expenses? Yes ☐ No ☒

If **not**, budget reallocation may be required. Please include all reallocations in the **Business Plan, Line 19** and describe below how your institution will cover any shortfalls in any given year.

1	ACADEMIC DEGREE PROGRAM BUSINESS PLAN								
2	INSTITUTION: Troy University								
3	PROGRAM NAME: BS in Biomedical Engineering							CIP CODE:	14.0501
4	SELECT LEVEL:		UNDERGRADUATE						
5	ESTIMATED *NEW* EXPENSES TO IMPLEMENT PROPOSED PROGRAM								
6		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	TOTAL
7	PERSONNEL SALARIES & BENEFITS	\$233,520	\$233,520	\$233,520	\$233,520	\$233,520	\$233,520	\$233,520	\$1,634,640
8	EQUIPMENT								\$0
9	FACILITIES								\$0
10	ASSISTANTSHIPS/FELLOWSHIPS								\$0
11	LIBRARY								\$0
12	ACCREDITATION				\$36,000				\$36,000
13	OTHER COSTS								\$0
14	TOTAL EXPENSES	\$233,520	\$233,520	\$233,520	\$269,520	\$233,520	\$233,520	\$233,520	\$1,670,640
15	*NEW* REVENUES AVAILABLE FOR PROGRAM SUPPORT								
16		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	TOTAL
17	TUITION + FEES	\$101,760	\$152,640	\$254,400	\$356,160	\$356,160	\$356,160	\$356,160	\$1,933,440
18	EXTERNAL FUNDING								\$0
19	REALLOCATIONS								\$0
20	TOTAL REVENUES	\$101,760	\$152,640	\$254,400	\$356,160	\$356,160	\$356,160	\$356,160	\$1,933,440
21	ENROLLMENT PROJECTIONS								
22	Note: “New Enrollment Headcount” is defined as unduplicated counts across years.								
23		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	AVERAGE
24	FULL-TIME ENROLLMENT HEADCOUNT	No data reporting	15	25	35	35	35	35	30.00
25	PART-TIME ENROLLMENT HEADCOUNT								0.00
26	TOTAL ENROLLMENT HEADCOUNT		15	25	35	35	35	35	30.00
27	NEW ENROLLMENT HEADCOUNT		10	10	11	11	11	11	10.67
28	Validation of Enrollment			YES	NO	YES	YES	YES	
29	DEGREE COMPLETION PROJECTIONS								
30	Note: Do not count Lead “0”s and Lead 0 years in computing the average annual degree completions.								
31		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	AVERAGE
32	DEGREE COMPLETION PROJECTIONS	No data reporting	0	2	8	9	10	10	7.80

Undergraduate Curriculum Plan

Undergraduate Curriculum Checklist:

- 1. Overview ☐
- 2. Components ☐
- 3. Options (as required) ☐

1. Undergraduate Overview

Enter the credit hour value for all applicable components (N/A if not applicable).
The credit hours **MUST** match the credit hours in the Curriculum Components table.

Curriculum Overview of Proposed Program	
Credit hours required in General Education	62
Credit hours required in Program Courses & Required Electives	60
Credit hours in Program Options (concentrations/specializations/tracks)	0
Credit hours in Free Electives	0
Credit hours in required Capstone/Internship/Practicum	6
Total Credit Hours Required for Completion:	128

Maximum number of credits that can be transferred in from another institution and applied to the program:	30
Intended program duration in semesters for full-time students:	4 years
Intended program duration in semesters for part-time students:	6-7 years

Does the program require students to demonstrate industry-validated skills, specifically through an embedded industry-recognized certification, structured work-based learning with an employer partner, or alignment with nationally recognized industry standards?:

No ☐ NO ☒

If **yes**, please explain (i.e., number of hours required, etc.):

No ☐ NO ☒

Does the program include any concentrations/ tracks/ options?

If **yes**, please explain (i.e., define):

2. Undergraduate Components

Please provide all course information as indicated in the following table. Indicate new courses with "Y" in the associated column. If the course includes a required work-based learning component, such as an internship or practicum course, please indicate with a "Y" in the WBL column.

Insert Additional Rows as Needed				
Institution:	Troy University			
Program Name:	Biomedical Engineering			
Program Level:	UNDERGRADUATE (BACHELOR'S)			
Curriculum Components of Proposed Program				
Course Number	Course Name	Credit Hours	New? (Y)	WBL? (Y)
General Education Courses				
Area I				
ENG 1101	Composition and Modern English I	3		
ENG 1102	Composition and Modern English II	3		
Area II				
	Any 1000-2000 level course in Literature	3		
	Any 1000-2000 level course with an expanded historical and cultural scope in the Fine Arts, including the disciplines of Art, Music, Theatre, Film, or other Fine Arts area	3		
	Any two 1000-2000 level courses with an expanded historical and cultural scope in the Humanities/Fine Arts disciplines, including Classics, Communication, Dance, English, World Languages, Interdisciplinary Studies, Music, Nursing, Philosophy, Religion, Sign Language, Theatre, or other Humanities/ Fine Arts areas	6		
Area III				
MTH 1125	Calculus I	4		
CHM 1142	General Chemistry -I	3		
CHM L142	General Chemistry -I Lab	1		
PHY 2262	Physics I With Calculus	3		
PHY L252	Physics I Lab	1		
Area IV				
	Any 1000-2000 level course with a principal focus in American History, Western Civilization, or World History	3		
	Any 1000-2000 level courses from the following Social Science disciplines: Anthropology, Business, Criminal Justice, Economics, Education, Entrepreneurship, Finance, Geography, History, Hospitality, Tourism, Sport Management, Human Services, Interdisciplinary Studies, Leadership, Nursing, Nutrition, Political Science, Psychology, Religion, Social Work, Sociology or other Social Science areas	9		
Area V				
TROY 1101	The University Experience	1		
CHM 1143	General Chemistry -II	3		
CHM L143	General Chemistry -II Lab	1		
MTH 1126	Calculus II	4		
MTH 2227	Calculus III	4		
PHY 2263	Physics II with Calculus	3		
PHY L253	Physics II Lab	1		
CS 2250	Computer Science I	3		
Program Courses and Required Electives				
STAT-2210	Introductory Statistics	3		
PHY 3320	Mathematical methods for physicists	3		
PHY 3321	Scientific computing	3		
EGR-2201	Introduction to Engineering	3	Y	
EEE 2220	DC Circuit Analysis	3		
EEE L220	DC Circuit Analysis Lab	1		

EEE 2221	AC Circuit Analysis	3		
EEE L221	AC Circuit Analysis Lab	1		
BIO 3347	Human Anatomy & Physiology I	3		
BIO L347	Human Anatomy & Physiology I Lab	1		
BIO 3348	Human Anatomy & Physiology II	3		
BIO L348	Human Anatomy & Physiology II Lab	1		
BIO 3320	Genetics	3	Y	
BIO L320	Genetics Lab	1	Y	
BME XXXX	Biomedical Electronics and Instrumentation	3	Y	
BME LXXX	Biomedical Electronics and Instrumentation Lab	1	Y	
BME XXXX	Biomaterials	3	Y	
BME LXXX	Biomaterials Lab	1	Y	
BME XXXX	Biomechanics	3	Y	
BME LXXX	Biomechanics Lab	1	Y	
BME XXXX	Clinical Biochemistry	3	Y	
BME LXXX	Clinical Biochemistry Lab	1	Y	
CHM 3342	Organic Chemistry I	3		
CHM L342	Organic Chemistry I Lab	1		
EEE 4444	Fundamentals of Optics	3		
EEE L444	Fundamentals of Optics Lab	1		
CHM 3343	Organic Chemistry II	3		
CHM L343	Organic Chemistry II Lab	1		
BME XXX	Tissue Engineering	3	Y	
BME LXXX	Tissue Engineering Lab	1	Y	
Program Options (enter total credit hours from all options below)		124		
Free Electives				
Capstone/Internship/Practicum				
BME 4480	Capstone Project I	3	Y	
BME 4481	Capstone Project II	3	Y	
Total Credit Hours Required for Completion:		128		

May 28, 2026

Alabama Commission on Higher Education
100 North Union Street
Montgomery, AL 36104

Letter of Support for the Proposed Biomedical Engineering Program at Troy University

Dear Review Committee,

On behalf of the HudsonAlpha Institute for Biotechnology, I am pleased to provide this letter of support for Troy University's proposed Biomedical Engineering program (BME).

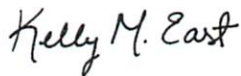
The development of a BME at Troy represents an important opportunity for Southeast Alabama and the broader Alabama Black Belt and Wiregrass regions. Expanding educational opportunities in BME will strengthen the regional STEM workforce, support innovation, and prepare students with interdisciplinary skills increasingly needed in biodevices and sensors, healthcare, biotechnology, manufacturing, instrumentation, and applied engineering.

These Alabama regions continue to benefit from initiatives that expand access to high-quality STEM education and workforce development. Establishing a BME at Troy can play an important role in preparing highly skilled graduates while also encouraging research, innovation, and industry collaboration within the region.

We value opportunities for collaboration between academia and industry and believe this program has strong potential to create meaningful partnerships. We look forward to exploring opportunities to support students through internships, experiential learning, research collaborations, and professional engagement activities that bridge classroom education with real-world applications.

We believe this proposed program will positively contribute to workforce development, regional economic growth, and STEM advancement in Alabama. We strongly support Troy's proposal for the BME and appreciate your consideration of this initiative.

Sincerely,



Kelly East
Vice President for Educational Outreach
HudsonAlpha Institute for Biotechnology



May 27th, 2026

Dr. Kiran Pavuluri
Director of Innovations & Research
International Fertilizer Development Center (IFDC)
Muscle Shoals, AL

To: Alabama Commission on Higher Education (ACHE)

Subject: Letter of Support for the Proposed Biomedical Engineering Program at Troy University
Dear Review Committee

On behalf of the International Fertilizer Development Center (IFDC), I am pleased to provide this letter of support for Troy University's (TU) proposed Biomedical Engineering program (BME).

The development of BME at TU represents an important opportunity for Southeast Alabama and the broader Alabama Black Belt region. Expanding educational opportunities in BME will help strengthen the regional STEM workforce, support innovation, and prepare students with interdisciplinary skills that are increasingly needed in biodevices and sensors, healthcare, biotechnology, manufacturing, instrumentation, and applied engineering fields. The Alabama Black Belt region continues to benefit from initiatives that expand access to high-quality STEM education and workforce development. Establishing a BME at TU can play an important role in preparing highly skilled graduates while also encouraging research, innovation, and industry collaboration within the region.

IFDC values opportunities for collaboration between academia and industry and believes this program has strong potential to create meaningful partnerships. We look forward to exploring opportunities to support students through internships, experiential learning opportunities, research collaborations, and professional engagement activities that help bridge classroom education with real-world applications.

We believe this proposed program will positively contribute to workforce development, regional economic growth, and STEM advancement in Alabama. We strongly support TU's proposal for the BME and appreciate your consideration of this initiative.

Sincerely,

A handwritten signature in black ink, appearing to read 'Kiran Pavuluri', written in a cursive style.

Dr. Kiran Pavuluri