

UNIVERSITY OF HOUSTON SYSTEM NEW BACHELOR'S OR MASTER'S DEGREE PROGRAM PROPOSAL

PROGRAM INFORMATION

Institution: University of Houston - Clear Lake

Proposed Degree Effective Date: 9/1/2027 (Fall 2027)

Proposed Degree Designation Abbreviation (e.g. MA): BS

Proposed Degree Designation and Title (e.g. Master of Arts in Psychology): Bachelor of Science in Engineering Technology

Proposed Classification of Instructional Programs (CIP) Code: 15.0000 (Engineering Technology, General)

If the CIP code selected is outside the norm for the discipline, provide a brief justification:

Not applicable. CIP 15.0000 (Engineering Technology, General) is the standard, unspecialized code for this discipline and directly matches the program's scope.

If the institution has an existing degree program with the same CIP code and degree designation, provide a brief description of how this degree program is distinct (use the institution's [program inventory](#) for reference:

Not applicable. UHCL does not currently offer a degree program under CIP 15.0000/15.0001.

Bachelor's Degrees only: If the proposed CIP code for the bachelor's degree program aligns with one of the [approved Texas Direct Fields of Study](#), provide the Directed Electives courses accepted for the Texas Direct degree:

Not applicable. Engineering Technology is not currently listed among the approved Texas Direct Fields of Study.

Proposed Total Semester Credit Hour (SCH) Required: 120

If the proposed program exceeds the maximum SCH allowed for the specified degree level (e.g. 120 SCH for a bachelor's degree), indicate the rationale:

Not applicable. The proposed program totals 120 SCH, within the standard maximum for a bachelor's degree.

Administrative Unit (College and Department): Department of Engineering, College of Science and Engineering

Modality - Identify all modalities in which a student will be able to fully complete the program:

- ☒ In-person (50% or less online)
☐ Hybrid/blended (51-99% online)
☐ 100% online

Note: Refer to the approved [distance education definitions](#)

If in-person or hybrid/blended delivery, will more than 50% of the program's instruction take place at an off-campus location?

- ☐ Yes ☒ No

If yes,

Name of off-campus location:

Address of off-campus location:

Planned funding model for the first 5 years of the program:

- ☒ Formula-funded
☐ Self-supported
☐ Other (please describe)

Does the program include any new degrees or certificates not yet submitted that are fully embedded within the degree program not yet approved for delivery?

If yes,

Degree or certificate: ☐ Degree ☐ Certificate

Degree/Certificate Title:

Degree/Certificate Designation:

SCH Required:

CIP Code:

Proposed effective date: [Click or tap to enter a date.](#)

Proposal Contact Information:

Name: Kathy Matthew, Ed.D.

Title: Vice Provost

Email: Matthew@uhcl.edu

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Certification of Accuracy

- ☒ I certify that all information provided in this form is true, accurate and complete.

Certification of Compliance

- ☒ I certify that all criteria have been met in accordance with [Texas Administrative Code \(TAC\), Title 19, Chapter 2](#), for submission of this new degree program.

Certification for Distance Education

- ☐ I certify that any program submitted for approval with distance education components is in compliance with the [Principles of Good Practice for Distance Education](#) and that the institution has an approved Institutional Plan for Distance Education (for questions about IPDE's please contact Digitallearning@highered.texas.gov).

Required attachments:

- ☒ Full Curriculum & Recommended Course Sequence
- ☒ Enrollment & Budget Spreadsheet

Section A: Program Summary

Provide a brief description of the program and expected outcomes for students.

The proposed Bachelor of Science in Engineering Technology (ET) at the University of Houston-Clear Lake (UHCL) is a 120-semester-credit-hour general Engineering Technology program housed in the Department of Engineering, College of Science and Engineering. The program combines applied engineering science, laboratory experience, engineering management, occupational safety and health, and project-based learning to prepare graduates for technology-focused professional roles across a broad range of industries. The curriculum includes 30 SCH of newly created Engineering Technology (ETEC) coursework in applied statics, integrated electrical circuits and laboratory, dynamics, industrial materials, strength of materials, manufacturing technology, instrumentation, quality assurance, lean manufacturing, and a two-course capstone sequence. Supporting coursework is drawn from existing mathematics, statistics, physics, chemistry, engineering, mechanical engineering, engineering management, occupational safety and health, communication, and University Core offerings. Graduates will be prepared to apply established engineering principles and technologies to practical design, manufacturing, testing, quality, operations, and technical problem-solving activities. The program is also structured to support transfer students from regional community colleges and to provide an applied pathway for UHCL students whose educational and career goals are better aligned with engineering technology than with a traditional engineering curriculum.

Section B: Program Demand & Labor Market Information

TAC §2.5(a)(1); §2.5(a)(2); §2.117(b)(1)

There should be a ready job market for graduates of the proposed program. The proposal must demonstrate present and future workforce needs of the state and nation. Provide an assessment of job market need for the proposed program. Explain whether the current supply of graduates is meeting demand. If applicable, briefly describe how the proposed program would meet a unique labor market need (academic specialization, niche labor market training, geographic or community need, etc.).

Current official labor-market data support the proposed program. Texas Workforce Commission's Texas Career Check reports 8,292 Texas workers in 2024 in the broad occupation Engineering Technologists and Technicians, Except Drafters, All Other (SOC 17-3029), with employment projected to reach 9,633 by 2034, a 16.17% increase. The occupation is projected to generate 874 annual growth-and-turnover openings through 2034 and reports a 2025 statewide annual wage of \$73,857. Related occupations also show substantial Texas employment: Industrial Engineering Technologists and Technicians had 5,090 workers in 2024, projected to 5,631 by 2034 with 497 annual openings, while Mechanical Engineering Technologists and Technicians had 1,800 workers, projected to 1,881 with 160 annual openings.

The U.S. Bureau of Labor Statistics' May 2025 Houston estimates, released in August 2026, show architecture and engineering occupations accounting for 2.4% of Houston-Pasadena-The Woodlands employment, compared with 1.7% nationally, with a mean hourly wage of \$54.26. Houston's concentration of petrochemical and chemical processing, oil and gas, manufacturing, utilities and energy, healthcare and medical technology, automation and controls, engineering services, maritime, infrastructure, and aerospace employers creates a particularly strong setting for a broad applied Engineering Technology program. Although specialized Engineering Technology programs are available at the University of Houston and the University of Houston-Downtown, there is no general Engineering Technology bachelor's program in the Clear Lake/Southeast Houston area.

Student Demand. *Provide evidence of student demand for the proposed program. Evidence may include student survey results, documentation that qualified students are not gaining admission to established programs, increased enrollment in tracks or feeder programs at the institution, etc.*

Student demand is supported by current peer-program enrollment and three complementary pipelines. Sam Houston State University's general Engineering Technology program increased from 57 majors in Fall 2023 to 95 in Fall 2025 (+66.7%) and remained at 95 in Spring 2026. Its Mechanical Engineering Technology program increased from 180 majors in Fall 2023 to 214 in Fall 2025 (+18.9%), with 198 students enrolled in Spring 2026. Within Houston, the University of Houston reports 810 undergraduates across its Engineering Technology department in Fall 2025 and 68 Mechanical Engineering Technology bachelor's degrees awarded in FY 2025. UHD reports 88 majors in Control and Instrumentation Engineering Technology and 122 majors in Structural Analysis and Design Engineering Technology for academic year 2024-2025. These current figures demonstrate substantial demand for applied engineering pathways. UHCL can draw from this broader market, from its existing Mechanical Engineering, Aerospace Engineering, and Pre-Engineering population, and from regional community colleges with engineering and engineering-technology associate-degree pathways. The proposed program's 120-SCH structure, mathematics and statistics sequence, laboratory emphasis, and use of existing UHCL coursework are intended to facilitate transfer and timely completion.

Table 1 lists general Engineering Technology programs used for statewide comparison. Within the Houston metropolitan area, the University of Houston and the University of Houston-Downtown also offer specialized Engineering Technology degrees. Those programs serve important but different disciplinary and geographic markets; UHCL's proposed program is intentionally general and interdisciplinary, with a Southeast Houston/Clear Lake focus.

In table below, provide a list of similar established programs in Texas (and nationally, if applicable).

Table 1: Established Programs

Institution	Degree Designation & Title	CIP Code
Sam Houston State University	Bachelor of Science in Engineering Technology	15.0001.00
Texas State University	Bachelor of Science in Engineering Technology	15.0000.00
DeVry University – Irving Campus	Bachelor of Science in Engineering Technology	15.0000.00
Embry-Riddle Aeronautical University – Fort Worth (Alliance)	Bachelor of Science in Engineering Technology	15.0000.00
The University of Texas Rio Grande Valley	Bachelor of Science in Engineering Technology	15.0000.00
West Texas A&M University	Bachelor of Science in Engineering Technology	15.0000.00

In the table below, list related and feeder programs at the institution that will provide a pipeline for enrollment in the proposed program.

Table 2: Feeder and Related Programs

Degree Title & Designation	CIP Code
Pre-Engineering Program (Internal), University of Houston-Clear Lake	14.0102
Bachelor of Science in Mechanical Engineering, University of Houston-Clear Lake	14.1901
Bachelor of Science in Aerospace Engineering, University of Houston-Clear Lake	14.0201
Associate of Science in Engineering, San Jacinto College	14.1901
Associate of Science in Engineering, College of the Mainland	14.1901
Associate of Science in Engineering, Alvin Community College	14.1901
Associate of Science in Engineering Technology, Houston City College	15.0000

Program development has been informed by the Department of Engineering's established relationships with employers across the broad industrial base served by UHCL graduates. Alumni and students work throughout the Houston region in oil and gas, petrochemical and chemical processing, manufacturing, aerospace, healthcare and medical technology, utilities and energy, automation and controls, engineering services, and related technical sectors. The Department also maintains relationships with employers and organizations across these areas through internships, capstone projects, technical seminars, advisory activities, sponsored projects, and employment of its graduates. These connections provide continuing context for curriculum relevance and reinforce the need for a broad, general Engineering Technology program. Accordingly, the proposed curriculum is intentionally industry-diverse: it emphasizes applied mechanics, electrical systems, materials, manufacturing, instrumentation and controls, quality, safety, operations, and

engineering management—competencies that transfer across process industries, manufacturing environments, healthcare and technical facilities, energy operations, aerospace, and other technology-intensive workplaces rather than serving a single industrial sector.

Current public data sources supporting Sections B-C (accessed September 8, 2026):

- Texas Workforce Commission, Texas Career Check, Engineering Technologists and Technicians, Except Drafters, All Other (O*NET 17-3029.00): <https://texascareercheck.com/OccupationInfo/OccupationSummary/17-3029.00>
- U.S. Bureau of Labor Statistics, Occupational Employment and Wages in Houston-Pasadena-The Woodlands - May 2025 (published August 13, 2026): https://www.bls.gov/regions/southwest/news-release/occupationalemploymentandwages_houston.htm
- Sam Houston State University, BS in Engineering Technology: <https://www.shsu.edu/academics/majors-programs/engineering-technology-bachelors>
- Sam Houston State University, BS in Mechanical Engineering Technology: <https://www.shsu.edu/academics/majors-programs/mechanical-engineering-technology-bachelors>
- University of Houston, Cullen College Quick Facts: <https://www.egr.uh.edu/facts>
- University of Houston-Downtown, Control and Instrumentation Engineering Technology: <https://www.uhd.edu/academics/sciences/computer-science-engineering-technology/cset-degree-plan-bs-ciet.aspx>
- University of Houston-Downtown, Structural Analysis/Design Engineering Technology: <https://www.uhd.edu/academics/sciences/computer-science-engineering-technology/cset-degree-plan-bs-sad.aspx>
- Houston City College, Engineering Technology transfer program: <https://www.hccs.edu/programs--courses/explore-all-programs/engineering-technology/>
- Texas Higher Education Coordinating Board, Program Inventory: <https://www.highered.texas.gov/new-program-development/course-and-program-inventory/>

Section C: Adequate Financing

[TAC §2.5\(a\)\(4\); §2.146\(b\)\(2\); §2.117\(b\)\(2\)](#)

The program is designed to minimize new financial burden by leveraging existing UHCL courses, faculty expertise, classrooms, and engineering laboratories. Of the 120 required SCH, 30 SCH consist of newly created Engineering Technology (ETEC) coursework. The remaining 90 SCH use existing University Core, engineering, mechanical engineering, engineering management, occupational safety and health, mathematics, statistics, physics, chemistry, writing, and communication coursework, including 6 SCH of approved major electives. Faculty hiring is phased with enrollment: one dedicated senior Engineering Technology faculty member serving as Program Director is planned for Fall 2027, followed by one Engineering Technology lecturer in Fall 2028 and a second lecturer in Fall 2029, producing a steady-state complement of three dedicated ET faculty. Adjunct instruction and faculty overloads will provide supplemental instructional capacity during the early implementation years, as reflected in the accompanying Pro Forma. Existing Mechanical Engineering, Engineering Management, Occupational Safety and Health, mathematics, science, writing, and communication faculty will continue to support shared coursework. Enrollment projections grow from 20 new students in 2027 to approximately 96 total students by 2031. The accompanying Enrollment & Budget Spreadsheet provides the detailed formula-funding, tuition, personnel, adjunct, overload, and operating-cost projections.

Note: Budget & Enrollment Spreadsheet is required in attachments.

Section D: Faculty and Resources

TAC §2.5(a)(8); §2.117(b)(3)

An institution must dedicate a sufficient number of qualified faculty to the program. At least one full-time equivalent (FTE) faculty must be in place for the program to begin enrolling students.

In the table below, list the existing faculty for the program including the name, department, credential information, and the expected percentage of time assigned to the program. Add an asterisk (*) before the name of the individual who will have direct administrative responsibilities for the proposed program

Table 3: Existing Faculty

Name	Department	Highest Degree Awarded & Year	Highest Degree Awarding Institution	Expected % Time in Degree Program
Youssef Hamidi	Department of Engineering	Ph.D. in Mechanical Engineering, 2004	University of Oklahoma	10%: program-development assignment
Ruaa Al Mezrakchi	Department of Engineering	Ph.D. in Mechanical Engineering, 2019	Texas A&M	10%: Shared-course assignment
OSHE faculty	OSHE	Appropriate terminal degrees in discipline	Various	15%: Shared-course assignment
Engineering Management faculty	Department of Engineering	Appropriate terminal degrees in discipline	Various	20%: Shared-course assignment

Existing faculty from Mechanical Engineering, Engineering Management, Occupational Safety and Health, Mathematics, Physics, Chemistry, Writing, and Communication will support courses already offered by their respective programs. Dedicated ETEC instruction will transition to the three new Engineering Technology faculty positions as those hires are completed.

If applicable, list any new faculty hires needed to support the proposed program during the first five years of implementation.

Table 4: New Faculty Hires

Anticipated Date of Hire	Required Degree	Hiring Rank (e.g. Associate Professor)	Expected % Time
Fall 2027	PhD in Engineering Technology, Engineering, or closely related field	Associate Prof. / Professor (Program Director)	100%
Fall 2028	Master's in Engineering Technology, Engineering, or closely related field	Lecturer 1	100%
Fall 2029	Master's in Engineering Technology, Engineering, or closely related field	Lecturer 2	100%

Adjunct instruction and faculty overloads will provide supplemental instructional capacity during the initial implementation years, consistent with the accompanying Pro Forma.

No new laboratory facility is required to launch the program. The curriculum was intentionally designed to use existing UHCL engineering laboratories and instructional spaces already supporting Mechanical Engineering, including the Materials Science Laboratory, instrumentation and controls resources, CAD/engineering graphics facilities, additive manufacturing/3D-printing equipment, thermofluids facilities, and the machine shop. Where appropriate, modest course-specific equipment can be added within the existing spaces without creating a separate Engineering Technology laboratory infrastructure.

A central resource-efficiency feature of the implementation plan is to schedule Engineering Technology laboratory courses in alternate long semesters from the corresponding or related Mechanical Engineering laboratory use whenever the course sequence permits. This staggered scheduling is intended to increase utilization of existing laboratories and equipment rather than duplicate facilities that are underused in one long semester and heavily used in the other. For example, ETEC 3210 Instrumentation Laboratory for Engineering Technology, ETEC 3331 Manufacturing Technology with Laboratory, ETEC 2324 Industrial Materials with Laboratory, and the integrated laboratory component of ETEC 2305 Applied Electrical Circuits with Laboratory can be scheduled to complement Mechanical Engineering laboratory offerings and make more efficient use of the same instrumentation, materials-testing equipment, machine-shop resources, and instructional spaces. ETEC 2305 is a 3-SCH integrated course consisting of two lecture credit hours and one laboratory credit hour, aligning its structure with other ETEC laboratory courses. This approach increases laboratory utilization, distributes instructional demand across the academic year, reduces unnecessary capital duplication, and allows the College of Science and Engineering to expand hands-on instruction while using existing resources more efficiently. Routine instructional supplies and modest course-specific additions can be incorporated into the program operating budget as enrollment grows.

Section E: Program Quality and Alignment with Strategic Plan

TAC §2.5(a)(6)(7)(9); §2.117(b)(4)

In the table below, provide required semester credit hours by category. If a category is not applicable, leave blank.

Table 5: SCH by Category

Category	SCH
Core Courses	42
Prescribed Electives	68
Electives	6
Final Project/Capstone	4
Internships/External Learning	0
Other (please specify)	0
TOTAL	120

- Texas State University, Bachelor of Science in Engineering Technology:
<https://www.txst.edu/technology/programs/etprogram.html>
- University of Houston, Engineering Technology undergraduate programs:
<https://www.et.uh.edu/programs/undergraduate>

The proposed UHCL curriculum also uses the existing UHCL Mechanical Engineering, Engineering Management, and Occupational Safety and Health curricula as internal models for shared coursework and laboratory utilization.

Indicate below if the proposed curriculum has any of the following features and provide additional information as requested.

Does the curriculum include a pathway for part-time students?

☒ Yes ☐ No

Does the degree program contain multiple tracks?

☐ Yes ☒ No

If the degree program's discipline has an accrediting body, will the institution seek accreditation?

☒ Yes ☐ No ☐ Not applicable

If yes, list the accreditor(s) and anticipated date(s) of programmatic accreditation.

UHCL intends to seek accreditation from ABET through the Engineering Technology Accreditation Commission (ETAC). The curriculum and continuous-improvement framework will be developed to align with the applicable ABET Engineering Technology criteria, with formal accreditation pursued when the program becomes eligible following graduation of its first cohort.

Will students be eligible for any licensures or certifications upon completion of coursework in the degree program?

☐ Yes ☒ No

If yes, list the licensures and/or certifications.

Does the degree program require any clinicals, fieldwork, or other external learning experiences?

☐ Yes ☒ No

If yes, list the experience, clock hours required, and expected SCH earned.

If clinical experience is required, do current affiliation agreements have the capacity to support additional students?

☐ Yes ☐ No ☒ Not applicable

If no, briefly describe plans for securing additional affiliation agreements.

Section F: Student Success

If the department/unit or program will utilize support programs, curricular pathways, or other mechanisms to support timely degree completion for students, please list the mechanisms below and, if available, provide a link to the policy/procedure (e.g., transfer pathway, competency-based education, credit for prior learning, course credit by examination, etc.).

Table 6: Timely Degree Completion

Mechanism	Link
Houston GPS degree mapping and UHCL academic maps	UHCL degree-planning resources
UHCL transfer equivalency guides and transfer-credit evaluation	UHCL transfer resources
Texas Common Course Numbering System (TCCNS)	TCCNS transfer framework
Advanced Placement (AP) and CLEP credit	UHCL credit-by-examination policies
Academic advising, early-alert support, and course-specific tutoring	UHCL advising and Student Success Center

No new program-specific student-support office is required. Engineering Technology students will be incorporated into the College of Science and Engineering's existing advising structure and UHCL student-success services. Students will receive degree-map advising, transfer-credit review, early-alert intervention, tutoring, academic coaching, and referrals through the same institutional support infrastructure used by existing engineering programs. As enrollment grows, advising assignments can be organized by major within the College's normal caseload structure.

Admission will follow UHCL's standard undergraduate admission requirements; no additional program-specific admission standard is proposed. Students must satisfy the published prerequisites for individual mathematics, science, and technical courses. The curriculum is specifically designed to support both first-time-in-college students and transfer students, including students with engineering or engineering-technology associate-degree coursework. Current UHCL students may change majors into Engineering Technology subject to the same academic-standing and course-prerequisite requirements that apply to other undergraduate programs.

Section G: Optional Information

UHCL's Department of Engineering is located in the Clear Lake/Southeast Houston aerospace and energy corridor, in close proximity to NASA's Johnson Space Center, Houston Spaceport, the Port of Houston, major petrochemical and energy operations, and a growing advanced-manufacturing sector. The program is deliberately interdisciplinary rather than discipline-specific, allowing students to combine applied mechanics, electrical systems, manufacturing, instrumentation, quality, safety, and engineering management. Because much of the curriculum and laboratory infrastructure already exists at UHCL, the program can be launched with limited facility expansion while creating an additional pathway into technical careers across multiple regional industries.

Section H: Full Curriculum and Recommended Course Sequence

Proposed Curriculum: Engineering Technology, BS

The full curriculum and recommended four-year course sequence are provided below and will also be submitted as a separate academic-map attachment.

This degree requires 120 semester credit hours, including 42 hours of University Core Curriculum, 68 hours of prescribed supporting/major coursework, 6 hours of approved Engineering Technology electives, and 4 hours of capstone.

University Core Curriculum (42 SCH)

Students complete the UHCL University Core Curriculum.

The recommended sequence uses the courses below with core-hour allocation applied according to UHCL Core Curriculum rules:

- WRIT 1301/1302
- MATH 1325
- CHEM 1311/1111 General Chemistry I with Laboratory
- PHYS 1301/1101 College Physics I with Laboratory
- HIST 1301/1302
- POLS 2305/2306
- Creative Arts
- Language/Philosophy/Culture
- Social and Behavioral Sciences
- COMM 1315
- PSYC 1100

Required Supporting and Engineering Technology Coursework (68 SCH)

- ENGR 1201 - Introduction to Engineering, 2 SCH
- MENG 1204 - Engineering Graphics for ME with Laboratory, 2 SCH (1 lecture + 3 laboratory)
- PHYS 1302/1102 College Physics II with Laboratory, 4 SCH (3 lecture + 3 laboratory)
- ETEC 2301 - Applied Statics, 3 SCH
- ETEC 2302 - Applied Dynamics, 3 SCH
- ETEC 2303 - Applied Strength of Materials, 3 SCH
- ETEC 2305 - Applied Electrical Circuits with Laboratory, 3 SCH (2 lecture + 3 laboratory)
- ETEC 2324 - Industrial Materials with Laboratory, 3 SCH (2 lecture + 3 laboratory)
- WRIT 3315 - Advanced Technical Writing, 3 SCH
- ETEC 3210 - Instrumentation Laboratory for Engineering Technology, 2 SCH (1 lecture + 3 laboratory)
- STAT 3308 - Computational Statistics, 3 SCH
- EMGT 3310 - Introduction to Engineering Management, 3 SCH

- MENG 3314 – Design Methodology, 3 SCH
- ETEC 3315 - Quality Assurance and Control, 3 SCH
- ETEC 3331 - Manufacturing Technology with Laboratory, 3 SCH (2 lecture + 3 laboratory)
- EMGT 3333 - Fundamentals of Engineering Project Management, 3 SCH
- OSHE 3340 - Techniques for Safety Engineering & Analysis, 3 SCH
- EMGT 4332 - Fundamentals of Operations Management, 3 SCH
- OSHE 4333 - Construction and General Industry Safety, 3 SCH
- EMGT 4334 - Engineering Optimization & Decision Making, 3 SCH
- ETEC 4334 - Lean Manufacturing, 3 SCH
- OSHE 4336 - System Safety and Accident Investigation, 3 SCH
- OSHE 4413 - Industrial Ventilation with Laboratory, 4 SCH (4 lecture + 3 laboratory)

Capstone (4 SCH)

- ETEC 4240 - Engineering Technology Capstone I, 2 SCH (0 lecture + 6 laboratory)
- ETEC 4241 - Engineering Technology Capstone II, 2 SCH (0 lecture + 6 laboratory)

Engineering Technology Electives (6 SCH)

Students complete two approved 3-SCH Engineering Technology major electives (6 SCH total).

Recommended Course Sequence

Fall / Course	SCH	Spring / Course	SCH
Semester 1	16	Semester 2	15
WRIT 1301 English Composition I	3	WRIT 1302 English Composition II	3
MATH 1325 Calculus for Business and Social Sciences	3	MENG 1204 Engineering Graphics for ME	2
CHEM 1311/1111 General Chemistry I w/Lab	4	POLS 2305 Federal Government	3
ENGR 1201 Intro to Engineering	2	PHYS 1301/1101 College Physics I w/Lab	4
COMM 1315 Public Speaking	3	HIST 1301 U.S. History I	3
PSYC 1100 Learning Frameworks	1		
Semester 3	16	Semester 4	15
ETEC 2301 Applied Statics	3	ETEC 2302 Applied Dynamics	3
PHYS 1302/1102 College Physics II w/Lab	4	ETEC 2324 Industrial Materials W/Lab	3
CORE 050 Creative Arts	3	POLS 2306 Texas Government	3
ETEC 2305 Applied Electrical Circuits w/Lab	3	ETEC 2303 Applied Strength of Materials	3
HIST 1302 U.S. History II	3	WRIT 3315 Advanced Technical Writing	3
Semester 5	15	Semester 6	14
CORE 080 Social & Behavioral Sciences	3	CORE 040 Language Philosophy and Culture	3
OSHE 3340 Techniques for Safety Engr. & Analysis	3	EMGT 3333 Fundam. of Engr. Project Management	3
EMGT 3310 Introduction to Engr. Management	3	ETEC 3210 Instrumentation Lab for Eng. Tech.	2
STAT 3308 Computational Statistics	3	ETEC 3315 Quality Assurance and Control	3
ETEC 3331 Manufacturing Technology w/Lab	3	MENG 3314 Design Methodology	3
Semester 7	15	Semester 8	14
ETEC 4240 Engr. Tech. Capstone I	2	ETEC 4241 Engr. Tech. Capstone II	2
EMGT 4332 Fundamentals of Operations Management	3	OSHE 4336 System Safety and Accident Investigation	3
EMGT 4334 Engineering Optimization & Decision Making	3	OSHE 4333 Construction and General Industry Safety	3
OSHE 4413 Industrial Ventilation	4	ETEC 43XX Approved Eng. Tech. Elective	3
ETEC 4334 Lean Manufacturing	3	ETEC 43XX Approved Eng. Tech. Elective	3

Total Hours for Engineering Technology: 120

Note: Full Curriculum & Recommended Course Sequence is included above and will also be provided as a separate academic-map attachment.

Note: Full Curriculum & Recommended Course Sequence is required in attachments.

Section I: Assessment Plan

Provide an assessment plan for the program.

Academic program assessment is an established component of UHCL's institutional-effectiveness process. Engineering Technology will participate in the University's annual assessment cycle through the Office of Planning and Assessment. At the beginning of each assessment cycle, program faculty will identify measurable student learning outcomes and program outcomes, map them to University strategic objectives and applicable accreditation criteria, select direct and indirect assessment methods, and establish performance benchmarks. At the end of the cycle, faculty will review assessment results, identify areas of strength and weakness, document actions for improvement, and evaluate the effectiveness of prior changes.

The Engineering Technology assessment plan will include both student-learning assessment and program-level assessment. Student learning will be evaluated through embedded course assessments, laboratory work, examinations, technical reports, presentations, and the two-course capstone sequence. Program-level measures will include enrollment, retention and graduation patterns, course progression, stakeholder feedback, faculty and resource adequacy, and achievement of program educational objectives once established. ETEC courses will participate in a continuous-improvement process in which assessment evidence and course-level recommendations are reviewed after each offering and used to inform subsequent offerings.

Because UHCL intends to pursue ABET accreditation through the Engineering Technology Accreditation Commission (ETAC), the program's assessment framework will also align with the applicable ABET criteria for students, program educational objectives, student outcomes, continuous improvement, curriculum, faculty, facilities, and institutional support. The capstone sequence will serve as a major direct assessment point because it requires students to integrate technical knowledge, laboratory practice, project planning, communication, and applied problem solving in an industry-relevant project. Assessment results will be reviewed by program faculty on a recurring basis and used to close the loop through documented curricular, instructional, or resource changes.

Section J: Library Statement

Provide statement of resources and needs from the library.

The Alfred R. Neumann Library already supports the engineering and technology programs of the College of Science and Engineering, including Mechanical Engineering, Computer Engineering, Engineering Management, Software Engineering, Systems Engineering, and Aerospace Engineering. Engineering Technology students and faculty will therefore enter an established collection and electronic-resource environment rather than requiring a new library infrastructure.

The Library provides remote access to a broad portfolio of research databases, technical-society resources, journals, standards, ebooks, and reference materials relevant to engineering technology. Existing resources include multidisciplinary engineering and science databases and publisher collections, together with technical resources such as IEEE Xplore, ACM Digital Library,

SpringerLink, and other engineering and applied-science holdings. TexShare further extends access to academic and public-library resources throughout Texas.

The proposed general Engineering Technology curriculum spans mechanics, electrical systems, materials, manufacturing, instrumentation, quality, safety, operations, and engineering management; these subject areas are already supported by collections used by existing UHCL programs. No major new library subscription is required for program launch. The Library and Engineering Technology faculty will periodically review holdings as the program grows and will add targeted books, standards, databases, or other resources when curricular or accreditation needs identify a specific gap.

Section K: SACSCOC Questions

Responses will determine whether additional SACSCOC actions will be required.

What percentage of the total SCH for the proposed program will come from newly created coursework? Do not include core curriculum (general education) hours in the total SCH.

Approximately **38.5%** of the non-core curriculum consists of newly created coursework. The degree requires 120 SCH, including the 42-SCH University Core Curriculum, leaving 78 non-core SCH. Newly created non-core coursework totals 30 SCH, all in ETEC coursework; $30/78 = 38.5\%$. The remaining non-core curriculum is drawn from existing UHCL engineering, mechanical engineering, engineering management, occupational safety and health, mathematics, statistics, technical writing, and related coursework.

Are you changing the modality of current course offerings as part of this program?

☐ Yes ☒ No

Provost/Chief Academic Officer

Date

Four-Year Engineering Technology Academic Map

Curriculum current as of September 2026

Semester 1			Semester 2		
Course	Title	SCH	Course	Title	SCH
WRIT 1301	English Composition I	3	WRIT 1302	English Composition II	3
MATH 1325	Calculus for Business and Social Sciences	3	MENG 1204	Engineering Graphics for ME	2
CORE	General Chemistry w/Lab	4	POLS 2305	Federal Government	3
ENGR 1201	Intro to Engineering	2	PHYS 1301/1101	College Physics I w/Lab	4
PSYC 1100	Learning Frameworks	1	HIST 1301	U.S. History I	3
COMM 1315	Public Speaking	3			
Semester Total		16	Semester Total		15

Semester 3			Semester 4		
Course	Title	SCH	Course	Title	SCH
ETEC 2301	Applied Statics	3	ETEC 2302	Applied Dynamics	3
PHYS 1302/1102	College Physics II w/Lab	4	ETEC 2324	Industrial Materials w/Lab	3
CORE 050	Creative Arts	3	POLS 2306	Texas Government	3
ETEC 2305	Applied Electrical Circuits w/Lab	3	ETEC 2303	Applied Strength of Materials	3
HIST 1302	U.S. History II	3	WRIT 3315	Advanced Technical Writing	3
Semester Total		16	Semester Total		15

Semester 5			Semester 6		
Course	Title	SCH	Course	Title	SCH
CORE 080	Social & Behavioral Sciences	3	CORE 040	Language, Philosophy and Culture	3
OSHE 3340	Techniques for Safety Engineering & Analysis	3	EMGT 3333	Fundamentals of Engineering Project Management	3
EMGT 3310	Introduction to Engr. Management	3	ETEC 3210	Instrumentation Lab for Eng. Tech.	2
STAT 3308	Computational Statistics	3	ETEC 3315	Quality Assurance and Control	3
ETEC 3331	Manufacturing Technology w/Lab	3	MENG 3314	Design Methodology	3
Semester Total		15	Semester Total		14

Semester 7			Semester 8		
Course	Title	SCH	Course	Title	SCH
ETEC 4240	Engr. Tech. Capstone I	2	ETEC 4241	Engr. Tech. Capstone II	2
EMGT 4332	Fundamentals of Operations Management	3	OSHE 4336	System Safety and Accident Investigation	3
OSHE 4413	Industrial Ventilation	4	OSHE 4333	Construction and General Industry Safety	3
EMGT 4334	Engineering Optimization & Decision Making	3	Major Elective	Approved Eng. Tech. Elective	3
ETEC 4334	Lean Manufacturing	3	Major Elective	Approved Eng. Tech. Elective	3
Semester Total		15	Semester Total		14

Total Hours for Engineering Technology: 120

Proposed Catalog Course Descriptions

Bachelor of Science in Engineering Technology

University of Houston-Clear Lake

Proposed new courses for the Engineering Technology curriculum

The following entries are written in catalog format rather than syllabus format. Prerequisites are proposed based on the current course sequence and curricular logic and may be adjusted during the curriculum approval process.

Engineering-course substitution: Students who have successfully completed the corresponding UHCL engineering course, or another approved engineering course covering substantially equivalent technical subject matter at an equal or greater level of mathematical and analytical rigor, may use that course to satisfy the corresponding Engineering Technology course requirement with program approval. This substitution is intended to avoid repetition of substantially overlapping technical content for students transitioning from engineering into Engineering Technology. Substitution in the reverse direction is not implied. For mathematics and science prerequisites, a more advanced course may satisfy the prerequisite when it provides equivalent or greater preparation in the required subject matter.

Course Catalog Entry

Course	Catalog Entry
ETEC 2301 3 SCH	Applied Statics Prerequisite: MATH 1325 or a higher calculus course providing equivalent or greater preparation, and PHYS 1301/1101 or University Physics I with laboratory (PHYS 2325/2125, PHYS 2425, or equivalent). ENGR 2301 Statics may substitute for ETEC 2301. Application of engineering statics to forces and moments acting on particles and rigid bodies. Topics parallel the UHCL engineering Statics course and include vector methods, force systems and equivalent force-couple systems, equilibrium, free-body diagrams, rigid bodies, trusses, frames, machines, distributed loads, centroids, and friction. Emphasis is placed on practical analysis using algebraic and trigonometric methods, established engineering relationships, graphical methods, tables, and appropriate computational tools rather than calculus-based development.

Course	Catalog Entry
EETEC 2305 3 SCH	Applied Electrical Circuits with Laboratory Prerequisite: MATH 1325 or a higher calculus course providing equivalent or greater preparation, and PHYS 1301/1101 or a University Physics course providing equivalent or greater preparation. Completion of the corresponding UHCL engineering circuits course and laboratory (ENGR 2305 and the associated circuits laboratory, or approved equivalent) may substitute for EETEC 2305. Applied study of electrical circuits and systems. Topics include basic circuit elements, voltage, current, resistance, capacitance, inductance, independent and dependent sources, Kirchhoff's laws, node and mesh methods, DC and AC circuit analysis, and electrical measurement. Laboratory activities emphasize construction, measurement, testing, troubleshooting, data interpretation, and safe use of electrical instrumentation. Analysis emphasizes established circuit relationships and practical engineering-technology applications using algebraic, graphical, tabulated, and computational methods. Two lecture credit hours and one laboratory credit hour.
EETEC 2302 3 SCH	Applied Dynamics Prerequisite: EETEC 2301 or ENGR 2301 Statics. ENGR 2302 Dynamics may substitute for EETEC 2302. Application of engineering dynamics to particles, rigid bodies, and mechanical systems in motion. Topics parallel the UHCL engineering Dynamics course and include kinematics, Newton's laws, force and acceleration, work and energy, impulse and momentum, and equations of motion for particles and rigid bodies. Emphasis is placed on practical system analysis using algebraic and trigonometric methods, established engineering equations, graphical and tabulated information, and appropriate computational tools rather than calculus-based derivation.
EETEC 2324 3 SCH	Industrial Materials with Laboratory Prerequisite: CHEM 1311/1111 or an approved chemistry course providing equivalent or greater preparation. MENG 3324 Introduction to Materials Science may substitute for EETEC 2324. Applied study of the behavior, structure, processing, selection, and performance of engineering materials. Topics parallel the UHCL Introduction to Materials Science course and include grain structure, structure-property relationships, behavior and failure of metals, phase distributions and heat treatment, and the characteristics of polymers and composite materials, with additional consideration of ceramics and industrial material selection. Laboratory activities emphasize material characterization, mechanical testing, processing, interpretation of data, and use of material-property information for practical engineering-technology decisions.

Course	Catalog Entry
ETEC 2303 3 SCH	Applied Strength of Materials Prerequisite: ETEC 2301 or ENGR 2301 Statics. MENG 3303 Solid Mechanics may substitute for ETEC 2303. Applied analysis of stress, strain, deformation, and the behavior of structural and mechanical components under load. Topics parallel the UHCL Solid Mechanics course and include axial loading, torsion, bending, distributed loading, elastic and plastic deformation, buckling, energy concepts, and thermal stresses. Emphasis is placed on evaluating components using established engineering relationships, material-property data, tables and charts, algebraic and trigonometric methods, and appropriate computational tools rather than advanced mathematical derivation.
ETEC 3331 3 SCH	Manufacturing Technology with Laboratory Prerequisite: MENG 1204 or approved engineering graphics equivalent, and ETEC 2324 or MENG 3324 Introduction to Materials Science. MENG 3344 Introduction to Manufacturing Processes may substitute for ETEC 3331. Applied study of manufacturing processes and industrial practice. Topics parallel the UHCL Introduction to Manufacturing Processes course and include casting, forming, machining, and joining of metals and nonmetals using traditional and computer-aided manufacturing techniques. Additional topics include process selection, tolerances, additive manufacturing, production methods, and manufacturing practice. Laboratory activities provide hands-on experience with manufacturing equipment, measurement, process planning, fabrication, and evaluation of manufactured components.
ETEC 3210 2 SCH	Instrumentation Laboratory for Engineering Technology Prerequisite: ETEC 2305 or approved equivalent preparation in electrical circuits and measurements. MENG 3210 Mechanical Engineering Lab I may substitute for ETEC 3210. Laboratory-based study of engineering measurement and instrumentation. Topics parallel the UHCL Mechanical Engineering Lab I course and include application of statistical principles to engineering measurements; measurement of quantities such as displacement, pressure, temperature, and strain; steady-state measurements; introduction to transient transducer response; filtering and signal conditioning; experimental methods and procedures; measurement uncertainty; data reduction; and organization of experimental results in technical reports. Emphasis is placed on hands-on measurement, troubleshooting, data acquisition, interpretation, and technical communication.

Course	Catalog Entry
ETEC 3315 3 SCH	Quality Assurance and Control Prerequisite: ETEC 3331 or MENG 3344 Introduction to Manufacturing Processes, and STAT 3308 or approved equivalent. Principles and methods used to assure and control quality in manufacturing and technical operations. Topics include statistical process control, process capability, acceptance sampling, measurement systems, inspection, quality planning, continuous improvement, root-cause analysis, and industry quality standards.
ETEC 4240 2 SCH	Engineering Technology Capstone I Prerequisite: Senior standing in Engineering Technology and completion of major technical prerequisites, or permission of instructor. First course in a two-semester culminating design and implementation experience. Student teams identify an industry-relevant problem, develop requirements and specifications, evaluate alternatives, perform engineering analyses, develop a project plan, and complete a preliminary design. Emphasis is placed on project management, teamwork, technical communication, safety, economics, and professional practice.
ETEC 4334 3 SCH	Lean Manufacturing Prerequisite: ETEC 3315 or approved equivalent preparation in quality assurance and control. Application of lean principles to manufacturing and technical operations. Topics include value-stream mapping, waste reduction, workplace organization, flow, pull systems, standardized work, setup reduction, visual management, mistake proofing, root-cause analysis, quality and performance measurement, Lean leadership, team-based problem solving, and continuous improvement.
ETEC 4241 2 SCH	Engineering Technology Capstone II Prerequisite: ETEC 4240. Continuation of Engineering Technology Capstone I. Student teams complete detailed design, fabrication or implementation, testing, validation, analysis, and documentation of an engineering technology project. Requires demonstration of project performance and presentation of results through written reports, oral presentations, and other appropriate technical deliverables.